



**FLOOD RISK ASSESSMENT  
FOR  
PROPOSED RESIDENTIAL DEVELOPMENT AT  
PORTSDOWN HILL ROAD, HAVANT  
ON BEHALF OF  
BARRATT DAVID WILSON SOUTHAMPTON**

**FEBRUARY 2014**

**[ISSUE 2]**

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**COLE EASDON CONSULTANTS LIMITED**

**CIVIL ENGINEERING ~ HIGHWAYS ~ TRANSPORTATION ~ FLOOD RISK**

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### DOCUMENT ISSUE RECORD

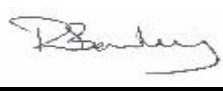
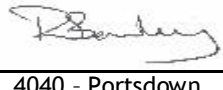
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**Project:** Proposed Residential Development at Portsdown Hill Road, Havant

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## 1.0 INTRODUCTION

- 1.1 This Flood Risk Assessment has been prepared by Cole Easdon Consultants (CEC) on behalf of Barratt David Wilson Southampton in respect of proposed residential development of land at Portsdown Hill Road, Bedhampton, Havant. Refer to CEC Figure 4040/500/Figure 1 [*Site Location Plan*] in Appendix 1.

### Development Proposals

- 1.2 The development proposal is for 47 No. dwellings with associated access road, parking and landscaped areas. Vehicular access to the site will be from the existing road known as Bedhampton Hill, which terminates at the site's southern boundary. Refer to Drawing No. 10774 01 10 [*Masterplan*] by LHC Group in Appendix 6. This layout forms the basis of CEC Plan 4040/501 [*Proposed Drainage Strategy*] in Appendix 6.

### Need for Study

- 1.3 The purpose of this assessment is to demonstrate to the Environment Agency (EA) that the proposals outlined above can be satisfactorily accommodated without worsening flood risk for the area, in accordance with the National Planning Policy Framework Document (NPPF).
- 1.4 Accordingly, this study has been prepared to:
- i) Assess flood risk to the development from fluvial sources;
  - ii) Assess flood risk to the development from other potential sources, including ditches, sewers, groundwater and overland surface water flow;
  - iii) Ensure that the development proposed will fully comply with the requirements of the EA's policy on the safeguarding of floodplains; and
  - iii) Provide a SUDS surface water drainage strategy for the site.
- 1.5 A site topographical survey (referenced to Ordnance datum) has been provided to Cole Easdon Consultants and has been reviewed as part of this study. Refer to Drawing No. 4040/500 [*Existing Site Plan*] in Appendix 6.

### Scope of Study

- 1.6 In Section 2.0, we describe the characteristics of the development site and surrounding area. In Section 3.0, we assess flood risk issues. Finally, conclusions are presented in Section 4.0.
- 1.7 The following resources have been used for this study:

- *Flood Zone Map - Environment Agency (EA)*
- *Groundwater Source Protection Zones Map - Environment Agency (EA)*
- *Geological Map - British Geological Survey (BGS)*
- *Ground Investigation Report - Wilson Bailey Geotechnical and Environmental*
- *Aquifer Data held by Portsmouth Water*

1.8 The following publicly available documents have also been reviewed as part of this assessment:

- *Partnership for Urban South Hampshire (PUSH) Strategic Flood Risk Assessment (SFRA), Final Report (Atkins, December 2007);*
- *National Planning Policy Framework (NPPF) (March 2012);*
- *Technical Guidance to the NPPF (March 2012);*
- *Sewers for Adoption, 7<sup>th</sup> Edition - A Design and Construction Guide for Developers (SFA 7) ( March 2006);*
- *CIRIA C697 The SUDS Manual;*
- *Building Regulations 2010 - Approved Document H (Drainage and Waste Disposal).*

1.9 The following abbreviations are used in this report:

AOD - Above Ordnance Datum

EA - Environment Agency

SUDS - Sustainable Urban Drainage Systems

HA - Highway Authority

SAB - SUDS Adopting Body

FZM - Flood Zone Map prepared by the Environment Agency

NPPF - National Planning Policy Framework

LPA - Local Planning Authority

SW - Southern Water

1% event - 1 in 100 Year return period storm

1% + CC event - 1 in 100 Year return period storm including a 30% allowance for climate change.

## 2.0 THE EXISTING SITE

Refer to CEC Figure 4040/500/Figure 1 [*Site Location Plan*] in Appendix 1 and Plan 4040/500 [*Existing Site Plan*] in Appendix 6.

- 2.1 The site is located on the western edge of Bedhampton village, between Portsmouth and Havant. Bedhampton village centre is located some 0.8km to the east with Havant town centre 1.4km further east. The site is a roughly triangular parcel of land covering approximately 4.3 hectares and currently comprises open agricultural land with a number of sheds/stables in the north eastern corner of the site.
- 2.2 The site is bounded to the north by the rear gardens of housing on Portsdown Hill Road and to the east by the gardens of houses on Glebe Park Avenue and Bedhampton Hill. Bedhampton Hill and Havant Road (A2030) form the site's southern boundary, and grassed agricultural land lies at the site's western boundary.
- 2.3 The site is currently accessed from Bedhampton Hill/Havant Road.
- 2.4 Land use in the vicinity of the site is primarily residential.
- 2.5 The site slopes down from north to south at an average gradient of 1 in 10. Site levels vary from approximately 41.00m AOD (Above Ordnance Datum) within the north eastern region and 12.00m within the southern region.

### **Nearby Watercourses/Drainage Features**

- 2.6 The tidal Langstone Harbour, an inlet of the English Channel, is located 0.6km to the south of the site. The Hermitage Stream is located 0.8km to the east and runs through Havant into the Langstone Harbour.
- 2.7 A small unnamed watercourse runs through the Bedhampton village and drains into the tidal Hermitage Stream.
- 2.8 A spring fed drain issues approximately 500m south west of the site and passes under the A27 before discharging into Langstone Harbour. There are no watercourses within the site or in its immediate vicinity.

### Existing Drainage/Sewers

- 2.9 Southern Water sewer records indicate the presence of public foul and surface water sewers serving the neighbouring properties. A 300mm diameter foul water sewer runs along the site's southern boundary to join a 200mm dia. foul sewer at Bedhampton Hill, which then flows south and then east along Havant Road. A 225mm dia. surface water sewer is located in Bedhampton Hill. It runs south and then west along Havant Road. Refer to public sewer records included within Appendix 4.

### Existing Ground Conditions

- 2.10 The *British Geological Survey (BGS) Map* indicates the site to be underlain by chalk within the northern region. Head Deposits (clay, silt, sand and gravel) overlie chalk within the central and southern region. Refer to CEC Figure 4040/500/Figure 3 [*Geology Map*] in Appendix 1.
- 2.11 Site investigation works were undertaken by Wilson Bailey in August 2011. The works determined chalk beneath top soil to the full depth of investigation (5.0m below ground level) within the northern region. Across the rest of the site, the top soil layer is underlain by Head Deposits to depths between 1.20m and 3.45m (depth unproven). Head Deposits comprised primarily of silty sandy clay extending between 0.20 - 3.20m, silty/clayey Sand extending between 0.30 - 3.45m and sandy silt extending between 0.35 - 2.70m. Chalk occurred within the north-central region at depths of between 1.20m and 3.20m beneath Head Deposits.
- 2.12 No groundwater was encountered in any exploratory holes (5.0m depth maximum) during the site investigation works. Groundwater has been absent from the boreholes during subsequent groundwater monitoring visits. Refer to Appendix 2.
- 2.13 Falling head permeability tests undertaken at 3 No. boreholes determined soakage rates of  $3.54 \times 10^{-6}$  m/s and  $7.24 \times 10^{-6}$  m/s within Head Deposits and  $1.14 \times 10^{-4}$  m/s within the chalk strata. These results demonstrate that the strata at the site have 'good' to 'reasonable' infiltration potential. Soil tests carried out indicated that concentrations of potential contaminants remained within the permissible threshold for residential end use proposed for the site. Refer to Appendix 2.

- 2.14 The EA classifies the chalk beneath the area as a 'Principal' Aquifer and the Head Deposits as 'Secondary Undifferentiated'. The EA's Groundwater Source Protection Zone Map confirms that the site does not lie within a Source Protection Zone. The 'Inner Protection Zone' is associated with Havant Springs Abstraction Point, which supplies potable water to the locality, is located to the north and east of the site.
- 2.15 The existing topography of the locality is such that the site lies downstream of the catchment which supplies the abstraction works. This has been confirmed by Portsmouth Water. Refer to correspondence within Appendix 5.

### 3.0 FLOOD RISK ISSUES

#### **Flood History**

- 3.1 The PUSH SFRA maps indicate historical flooding in Bedhampton village centre, and several sewer flooding incidents across the village. No historical groundwater flooding has been recorded in the area. The SFRA does not identify any historical flooding incidents within the vicinity of the site.

#### **Fluvial/Tidal Flood Risk**

- 3.2 The Environment Agency's Flood Zone Map indicates that the site lies within Flood Zone 1 (low risk) with less than a 1 in 1000 (0.1%) annual probability of fluvial or tidal flooding in any year. Refer to CEC Figure 4040/500/Figure 2 [*Flood Zone Map*] in Appendix 1.
- 3.3 *Technical Guidance to the NPPF (Table 2: Flood Risk Vulnerability Classification)* classifies the proposed site usage 'residential' as 'more vulnerable' development. In accordance with the *Technical Guidance to the NPPF (Table 3: Flood Risk Vulnerability and Flood Zone Compatibility)*, such developments are suitable in Flood Zones 1 and 2.
- 3.4 Fluvial/tidal flood risk to the site is therefore low.

#### **Overland Runoff**

- 3.5 The site is located on a sloping hillside, with the land to the north rising towards Portsdown Hill Road which runs along the ridge line. Notwithstanding this, owing to the permeable chalk geology in the north of the site and the mainly undeveloped garden land use upslope of the site, any overland flows will be negligible. Should such overland runoff enter the site, it would flow across the site following the sloping topography, and would not accumulate and cause flooding.
- 3.6 Flood risk from overland flows is therefore low.

#### **Sewer Flooding**

- 3.7 It is likely that sewers/highway drains are located beneath Portsdown Hill Road, to the north of the site. Should these sewers flood, floodwaters would be contained within the highway corridor, and flow in an easterly direction, then flow south along Glebe Park Avenue to the east of the site. Such flows would not affect the site. The existing sewers

located in Bedhaption Hill/Havant Road, are located at a lower level than the land within the site and therefore do not represent a risk of flooding.

- 3.8 The risk of flooding from existing sewers is low.

**Groundwater Flooding**

- 3.9 Groundwater was not recorded during the site investigation which included boreholes to 5m depth, nor during subsequent groundwater monitoring. The permeable geology of the area and the steep site topography suggest that the groundwater table lies at significant depth below the surface. Refer to Appendix 2.
- 3.10 The risk of groundwater flooding is low.

## 4.0 PROPOSED DRAINAGE STRATEGY

### Surface Water

Refer to CEC Plan 4040/501 [*Proposed Drainage Strategy*] in Appendix 6.

- 4.1 With the exception of the small sheds in the north east of the site, the existing site surfacing is permeable greenfield land. Under the development proposals, some 1.4ha of surfacing will be introduced in the form of roads, parking areas and roofs. Without appropriate management, runoff from this catchment could increase flood risk to the locality.
- 4.1 It is therefore proposed that the site is drained at source by means of infiltration based Sustainable Urban Drainage Systems (SUDS). Disposal of post development runoff at source will ensure that the development does not increase flows to any receiving watercourse or sewer, and hence will not increase flood risk to the site or the locality.
- 4.2 The site geology includes Chalk near the surface within the northern and northern central region and Head Deposits above Chalk within the southern region. Soakage tests undertaken have determined soakage rates of between  $3.54 \times 10^{-6}$  and  $7.24 \times 10^{-6}$  m/s within Head Deposits and  $1.14 \times 10^{-4}$  m/s within chalk. As such, infiltration SUDS will operate effectively. The tests were undertaken within small boreholes at limited locations, and further tests (in accordance with the standard BRE Digest 365 method) may be needed at the detailed design stage. Refer to Appendix 2 for borehole logs and infiltration test results.
- 4.3 The site will be drained as follows:
- Spine Road Catchment (Area 0.26ha)*
- 4.4 This catchment comprises the central site access road which is orientated north - south through the site.

- 4.5 Runoff from this relatively small catchment will be drained by a highway drain which will discharge to 3 No. shallow cellular soakaway SUDS facilities (formed using Aquacell units or similar) which will be located in the open space areas located throughout the site. The soakaways will be sized to accommodate flows from the 1% + cc storm event in accordance with NPPF requirements. Due to the steep gradient of the site double large capacity gullies will be utilised throughout the catchment in order to ensure that runoff does not escape the site and enter Bedhampton Hill. Preliminary design calculations indicate that the soakaway facilities will vary from 100m<sup>2</sup>x0.4m effective depth to 165m<sup>2</sup>x0.4m effective depth, as shown on CEC Plan 4040/501 [*Proposed Drainage Strategy*] in Appendix 6.

*Roof Catchment (0.56ha)*

- 4.6 Surface water runoff from roofs will be discharged to private ring or trench soakaways located in back gardens. A 5m buffer zone will be maintained between soakaways and any building foundation in order to prevent damage/erosion which could be caused by water ingress. All private soakaways will be designed to accommodate the 1%+cc storm event.

*Private Drives and Parking Areas (0.55ha)*

- 4.7 Permeable paving will be installed throughout private drives and parking areas allowing drainage of these areas at source. Where necessary, roof water from houses and garages may also be piped into the permeable paving base. Due to the steep gradient gullies and linear drains will be installed within low spots and at building thresholds to ensure that all runoff is captured and directed into the paving base. All permeable pavements will be designed to accommodate the 1%+cc storm event. Initial modelling confirms that a effective depth of 0.5m will be required throughout the permeable pavement areas.
- 4.10 All calculations have been undertaken using Windes Microdrainage software. Refer to Appendix 3.

**Adoption**

- 4.11 All SUDS and drainage infrastructure will be managed privately under the overall private management regime for highways and open spaces at the site.

### **Water Quality**

- 4.12 The chalk aquifer beneath the area is considered a 'Principal' Aquifer and is vulnerable to pollution. Notwithstanding this, groundwater lies at a considerable depth below the site; groundwater was not detected during the site investigation or during subsequent water monitoring visits. In addition to the treatment measures described below, the thick buffer of strata between the proposed SUDS features and the water table will provide effective water quality treatment.
- 4.13 Note that the site does not lie within a Source Protection Zone as defined by the EA's maps. Furthermore, Portsmouth Water, the authority responsible for abstraction of potable water from the chalk aquifer, has confirmed that due to the sites location and the inclusion of the proposed SUDS measures, the proposed development will not impact on groundwater resources. Refer to Appendix 5 for correspondence.
- 4.14 Due to the possibility of fuel and oil leaks/spillages, the proposed parking areas and driveways represent the most likely source of contaminated runoff. These areas will be surfaced with permeable paving which has excellent pollutant removal capabilities, as acknowledged by the CIRIA SUDS Manual (2007).
- 4.15 Storm water runoff from roof catchments is uncontaminated, and does not warrant complex treatment process. As such, soakaways are appropriate for disposal of runoff from this catchment.
- 4.16 Runoff from the small spine road catchment may contain some particulates and hydrocarbons. Water quality treatment for this catchment will be provided by trap gullies and by filtration through the strata surrounding the proposed highway soakaways. This is a relatively small catchment and as such more onerous treatment measures are not necessary.

### **Design Exceedence**

- 4.17 The topography of the site is such that flows generated by design exceedence or failure of the proposed SUDS facilities could result in overland flows to the south. Any exceedence flows are likely to be absorbed by the extensive garden areas and large open spaces located throughout the site which are underlain by permeable sub soils.

#### **Justification of SUDS Strategy**

- 4.18 The steep topography of the site makes open SUDS features such as ponds and infiltration basins impractical; the earthworks associated with creating these facilities on a steep slope would sterilise a significant proportion of the site area. Furthermore, storing large volumes of water above residential development is an unnecessary flood risk which can be avoided by using below ground systems.
- 4.19 The site offers the potential for all runoff generated by the development to be disposed of at source via soakaways, without impact on the existing drainage regime, and hence without increasing flood risk to the locality.
- 4.20 Soakaways and permeable pavements are recognised by the CIRIA SUDS Manual (2007) as Sustainable Urban Drainage Systems.
- 4.21 All SuDS have been designed to accommodate runoff generated by the 1:100 year storm, including a 30% allowance for climate change, in accordance with NPPF guidance.

#### **Foul Water**

- 4.22 The site will generate a peak foul flow of approximately 2.16 l/s based on 47 No. units at a rate of 4,000 litres/unit dwelling/day in accordance with *Sewers for Adoption*.
- 4.23 A Southern Water 225/300 mm dia. foul water sewer runs adjacent to the site's southern boundary. It is proposed that the site discharge into this existing foul water sewer via a new manhole. Refer to CEC Plan 4040/501 [*Proposed Drainage Strategy*] in Appendix 6.
- 4.24 A Level 1 Capacity Check carried out by Southern Water in October 2013 has determined that there is insufficient capacity within the existing foul system to accommodate the predicted flows from the development.
- 4.25 A level 2 Capacity Check has since been undertaken and has identified Budds Farm Sewage Works, located 1.4km south west of the site, as the nearest point where foul capacity is available. Making a new connection to this point by requisition through 3<sup>rd</sup> party land is impractical due to the existing railway line, A27 highway and A3 (M) Motorway. The Capacity Check report therefore provides details of the off site improvement works

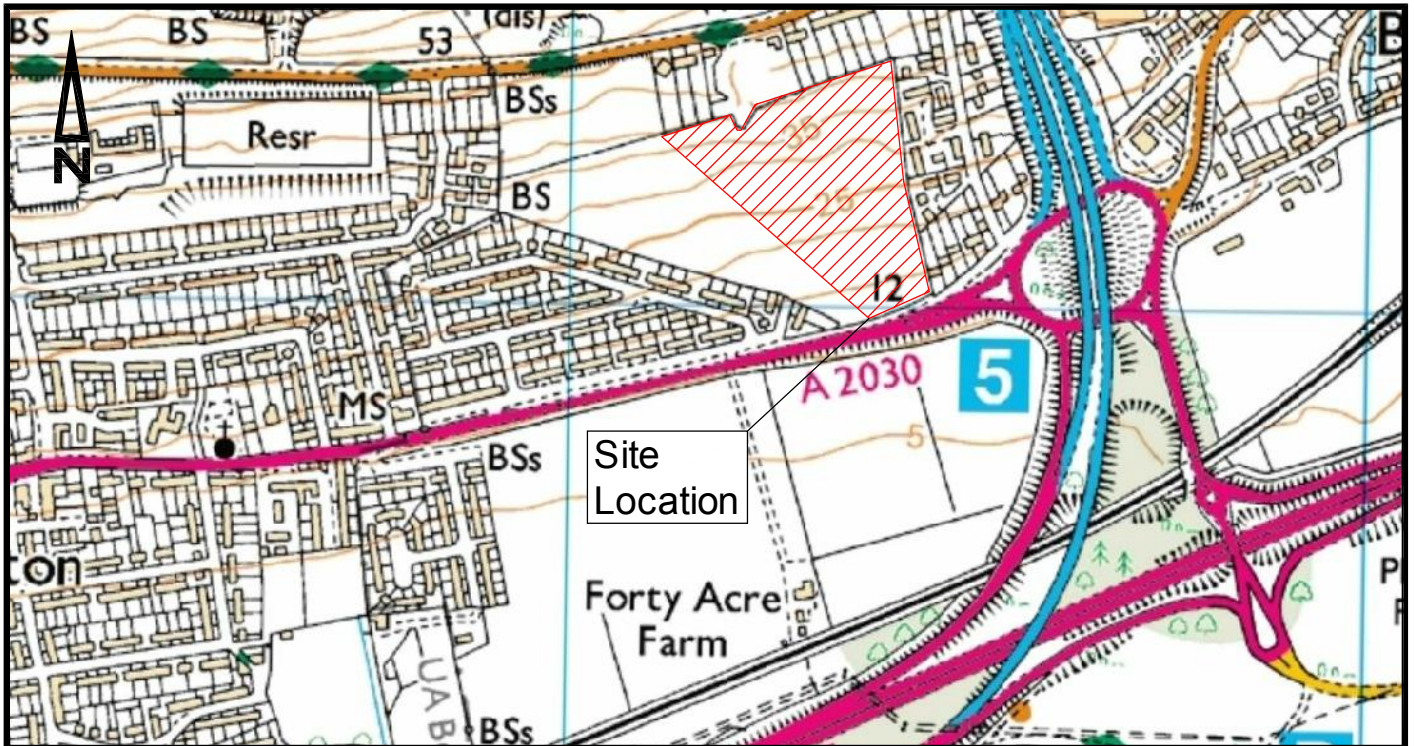
required to provide capacity for the development which comprise some 500m linear metres of sewer upgrades. Refer to Appendix 5 for Southern Water correspondence.

## 5.0 SUMMARY AND CONCLUSIONS

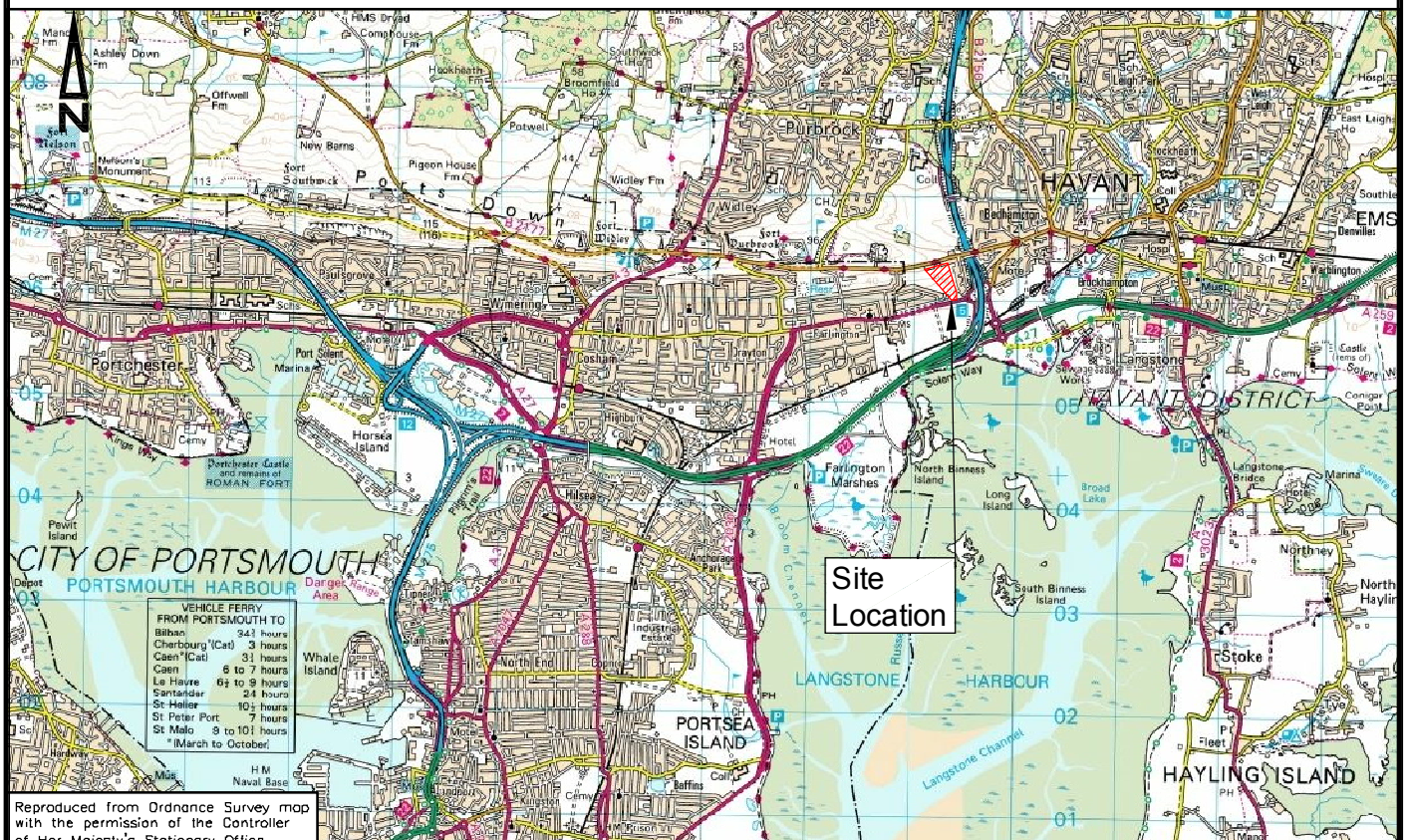
- 5.1 Flood risk to the proposed development from fluvial sources, overland flow, sewers and groundwater has been considered in this study. No significant risks have been identified.
- 5.2 The site lies within Flood Zone 1 (Low Risk) according to the FZM produced by the EA. As such, in accordance with NPPF guidance, redevelopment of the site for residential purposes is appropriate.
- 5.3 Surface water discharge from the site is therefore the primary flood risk associated with the proposals. This risk will be managed by introduction of infiltration based Sustainable Urban Drainage Systems (SUDS) including permeable paving, cellular infiltration systems and soakaways. The use of SUDS will ensure that runoff from the 1%+cc event is retained on site in accordance with NPPF requirements. The proposed infiltration based SUDS will allow disposal of post development runoff on site, at source, with no impact upon the existing drainage system and hence no impact on flood risk to the locality.
- 5.4 The chalk aquifer beneath the area is considered a 'Principal' Aquifer and as such any infiltration SUDS considered for the runoff from highway areas will provide suitable water quality management. Portsmouth Water has confirmed that due to the location of the site and the abovementioned SUDS measures the impact of the proposals upon water quality will be negligible.
- 5.5 Subject to approval by Southern Water, foul flows will be discharged to the existing foul sewer in the verge of Havant Rd/Bedhampton Hill, and the off site reinforcements identified by Southern Water will be undertaken with a contribution from the developer.
- 5.6 This study has been undertaken in accordance with the principles of the NPPF document. We conclude that providing the development adheres to the conditions advised within this report, the proposals can be accommodated without increasing flood risk within the locality in accordance with objectives set by Central Government and the EA.

Cole Easdon Consultants Limited  
February 2014

# **Appendix 1**



Scale 1:10,000



Scale 1:50,000

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Job Title:

Portsdown Hill  
Havant  
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Drawing Title:

Site Location Plan

Client

Barratt David Wilson Homes  
Southampton

Drawn By

HP

Date Drawn

25.09.2013

Scale

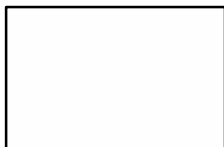
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Drawing No.

4040/500 Figure 1

Revision



Flood Zone 1  
- Low Risk



Flood Zone 2  
- Medium Risk



Flood Zone 3  
- High Risk



Main Rivers

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Job Title:

Portsdown Hill Road  
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Drawing Title:

Flood Zone Map

Client:

Barratt David Wilson Homes  
Southampton

Drawn By

HP

Date Drawn

25.09.2013

Scale

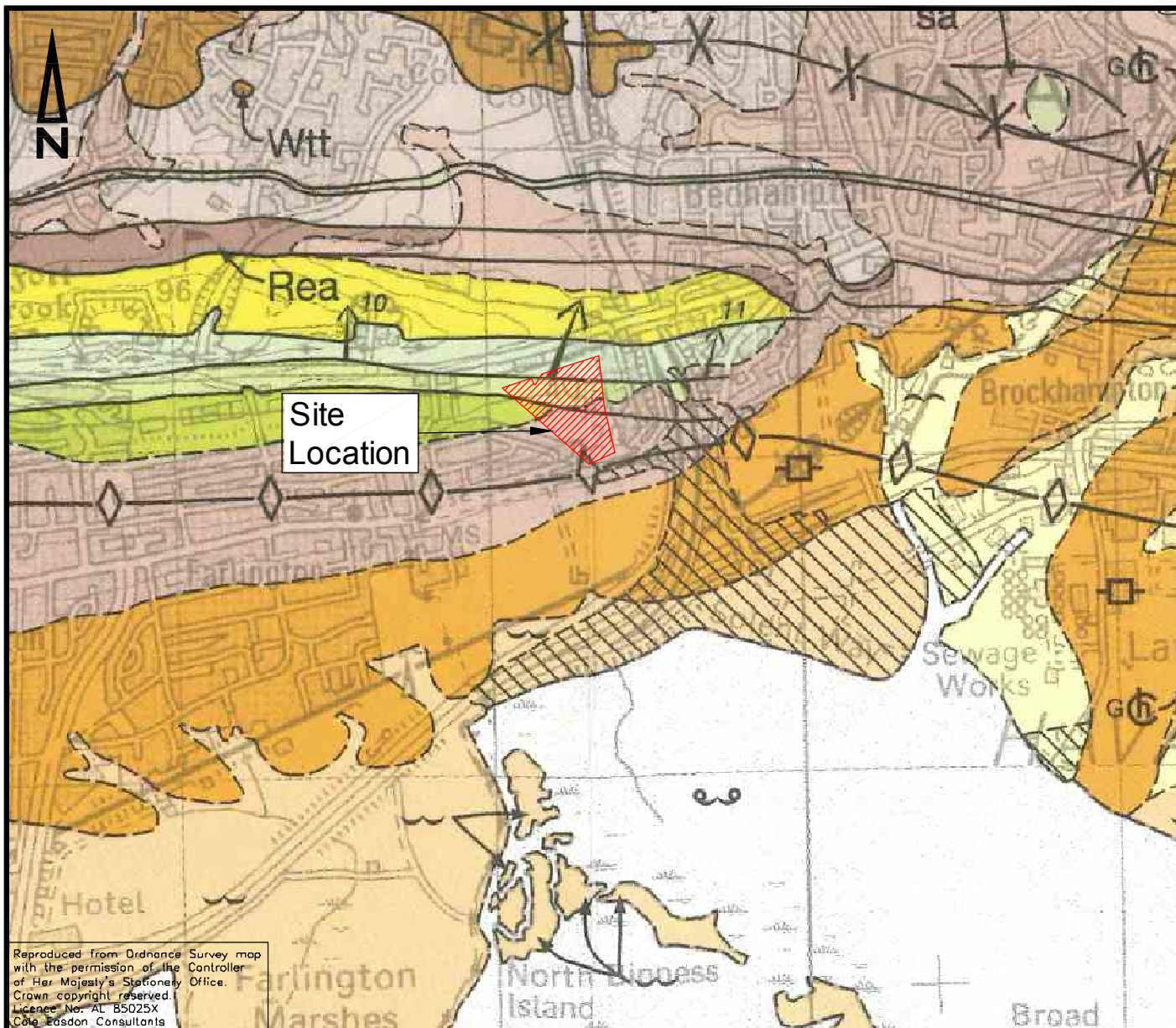
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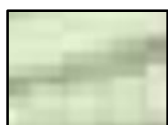
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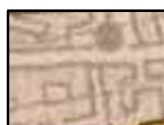
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# KEY



Spetisbury Chalk Member



Head deposits



Tarrant Chalk Member



Newhaven Chalk Member

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Job Title:

Portsdown Hill  
Havant  
Hampshire

Drawing Title:

Geology Map

Client

Barratt David Wilson Homes  
Southampton

Drawn By

SS

Date Drawn

25.09.2013

Scale

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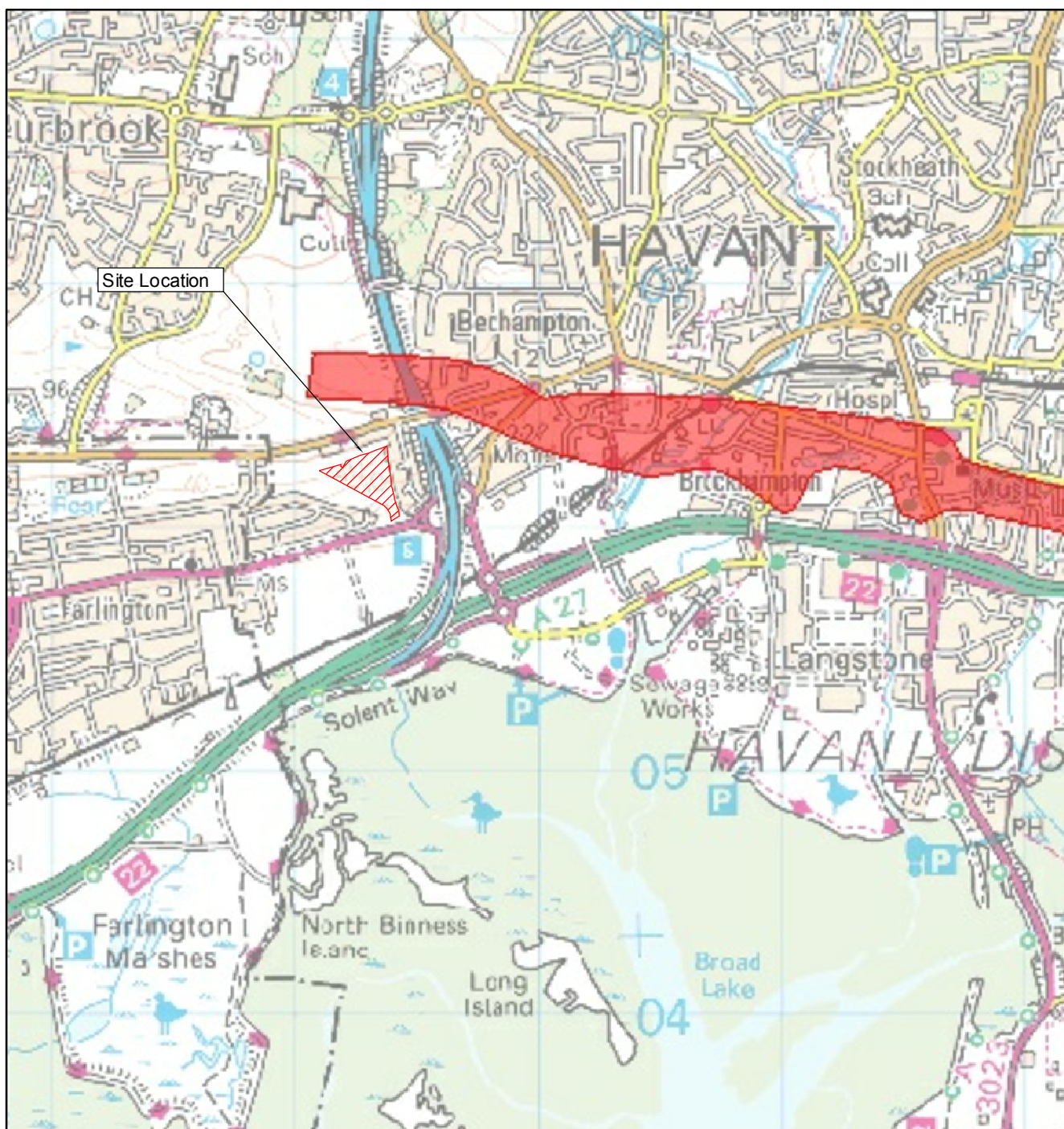
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Inner Groundwater  
Protection Zone

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Job Title:

Portsdown Hill Road  
Bedhampton  
Havant

Drawing Title:

Groundwater Protection Zones

Client

Barratt David Wilson Homes  
Southampton

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Drawing No.

4040/500/Figure 4

Revision

# **Appendix 2**

23 September 2011

Your ref:  
Planning ref:  
Our ref: J11144/DB/c02

Ms K Child  
Barratt David Wilson Southampton  
Tollbar House  
Tollbar Way  
Hedge End  
Southampton  
Hampshire  
SO30 2UH

Dear Ms Child,

**RE: PORTSDOWN HILL SITE, HAVANT, HAMPSHIRE**  
**DESK STUDY & GROUND INVESTIGATION LETTER REPORT FOR THE**  
**PROPOSED RESIDENTIAL REDEVELOPMENT**

Further to instruction from BDW Southampton, we have carried out desk study research and subsequently attended the above site and carried out a walkover survey and ground investigation to provide information to assist with the redevelopment of the site through the construction of 80 new houses, together with driveways, access roads, hardstanding for car parking, soft landscaping and areas of private domestic gardens.

The comments made in this letter are limited to those that can be made on the basis of the information obtained by Wilson Bailey Partnership as part of the limited research and site walkover visit carried out to date. Our comments should be viewed in the context of the limited scope of the investigation, the locations of the accessible sampling points and the range of data sources consulted, no liability can be accepted for information in other data sources. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by Wilson Bailey Partnership.

**Scope of Work**

A desk study has been carried out in accordance with current guidelines for best practice to establish the environmental site setting and development history of the site and the surrounding area.

The desk study has been followed by a pre-purchase ground investigation to provide information to assist with the design of new foundations, pavements, soakaways and facilitate the inspection of soils and recovery of soil samples for contaminated land assessment.

The ground investigation has been carried out in a single phase and comprised a series of 6 small diameter boreholes drilled by means of an open drive percussive soil sampling rig to a depth of up to 5.45 m together with a series of 17 trial pits excavated using a rubber tyred mechanical excavator. Combined soil gas and groundwater monitoring standpipes have been installed into a number of the boreholes located across the site to facilitate future monitoring. Falling head borehole percolation testing has been carried out in a number of the boreholes to assess the potential for soil soakage and the viability of soakaways as part of the proposed redevelopment. A return visit to monitor the depth to ground water and the presence of soil gasses across the site has not been carried out to date.

The soils encountered in the boreholes were inspected by a Chartered Geologist and representative soil samples were recovered for subsequent laboratory testing for geotechnical properties and for contaminated land soil analyses to determine the presence of a wide range of potential soil contaminants. The scope of the ground investigation was limited by the continued use of the eastern part of the site as grazing for horses, which precluded the excavation of trial pits within this part of the site.

In accordance with current best practice, the findings of the desk study and ground investigation have been used to formulate a conceptual model for the site and facilitate a preliminary qualitative risk assessment and discussion of the implications of any identified issue of potential concerns with regards to ground contamination. On the basis of this assessment, the requirement for any further assessment or remedial action as part the redevelopment of this site for residential purposes has been determined.

### **Site Description**

The site is roughly triangular in shape with approximate maximum dimensions 190 m by 350 m. The main western and southern parts of the site are currently occupied by open agricultural land, whilst the northeastern part of the site comprises a series of heavily grazed paddocks together with a number of stable buildings for horses, sheds, associated feed stores and various caravans, boats and dilapidated trailers.

The northern and eastern boundaries to the site are marked by various hedges and fences that form the extent of rear gardens to adjoining properties fronting onto Firlands Rise and Spinnaker View to the east and Portsdown Hill Road to the north. The southern boundary to the site is formed by a section of mature hedgerow together with a steel five bar gate that provides access to the site from Bedhampton Hill to the south. The western boundary to the site is not clearly defined and forms a notional site boundary line through the agricultural fields that extend westwards towards further houses approximately 200 m to the west of the site.

The site slopes downwards to the south and southeast with an overall variation in site level of approximately 28 m, which corresponds with an overall site gradient of approximately 1:10, which is consistent with the variation of the surrounding topography. The northeastern corner of the site is however sensibly levelled with a noticeable break in slope within the middle portion of the paddock area, which has a localised slope gradient of approaching 1:7.

As part of the walkover survey no indications of the storage or use of chemicals was noted, with no indications of distressed vegetation noted.

The site may be additionally located using National Grid Reference 469354,106186.

### **Site History**

The history of the site and immediate surrounding area has been researched by reference to publically available historical Ordnance Survey (OS) maps together with supplementary information inspected at the Havant Local Studies Library.

The earliest map studied, dated 1868, indicates the site to have been occupied by open fields within a predominantly rural setting with a number of chalk pits shown to have been located in the vicinity of the site to the north, including one quarry immediately adjacent to the northern boundary of the site. Subsequent historical maps dating to the present day indicate that the site has remained essentially unchanged, although the former open agricultural land to the north and east is shown to have been gradually developed for housing.

The various chalk pits shown on the historical maps are predominantly shown to have remained disused and open to the present day, although one of the larger chalk pits located approximately 150 m to the east of the site is shown to have been redeveloped through the construction of the A3(M) in the early 1970s together with the subsequent construction of a substantial portal frame commercial building, although the variation of topography at that site indicates that the former chalk pit has been reused rather than filled prior to redevelopment.

### **Environmental Site Setting**

Information provided by the British Geological Survey indicates the northwestern part of the site to be underlain by the Tarrant Member of the Upper Chalk Formation, with the remainder of the site shown to be underlain by Head Deposits overlying the Newhaven Member of the Upper Chalk Formation.

Information provided by the Environment Agency indicates the chalk strata to be classified as a Principal Bedrock Aquifer, with the overlying Head Deposit classified as a Secondary (undifferentiated) Superficial Aquifer. The site is not shown to be located within any class of Source Protection Zone associated with any licensed groundwater abstraction points, although the Inner Source Protection Zone associated with the Portsmouth Water Havant Springs abstraction points are shown to be located approximately 150 m to the north of the site.

Further information provided by the Environment Agency does not indicate the presence of any active or historical landfill sites or other indications of any other potentially contaminative land uses such as waste processing sites, fuel filling stations or pollution incidents have been recorded within 500 m of the site. The Harts Farm Landfill site is however shown to be located approximately 600 m to the southeast of the site and is understood to have been licensed for the placement of household wastes prior to closure of the landfill.

Information provided by the Health Protection Agency indicates the site to be located in an area where less than 1% of houses are above the action level for radon emissions, such that radon protective measures should not be required as part of the construction of new buildings.

### **Preliminary Conceptual Site Model Summary and Risk Assessment**

The historical and current use of the site for open agriculture and as grazing for horses is not considered to present a potentially contaminative history. Whilst there have been a number of historical chalk pits in the vicinity of the site, these are all indicated to have remained open and unfilled to the present day. A single closed historical household waste landfill site however is shown to be located approximately 600 m to the southeast of the site.

### **Ground Conditions**

Across the northeastern part of the site, beneath the initial nominal layer of topsoil, a natural weathered profile of chalk was encountered to the full depth of investigation in this part of the site. Across the remainder of the site the topsoil layer has been found to be underlain by an initial silty sandy clay with occasional and locally abundant flint gravel to depths of between 1.40 m and 2.50 m below ground level. Underlying the initial clay layer, a variable chalk derived silt and sand with variable flint gravel and cobbles was encountered to the maximum depth of 2.80 m below ground level within the majority of the exploratory positions.

Within the northwestern part of the site these chalk derived silt and sand Head Deposits have been proved to be underlain by a natural weathered profile of chalk at depths of between 1.30 m and 1.90m. Where proved in the deeper small diameter boreholes within the southern part of the site, the underlying chalk strata has been encountered at a depth of 3.20 m below ground level

The results of laboratory index testing carried out on selected soil samples indicates the near surface clay soils to be of low to medium plasticity.

Groundwater was not encountered as part of this ground investigation. Whilst combined soil gas and groundwater monitoring standpipes have been installed in a number of the boreholes, return visits for soil gas and groundwater monitoring have not been carried out to date.

No visual or olfactory indications of ground contamination were noted as part of the fieldwork phase of the ground investigation.

### **Foundation Design Advice**

Within the northeastern part of the site where chalk has been encountered beneath the initial topsoil layer, and within parts of the northwestern part of the site where chalk has been encountered at depths of less than about 2.00 m, moderate width pad or strip foundations may be designed to found within the natural weathered profile of chalk strata at a minimum depth of 1.00 m below ground level with a minimum foundation width of 0.60 m and apply a net allowable bearing pressure of 200 kN/m<sup>2</sup>.

Within the southern and central parts of the site, where predominantly clay Head Deposits have been encountered, foundations may need to be locally deepened and designed to apply a reduced net allowable bearing pressure of 75 kN/m<sup>2</sup> at a minimum depth of 1.00 m below ground level.

Whilst the approximate extent of the site that is potentially affected by clay soils is indicated on the enclosed annotated site plan, it may be prudent to carry out further ground investigation by trial pitting once access is available, to further delineate the change in ground conditions. Alternatively it may be prudent to have foundation excavations in this part of the site inspected by a suitably qualified and experienced engineer.

Foundations within the clay soils present within the southeastern part of the site will need to be deepened in the vicinity of existing and proposed trees and National House Building Council (NHBC) guidelines should be followed in this respect; medium shrinkability clays should be assumed where clay soils are present.

Where trees are to be removed the required founding depth should be determined on the basis of the existing tree height if it is less than 50% of the mature height and on the basis of full mature height if the current height is more than 50% of the mature height. Where a tree is to be retained the final mature height should be adopted and due allowance should be made for future growth of trees, with particular reference to the relatively dense additional planting that is proposed as part of the ecological mitigation measures. Notwithstanding NHBC guidelines, all foundations should extend beyond the zone of desiccation; in this respect it would be prudent to have all foundation excavations inspected by a suitably experienced engineer. The requirement for compressible material alongside foundations should be determined by reference to the NHBC guidelines.

Consideration could be given to the use of alternative foundation such as 'Insulslab' or other proprietary waffle raft foundation solutions at this site, although the sloping site topography may render their use uneconomic. Further investigation, testing and discussion may however be required in order for the use of alternative foundation solutions to be sanctioned by the NHBC at this site.

### **Excavations**

Shallow excavations for services and foundations within the near surface soils are likely to remain dry and broadly stable in the short term. Groundwater is unlikely to be encountered within shallow excavations for foundations and services. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered in order to comply with normal safety requirements.

### **Slope Stability**

A detailed assessment of the slope stability at this site is outside the scope of this pre-purchase report and will be heavily dependent upon the requirement for any retaining walls and slope regarding likely to be associated with the proposed redevelopment such that further review may be required in due course once the layout and detailed levels of the proposed development have been determined. The site walkover has not indicated the presence of any instigations of historical slope instability of slope movements at this site.

### **Ground Floor Slabs**

Whilst ground bearing floor slabs could be considered across the northeastern part of the site where chalk soils have been encountered at shallow depth, across the majority of the site where near surface medium shrinkability clay soils have been encountered, proposed new buildings should be designed to incorporate suspended ground floor slabs over a void in accordance with NHBC guidelines.

### **Pavement Design**

Depending upon the finalised design of the development and the proposed ground levels, the formation level for hardstandings and access roads across the majority of the site is likely to be within the near surface clay soils such that pavements may be designed on the basis of an assumed California Bearing Ratio (CBR) of "about 2%". Insitu CBR testing may be of assistance in the detailed design of new pavements.

Within the northeastern part of the site, where formation levels are likely to be within chalk strata, these soils are to be regarded as frost susceptible and a minimum pavement thickness of 450mm is likely to be required

### **Surface Water Drainage**

The results of the borehole falling head percolation testing may be used to provide a preliminary assessment of likely soil soakage, although full size trial pit soakage testing may be required in due course, to provide detailed design data, particularly if adoptable highways drainage is required. The results of the falling head testing are enclosed and indicate assessed soil infiltration rates of 4 E-6 m/s and 7 E-6 m/s may be expected within the Head Deposits of the southern part of the site, whilst soakage rates of up to 1 E-4 may be expected within the chalk strata present in the northeastern part of the site.

Shallow soakaways may therefore be expected to be viable at this site, although discussions should be held with the local Environment Agency office with regards to the proximity of the Inner Protection Zone of the Havant Springs abstraction point which is operated by Portsmouth Water for the supply of drinking water to Portsmouth.

### **Effect of Sulphates**

Chemical analyses of selected soil samples have revealed generally low concentrations of soluble sulphate, corresponding to Class DS-1 AC-1 of Table 2 of BRE Special Digest 1: SD1 Part 1 (August 2001). The guidelines contained in the above digest should be followed in the design of foundation concrete.

### **Potable Water Supply**

The requirement for protection of underground sections of potable water supplies will need to be confirmed through discussions with the proposed statutory provider of mains water to the site, although precautions are not likely to be required for the development at this site.

### **Soil Contamination Test Results**

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation

of contaminated land. The determination of contaminated sites is based on a “suitable for use” approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach. The results of comprehensive laboratory analyses carried out by an MCERTS accredited laboratory on a limited number of soil samples recovered from this site are enclosed. At the time of reporting only a relatively limited selection of Soil Guideline Values have been released following the withdrawal of the previous guidance. The significance of the measured concentrations of any chemicals of concern has therefore been assessed in relation to the available SGVs together with the revised and updated values that have been adopted by the Chartered Institute of Environmental Health (CIEH)<sup>1</sup>. Whilst the values that have been adopted by the CIEH are not statutory, they are widely accepted as providing a suitable initial screening value against which measured concentrations of potential contaminants can be assessed to determine the requirement for site specific quantitative risk assessment.

From a review of the enclosed results it is apparent that elevated concentrations of a wide range of potential soil contaminants have not been detected within the selected representative soil samples submitted to laboratory analyses.

### **Contaminated Land Discussion**

The historical and current use of the site as open agricultural land and grazing is not considered to present a potentially contaminative history or current use and the walkover survey has not revealed any signs of storage or use of potentially contaminative chemicals and no indications of distressed vegetation were noted.

The historic landfill site located approximately 600 m to the south of the site is not considered to pose a significant risk to this site by virtue of distance and the presence of significant infrastructure features including road and rail cuttings that are likely to mitigate the potential for any potentially mobile soils gasses or contaminants to affect this site.

The ground investigation carried out to date has not indicated the presence of elevated concentrations of a wide range of potential contaminants, and whilst unlikely, it is conceivable that localised pockets of contamination could be present. It is therefore considered that the ground works for the proposed redevelopment at this site should be carried out under a geo-environmental watching brief in order that should any suspicious or contaminated soils be encountered, they can be appropriately investigated by a geo-environmental engineer and appropriately dealt with in consultation with the regulatory authorities.

Site workers should be made aware of the site history and the potential for contamination to be present and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE<sup>2</sup> and CIRIA<sup>3</sup> and the requirements of the Local Authority Environmental Health Officer (EHO).

### **Further work**

It may be prudent to carry out a limited programme of soil gas monitoring in order to determine the requirement for gas protection measures.

Consideration could also be given to carrying out a further phase of trial pit investigation, once access is available, within the southeastern part of the site in order to more fully delineate the boundary between predominantly clay and sand soils within this part of the site. Whilst this information is not

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1 *The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2<sup>nd</sup> Edition) July 2009.*

2 *HSE (1992) HS(G)66 Protection of workers and the general public during the development of contaminated land HMSO*

3 *CIRIA (1996) A guide for safe working on contaminated site Report 132, Construction Industry Research & Information Association*

considered necessary for the contaminated land assessment, it would be important to assist with the detailed design of foundations once the proposed development layout and levels have been finalised.

Further consideration of the implications of any slope stability issues will need to be given once the detailed design and levels of the proposed redevelopment have been finalised.

We trust that this letter provides sufficient information although please do not hesitate to contact me should you have any queries or questions.

Yours sincerely  
Wilson Bailey Partnership

Dominic Brightman  
BSc MSc DIC FGS CGeol ARSM  
Principal Engineer

|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.50m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth<br>(m) | Level<br>(m AOD) | Legend                                                                            | Stratum Description                                                                                       |   |
|---------------------------|------|---------|--------------|------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |              |                  |                                                                                   |                                                                                                           |   |
| 0.20                      | D    |         | 0.30         |                  |  | TOPSOIL                                                                                                   |   |
| 0.50                      | D    |         | 0.50         |                  |  | Firm orange-brown silty sandy CLAY with fine to medium flint gravel                                       |   |
| 1.00                      | D    |         |              |                  |  | Firm pale brown CLAY with abundant chalk fragments and occasional fine to medium flint gravel and cobbles | 1 |
| 2.00                      | D    |         |              |                  |  |                                                                                                           | 2 |
|                           |      |         | 2.50         |                  |  |                                                                                                           | 3 |
|                           |      |         |              |                  |                                                                                   | Trialpit Complete at 2.50 m                                                                               | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Groundwater not encountered



|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.50m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth<br>(m) | Level<br>(m AOD) | Legend                                                                             | Stratum Description                                                                                             |   |
|---------------------------|------|---------|--------------|------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |              |                  |                                                                                    |                                                                                                                 |   |
| 0.25                      | D    |         | 0.35         |                  |   | TOPSOIL                                                                                                         |   |
| 0.50                      | D    |         |              |                  |                                                                                    | Firm orange-brown silty CLAY with abundant flint and occasional chalk                                           |   |
| 1.00                      | D    |         | 1.00         |                  |  | Pale brown off white clayey SILT with abundant chalk fragments and flint with fine to medium gravel and cobbles | 1 |
| 2.00                      | D    |         |              |                  |                                                                                    |                                                                                                                 |   |
|                           |      |         |              |                  |                                                                                    |                                                                                                                 |   |
|                           |      |         |              |                  |                                                                                    |                                                                                                                 |   |
|                           |      |         | 2.50         |                  |                                                                                    | Trialpit Complete at 2.50 m                                                                                     |   |
|                           |      |         |              |                  |                                                                                    |                                                                                                                 | 3 |
|                           |      |         |              |                  |                                                                                    |                                                                                                                 | 4 |

|              |                                                                                                           |                                                                                       |
|--------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Remarks:     | Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable. |  |
| Groundwater: | Groundwater not encountered.                                                                              |                                                                                       |

|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.70m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                              | Stratum Description                                                                |   |
|---------------------------|------|---------|-----------|---------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                     |                                                                                    |   |
| 0.20                      | D    |         | 0.30      |               |    | TOPSOIL                                                                            |   |
| 0.50                      | D    |         |           |               |                                                                                     | Firm reddish orange-brown silty sandy CLAY with occasional flint and gravel        |   |
| 1.00                      | D    |         | 0.80      |               |    | Pale brown off-white SILT with abundant fine chalk and flint fragments and cobbles | 1 |
| 2.00                      | D    |         |           |               |                                                                                     |                                                                                    | 2 |
| 2.70                      |      |         | 2.70      |               |  | Trialpit Complete at 2.70 m                                                        | 3 |
|                           |      |         |           |               |                                                                                     |                                                                                    | 4 |

Remarks: Trial pit excavated using a rubber tyred excavatoe (JCB ecx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Groundwater not encountered.



|                                          |                       |                              |                    |
|------------------------------------------|-----------------------|------------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J11144 | Co-ords: -<br>Level: -       | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |                       | Dimensions: -<br>Depth 2.70m | Scale<br>1:25      |
| Client: BDW Southampton                  |                       |                              | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                             | Stratum Description                                                           |   |
|---------------------------|------|---------|-----------|---------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                    |                                                                               |   |
| 0.25                      | D    |         | 0.30      |               |   | TOPSOIL                                                                       |   |
| 0.50                      | D    |         |           |               |                                                                                    | Firm reddish orange-brown silty CLAY with occasional flint and fine gravel    |   |
| 0.90                      | D    |         | 1.00      |               |  | Pale brown off white sandy SILT with abundant fine chalk and abundant cobbles | 1 |
| 1.10                      | D    |         |           |               |                                                                                    |                                                                               |   |
|                           |      |         | 2.70      |               |                                                                                    | Trialpit Complete at 2.70 m                                                   | 3 |
|                           |      |         |           |               |                                                                                    |                                                                               | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Groundwater not encountered.



Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Level: -

Date

12/08/2011

Location: Bedhampton, Havant, Portsmouth

Dimensions: -

Depth

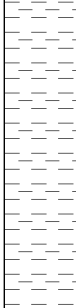
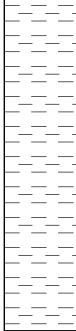
2.50m

Scale

1:25

Client: BDW Southampton

Logged By  
DB

| Samples & In Situ Testing |       |         | Depth<br>(m) | Level<br>(m AOD)                                                                   | Legend                                                                                  | Stratum Description                                                              |  |   |
|---------------------------|-------|---------|--------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--|---|
| Depth (m)                 | Type  | Results |              |                                                                                    |                                                                                         |                                                                                  |  |   |
| 0.30                      | D     |         | 0.35         |                                                                                    |        | TOPSOIL                                                                          |  |   |
| 0.50                      | D     |         |              |                                                                                    |        | Firm reddish orange-brown CLAY with abundant fine gravel with occasional cobbles |  |   |
| 1.00                      | IVN 1 |         | 80           |                                                                                    |                                                                                         |                                                                                  |  |   |
| 1.00                      | IVN 2 |         | 110          |                                                                                    |                                                                                         |                                                                                  |  |   |
| 1.00                      | IVN 3 |         | 100          |                                                                                    |                                                                                         |                                                                                  |  |   |
| 1.00                      | D     |         | 1.40         |  | Pale brown very sandy silty CLAY with abundant fine chalk and flint gravel and cobbles. |                                                                                  |  |   |
| 2.00                      | D     |         | 2.50         |                                                                                    | Trialpit Complete at 2.50 m                                                             |                                                                                  |  |   |
|                           |       |         |              |                                                                                    |                                                                                         |                                                                                  |  | 3 |
|                           |       |         |              |                                                                                    |                                                                                         |                                                                                  |  | 4 |

Remarks: Trial pit excavated using a tired excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Groundwater not encountered.



Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Level: -

Date

12/08/2011

Location: Bedhampton, Havant, Portsmouth

Dimensions: -

Depth

2.70m

Scale

1:25

Client: BDW Southampton

Logged By

DB

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                             | Stratum Description            |   |
|---------------------------|------|---------|-----------|---------------|------------------------------------------------------------------------------------|--------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                    |                                |   |
| 0.20                      | D    |         | 0.35      |               |   | TOPSOIL                        |   |
|                           |      |         |           |               |                                                                                    | Firm reddish orange-brown SILT |   |
| 1.00                      | D    |         | 1.60      |               |   |                                | 1 |
|                           |      |         |           |               |                                                                                    | Pale brown clayey sandy SILT   |   |
| 2.00                      | D    |         | 2.70      |               |  |                                | 2 |
|                           |      |         |           |               |                                                                                    |                                |   |
|                           |      |         |           |               |                                                                                    | Trialpit Complete at 2.70 m    | 3 |
|                           |      |         |           |               |                                                                                    |                                | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not encountered.



|                                          |                       |                              |                    |
|------------------------------------------|-----------------------|------------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J11144 | Co-ords: -<br>Level: -       | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |                       | Dimensions: -<br>Depth 2.80m | Scale<br>1:25      |
| Client: BDW Southampton                  |                       |                              | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                             | Stratum Description                                                     |   |
|---------------------------|------|---------|-----------|---------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                    |                                                                         |   |
| 0.30                      | D    |         | 0.40      |               |   | TOPSOIL                                                                 |   |
| 1.00                      | D    |         |           |               |   | Firm reddish orange-brown silty CLAY with gravel and occasional cobbles | 1 |
| 2.00                      | D    |         | 1.80      |               |  | Pale brown silty clayey locally yellow SAND                             | 2 |
|                           |      |         | 2.80      |               |                                                                                    | Trialpit Complete at 2.80 m                                             | 3 |
|                           |      |         |           |               |                                                                                    |                                                                         | 4 |

Remarks: Tria pit exvavated using a rubber tyre excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.



Project Name  
Land at Portsdown Hill

Project No.  
J11144

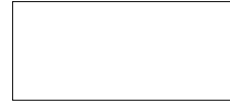
Co-ords: -  
Level: -

Date  
12/08/2011

Location: Bedhampton, Havant, Portsmouth

Dimensions: -

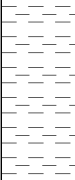
Depth  
2.60m



Scale  
1:25

Client: BDW Southampton

Logged By  
DB

| Samples & In Situ Testing |      |         | Depth<br>(m) | Level<br>(m AOD) | Legend                                                                             | Stratum Description                                                                                   |   |
|---------------------------|------|---------|--------------|------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |              |                  |                                                                                    |                                                                                                       |   |
| 0.20                      | D    |         | 0.20         |                  |   | TOPSOIL                                                                                               |   |
| 0.50                      | D    |         |              |                  |   | Firm dark orange-brown silty sandy CLAY with flint and gravel                                         |   |
| 1.00                      | D    |         | 0.80         |                  |  | Pale brown silty SAND with fine chalk fragments and abundant fine flint gravel and occasional cobbles | 1 |
| 2.00                      | D    |         |              |                  |                                                                                    |                                                                                                       | 2 |
|                           |      |         | 2.60         |                  |                                                                                    | Trialpit Complete at 2.60 m                                                                           | 3 |
|                           |      |         |              |                  |                                                                                    |                                                                                                       | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.



|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.50m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                              | Stratum Description                                                                                                                              |   |
|---------------------------|------|---------|-----------|---------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                     |                                                                                                                                                  |   |
| 0.20                      | D    |         | 0.30      |               |    | TOPSOIL                                                                                                                                          |   |
|                           |      |         |           |               |    | Structureless CHALK comprising a white comminuted chalk matrix with scattered fine gravel of white weak low density chalk fragments (Grade Dm)   | 1 |
| 1.50                      | D    |         | 1.40      |               |   | Structureless CHALK comprising a fine to medium gravel of white weak low density chalk fragments with a white comminuted chalk matrix (Grade Dc) | 2 |
| 2.00                      | D    |         | 2.50      |               |  | Trialpit Complete at 2.50 m                                                                                                                      | 3 |
|                           |      |         |           |               |                                                                                     |                                                                                                                                                  | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

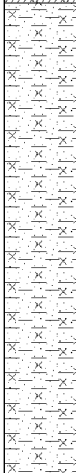
Groundwater: Ground water not ecountered.



| Project Name<br>Land at Portsdown Hill                                                                             |      |         | Project No.<br>J11144 |                  | Co-ords: -<br>Level: -                                                              |                                                                                                                  | Date<br>12/08/2011 |  |
|--------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------|--|
| Location: Bedhampton, Havant, Portsmouth                                                                           |      |         |                       |                  | Dimensions: -                                                                       |                                                                                                                  | Scale<br>1:25      |  |
| Client: BDW Southampton                                                                                            |      |         |                       |                  | Depth<br>2.50m                                                                      |                                                                                                                  | Logged By<br>DB    |  |
| Samples & In Situ Testing                                                                                          |      |         | Depth<br>(m)          | Level<br>(m AOD) | Legend                                                                              | Stratum Description                                                                                              |                    |  |
| Depth (m)                                                                                                          | Type | Results |                       |                  |                                                                                     |                                                                                                                  |                    |  |
| 0.20                                                                                                               | D    |         | 0.30<br>0.40          |                  |    | TOPSOIL                                                                                                          |                    |  |
|                                                                                                                    |      |         |                       |                  |    | Firm reddish orange-brown silty sandy CLAY                                                                       |                    |  |
|                                                                                                                    |      |         |                       |                  |    | Pale yellowish brown clayey silty fine SAND with abundant fine white chalk fragments and occasional flint gravel |                    |  |
| 1.00                                                                                                               | D    |         | 1.65                  |                  |   | Firm yellowish brown very silty very sandy CLAY with scattered chalk                                             |                    |  |
|                                                                                                                    |      |         |                       |                  |  | Firm pale brown silty sandy CLAY with pale brown chalk fragments and abundant flint gravel                       |                    |  |
|                                                                                                                    |      |         |                       |                  | Trialpit Complete at 2.50 m                                                         |                                                                                                                  |                    |  |
| 2.00                                                                                                               | D    |         | 1.95<br>2.50          |                  |  |                                                                                                                  |                    |  |
|                                                                                                                    |      |         |                       |                  |                                                                                     |                                                                                                                  |                    |  |
|                                                                                                                    |      |         |                       |                  |                                                                                     |                                                                                                                  |                    |  |
| Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable. |      |         |                       |                  |                                                                                     |                                                                                                                  |                    |  |
| Groundwater: Ground water not ecountered.                                                                          |      |         |                       |                  |                                                                                     |                                                                                                                  |                    |  |



|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.20m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth<br>(m) | Level<br>(m AOD) | Legend                                                                              | Stratum Description                                                                                                                                                     |   |  |   |   |
|---------------------------|------|---------|--------------|------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|---|---|
| Depth (m)                 | Type | Results |              |                  |                                                                                     |                                                                                                                                                                         |   |  |   |   |
| 0.20                      | D    |         | 0.30         |                  |    | TOPSOIL                                                                                                                                                                 | 1 |  |   |   |
| 1.00                      | D    |         |              |                  |   | Firm reddish orange-brown silty sandy CLAY                                                                                                                              |   |  |   |   |
|                           |      |         | 1.90         |                  |  | Structureless CHALK comprising a fine to medium gravel of white weak low density chalk fragments with abundant flints within a white comminuted chalk matrix (Grade Dc) | 2 |  |   |   |
|                           |      |         |              |                  | 2.20                                                                                | Trialpit Complete at 2.20 m                                                                                                                                             |   |  | 3 |   |
|                           |      |         | 2.00         |                  | D                                                                                   |                                                                                                                                                                         |   |  |   | 4 |
|                           |      |         |              |                  |                                                                                     |                                                                                                                                                                         |   |  |   |   |
|                           |      |         |              |                  |                                                                                     |                                                                                                                                                                         |   |  |   |   |
|                           |      |         |              |                  |                                                                                     |                                                                                                                                                                         |   |  |   |   |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.



Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Level: -

Date

12/08/2011

Location: Bedhampton, Havant, Portsmouth

Dimensions: -

Depth

1.70m



Scale

1:25

Client: BDW Southampton

Logged By  
DB

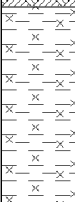
| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                            | Stratum Description                                                                                                                                                     |   |
|---------------------------|------|---------|-----------|---------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                   |                                                                                                                                                                         |   |
| 0.20                      | D    |         | 0.30      |               |  | TOPSOIL                                                                                                                                                                 |   |
|                           |      |         |           |               |                                                                                   | Firm reddish orange-brown silty sandy CLAY                                                                                                                              |   |
| 1.00                      | D    |         | 1.40      |               |  | Structureless CHALK comprising a fine to medium gravel of white weak low density chalk fragments with abundant flints within a white comminuted chalk matrix (Grade Dc) | 1 |
|                           |      |         |           |               |                                                                                   |                                                                                                                                                                         |   |
| 2.00                      | D    |         | 1.70      |               |                                                                                   | Trialpit Complete at 1.70 m                                                                                                                                             | 2 |
|                           |      |         |           |               |                                                                                   |                                                                                                                                                                         | 3 |
|                           |      |         |           |               |                                                                                   |                                                                                                                                                                         | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not encountered.



|                                          |  |                       |                              |                    |
|------------------------------------------|--|-----------------------|------------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: -       | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -<br>Depth 2.20m | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       |                              | Logged By<br>DB    |

| Samples & In Situ Testing |       |         | Depth (m) | Level (m AOD) | Legend                                                                            | Stratum Description                                                                                                                                                        |   |
|---------------------------|-------|---------|-----------|---------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type  | Results |           |               |                                                                                   |                                                                                                                                                                            |   |
| 0.20                      | D     |         | 0.30      |               |  | TOPSOIL                                                                                                                                                                    |   |
|                           |       |         |           |               |  | Firm pale yellowish brown silty CLAY with abundant fragments of chalk                                                                                                      |   |
| 1.00                      | IVN 1 | 110     |           |               |                                                                                   |                                                                                                                                                                            | 1 |
| 1.00                      | IVN 2 | 120     |           |               |                                                                                   |                                                                                                                                                                            |   |
| 1.00                      | D     |         | 1.30      |               |  | Firm yellowish brown silty CLAY                                                                                                                                            |   |
| 1.50                      | D     |         | 1.70      |               |  | Structureless CHALK comprising a white comminuted chalk matrix with scattered fine gravel of white weak low density chalk fragments with abundant flint cobbles (Grade Dm) | 2 |
| 2.00                      | D     |         | 2.20      |               |  | Trialpit Complete at 2.20 m                                                                                                                                                |   |
|                           |       |         |           |               |                                                                                   |                                                                                                                                                                            | 3 |
|                           |       |         |           |               |                                                                                   |                                                                                                                                                                            | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.



|                                          |  |                       |                        |                    |
|------------------------------------------|--|-----------------------|------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   |  | Project No.<br>J11144 | Co-ords: -<br>Level: - | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |  |                       | Dimensions: -          | Scale<br>1:25      |
| Client: BDW Southampton                  |  |                       | Depth<br>2.80m         | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth<br>(m) | Level<br>(m AOD) | Legend                                                                             | Stratum Description                                                                                  |   |
|---------------------------|------|---------|--------------|------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |              |                  |                                                                                    |                                                                                                      |   |
|                           |      |         | 0.30         |                  |   | TOPSOIL                                                                                              |   |
| 1.00                      | D    |         |              |                  |  | Pale yellowish brown very clayey SAND with abundant fine to medium chalk and occasional flint gravel | 1 |
| 2.00                      | D    |         |              |                  |                                                                                    |                                                                                                      | 2 |
|                           |      |         | 2.80         |                  |                                                                                    | Trialpit Complete at 2.80 m                                                                          | 3 |
|                           |      |         |              |                  |                                                                                    |                                                                                                      | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not encountered.



|                                          |                       |                              |                    |
|------------------------------------------|-----------------------|------------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J11144 | Co-ords: -<br>Level: -       | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |                       | Dimensions: -<br>Depth 2.90m | Scale<br>1:25      |
| Client: BDW Southampton                  |                       |                              | Logged By<br>DB    |

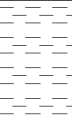
| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                              | Stratum Description                                                      |   |
|---------------------------|------|---------|-----------|---------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                     |                                                                          |   |
| 0.30                      | D    |         |           |               |    | TOPSOIL                                                                  |   |
| 0.60                      | D    |         | 0.50      |               |    | Firm reddish orange-brown silty sandy CLAY with flint gravel and cobbles |   |
| 1.00                      | D    |         | 0.80      |               |   | Off white silty SAND with abundant chalk fragments and cobbles           | 1 |
| 2.00                      | D    |         |           |               |                                                                                     |                                                                          | 2 |
| 2.50                      | D    |         | 2.40      |               |  | Yellowish brown clayey SAND with occasional flint gravel                 |   |
|                           |      |         | 2.90      |               |                                                                                     | Trialpit Complete at 2.90 m                                              | 3 |
|                           |      |         |           |               |                                                                                     |                                                                          | 4 |

Remarks: Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.



|                                          |                       |                              |                    |
|------------------------------------------|-----------------------|------------------------------|--------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J11144 | Co-ords: -<br>Level: -       | Date<br>12/08/2011 |
| Location: Bedhampton, Havant, Portsmouth |                       | Dimensions: -<br>Depth 2.30m | Scale<br>1:25      |
| Client: BDW Southampton                  |                       |                              | Logged By<br>DB    |

| Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                             | Stratum Description                                                                                         |   |
|---------------------------|------|---------|-----------|---------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---|
| Depth (m)                 | Type | Results |           |               |                                                                                    |                                                                                                             |   |
| 0.30                      | D    |         |           |               |   | TOPSOIL                                                                                                     |   |
| 0.80                      | D    |         | 0.50      |               |   | Firm reddish brown CLAY with root hairs and root holes - dessicated                                         |   |
| 1.20                      | D    |         | 0.90      |               |  | Pale yellow brown off-white very silty slightly clayey SAND with abundant fine chalk and fine flint gravels | 1 |
| 2.00                      | D    |         |           |               |                                                                                    |                                                                                                             | 2 |
|                           |      |         | 2.30      |               |                                                                                    | Trialpit Complete at 2.30 m                                                                                 | 3 |
|                           |      |         |           |               |                                                                                    |                                                                                                             | 4 |

Remarks: Trial pit excavated using arubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater: Ground water not ecountered.





Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Hole Type

WLS

Location: Bedhampton, Havant, Portsmouth

Level: -

Scale

1:50

Client: BDW Southampton

Dates: 12/08/2011

Logged By

DB

| Well | Water Strikes | Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                            | Stratum Description                                                                                                            |   |
|------|---------------|---------------------------|------|---------|-----------|---------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---|
|      |               | Depth (m)                 | Type | Results |           |               |                                                                                   |                                                                                                                                |   |
|      |               | 0.20                      | D    |         | 0.30      |               |  | TOPSOIL                                                                                                                        |   |
|      |               | 1.00                      | D    |         | 1.20      |               |  | Pale yellowish brown silty SAND with abundant fine chalk fragments                                                             | 1 |
|      |               | 2.00                      | D    |         | 2.30      |               |  | CHALK: recovered as a melange of off-white and pale brown chalk fines with occasional low density weak chalk gravel (Grade Dm) | 2 |
|      |               | 3.00                      | D    |         | 3.00      |               |  | CHALK: recovered as a melange of white chalk fines with abundant low density weak chalk gravel (Grade Dc)                      | 3 |
|      |               |                           |      |         |           |               |                                                                                   | End of Borehole at 3.00 m                                                                                                      | 4 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                                                | 5 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                                                | 6 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                                                | 7 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                                                | 8 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                                                | 9 |

Remarks: Ground water not encountered. Falling head percolation testing carried out in borehole - result presented seperately.

|                                          |                       |                   |                  |
|------------------------------------------|-----------------------|-------------------|------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J11144 | Co-ords: -        | Hole Type<br>WLS |
| Location: Bedhampton, Havant, Portsmouth |                       | Level: -          | Scale<br>1:50    |
| Client: BDW Southampton                  |                       | Dates: 12/08/2011 | Logged By<br>DB  |

| Well | Water Strikes | Samples & In Situ Testing |          |                           | Depth (m)                 | Level (m AOD)                                                                       | Legend                                                                                                    | Stratum Description                                                         |   |   |
|------|---------------|---------------------------|----------|---------------------------|---------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---|---|
|      |               | Depth (m)                 | Type     | Results                   |                           |                                                                                     |                                                                                                           |                                                                             |   |   |
|      |               | 0.20                      | D        |                           | 0.30                      |                                                                                     |                         | TOPSOIL                                                                     | 1 |   |
|      |               | 0.50                      | D        |                           | 0.60                      |                                                                                     |                         | Fine to medium brown SAND                                                   |   |   |
|      |               | 1.00<br>1.00              | SPT<br>D |                           | N=32<br>(4,7/<br>8,8,9,7) |                                                                                     |                         | Dense and medium dense pale brown off white silty SAND with abundant flints |   |   |
|      |               | 2.00<br>2.00              | SPT<br>D | N=18<br>(4,5/<br>5,4,4,5) | 2                         |                                                                                     |                                                                                                           |                                                                             |   |   |
|      |               | 3.00<br>3.00              | SPT<br>D | N=13<br>(2,3/<br>3,3,4,3) |                           | 3                                                                                   |                                                                                                           |                                                                             |   |   |
|      |               | 4.00<br>4.00              | SPT<br>D | N=12<br>(3,3/<br>3,2,3,4) |                           | 4                                                                                   |                                                                                                           |                                                                             |   |   |
|      |               | 5.00<br>5.00              | SPT<br>D | N=27<br>(7,6/<br>6,7,7,7) | 5.00                      |  | CHALK: recovered as a melange of white chalk fines with abundant low density weak chalk gravel (Grade Dc) | 5                                                                           |   |   |
|      |               | End of Borehole at 5.00 m |          |                           |                           |                                                                                     |                                                                                                           |                                                                             |   | 6 |
|      |               |                           |          |                           |                           |                                                                                     |                                                                                                           |                                                                             |   | 7 |
|      |               |                           |          |                           |                           |                                                                                     |                                                                                                           |                                                                             |   | 8 |
|      |               |                           |          |                           |                           |                                                                                     |                                                                                                           | 9                                                                           |   |   |
|      |               |                           | Type     | Results                   |                           |                                                                                     |                                                                                                           |                                                                             |   |   |

Remarks: Ground water not encountered.



Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Hole Type

WLS

Location: Bedhampton, Havant, Portsmouth

Level: -

Scale

1:50

Client: BDW Southampton

Dates: 12/08/2011

Logged By

DB

| Well | Water Strikes | Samples & In Situ Testing |      |         | Depth (m) | Level (m AOD) | Legend                                                                            | Stratum Description                                                                                         |   |
|------|---------------|---------------------------|------|---------|-----------|---------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---|
|      |               | Depth (m)                 | Type | Results |           |               |                                                                                   |                                                                                                             |   |
|      |               | 0.30                      | D    |         | 0.40      |               |  | TOPSOIL                                                                                                     |   |
|      |               | 1.00                      | D    |         |           |               |  | CHALK: recovered as a melange of white chalk fines with occasional low density weak chalk gravel (Grade Dm) | 1 |
|      |               | 2.00                      | D    |         |           |               |                                                                                   |                                                                                                             | 2 |
|      |               | 3.00                      | D    |         |           |               |                                                                                   |                                                                                                             | 3 |
|      |               |                           |      |         | 3.45      |               |                                                                                   | End of Borehole at 3.45 m                                                                                   | 4 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                             | 5 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                             | 6 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                             | 7 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                             | 8 |
|      |               |                           |      |         |           |               |                                                                                   |                                                                                                             | 9 |
|      |               |                           | Type | Results |           |               |                                                                                   |                                                                                                             |   |

Remarks: Ground water not encountered

Project Name

Land at Portsdown Hill

Project No.

J11144

Co-ords: -

Hole Type

WLS

Location: Bedhampton, Havant, Portsmouth

Level: -

Scale

1:50

Client: BDW Southampton

Dates: 12/08/2011

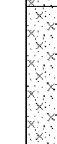
Logged By

DB

| Well | Water Strikes | Samples & In Situ Testing |          |                             | Depth (m) | Level (m AOD) | Legend | Stratum Description                                                                                                            |   |
|------|---------------|---------------------------|----------|-----------------------------|-----------|---------------|--------|--------------------------------------------------------------------------------------------------------------------------------|---|
|      |               | Depth (m)                 | Type     | Results                     |           |               |        |                                                                                                                                |   |
|      |               |                           |          |                             |           |               |        | TOPSOIL                                                                                                                        |   |
|      |               | 1.00<br>1.00              | SPT<br>D | N=49<br>(6,6/<br>7,9,13,20) | 0.70      |               |        | Dense and medium dense off-white and pale brown silty SAND with abundant chalk and flint gravel                                | 1 |
|      |               | 2.00<br>2.00              | SPT<br>D | N=16<br>(3,4/<br>4,3,4,5)   | 2.40      |               |        | Firm pale brown silty sandy CLAY with fine chalk fragments and scattered flint gravel                                          | 2 |
|      |               | 3.00<br>3.00              | SPT<br>D | N=16<br>(4,4/<br>3,5,4,4)   | 3.20      |               |        | CHALK: recovered as a melange of off-white and pale brown chalk fines with occasional low density weak chalk gravel (grade Dm) | 3 |
|      |               | 4.00<br>4.00              | SPT<br>D | N=11<br>(3,3/<br>3,2,3,3)   | 4.45      |               |        | End of Borehole at 4.45 m                                                                                                      | 4 |
|      |               |                           |          |                             |           |               |        |                                                                                                                                | 5 |
|      |               |                           |          |                             |           |               |        |                                                                                                                                | 6 |
|      |               |                           |          |                             |           |               |        |                                                                                                                                | 7 |
|      |               |                           |          |                             |           |               |        |                                                                                                                                | 8 |
|      |               |                           |          |                             |           |               |        |                                                                                                                                | 9 |
|      |               |                           | Type     | Results                     |           |               |        |                                                                                                                                |   |

Remarks: Ground water not encountered

|                                          |                        |                   |                  |
|------------------------------------------|------------------------|-------------------|------------------|
| Project Name<br>Land at Portsdown Hill   | Project No.<br>J111144 | Co-ords: -        | Hole Type<br>WLS |
| Location: Bedhampton, Havant, Portsmouth |                        | Level: -          | Scale<br>1:50    |
| Client: BDW Southampton                  |                        | Dates: 12/08/2011 | Logged By<br>DB  |

| Well | Water Strikes | Samples & In Situ Testing |          |                           | Depth (m) | Level (m AOD) | Legend                                                                            | Stratum Description                                                                           |   |   |
|------|---------------|---------------------------|----------|---------------------------|-----------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---|---|
|      |               | Depth (m)                 | Type     | Results                   |           |               |                                                                                   |                                                                                               |   |   |
|      |               | 1.00<br>1.00              | SPT<br>D | N=6<br>(1,1/<br>1,2,1,2)  | 0.40      |               |  | MADE GROUND (gravel road)                                                                     | 1 |   |
|      |               |                           |          |                           |           |               |  | Firm reddish orange-brown silty sandy CLAY with occasional flint gravel                       |   |   |
|      |               | 2.00<br>2.00              | SPT<br>D | N=14<br>(2,3/<br>3,4,4,3) | 2.10      |               |  | White and off-white silty SAND with abundant chalk fragments and occasional fine flint gravel | 2 |   |
|      |               |                           |          |                           |           |               |  | Medium dense pale yellow slightly clayey silty fine SAND with occasional chalk gravel         |   |   |
|      |               | 3.00<br>3.00              | SPT<br>D | N=13<br>(2,2/<br>3,3,3,4) | 3.45      |               |                                                                                   | End of Borehole at 3.45 m                                                                     | 3 |   |
|      |               |                           |          |                           |           |               |                                                                                   |                                                                                               |   |   |
|      |               |                           |          |                           |           |               |                                                                                   |                                                                                               |   | 4 |
|      |               |                           |          |                           |           |               |                                                                                   |                                                                                               |   | 5 |
|      |               |                           |          |                           |           |               |                                                                                   |                                                                                               |   | 6 |
|      |               |                           |          |                           |           |               |                                                                                   |                                                                                               |   | 7 |
|      |               |                           |          |                           |           |               |                                                                                   | 8                                                                                             |   |   |
|      |               |                           |          |                           |           |               |                                                                                   | 9                                                                                             |   |   |

Remarks: Ground water not encountered. Falling head percolation testing carried out in borehole - results presented seperately.



**Site** Portsdown Hill Site, Havant, Hampshire

**Client** BDW Southampton

**Job Number**  
J11144

**Sheet**  
2/2

**Date:** 12 August 2011

**Borehole No:** 2

### Test Data

#### Before start of test:

**Borehole depth (m):** 3.00

**Casing depth (m):** --

**Water level (m):** --

| Time (mins) | Depth to Water (m) | Depth of Water (m) |
|-------------|--------------------|--------------------|
| 0           | 0                  | 3.00               |
| 1           | 1.2                | 1.80               |
| 2           | 1.78               | 1.22               |
| 3           | 2.34               | 0.66               |
| 8           | 2.65               | 0.35               |
| 10          | 2.85               | 0.15               |

### Soakage Calculation

Borehole Diameter (m) 0.0600

Borehole Area (m) 0.0028

Borehole Perimeter (m) 0.188

From Plot: D1 (m) 1.8

D2 (m) 0.66

T1 (min) 1

T2 (min) 3

Soakage Volume (m<sup>3</sup>) 0.003

Soakage Area (m<sup>2</sup>) 0.23

Time (min) 2

**Soakage rate (m/sec)** 1.14E-04

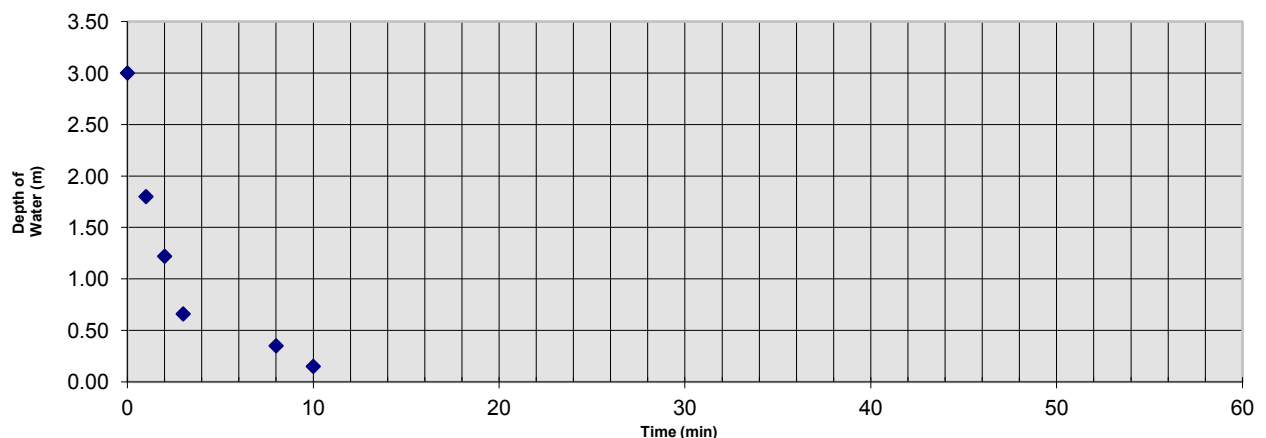
**Soakage rate (m/day)** 9.889156627

#### At end of test:

**Borehole depth (m):** 2.85

**Casing depth (m):** 0

**Water level (m):** 2.85



#### Remarks:

Borehole left open for 40 minutes prior to testing to determine natural water level  
Test repeated twice with similar results, with the borehole water draining to natural water level in less than two minutes

**Site** Portsdown Hill Site, Havant, Hampshire

**Client** BDW Southampton

**Job Number**  
J11144

**Sheet**  
2/2

**Date:** 12 August 2011

**Borehole No:** 6

### Test Data

#### Before start of test:

**Borehole depth (m):** 3.00

**Casing depth (m):** --

**Water level (m):** --

| Time (mins) | Depth to Water (m) | Depth of Water (m) |
|-------------|--------------------|--------------------|
| 0           | 0.66               | 2.34               |
| 1           | 0.74               | 2.26               |
| 3           | 0.9                | 2.10               |
| 9           | 1                  | 2.00               |
| 13          | 1.05               | 1.95               |
| 21          | 1.3                | 1.70               |
| 29          | 1.48               | 1.52               |
| 43          | 1.76               | 1.24               |

### Soakage Calculation

Borehole Diameter (m) 0.0600

Borehole Area (m) 0.0028

Borehole Perimeter (m) 0.188

From Plot:

|          |      |
|----------|------|
| D1 (m)   | 2.34 |
| D2 (m)   | 1.24 |
| T1 (min) | 0    |
| T2 (min) | 43   |

Soakage Volume (m<sup>3</sup>) 0.003

Soakage Area (m<sup>2</sup>) 0.34

Time (min) 43

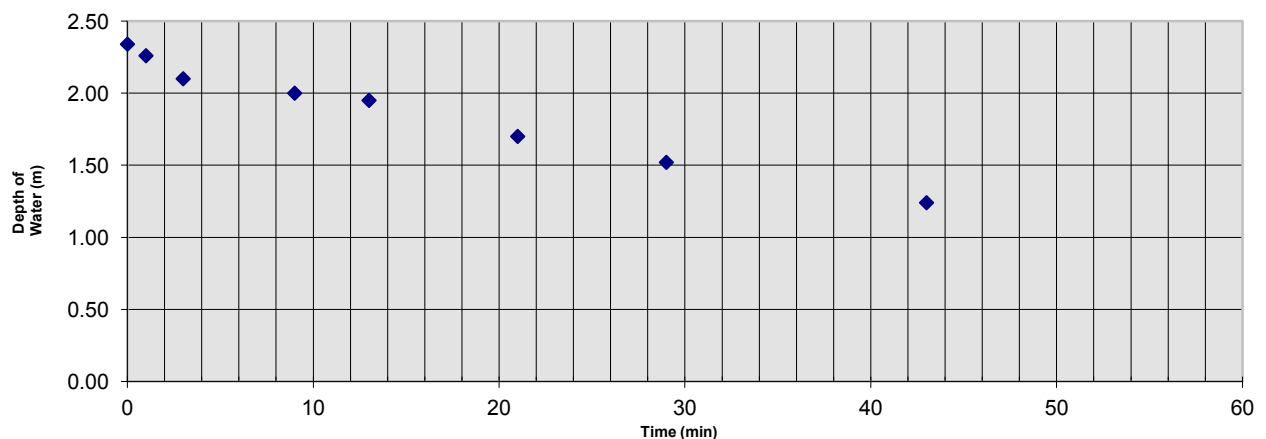
|                             |             |
|-----------------------------|-------------|
| <b>Soakage rate (m/sec)</b> | 3.54E-06    |
| <b>Soakage rate (m/day)</b> | 0.306126393 |

#### At end of test:

**Borehole depth (m):** 2.53

**Casing depth (m):** 0

**Water level (m):** 1.76



**Remarks:**

Borehole left open for 40 minutes prior to testing to determine natural water level  
Test repeated twice with similar results, with the borehole water draining to natural water level in less than two minutes

**Site** Portsdown Hill Site, Havant, Hampshire

**Client** BDW Southampton

**Job Number**  
J11144

**Sheet**  
2/2

**Date:** 12 August 2011

**Borehole No:** 5

### Test Data

#### Before start of test:

**Borehole depth (m):** 3.00  
**Casing depth (m):** --  
**Water level (m):** --

| Time (mins) | Depth to Water (m) | Depth of Water (m) |
|-------------|--------------------|--------------------|
| 0           | 0.5                | 2.50               |
| 1           | 0.62               | 2.38               |
| 2           | 0.75               | 2.25               |
| 5           | 0.98               | 2.02               |
| 7           | 1.05               | 1.95               |
| 15          | 1.3                | 1.70               |
| 29          | 1.78               | 1.22               |
| 43          | 2.43               | 0.57               |

### Soakage Calculation

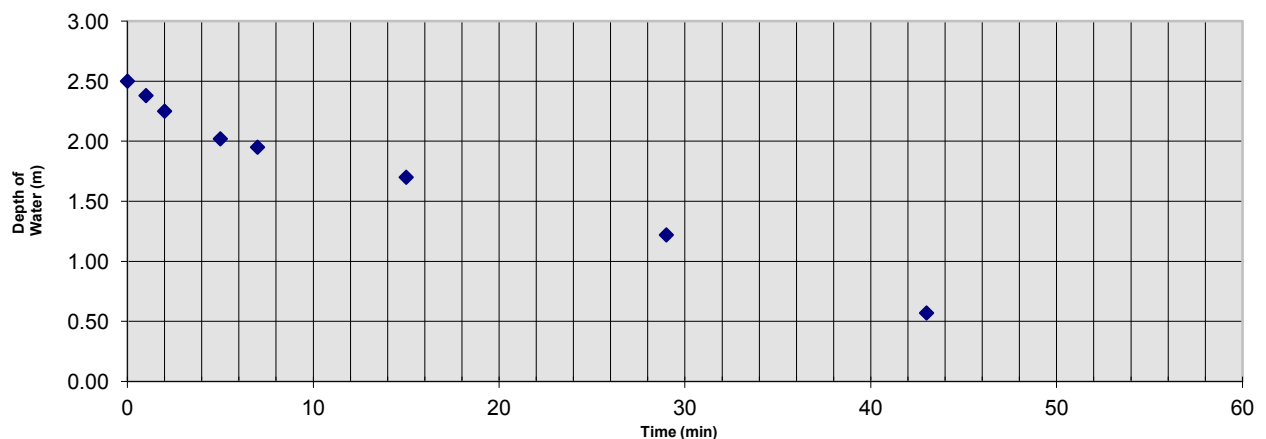
Borehole Diameter (m) 0.0600  
Borehole Area (m) 0.0028  
Borehole Perimeter (m) 0.188  
  
From Plot:  
D1 (m) 2.50  
D2 (m) 0.57  
T1 (min) 0  
T2 (min) 43

Soakage Volume (m<sup>3</sup>) 0.005  
Soakage Area (m<sup>2</sup>) 0.29  
Time (min) 43

|                             |             |
|-----------------------------|-------------|
| <b>Soakage rate (m/sec)</b> | 7.24E-06    |
| <b>Soakage rate (m/day)</b> | 0.625476369 |

#### At end of test:

**Borehole depth (m):** 2.76  
**Casing depth (m):** 0  
**Water level (m):** 2.43



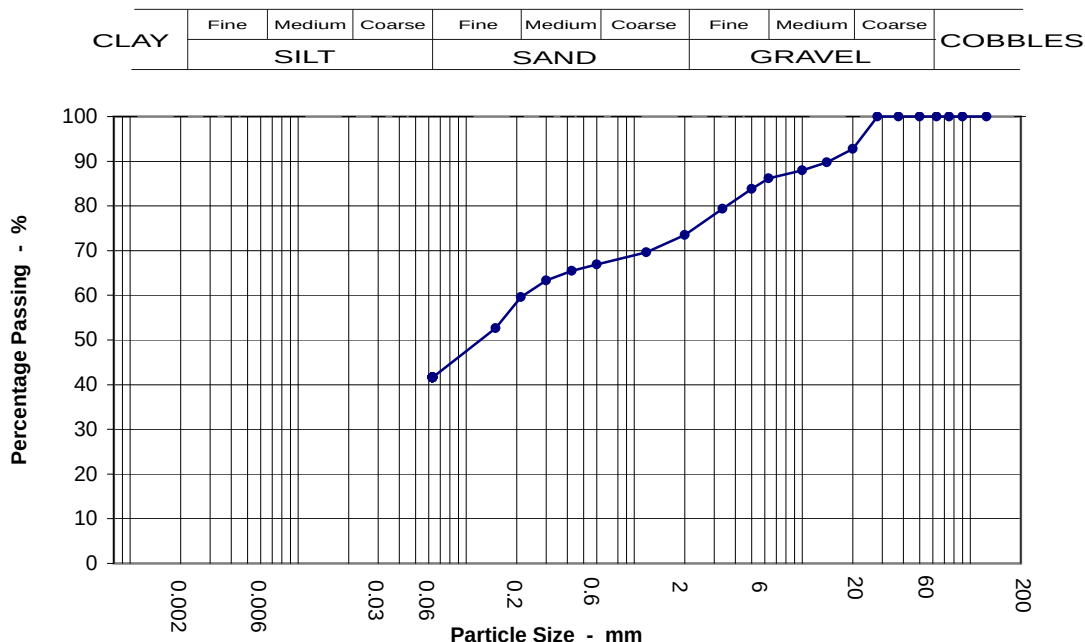
**Remarks:**

Borehole left open for 40 minutes prior to testing to determine natural water level  
Test repeated twice with similar results, with the borehole water draining to natural water level in less than two minutes

| Project Name: Portsdown Hill                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |           |                                                                                                                   |                      |                  | Samples Received: 16/08/2011 |                      |  |                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|-------------------------------------------------------------------------------------------------------------------|----------------------|------------------|------------------------------|----------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |           |                                                                                                                   |                      |                  | Project Started: 23/08/2011  |                      |                                                                                    |                                                                  |
| Client: Wilson Bailey Geotechnical & Environmental                                                                                                                                                                                                                                                                                                                                                                                                                           |            |           |                                                                                                                   |                      |                  | Testing Started: 05/09/2011  |                      |                                                                                    |                                                                  |
| Project No: -                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |           | Our job/report no: 11513                                                                                          |                      |                  | Date Reported: 07/09/2011    |                      |                                                                                    |                                                                  |
| Borehole No:                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sample No: | Depth (m) | Description                                                                                                       | Moisture content (%) | Liquid Limit (%) | Plastic Limit (%)            | Plasticity Index (%) | Passing 0.425 mm (%)                                                               | Remarks                                                          |
| BH6                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 1.00      | Brown and orange brown slightly sandy slightly gravelly CLAY (gravel is fm and sub-angular to angular)            | 18                   |                  |                              |                      |                                                                                    |                                                                  |
| TP1                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 1.00      | Brown slightly silty slightly gravelly CLAY with occasional chalk fragments (gravel is fmc and sub-angular)       | 15                   | 29               | 16                           | 13                   | 90                                                                                 |                                                                  |
| TP2                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 0.50      | Brown slightly sandy slightly gravelly CLAY (gravel is fine and sub-angular)                                      | 21                   | 51               | 19                           | 32                   | 85                                                                                 |                                                                  |
| TP2                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 1.00      | Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub-angular to angular)                             | 23                   |                  |                              |                      |                                                                                    |                                                                  |
| TP3                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 0.50      | Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub-angular to angular)                             | 21                   |                  |                              |                      |                                                                                    |                                                                  |
| TP4                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 0.90      | Brown slightly sandy slightly gravelly CLAY (gravel is fine and angular)                                          | 16                   | 46               | 17                           | 29                   | 91                                                                                 |                                                                  |
| TP5                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 1.00      | Brown and orange brown slightly sandy gravelly CLAY (gravel is fm and sub-angular to angular)                     | 17                   | 46               | 15                           | 31                   | 64                                                                                 |                                                                  |
| TP7                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -          | 1.00      | Orange brown slightly sandy gravelly CLAY (gravel is fm and sub-angular)                                          | 18                   | 42               | 18                           | 24                   | 60                                                                                 |                                                                  |
| TP10                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.00      | Pale brown slightly silty slightly gravelly CLAY with occasional chalk fragments (gravel is fine and sub-angular) | 16                   | 38               | 18                           | 20                   | 93                                                                                 |                                                                  |
| TP13                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.00      | Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub-angular)                                        | 20                   | 45               | 18                           | 27                   | 90                                                                                 |                                                                  |
| TP13                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.50      | Yellowish brown sandy silty CLAY                                                                                  | 19                   |                  |                              |                      |                                                                                    |                                                                  |
| TP14                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.00      | Yellowish brown slightly silty slightly gravelly CLAY (gravel is fine and sub-angular)                            | 14                   |                  |                              |                      |                                                                                    |                                                                  |
| TP15                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.00      | Yellowish brown slightly silty slightly gravelly CLAY (gravel is fm and sub-angular)                              | 14                   |                  |                              |                      |                                                                                    |                                                                  |
| TP16                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 1.00      | Orange brown slightly silty slightly gravelly CLAY with occasional chalk fragments (gravel is fm and sub-angular) | 14                   | 28               | 16                           | 12                   | 86                                                                                 |                                                                  |
| TP17                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -          | 0.80      | Brown slightly sandy slightly gravelly CLAY (gravel is fine and sub-angular to angular)                           | 17                   | 52               | 19                           | 33                   | 89                                                                                 |                                                                  |
| <div>  <div> <h3>Summary of Test Results</h3> <p>BS 1377 : Part 2 : Clause 4.4 : 1990 Determination of the liquid limit by the cone penetrometer method.</p> <p>BS 1377 : Part 2 : Clause 5 : 1990 Determination of the plastic limit and plasticity index.</p> <p>BS 1377 : Part 2 : Clause 3.2 : 1990 Determination of the moisture content by the oven-drying method.</p> </div> </div> |            |           |                                                                                                                   |                      |                  |                              |                      |                                                                                    | <b>Checked and Approved</b><br>Initials: K.P<br>Date: 07/09/2011 |
| Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU<br>Test Results relate only to the sample numbers shown above. Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)<br>All samples connected with this report ,incl any on 'hold' will be stored and disposed off according to Company policy.Acoply of this policy is available on request.                                                                               |            |           |                                                                                                                   |                      |                  |                              |                      |                                                                                    |                                                                  |

| Project Name: Portsdown Hill |                                                                                 |               |                                                                                               |     | <b>K4 SOILS</b><br> |
|------------------------------|---------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------|
| Client: Environmental        |                                                                                 | Project no: - |                                                                                               |     |                                                                                                       |
| Our job no: 11513            |                                                                                 |               |                                                                                               |     |                                                                                                       |
| Borehole No:                 | Sample No:                                                                      | Depth m       | Description                                                                                   | pH  | Sulphate content (g/l)                                                                                |
| TP2                          | -                                                                               | 0.50          | Brown slightly sandy slightly gravelly CLAY (gravel is fine and sub-angular)                  | 7.8 | 0.09                                                                                                  |
| TP5                          | -                                                                               | 1.00          | Brown and orange brown slightly sandy gravelly CLAY (gravel is fm and sub-angular to angular) | 7.7 | 0.09                                                                                                  |
| TP13                         | -                                                                               | 1.00          | Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub-angular)                    | 7.8 | 0.10                                                                                                  |
|                              |                                                                                 |               |                                                                                               |     |                                                                                                       |
| Date<br>07/09/2011           | <b>Summary of Test Results</b>                                                  |               |                                                                                               |     | Checked and Approved<br>Initials : kp                                                                 |
|                              | BS 1377 : Part 3 : Clause 5 : 1990                                              |               |                                                                                               |     |                                                                                                       |
|                              | Determination of sulphate content of soil and ground water : gravimetric method |               |                                                                                               |     |                                                                                                       |

|                                                                                                      |                                                                                                                                |                          |              |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------|
| <b>K4 SOILS</b><br> | <b>PARTICLE SIZE DISTRIBUTION</b><br><b>BS 1377 : Part 2 : 1990 : Clause 9</b>                                                 | Our Report No:           | <b>11513</b> |
|                                                                                                      |                                                                                                                                | Project No:              | -            |
| Location                                                                                             | <b>Portsmouth Hill</b>                                                                                                         | Borehole / Trial Pit No: | TP3          |
| Visual Soil Description                                                                              | <b>Brown slightly gravelly sandy clayey SILT with occasional fm chalk fragments (gravel is fmc and sub-rounded to angular)</b> | Depth                    | 1.00 m       |
|                                                                                                      |                                                                                                                                | Sample Type/No           | - 0          |



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 100       |                  |           |
| 20               | 93        |                  |           |
| 14               | 90        |                  |           |
| 10               | 88        |                  |           |
| 6.3              | 86        |                  |           |
| 5                | 84        |                  |           |
| 3.35             | 79        |                  |           |
| 2                | 74        |                  |           |
| 1.18             | 70        |                  |           |
| 0.6              | 67        |                  |           |
| 0.425            | 65        |                  |           |
| 0.3              | 63        |                  |           |
| 0.212            | 60        |                  |           |
| 0.15             | 53        |                  |           |
| 0.063            | 42        |                  |           |

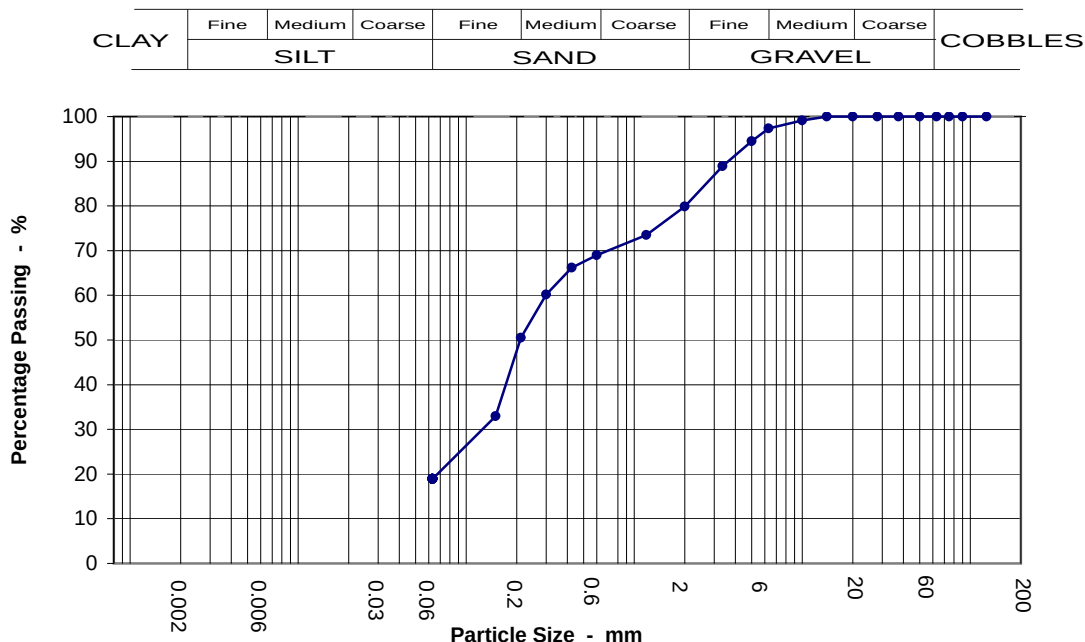
| Test Method                        |        |
|------------------------------------|--------|
| BS 1377 : Part 2 : 1990            |        |
| Sieving                            | Clause |
| Sedimentation                      | N/A    |
| Suitable Amount Of Sample Received | Yes    |

| Sample Proportions |      |
|--------------------|------|
| Cobbles            | 0.0  |
| Gravel             | 26.5 |
| Sand               | 31.9 |
| Silt & Clay        | 41.6 |

| Grading Analysis       |       |
|------------------------|-------|
| D100                   | 125.0 |
| D60                    | 0.2   |
| D10                    |       |
| Uniformity Coefficient | N/A   |

|                                                                                                                     |                                                                           |                                             |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------|
| <b>K4 SOILS LABORATORY</b><br>Unit 8 Olds Close Olds Approach<br>Watford Herts WD18 9RU.<br>E-mail: k4soils@aol.com | <b>Approved Signatories:</b><br>K.Phaure(Tech.Mgr)      J.Phaure(Lab.Mgr) | <b>Checked and Approved</b><br>Initials: kp |  |
|                                                                                                                     | Test results relate only to the sample numbers shown above                | Date: 07/09/2011                            |                                                                                       |

|                                                                                                                  |                                                                                                                               |                          |       |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------|
| <div>K4 SOILS</div> <div></div> | <div>PARTICLE SIZE DISTRIBUTION</div> <div>BS 1377 : Part 2 : 1990 : Clause 9</div>                                           | Our Report No:           | 11513 |
|                                                                                                                  |                                                                                                                               | Project No:              | -     |
| Location                                                                                                         | Portsdown Hill                                                                                                                | Borehole / Trial Pit No: | TP7   |
|                                                                                                                  |                                                                                                                               | Depth                    | 2.00m |
| Visual Soil Description                                                                                          | Brown slightly clayey slightly gravelly SAND with occasional fm chalk fragments (gravel is fm and sub-rounded to sub-angular) | Sample Type/No           | - 0   |



| Sieving          |           | Sedimentation    |           |
|------------------|-----------|------------------|-----------|
| Particle Size mm | % Passing | Particle Size mm | % Passing |
| 125              | 100       |                  |           |
| 90               | 100       |                  |           |
| 75               | 100       |                  |           |
| 63               | 100       |                  |           |
| 50               | 100       |                  |           |
| 37.5             | 100       |                  |           |
| 28               | 100       |                  |           |
| 20               | 100       |                  |           |
| 14               | 100       |                  |           |
| 10               | 99        |                  |           |
| 6.3              | 97        |                  |           |
| 5                | 94        |                  |           |
| 3.35             | 89        |                  |           |
| 2                | 80        |                  |           |
| 1.18             | 73        |                  |           |
| 0.6              | 69        |                  |           |
| 0.425            | 66        |                  |           |
| 0.3              | 60        |                  |           |
| 0.212            | 50        |                  |           |
| 0.15             | 33        |                  |           |
| 0.063            | 19        |                  |           |

| Test Method                        |        |
|------------------------------------|--------|
| BS 1377 : Part 2 : 1990            |        |
| Sieving                            | Clause |
| Sedimentation                      | N/A    |
| Suitable Amount Of Sample Received | Yes    |

| Sample Proportions |      |
|--------------------|------|
| Cobbles            | 0.0  |
| Gravel             | 20.1 |
| Sand               | 61.0 |
| Silt & Clay        | 18.9 |

| Grading Analysis       |       |
|------------------------|-------|
| D100                   | 125.0 |
| D60                    | 0.3   |
| D10                    |       |
| Uniformity Coefficient | N/A   |

|                                                                                                                                                                                 |                                                            |                   |                             |                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------|-----------------------------|-----------------------------------------------------------------------------------------------|
| <b>K4 SOILS LABORATORY</b>                                                                                                                                                      | <b>Approved Signatories:</b>                               |                   | <b>Checked and Approved</b> | <br>2519 |
| Unit 8 Olds Close Olds Approach<br>Watford Herts WD18 9RU.<br>E-mail: k4soils@aol.com                                                                                           | K.Phaure(Tech.Mgr)                                         | J.Phaure(Lab.Mgr) | Initials: kp                |                                                                                               |
|                                                                                                                                                                                 | Test results relate only to the sample numbers shown above |                   | Date: 07/09/2011            |                                                                                               |
| All samples connected with this report, incl any on 'hold' will be disposed off according to company policy. A copy of this policy is available on request. Sheet 3/3 MSF-11/R9 |                                                            |                   |                             |                                                                                               |



Dominic Brightman  
Wilson Bailey Ltd  
Forge Farm Yard  
Compton Chamberlayne  
Wiltshire SP3 5DS



**QTS Environmental Ltd**  
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[russell.jarvis@qtsenvironmental.com](mailto:russell.jarvis@qtsenvironmental.com)

## **QTS Environmental Report No: 6923**

**Site Reference: Portsdown Hill**

**Project / Job Ref: None Supplied**

**Order No: None Supplied**

**Sample Receipt Date: 16/08/2011**

**Sample Scheduled Date: 16/08/2011**

**Report Issue Number: 1**

**Reporting Date: 23/08/2011**

**Authorised by:**

Russell Jarvis  
Director

**On behalf of QTS Environmental Ltd**

**Authorised by:**

Kevin Old  
Director

**On behalf of QTS Environmental Ltd**



**QTS Environmental Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 851105**



| Soil Analysis Certificate                |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP1           | TP2           | TP4           | TP7           | BH2           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.25          | 0.25          | 0.30          | 0.20          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31130         | 31131         | 31132         | 31133         | 31134         |

| Determinand   | Unit | MDL  | Accreditation |      |      |      |      |      |
|---------------|------|------|---------------|------|------|------|------|------|
| Stone Content | %    | <0.1 | NONE          | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

| General Inorganics         | Unit     | MDL       | Accreditation |     |     |     |     |     |
|----------------------------|----------|-----------|---------------|-----|-----|-----|-----|-----|
| pH                         | pH Units | + / - 0.1 | MCERTS        | 7.5 | 7.3 | 6.5 | 7.1 | 7.8 |
| Total Organic Carbon (TOC) | %        | <0.1      | NONE          | 1.6 | 1.8 | 0.7 | 1.1 | 1.3 |
| Total Phenols (monohydric) | mg/kg    | <2        | NONE          | <2  | <2  | <2  | <2  | <2  |

| Metals                | Unit  | MDL  | Accreditation |     |    |     |     |     |
|-----------------------|-------|------|---------------|-----|----|-----|-----|-----|
| Arsenic (As)          | mg/kg | <2   | MCERTS        | 8   | 8  | 7   | 7   | 5   |
| W/S Boron             | mg/kg | <1   | NONE          | <1  | <1 | <1  | <1  | <1  |
| Cadmium (Cd)          | mg/kg | <0.5 | MCERTS        | 0.7 | 1  | 0.6 | 0.5 | 0.7 |
| Chromium (hexavalent) | mg/kg | <2   | NONE          | <2  | <2 | <2  | <2  | <2  |
| Chromium (Cr)         | mg/kg | <2   | MCERTS        | 25  | 23 | 20  | 18  | 20  |
| Copper (Cu)           | mg/kg | <4   | MCERTS        | 14  | 14 | 16  | 13  | 10  |
| Lead (Pb)             | mg/kg | <3   | MCERTS        | 24  | 28 | 38  | 27  | 13  |
| Mercury (Hg)          | mg/kg | <1   | NONE          | <1  | <1 | <1  | <1  | <1  |
| Nickel (Ni)           | mg/kg | <3   | MCERTS        | 19  | 17 | 14  | 13  | 16  |
| Selenium (Se)         | mg/kg | <3   | NONE          | <3  | <3 | <3  | <3  | <3  |
| Zinc (Zn)             | mg/kg | <3   | MCERTS        | 60  | 61 | 56  | 52  | 59  |

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

Analysis carried out on the dried sample is corrected for the stone content

Stone content is classified as material greater than 10mm in diameter



**QTS Environmental Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
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| Soil Analysis Certificate                |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP9           | TP13          | TP15          | TP17          | BH4           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.20          | 0.30          | 0.30          | 0.30          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31135         | 31136         | 31137         | 31138         | 31139         |

| Determinand   | Unit | MDL  | Accreditation |      |      |      |      |      |
|---------------|------|------|---------------|------|------|------|------|------|
| Stone Content | %    | <0.1 | NONE          | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

| General Inorganics         | Unit     | MDL       | Accreditation |     |     |     |     |     |
|----------------------------|----------|-----------|---------------|-----|-----|-----|-----|-----|
| pH                         | pH Units | + / - 0.1 | MCERTS        | 7.8 | 7.7 | 7.9 | 7.7 | 7.8 |
| Total Organic Carbon (TOC) | %        | <0.1      | NONE          | 1.1 | 1.5 | 1.1 | 0.8 | 1.5 |
| Total Phenols (monohydric) | mg/kg    | <2        | NONE          | <2  | <2  | <2  | <2  | <2  |

| Metals                | Unit  | MDL  | Accreditation |     |     |     |     |     |
|-----------------------|-------|------|---------------|-----|-----|-----|-----|-----|
| Arsenic (As)          | mg/kg | <2   | MCERTS        | 8   | 7   | 8   | 7   | 7   |
| W/S Boron             | mg/kg | <1   | NONE          | <1  | <1  | <1  | <1  | <1  |
| Cadmium (Cd)          | mg/kg | <0.5 | MCERTS        | 0.6 | 0.7 | 0.9 | 0.6 | 0.7 |
| Chromium (hexavalent) | mg/kg | <2   | NONE          | <2  | <2  | <2  | <2  | <2  |
| Chromium (Cr)         | mg/kg | <2   | MCERTS        | 12  | 22  | 29  | 28  | 13  |
| Copper (Cu)           | mg/kg | <4   | MCERTS        | 6   | 9   | 13  | 12  | 8   |
| Lead (Pb)             | mg/kg | <3   | MCERTS        | 10  | 14  | 15  | 15  | 13  |
| Mercury (Hg)          | mg/kg | <1   | NONE          | <1  | <1  | <1  | <1  | <1  |
| Nickel (Ni)           | mg/kg | <3   | MCERTS        | 11  | 15  | 22  | 20  | 9   |
| Selenium (Se)         | mg/kg | <3   | NONE          | <3  | <3  | <3  | <3  | <3  |
| Zinc (Zn)             | mg/kg | <3   | MCERTS        | 36  | 49  | 74  | 66  | 40  |

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C

Analysis carried out on the dried sample is corrected for the stone content

Stone content is classified as material greater than 10mm in diameter



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#### Soil Analysis Certificate - Speciated PAHs

|                                          |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP1           | TP2           | TP4           | TP7           | BH2           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.25          | 0.25          | 0.30          | 0.20          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31130         | 31131         | 31132         | 31133         | 31134         |

| Determinand            | Unit  | MDL  | Accreditation |      |      |      |      |      |
|------------------------|-------|------|---------------|------|------|------|------|------|
| Naphthalene            | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acenaphthylene         | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acenaphthene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluorene               | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Phenanthrene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Anthracene             | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluoranthene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Pyrene                 | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(a)anthracene     | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chrysene               | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(b)fluoranthene   | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(k)fluoranthene   | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(a)pyrene         | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Indeno(1,2,3-cd)pyrene | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Dibenz(a,h)anthracene  | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(ghi)perylene     | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

|                          |              |                |               |                |                |                |                |                |
|--------------------------|--------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|
| <b>Total EPA-16 PAHs</b> | <b>mg/kg</b> | <b>&lt;1.6</b> | <b>MCERTS</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> |
|--------------------------|--------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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#### Soil Analysis Certificate - Speciated PAHs

|                                          |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP9           | TP13          | TP15          | TP17          | BH4           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.20          | 0.30          | 0.30          | 0.30          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31135         | 31136         | 31137         | 31138         | 31139         |

| Determinand            | Unit  | MDL  | Accreditation |      |      |      |      |      |
|------------------------|-------|------|---------------|------|------|------|------|------|
| Naphthalene            | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acenaphthylene         | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Acenaphthene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluorene               | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Phenanthrene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Anthracene             | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fluoranthene           | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Pyrene                 | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(a)anthracene     | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chrysene               | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(b)fluoranthene   | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(k)fluoranthene   | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(a)pyrene         | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Indeno(1,2,3-cd)pyrene | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Dibenz(a,h)anthracene  | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Benzo(ghi)perylene     | mg/kg | <0.1 | MCERTS        | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

|                          |              |                |               |                |                |                |                |                |
|--------------------------|--------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|
| <b>Total EPA-16 PAHs</b> | <b>mg/kg</b> | <b>&lt;1.6</b> | <b>MCERTS</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> | <b>&lt;1.6</b> |
|--------------------------|--------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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# Soil Analysis Certificate - TPH CWG Banded

|                                          |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP1           | TP2           | TP4           | TP7           | BH2           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.25          | 0.25          | 0.30          | 0.20          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31130         | 31131         | 31132         | 31133         | 31134         |

| Determinand          | Unit  | MDL   | Accreditation |       |       |       |       |       |
|----------------------|-------|-------|---------------|-------|-------|-------|-------|-------|
| Aliphatic >C5 - C6   | mg/kg | <0.01 | NONE          | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Aliphatic >C6 - C8   | mg/kg | <0.05 | NONE          | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Aliphatic >C8 - C10  | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C10 - C12 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C12 - C16 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C16 - C21 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C21 - C34 | mg/kg | <6    | NONE          | <6    | <6    | <6    | <6    | <6    |

|                      |       |    |      |    |    |    |    |    |
|----------------------|-------|----|------|----|----|----|----|----|
| Aliphatic (C5 - C34) | mg/kg | <6 | NONE | <6 | <6 | <6 | <6 | <6 |
|----------------------|-------|----|------|----|----|----|----|----|

|                     |       |       |      |       |       |       |       |       |
|---------------------|-------|-------|------|-------|-------|-------|-------|-------|
| Aromatic >C5 - C7   | mg/kg | <0.01 | NONE | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Aromatic >C7 - C8   | mg/kg | <0.05 | NONE | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Aromatic >C8 - C10  | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C10 - C12 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C12 - C16 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C16 - C21 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C21 - C35 | mg/kg | <6    | NONE | <6    | <6    | <6    | <6    | <6    |

|                     |       |    |      |    |    |    |    |    |
|---------------------|-------|----|------|----|----|----|----|----|
| Aromatic (C5 - C35) | mg/kg | <6 | NONE | <6 | <6 | <6 | <6 | <6 |
|---------------------|-------|----|------|----|----|----|----|----|

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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#### Soil Analysis Certificate - TPH CWG Banded

|                                          |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP9           | TP13          | TP15          | TP17          | BH4           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.20          | 0.30          | 0.30          | 0.30          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31135         | 31136         | 31137         | 31138         | 31139         |

| Determinand          | Unit  | MDL   | Accreditation |       |       |       |       |       |
|----------------------|-------|-------|---------------|-------|-------|-------|-------|-------|
| Aliphatic >C5 - C6   | mg/kg | <0.01 | NONE          | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Aliphatic >C6 - C8   | mg/kg | <0.05 | NONE          | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Aliphatic >C8 - C10  | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C10 - C12 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C12 - C16 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C16 - C21 | mg/kg | <1    | NONE          | <1    | <1    | <1    | <1    | <1    |
| Aliphatic >C21 - C34 | mg/kg | <6    | NONE          | <6    | <6    | <6    | <6    | <6    |

|                      |       |    |      |    |    |    |    |    |
|----------------------|-------|----|------|----|----|----|----|----|
| Aliphatic (C5 - C34) | mg/kg | <6 | NONE | <6 | <6 | <6 | <6 | <6 |
|----------------------|-------|----|------|----|----|----|----|----|

|                     |       |       |      |       |       |       |       |       |
|---------------------|-------|-------|------|-------|-------|-------|-------|-------|
| Aromatic >C5 - C7   | mg/kg | <0.01 | NONE | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Aromatic >C7 - C8   | mg/kg | <0.05 | NONE | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Aromatic >C8 - C10  | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C10 - C12 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C12 - C16 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C16 - C21 | mg/kg | <1    | NONE | <1    | <1    | <1    | <1    | <1    |
| Aromatic >C21 - C35 | mg/kg | <6    | NONE | <6    | <6    | <6    | <6    | <6    |

|                     |       |    |      |    |    |    |    |    |
|---------------------|-------|----|------|----|----|----|----|----|
| Aromatic (C5 - C35) | mg/kg | <6 | NONE | <6 | <6 | <6 | <6 | <6 |
|---------------------|-------|----|------|----|----|----|----|----|

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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# **Soil Analysis Certificate - BTEX**

|                                          |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP1           | TP2           | TP4           | TP7           | BH2           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.25          | 0.25          | 0.30          | 0.20          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31130         | 31131         | 31132         | 31133         | 31134         |

| <b>Determinand</b> | <b>Unit</b> | <b>MDL</b> | <b>Accreditation</b> |     |     |     |     |     |
|--------------------|-------------|------------|----------------------|-----|-----|-----|-----|-----|
| Benzene            | µg/kg       | <2         | MCERTS               | <2  | <2  | <2  | <2  | <2  |
| Toluene            | µg/kg       | <5         | MCERTS               | <5  | <5  | <5  | <5  | <5  |
| Ethylbenzene       | µg/kg       | <10        | MCERTS               | <10 | <10 | <10 | <10 | <10 |
| p & m-xylene       | µg/kg       | <10        | MCERTS               | <10 | <10 | <10 | <10 | <10 |
| o-xylene           | µg/kg       | <10        | MCERTS               | <10 | <10 | <10 | <10 | <10 |

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



**QTS Environmental Ltd**  
**Unit 1, Rose Lane Industrial Estate**  
**Rose Lane**  
**Lenham Heath**  
**Maidstone**  
**Kent ME17 2JN**  
**Tel : 01622 851105**



| Soil Analysis Certificate - BTEX         |                        |               |               |               |               |               |
|------------------------------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| <b>QTS Environmental Report No: 6923</b> | <b>Date Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Wilson Bailey Ltd</b>                 | <b>Time Sampled</b>    | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Site Reference: Portsdown Hill</b>    | <b>TP / BH No</b>      | TP9           | TP13          | TP15          | TP17          | BH4           |
| <b>Project / Job Ref: None Supplied</b>  | <b>Additional Refs</b> | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| <b>Order No: None Supplied</b>           | <b>Depth (m)</b>       | 0.20          | 0.20          | 0.30          | 0.30          | 0.30          |
| <b>Reporting Date: 23/08/2011</b>        | <b>QTSE Sample No</b>  | 31135         | 31136         | 31137         | 31138         | 31139         |

| Determinand  | Unit  | MDL | Accreditation |     |     |     |     |     |
|--------------|-------|-----|---------------|-----|-----|-----|-----|-----|
| Benzene      | µg/kg | <2  | MCERTS        | <2  | <2  | <2  | <2  | <2  |
| Toluene      | µg/kg | <5  | MCERTS        | <5  | <5  | <5  | <5  | <5  |
| Ethylbenzene | µg/kg | <10 | MCERTS        | <10 | <10 | <10 | <10 | <10 |
| p & m-xylene | µg/kg | <10 | MCERTS        | <10 | <10 | <10 | <10 | <10 |
| o-xylene     | µg/kg | <10 | MCERTS        | <10 | <10 | <10 | <10 | <10 |

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C





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**Kent ME17 2JN**  
**Tel : 01622 851105**



**4480**

**4480**

# **Soil Analysis Certificate - Methodology & Miscellaneous Information**

**QTS Environmental Report No: 6923**

**Wilson Bailey Ltd**

**Site Reference: Portsdown Hill**

**Project / Job Ref: None Supplied**

**Order No: None Supplied**

**Reporting Date: 23/08/2011**

| Matrix | Analysed On | Determinand                             | Brief Method Description                                                                                                                                      | Method No |
|--------|-------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Soil   | D           | Metals                                  | Determination of metals by aqua-regia digestion followed by ICP-OES                                                                                           | E002      |
| Soil   | D           | Cations                                 | Determination of cations in soil by aqua-regia digestion followed by ICP-OES                                                                                  | E002      |
| Soil   | D           | Boron - Water Soluble                   | Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES                                                                     | E012      |
| Soil   | AR          | Chromium - Hexavalent                   | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry          | E016      |
| Soil   | D           | Magnesium - Water Soluble               | Determination of water soluble magnesium by extraction with water followed by ICP-OES                                                                         | E025      |
| Soil   | AR          | Asbestos Screening                      | Visual screening of samples for fibrous material                                                                                                              | E024      |
| Soil   | D           | Chloride - Water Soluble (2:1)          | Determination of chloride by extraction with water followed by titration using silver nitrate                                                                 | E021      |
| Soil   | AR          | Cyanide - Total                         | Determination of total cyanide by distillation followed by colorimetry                                                                                        | E015      |
| Soil   | AR          | Cyanide - Complex                       | Determination of complex cyanide by distillation followed by colorimetry                                                                                      | E015      |
| Soil   | AR          | Cyanide - Free                          | Determination of free cyanide by distillation followed by colorimetry                                                                                         | E015      |
| Soil   | AR          | Electrical Conductivity                 | Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement                                      | E022      |
| Soil   | D           | Elemental Sulphur                       | Determination of elemental sulphur by solvent extraction followed by turbidimeter                                                                             | E020      |
| Soil   | D           | Fluoride - Water Soluble                | Test Kit                                                                                                                                                      | E023      |
| Soil   | D           | FOC (Fraction Organic Carbon)           | Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate                              | E011      |
| Soil   | D           | Loss on Ignition @ 450°C                | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace                                                | E019      |
| Soil   | AR          | Moisture Content                        | Moisture content; determined gravimetrically                                                                                                                  | E003      |
| Soil   | D           | Organic Matter                          | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                          | E011      |
| Soil   | AR          | pH                                      | Determination of pH by addition of water followed by electrometric measurement                                                                                | E007      |
| Soil   | D           | Phosphorus                              | Determination of phosphorus by aqua-regia digestion followed by ICP-OES                                                                                       | E002      |
| Soil   | D           | Sulphate (as SO4) - Water Soluble (2:1) | Determination of water soluble sulphate by extraction with water followed by ICP-OES                                                                          | E014      |
| Soil   | D           | Sulphate (as SO4) - Total               | Determination of total sulphate by extraction with 10% HCl followed by ICP-OES                                                                                | E013      |
| Soil   | AR          | Sulphide                                | Determination of sulphide by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode | E018      |
| Soil   | D           | Sulphur - Total                         | Determination of total sulphur by extraction with aqua-regia, potassium iodide/iodate followed by ICP-OES                                                     | E002      |
| Soil   | AR          | Thiocyanate (as SCN)                    | Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry           | E017      |
| Soil   | D           | Total Organic Carbon (TOC)              | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate                                          | E011      |
| Soil   | AR          | BTEX                                    | Determination of BTEX by headspace GC-MS                                                                                                                      | E001      |
| Soil   | D           | Cyclohexane Extractable Matter (CEM)    | Gravimetrically determined through extraction with cyclohexane                                                                                                | E009      |
| Soil   | AR          | Diesel Range Organics (C10 - C24)       | Determination of hexane/acetone extractable hydrocarbons by GC-FID                                                                                            | E004      |
| Soil   | AR          | Mineral Oil (C10 - C40)                 | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                           | E004      |
| Soil   | AR          | PAH - Speciated (EPA 16)                | Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards                         | E005      |
| Soil   | AR          | PCB - 7 Congeners                       | Determination of PCB by extraction with acetone and hexane followed by GC-MS                                                                                  | E008      |
| Soil   | D           | Petroleum Ether Extract (PEE)           | Gravimetrically determined through extraction with petroleum ether                                                                                            | E009      |
| Soil   | AR          | Phenols - Total (monohydric)            | Determination of phenols by distillation followed by colorimetry                                                                                              | E010      |
| Soil   | AR          | SVOC                                    | Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS                                                        | E006      |
| Soil   | D           | Toluene Extractable Matter (TEM)        | Gravimetrically determined through extraction with toluene                                                                                                    | E009      |
| Soil   | AR          | EPH (C10 - C40)                         | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                            | E004      |
| Soil   | AR          | VPH (C6 - C10)                          | Determination of hydrocarbons C6-C10 by headspace GC-MS                                                                                                       | E001      |
| Soil   | AR          | EPH TEXAS                               | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                            | E004      |
| Soil   | AR          | TPH CWG                                 | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                           | E004      |
| Soil   | AR          | TPH LQM                                 | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge                                                           | E004      |
| Soil   | AR          | EPH (with florilil cleanup)             | Determination of acetone/hexane extractable hydrocarbons with florilil cleanup step by GC-FID                                                                 | E004      |
| Soil   | AR          | EPH Product ID                          | Determination of acetone/hexane extractable hydrocarbons by GC-FID                                                                                            | E004      |
| Soil   | AR          | VOCs                                    | Determination of volatile organic compounds by headspace GC-MS                                                                                                | E001      |

**Key**

**D Dried**  
**AR As Received**

## **Radon Risk Report for addresses in England and Wales**

Issued by the Health Protection Agency and the British Geological Survey using Address Point®. Fee paid £3.00 + VAT. Email receipt issued by Secure Trading Ltd.

Address searched: 9 Spinnaker View, Havant, PO9 3JD

Numerical grid reference for this address:

469469 East

106239 North

Date of report: 23/09/2011

### **Guidance for existing properties**

#### **Is this property in a radon Affected Area? - NO**

The answer to the standard enquiry on house purchase known as CON29 Standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area is:

**No, this property is not in a Radon Affected Area as defined by the Health Protection Agency.**

**The estimated probability of the property being above the Action Level for radon is: 0-1%**

The result may not be valid for buildings larger than 25 metres.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Health Protection Agency. HPA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from HPA or [www.ukradon.org](http://www.ukradon.org).

### **Guidance for new buildings and extensions to existing properties**

#### **What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None**

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

Report design 27 July 2011. V 2011.05

## **Radon Risk Report for addresses in England and Wales**

Issued by the Health Protection Agency and the British Geological Survey using Address Point®. Fee paid £3.00 + VAT. Email receipt issued by Secure Trading Ltd.

Address searched: 70 Bedhampton Hill, Havant, PO9 3JP

Numerical grid reference for this address:

469453 East

106053 North

Date of report: 23/09/2011

### **Guidance for existing properties**

#### **Is this property in a radon Affected Area? - NO**

The answer to the standard enquiry on house purchase known as CON29 Standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area is:

**No, this property is not in a Radon Affected Area as defined by the Health Protection Agency.**

**The estimated probability of the property being above the Action Level for radon is: 0-1%**

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Further information is available from HPA or [www.ukradon.org](http://www.ukradon.org).

### **Guidance for new buildings and extensions to existing properties**

#### **What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None**

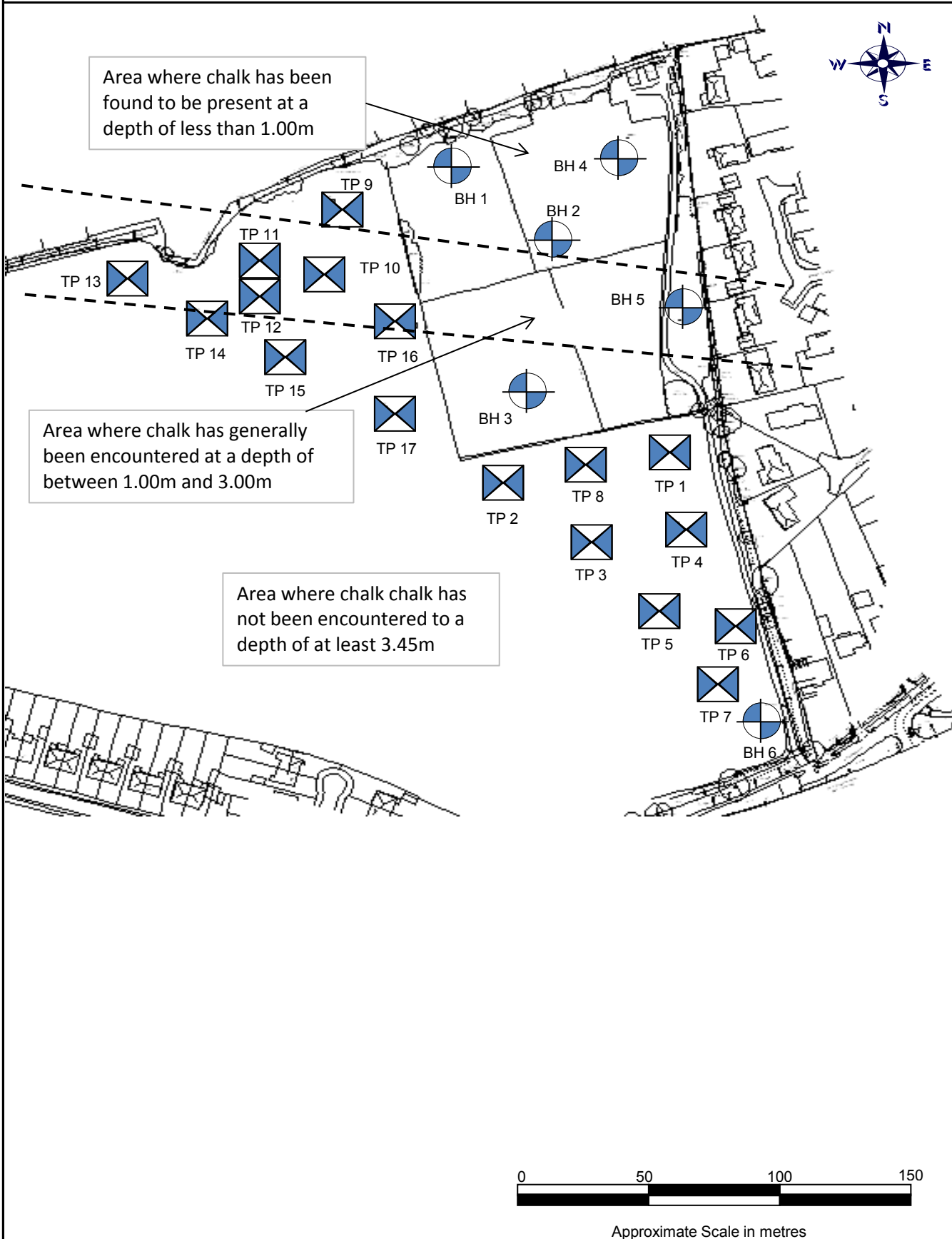
If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

Report design 27 July 2011. V 2011.05

**Site** Land at Portsdown Hill, Havant, Hampshire

**Client** Barratt David Wilson Southampton



# **Appendix 3**

|                                                             |               |                       |                        |                                                                                     |            |
|-------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |               |                       |                        | Page 1                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               |                       |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               | Highway SA 1          |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Designed By NP        |                        |                                                                                     |            |
| File HSA1.SRCX                                              |               | Checked By            |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Half Drain Time : 2183 minutes.                             |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 15 min Summer                                               | 9.758         | 0.158                 | 0.2                    | 15.0                                                                                | Flood Risk |
| 30 min Summer                                               | 9.811         | 0.211                 | 0.2                    | 20.1                                                                                | Flood Risk |
| 60 min Summer                                               | 9.869         | 0.269                 | 0.2                    | 25.6                                                                                | Flood Risk |
| 120 min Summer                                              | 9.929         | 0.329                 | 0.2                    | 31.2                                                                                | Flood Risk |
| 180 min Summer                                              | 9.962         | 0.362                 | 0.2                    | 34.4                                                                                | Flood Risk |
| 240 min Summer                                              | 9.984         | 0.384                 | 0.2                    | 36.5                                                                                | Flood Risk |
| 360 min Summer                                              | 10.013        | 0.413                 | 0.2                    | 39.3                                                                                | FLOOD      |
| 480 min Summer                                              | 10.033        | 0.433                 | 0.2                    | 41.1                                                                                | FLOOD      |
| 600 min Summer                                              | 10.046        | 0.446                 | 0.2                    | 42.4                                                                                | FLOOD      |
| 720 min Summer                                              | 10.055        | 0.455                 | 0.2                    | 43.2                                                                                | FLOOD      |
| 960 min Summer                                              | 10.066        | 0.466                 | 0.2                    | 44.3                                                                                | FLOOD      |
| 1440 min Summer                                             | 10.069        | 0.469                 | 0.2                    | 44.6                                                                                | FLOOD      |
| 2160 min Summer                                             | 10.058        | 0.458                 | 0.2                    | 43.5                                                                                | FLOOD      |
| 2880 min Summer                                             | 10.044        | 0.444                 | 0.2                    | 42.2                                                                                | FLOOD      |
| 4320 min Summer                                             | 10.016        | 0.416                 | 0.2                    | 39.5                                                                                | FLOOD      |
| 5760 min Summer                                             | 9.988         | 0.388                 | 0.2                    | 36.9                                                                                | Flood Risk |
| 7200 min Summer                                             | 9.961         | 0.361                 | 0.2                    | 34.3                                                                                | Flood Risk |
| 8640 min Summer                                             | 9.937         | 0.337                 | 0.2                    | 32.0                                                                                | Flood Risk |
| Storm Event                                                 | Rain (mm/hr)  |                       | Time-Peak (mins)       |                                                                                     |            |
| 15 min Summer                                               | 117.069       |                       | 19                     |                                                                                     |            |
| 30 min Summer                                               | 78.692        |                       | 34                     |                                                                                     |            |
| 60 min Summer                                               | 50.485        |                       | 64                     |                                                                                     |            |
| 120 min Summer                                              | 31.269        |                       | 124                    |                                                                                     |            |
| 180 min Summer                                              | 23.274        |                       | 184                    |                                                                                     |            |
| 240 min Summer                                              | 18.738        |                       | 244                    |                                                                                     |            |
| 360 min Summer                                              | 13.779        |                       | 362                    |                                                                                     |            |
| 480 min Summer                                              | 11.072        |                       | 482                    |                                                                                     |            |
| 600 min Summer                                              | 9.336         |                       | 602                    |                                                                                     |            |
| 720 min Summer                                              | 8.117         |                       | 722                    |                                                                                     |            |
| 960 min Summer                                              | 6.503         |                       | 962                    |                                                                                     |            |
| 1440 min Summer                                             | 4.749         |                       | 1440                   |                                                                                     |            |
| 2160 min Summer                                             | 3.461         |                       | 1836                   |                                                                                     |            |
| 2880 min Summer                                             | 2.761         |                       | 2192                   |                                                                                     |            |
| 4320 min Summer                                             | 2.005         |                       | 2980                   |                                                                                     |            |
| 5760 min Summer                                             | 1.595         |                       | 3808                   |                                                                                     |            |
| 7200 min Summer                                             | 1.335         |                       | 4616                   |                                                                                     |            |
| 8640 min Summer                                             | 1.156         |                       | 5440                   |                                                                                     |            |
| ©1982-2010 Micro Drainage Ltd                               |               |                       |                        |                                                                                     |            |

|                                                             |               |                       |                        |                                                                                     |            |
|-------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               | Highway SA 1          |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               | Designed By NP        |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Checked By            |                        |                                                                                     |            |
| File HSA1.SRCX                                              |               |                       |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                            | 9.913         | 0.313                 | 0.2                    | 29.7                                                                                | Flood Risk |
| 15 min Winter                                               | 9.777         | 0.177                 | 0.2                    | 16.8                                                                                | Flood Risk |
| 30 min Winter                                               | 9.837         | 0.237                 | 0.2                    | 22.5                                                                                | Flood Risk |
| 60 min Winter                                               | 9.902         | 0.302                 | 0.2                    | 28.7                                                                                | Flood Risk |
| 120 min Winter                                              | 9.969         | 0.369                 | 0.2                    | 35.1                                                                                | Flood Risk |
| 180 min Winter                                              | 10.008        | 0.408                 | 0.2                    | 38.7                                                                                | FLOOD      |
| 240 min Winter                                              | 10.033        | 0.433                 | 0.2                    | 41.1                                                                                | FLOOD      |
| 360 min Winter                                              | 10.067        | 0.467                 | 0.2                    | 44.4                                                                                | FLOOD      |
| 480 min Winter                                              | 10.090        | 0.490                 | 0.2                    | 46.6                                                                                | FLOOD      |
| 600 min Winter                                              | 10.107        | 0.507                 | 0.2                    | 48.1                                                                                | FLOOD      |
| 720 min Winter                                              | 10.119        | 0.519                 | 0.2                    | 49.3                                                                                | FLOOD      |
| 960 min Winter                                              | 10.134        | 0.534                 | 0.2                    | 50.7                                                                                | FLOOD      |
| 1440 min Winter                                             | 10.145        | 0.545                 | 0.2                    | 51.7                                                                                | FLOOD      |
| 2160 min Winter                                             | 10.136        | 0.536                 | 0.2                    | 50.9                                                                                | FLOOD      |
| 2880 min Winter                                             | 10.117        | 0.517                 | 0.2                    | 49.1                                                                                | FLOOD      |
| 4320 min Winter                                             | 10.079        | 0.479                 | 0.2                    | 45.5                                                                                | FLOOD      |
| 5760 min Winter                                             | 10.038        | 0.438                 | 0.2                    | 41.7                                                                                | FLOOD      |
| 7200 min Winter                                             | 9.998         | 0.398                 | 0.2                    | 37.8                                                                                | Flood Risk |
| 8640 min Winter                                             | 9.960         | 0.360                 | 0.2                    | 34.2                                                                                | Flood Risk |
| Storm Event                                                 |               | Rain (mm/hr)          |                        | Time-Peak (mins)                                                                    |            |
| 10080 min Summer                                            |               | 1.023                 |                        | 6248                                                                                |            |
| 15 min Winter                                               |               | 117.069               |                        | 19                                                                                  |            |
| 30 min Winter                                               |               | 78.692                |                        | 34                                                                                  |            |
| 60 min Winter                                               |               | 50.485                |                        | 64                                                                                  |            |
| 120 min Winter                                              |               | 31.269                |                        | 122                                                                                 |            |
| 180 min Winter                                              |               | 23.274                |                        | 182                                                                                 |            |
| 240 min Winter                                              |               | 18.738                |                        | 240                                                                                 |            |
| 360 min Winter                                              |               | 13.779                |                        | 358                                                                                 |            |
| 480 min Winter                                              |               | 11.072                |                        | 476                                                                                 |            |
| 600 min Winter                                              |               | 9.336                 |                        | 592                                                                                 |            |
| 720 min Winter                                              |               | 8.117                 |                        | 708                                                                                 |            |
| 960 min Winter                                              |               | 6.503                 |                        | 942                                                                                 |            |
| 1440 min Winter                                             |               | 4.749                 |                        | 1396                                                                                |            |
| 2160 min Winter                                             |               | 3.461                 |                        | 2036                                                                                |            |
| 2880 min Winter                                             |               | 2.761                 |                        | 2364                                                                                |            |
| 4320 min Winter                                             |               | 2.005                 |                        | 3240                                                                                |            |
| 5760 min Winter                                             |               | 1.595                 |                        | 4152                                                                                |            |
| 7200 min Winter                                             |               | 1.335                 |                        | 5040                                                                                |            |
| 8640 min Winter                                             |               | 1.156                 |                        | 5880                                                                                |            |
| ©1982-2010 Micro Drainage Ltd                               |               |                       |                        |                                                                                     |            |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 3                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 100 year Return Period (+30%)

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status     |
|------------------|---------------------|---------------------|------------------------------|-----------------------|------------|
| 10080 min Winter | 9.925               | 0.325               | 0.2                          | 30.8                  | Flood Risk |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 1.023           | 6664                |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

#### Time / Area Diagram

Total Area (ha) 0.069

|               |             |
|---------------|-------------|
| <b>Time</b>   | <b>Area</b> |
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.069 |
|-----|-------|

|                                                         |                                    |                                                                                    |
|---------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

#### Model Details

Storage is Online Cover Level (m) 10.000

#### Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 100.0                  | 100.0                       | 0.400     | 100.0                  | 116.0                       |

| Cole Easdon Consultants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| <p style="text-align: center;"><u>Summary of Results for 30 year Return Period</u></p> <p style="text-align: center;">Half Drain Time : 1224 minutes.</p> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>9.693</td><td>0.093</td><td>0.2</td><td>8.9</td><td>O K</td></tr><tr><td>30 min Summer</td><td>9.724</td><td>0.124</td><td>0.2</td><td>11.7</td><td>Flood Risk</td></tr><tr><td>60 min Summer</td><td>9.756</td><td>0.156</td><td>0.2</td><td>14.8</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>9.789</td><td>0.189</td><td>0.2</td><td>17.9</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>9.807</td><td>0.207</td><td>0.2</td><td>19.7</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>9.819</td><td>0.219</td><td>0.2</td><td>20.8</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>9.835</td><td>0.235</td><td>0.2</td><td>22.3</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>9.844</td><td>0.244</td><td>0.2</td><td>23.2</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>9.849</td><td>0.249</td><td>0.2</td><td>23.7</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>9.852</td><td>0.252</td><td>0.2</td><td>24.0</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>9.853</td><td>0.253</td><td>0.2</td><td>24.1</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>9.851</td><td>0.251</td><td>0.2</td><td>23.9</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>9.844</td><td>0.244</td><td>0.2</td><td>23.1</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>9.834</td><td>0.234</td><td>0.2</td><td>22.2</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>9.812</td><td>0.212</td><td>0.2</td><td>20.2</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>9.791</td><td>0.191</td><td>0.2</td><td>18.1</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>9.771</td><td>0.171</td><td>0.2</td><td>16.2</td><td>Flood Risk</td></tr><tr><td>8640 min Summer</td><td>9.752</td><td>0.152</td><td>0.2</td><td>14.5</td><td>Flood Risk</td></tr></table><br><table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>69.605</td><td>19</td></tr><tr><td>30 min Summer</td><td>46.335</td><td>34</td></tr><tr><td>60 min Summer</td><td>29.553</td><td>64</td></tr><tr><td>120 min Summer</td><td>18.298</td><td>124</td></tr><tr><td>180 min Summer</td><td>13.667</td><td>182</td></tr><tr><td>240 min Summer</td><td>11.055</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.183</td><td>362</td></tr><tr><td>480 min Summer</td><td>6.606</td><td>482</td></tr><tr><td>600 min Summer</td><td>5.592</td><td>600</td></tr><tr><td>720 min Summer</td><td>4.877</td><td>720</td></tr><tr><td>960 min Summer</td><td>3.929</td><td>916</td></tr><tr><td>1440 min Summer</td><td>2.893</td><td>1140</td></tr><tr><td>2160 min Summer</td><td>2.127</td><td>1536</td></tr><tr><td>2880 min Summer</td><td>1.708</td><td>1936</td></tr><tr><td>4320 min Summer</td><td>1.253</td><td>2764</td></tr><tr><td>5760 min Summer</td><td>1.005</td><td>3576</td></tr><tr><td>7200 min Summer</td><td>0.846</td><td>4328</td></tr><tr><td>8640 min Summer</td><td>0.736</td><td>5104</td></tr></table> |               |                       |                        |                                                                                     |            | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 9.693 | 0.093 | 0.2 | 8.9 | O K | 30 min Summer | 9.724 | 0.124 | 0.2 | 11.7 | Flood Risk | 60 min Summer | 9.756 | 0.156 | 0.2 | 14.8 | Flood Risk | 120 min Summer | 9.789 | 0.189 | 0.2 | 17.9 | Flood Risk | 180 min Summer | 9.807 | 0.207 | 0.2 | 19.7 | Flood Risk | 240 min Summer | 9.819 | 0.219 | 0.2 | 20.8 | Flood Risk | 360 min Summer | 9.835 | 0.235 | 0.2 | 22.3 | Flood Risk | 480 min Summer | 9.844 | 0.244 | 0.2 | 23.2 | Flood Risk | 600 min Summer | 9.849 | 0.249 | 0.2 | 23.7 | Flood Risk | 720 min Summer | 9.852 | 0.252 | 0.2 | 24.0 | Flood Risk | 960 min Summer | 9.853 | 0.253 | 0.2 | 24.1 | Flood Risk | 1440 min Summer | 9.851 | 0.251 | 0.2 | 23.9 | Flood Risk | 2160 min Summer | 9.844 | 0.244 | 0.2 | 23.1 | Flood Risk | 2880 min Summer | 9.834 | 0.234 | 0.2 | 22.2 | Flood Risk | 4320 min Summer | 9.812 | 0.212 | 0.2 | 20.2 | Flood Risk | 5760 min Summer | 9.791 | 0.191 | 0.2 | 18.1 | Flood Risk | 7200 min Summer | 9.771 | 0.171 | 0.2 | 16.2 | Flood Risk | 8640 min Summer | 9.752 | 0.152 | 0.2 | 14.5 | Flood Risk | Storm Event | Rain (mm/hr) | Time-Peak (mins) | 15 min Summer | 69.605 | 19 | 30 min Summer | 46.335 | 34 | 60 min Summer | 29.553 | 64 | 120 min Summer | 18.298 | 124 | 180 min Summer | 13.667 | 182 | 240 min Summer | 11.055 | 242 | 360 min Summer | 8.183 | 362 | 480 min Summer | 6.606 | 482 | 600 min Summer | 5.592 | 600 | 720 min Summer | 4.877 | 720 | 960 min Summer | 3.929 | 916 | 1440 min Summer | 2.893 | 1140 | 2160 min Summer | 2.127 | 1536 | 2880 min Summer | 1.708 | 1936 | 4320 min Summer | 1.253 | 2764 | 5760 min Summer | 1.005 | 3576 | 7200 min Summer | 0.846 | 4328 | 8640 min Summer | 0.736 | 5104 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |    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| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9.693         | 0.093                 | 0.2                    | 8.9                                                                                 | O K        |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |    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| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9.724         | 0.124                 | 0.2                    | 11.7                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |    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| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9.756         | 0.156                 | 0.2                    | 14.8                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.789         | 0.189                 | 0.2                    | 17.9                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.807         | 0.207                 | 0.2                    | 19.7                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.819         | 0.219                 | 0.2                    | 20.8                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.835         | 0.235                 | 0.2                    | 22.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.844         | 0.244                 | 0.2                    | 23.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.849         | 0.249                 | 0.2                    | 23.7                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.852         | 0.252                 | 0.2                    | 24.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.853         | 0.253                 | 0.2                    | 24.1                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.851         | 0.251                 | 0.2                    | 23.9                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.844         | 0.244                 | 0.2                    | 23.1                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.834         | 0.234                 | 0.2                    | 22.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.812         | 0.212                 | 0.2                    | 20.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.791         | 0.191                 | 0.2                    | 18.1                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.771         | 0.171                 | 0.2                    | 16.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.752         | 0.152                 | 0.2                    | 14.5                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |    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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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            |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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  |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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            |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.253         | 2764                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.005         | 3576                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.846         | 4328                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.736         | 5104                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |     |               |       |       |     |      |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
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            |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |

|                                                            |               |                       |                        |                                                                                     |            |
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| Cole Easdon Consultants                                    |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                     |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                 |               | Highway SA 1          |                        |                                                                                     |            |
| Swindon SN3 3RB                                            |               | Designed By NP        |                        |                                                                                     |            |
| Date Oct 2013                                              |               | Checked By            |                        |                                                                                     |            |
| File HSA1.SRCX                                             |               |                       |                        |                                                                                     |            |
| Elstree Computing Ltd                                      |               | Source Control W.12.4 |                        |                                                                                     |            |
| <p><u>Summary of Results for 30 year Return Period</u></p> |               |                       |                        |                                                                                     |            |
| Storm Event                                                | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                           | 9.735         | 0.135                 | 0.2                    | 12.9                                                                                | Flood Risk |
| 15 min Winter                                              | 9.705         | 0.105                 | 0.2                    | 10.0                                                                                | Flood Risk |
| 30 min Winter                                              | 9.739         | 0.139                 | 0.2                    | 13.2                                                                                | Flood Risk |
| 60 min Winter                                              | 9.775         | 0.175                 | 0.2                    | 16.6                                                                                | Flood Risk |
| 120 min Winter                                             | 9.813         | 0.213                 | 0.2                    | 20.2                                                                                | Flood Risk |
| 180 min Winter                                             | 9.834         | 0.234                 | 0.2                    | 22.2                                                                                | Flood Risk |
| 240 min Winter                                             | 9.848         | 0.248                 | 0.2                    | 23.5                                                                                | Flood Risk |
| 360 min Winter                                             | 9.866         | 0.266                 | 0.2                    | 25.3                                                                                | Flood Risk |
| 480 min Winter                                             | 9.878         | 0.278                 | 0.2                    | 26.4                                                                                | Flood Risk |
| 600 min Winter                                             | 9.885         | 0.285                 | 0.2                    | 27.1                                                                                | Flood Risk |
| 720 min Winter                                             | 9.890         | 0.290                 | 0.2                    | 27.5                                                                                | Flood Risk |
| 960 min Winter                                             | 9.893         | 0.293                 | 0.2                    | 27.9                                                                                | Flood Risk |
| 1440 min Winter                                            | 9.890         | 0.290                 | 0.2                    | 27.5                                                                                | Flood Risk |
| 2160 min Winter                                            | 9.879         | 0.279                 | 0.2                    | 26.5                                                                                | Flood Risk |
| 2880 min Winter                                            | 9.865         | 0.265                 | 0.2                    | 25.2                                                                                | Flood Risk |
| 4320 min Winter                                            | 9.832         | 0.232                 | 0.2                    | 22.0                                                                                | Flood Risk |
| 5760 min Winter                                            | 9.799         | 0.199                 | 0.2                    | 18.9                                                                                | Flood Risk |
| 7200 min Winter                                            | 9.768         | 0.168                 | 0.2                    | 15.9                                                                                | Flood Risk |
| 8640 min Winter                                            | 9.740         | 0.140                 | 0.2                    | 13.3                                                                                | Flood Risk |
| Storm Event                                                |               |                       | Rain (mm/hr)           | Time-Peak (mins)                                                                    |            |
| 10080 min Summer                                           |               |                       | 0.654                  | 5848                                                                                |            |
| 15 min Winter                                              |               |                       | 69.605                 | 19                                                                                  |            |
| 30 min Winter                                              |               |                       | 46.335                 | 33                                                                                  |            |
| 60 min Winter                                              |               |                       | 29.553                 | 62                                                                                  |            |
| 120 min Winter                                             |               |                       | 18.298                 | 122                                                                                 |            |
| 180 min Winter                                             |               |                       | 13.667                 | 180                                                                                 |            |
| 240 min Winter                                             |               |                       | 11.055                 | 238                                                                                 |            |
| 360 min Winter                                             |               |                       | 8.183                  | 356                                                                                 |            |
| 480 min Winter                                             |               |                       | 6.606                  | 472                                                                                 |            |
| 600 min Winter                                             |               |                       | 5.592                  | 586                                                                                 |            |
| 720 min Winter                                             |               |                       | 4.877                  | 700                                                                                 |            |
| 960 min Winter                                             |               |                       | 3.929                  | 922                                                                                 |            |
| 1440 min Winter                                            |               |                       | 2.893                  | 1328                                                                                |            |
| 2160 min Winter                                            |               |                       | 2.127                  | 1648                                                                                |            |
| 2880 min Winter                                            |               |                       | 1.708                  | 2108                                                                                |            |
| 4320 min Winter                                            |               |                       | 1.253                  | 3024                                                                                |            |
| 5760 min Winter                                            |               |                       | 1.005                  | 3864                                                                                |            |
| 7200 min Winter                                            |               |                       | 0.846                  | 4680                                                                                |            |
| 8640 min Winter                                            |               |                       | 0.736                  | 5440                                                                                |            |
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|                                                         |                                    |                                                                                    |
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| Cole Easdon Consultants                                 |                                    | Page 3                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

Summary of Results for 30 year Return Period

| <b>Storm<br/>Event</b> | <b>Max<br/>Level<br/>(m)</b> | <b>Max<br/>Depth<br/>(m)</b> | <b>Max<br/>Infiltration<br/>(l/s)</b> | <b>Max<br/>Volume<br/>(m³)</b> | <b>Status</b> |
|------------------------|------------------------------|------------------------------|---------------------------------------|--------------------------------|---------------|
| 10080 min Winter       | 9.715                        | 0.115                        | 0.2                                   | 10.9                           | Flood Risk    |

| <b>Storm<br/>Event</b> | <b>Rain<br/>(mm/hr)</b> | <b>Time-Peak<br/>(mins)</b> |
|------------------------|-------------------------|-----------------------------|
| 10080 min Winter       | 0.654                   | 6152                        |

|                                                         |                                    |                                                                                     |
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| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
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| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 30                | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +0    |

#### Time / Area Diagram

Total Area (ha) 0.069

| <b>Time</b>   | <b>Area</b> |
|---------------|-------------|
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.069 |
|-----|-------|

|                                                         |                                    |                                                                                    |
|---------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                             |
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| Date Oct 2013<br>File HSA1.SRCX                         | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 100.0                  | 100.0                       | 0.400     | 100.0                  | 116.0                       |

|                                                         |                                    |                                                                                     |
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| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 2575 minutes.

| Storm Event     | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status     |
|-----------------|---------------|---------------|------------------------|-----------------|------------|
| 15 min Summer   | 9.787         | 0.187         | 0.1                    | 12.4            | Flood Risk |
| 30 min Summer   | 9.850         | 0.250         | 0.1                    | 16.6            | Flood Risk |
| 60 min Summer   | 9.918         | 0.318         | 0.1                    | 21.2            | Flood Risk |
| 120 min Summer  | 9.989         | 0.389         | 0.1                    | 25.9            | Flood Risk |
| 180 min Summer  | 10.030        | 0.430         | 0.1                    | 28.6            | FLOOD      |
| 240 min Summer  | 10.056        | 0.456         | 0.1                    | 30.3            | FLOOD      |
| 360 min Summer  | 10.092        | 0.492         | 0.1                    | 32.7            | FLOOD      |
| 480 min Summer  | 10.117        | 0.517         | 0.1                    | 34.4            | FLOOD      |
| 600 min Summer  | 10.135        | 0.535         | 0.1                    | 35.5            | FLOOD      |
| 720 min Summer  | 10.147        | 0.547         | 0.1                    | 36.4            | FLOOD      |
| 960 min Summer  | 10.163        | 0.563         | 0.1                    | 37.5            | FLOOD      |
| 1440 min Summer | 10.174        | 0.574         | 0.1                    | 38.2            | FLOOD      |
| 2160 min Summer | 10.165        | 0.565         | 0.1                    | 37.6            | FLOOD      |
| 2880 min Summer | 10.150        | 0.550         | 0.1                    | 36.6            | FLOOD      |
| 4320 min Summer | 10.119        | 0.519         | 0.1                    | 34.5            | FLOOD      |
| 5760 min Summer | 10.089        | 0.489         | 0.1                    | 32.5            | FLOOD      |
| 7200 min Summer | 10.060        | 0.460         | 0.1                    | 30.6            | FLOOD      |
| 8640 min Summer | 10.033        | 0.433         | 0.1                    | 28.8            | FLOOD      |

| Storm Event     | Rain (mm/hr) | Time-Peak (mins) |
|-----------------|--------------|------------------|
| 15 min Summer   | 117.069      | 19               |
| 30 min Summer   | 78.692       | 34               |
| 60 min Summer   | 50.485       | 64               |
| 120 min Summer  | 31.269       | 124              |
| 180 min Summer  | 23.274       | 184              |
| 240 min Summer  | 18.738       | 244              |
| 360 min Summer  | 13.779       | 362              |
| 480 min Summer  | 11.072       | 482              |
| 600 min Summer  | 9.336        | 602              |
| 720 min Summer  | 8.117        | 722              |
| 960 min Summer  | 6.503        | 962              |
| 1440 min Summer | 4.749        | 1440             |
| 2160 min Summer | 3.461        | 2012             |
| 2880 min Summer | 2.761        | 2336             |
| 4320 min Summer | 2.005        | 3072             |
| 5760 min Summer | 1.595        | 3912             |
| 7200 min Summer | 1.335        | 4688             |
| 8640 min Summer | 1.156        | 5528             |

|                                                             |               |                       |                        |                                                                                     |            |
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| Cole Easdon Consultants                                     |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               | Highway SA 1          |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               | Designed By NP        |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Checked By            |                        |                                                                                     |            |
| File HSA2.SRCX                                              |               |                       |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                            | 10.008        | 0.408                 | 0.1                    | 27.1                                                                                | FLOOD      |
| 15 min Winter                                               | 9.809         | 0.209                 | 0.1                    | 13.9                                                                                | Flood Risk |
| 30 min Winter                                               | 9.880         | 0.280                 | 0.1                    | 18.6                                                                                | Flood Risk |
| 60 min Winter                                               | 9.957         | 0.357                 | 0.1                    | 23.8                                                                                | Flood Risk |
| 120 min Winter                                              | 10.038        | 0.438                 | 0.1                    | 29.1                                                                                | FLOOD      |
| 180 min Winter                                              | 10.083        | 0.483                 | 0.1                    | 32.2                                                                                | FLOOD      |
| 240 min Winter                                              | 10.114        | 0.514                 | 0.1                    | 34.2                                                                                | FLOOD      |
| 360 min Winter                                              | 10.156        | 0.556                 | 0.1                    | 37.0                                                                                | FLOOD      |
| 480 min Winter                                              | 10.185        | 0.585                 | 0.1                    | 38.9                                                                                | FLOOD      |
| 600 min Winter                                              | 10.207        | 0.607                 | 0.1                    | 40.3                                                                                | FLOOD      |
| 720 min Winter                                              | 10.222        | 0.622                 | 0.1                    | 41.4                                                                                | FLOOD      |
| 960 min Winter                                              | 10.244        | 0.644                 | 0.1                    | 42.8                                                                                | FLOOD      |
| 1440 min Winter                                             | 10.263        | 0.663                 | 0.1                    | 44.1                                                                                | FLOOD      |
| 2160 min Winter                                             | 10.262        | 0.662                 | 0.1                    | 44.0                                                                                | FLOOD      |
| 2880 min Winter                                             | 10.245        | 0.645                 | 0.1                    | 42.9                                                                                | FLOOD      |
| 4320 min Winter                                             | 10.204        | 0.604                 | 0.1                    | 40.2                                                                                | FLOOD      |
| 5760 min Winter                                             | 10.162        | 0.562                 | 0.1                    | 37.4                                                                                | FLOOD      |
| 7200 min Winter                                             | 10.119        | 0.519                 | 0.1                    | 34.5                                                                                | FLOOD      |
| 8640 min Winter                                             | 10.078        | 0.478                 | 0.1                    | 31.8                                                                                | FLOOD      |
| Storm Event                                                 |               | Rain (mm/hr)          |                        | Time-Peak (mins)                                                                    |            |
| 10080 min Summer                                            |               | 1.023                 |                        | 6352                                                                                |            |
| 15 min Winter                                               |               | 117.069               |                        | 19                                                                                  |            |
| 30 min Winter                                               |               | 78.692                |                        | 34                                                                                  |            |
| 60 min Winter                                               |               | 50.485                |                        | 64                                                                                  |            |
| 120 min Winter                                              |               | 31.269                |                        | 122                                                                                 |            |
| 180 min Winter                                              |               | 23.274                |                        | 182                                                                                 |            |
| 240 min Winter                                              |               | 18.738                |                        | 240                                                                                 |            |
| 360 min Winter                                              |               | 13.779                |                        | 358                                                                                 |            |
| 480 min Winter                                              |               | 11.072                |                        | 476                                                                                 |            |
| 600 min Winter                                              |               | 9.336                 |                        | 594                                                                                 |            |
| 720 min Winter                                              |               | 8.117                 |                        | 710                                                                                 |            |
| 960 min Winter                                              |               | 6.503                 |                        | 942                                                                                 |            |
| 1440 min Winter                                             |               | 4.749                 |                        | 1400                                                                                |            |
| 2160 min Winter                                             |               | 3.461                 |                        | 2072                                                                                |            |
| 2880 min Winter                                             |               | 2.761                 |                        | 2684                                                                                |            |
| 4320 min Winter                                             |               | 2.005                 |                        | 3328                                                                                |            |
| 5760 min Winter                                             |               | 1.595                 |                        | 4264                                                                                |            |
| 7200 min Winter                                             |               | 1.335                 |                        | 5120                                                                                |            |
| 8640 min Winter                                             |               | 1.156                 |                        | 6048                                                                                |            |
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|                                                         |                                    |                                                                                     |
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| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 100 year Return Period (+30%)

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m <sup>3</sup> ) | Status |
|------------------|---------------------|---------------------|------------------------------|------------------------------------|--------|
| 10080 min Winter | 10.038              | 0.438               | 0.1                          | 29.1                               | FLOOD  |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 1.023           | 6856                |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

Time / Area Diagram

Total Area (ha) 0.057

|               |             |
|---------------|-------------|
| <b>Time</b>   | <b>Area</b> |
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.057 |
|-----|-------|

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Model Details

Storage is Online Cover Level (m) 10.000

#### Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 70.0                   | 70.0                        | 0.400     | 70.0                   | 83.4                        |

| Cole Easdon Consultants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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-----------|-------|-----|----------------|-------|-----|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|
| York House Edison Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Dorcan Way                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Swindon SN3 3RB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| File HSA2.SRCX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Elstree Computing Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| <p style="text-align: center;"><u>Summary of Results for 30 year Return Period</u></p> <p style="text-align: center;">Half Drain Time : 1434 minutes.</p> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>9.710</td><td>0.110</td><td>0.1</td><td>7.3</td><td>Flood Risk</td></tr><tr><td>30 min Summer</td><td>9.746</td><td>0.146</td><td>0.1</td><td>9.7</td><td>Flood Risk</td></tr><tr><td>60 min Summer</td><td>9.785</td><td>0.185</td><td>0.1</td><td>12.3</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>9.824</td><td>0.224</td><td>0.1</td><td>14.9</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>9.847</td><td>0.247</td><td>0.1</td><td>16.4</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>9.862</td><td>0.262</td><td>0.1</td><td>17.4</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>9.881</td><td>0.281</td><td>0.1</td><td>18.7</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>9.893</td><td>0.293</td><td>0.1</td><td>19.5</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>9.901</td><td>0.301</td><td>0.1</td><td>20.0</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>9.906</td><td>0.306</td><td>0.1</td><td>20.3</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>9.910</td><td>0.310</td><td>0.1</td><td>20.6</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>9.908</td><td>0.308</td><td>0.1</td><td>20.5</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>9.901</td><td>0.301</td><td>0.1</td><td>20.0</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>9.891</td><td>0.291</td><td>0.1</td><td>19.4</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>9.869</td><td>0.269</td><td>0.1</td><td>17.9</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>9.847</td><td>0.247</td><td>0.1</td><td>16.4</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>9.825</td><td>0.225</td><td>0.1</td><td>15.0</td><td>Flood Risk</td></tr><tr><td>8640 min Summer</td><td>9.805</td><td>0.205</td><td>0.1</td><td>13.6</td><td>Flood Risk</td></tr></table><br><table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>69.605</td><td>19</td></tr><tr><td>30 min Summer</td><td>46.335</td><td>34</td></tr><tr><td>60 min Summer</td><td>29.553</td><td>64</td></tr><tr><td>120 min Summer</td><td>18.298</td><td>124</td></tr><tr><td>180 min Summer</td><td>13.667</td><td>182</td></tr><tr><td>240 min Summer</td><td>11.055</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.183</td><td>362</td></tr><tr><td>480 min Summer</td><td>6.606</td><td>482</td></tr><tr><td>600 min Summer</td><td>5.592</td><td>602</td></tr><tr><td>720 min Summer</td><td>4.877</td><td>720</td></tr><tr><td>960 min Summer</td><td>3.929</td><td>960</td></tr><tr><td>1440 min Summer</td><td>2.893</td><td>1224</td></tr><tr><td>2160 min Summer</td><td>2.127</td><td>1600</td></tr><tr><td>2880 min Summer</td><td>1.708</td><td>1992</td></tr><tr><td>4320 min Summer</td><td>1.253</td><td>2812</td></tr><tr><td>5760 min Summer</td><td>1.005</td><td>3632</td></tr><tr><td>7200 min Summer</td><td>0.846</td><td>4464</td></tr><tr><td>8640 min Summer</td><td>0.736</td><td>5192</td></tr></table> |               |                       |                        |                                                                                     |            | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 9.710 | 0.110 | 0.1 | 7.3 | Flood Risk | 30 min Summer | 9.746 | 0.146 | 0.1 | 9.7 | Flood Risk | 60 min Summer | 9.785 | 0.185 | 0.1 | 12.3 | Flood Risk | 120 min Summer | 9.824 | 0.224 | 0.1 | 14.9 | Flood Risk | 180 min Summer | 9.847 | 0.247 | 0.1 | 16.4 | Flood Risk | 240 min Summer | 9.862 | 0.262 | 0.1 | 17.4 | Flood Risk | 360 min Summer | 9.881 | 0.281 | 0.1 | 18.7 | Flood Risk | 480 min Summer | 9.893 | 0.293 | 0.1 | 19.5 | Flood Risk | 600 min Summer | 9.901 | 0.301 | 0.1 | 20.0 | Flood Risk | 720 min Summer | 9.906 | 0.306 | 0.1 | 20.3 | Flood Risk | 960 min Summer | 9.910 | 0.310 | 0.1 | 20.6 | Flood Risk | 1440 min Summer | 9.908 | 0.308 | 0.1 | 20.5 | Flood Risk | 2160 min Summer | 9.901 | 0.301 | 0.1 | 20.0 | Flood Risk | 2880 min Summer | 9.891 | 0.291 | 0.1 | 19.4 | Flood Risk | 4320 min Summer | 9.869 | 0.269 | 0.1 | 17.9 | Flood Risk | 5760 min Summer | 9.847 | 0.247 | 0.1 | 16.4 | Flood Risk | 7200 min Summer | 9.825 | 0.225 | 0.1 | 15.0 | Flood Risk | 8640 min Summer | 9.805 | 0.205 | 0.1 | 13.6 | Flood Risk | Storm Event | Rain (mm/hr) | Time-Peak (mins) | 15 min Summer | 69.605 | 19 | 30 min Summer | 46.335 | 34 | 60 min Summer | 29.553 | 64 | 120 min Summer | 18.298 | 124 | 180 min Summer | 13.667 | 182 | 240 min Summer | 11.055 | 242 | 360 min Summer | 8.183 | 362 | 480 min Summer | 6.606 | 482 | 600 min Summer | 5.592 | 602 | 720 min Summer | 4.877 | 720 | 960 min Summer | 3.929 | 960 | 1440 min Summer | 2.893 | 1224 | 2160 min Summer | 2.127 | 1600 | 2880 min Summer | 1.708 | 1992 | 4320 min Summer | 1.253 | 2812 | 5760 min Summer | 1.005 | 3632 | 7200 min Summer | 0.846 | 4464 | 8640 min Summer | 0.736 | 5192 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.710         | 0.110                 | 0.1                    | 7.3                                                                                 | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.746         | 0.146                 | 0.1                    | 9.7                                                                                 | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.785         | 0.185                 | 0.1                    | 12.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.824         | 0.224                 | 0.1                    | 14.9                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.847         | 0.247                 | 0.1                    | 16.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.862         | 0.262                 | 0.1                    | 17.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.881         | 0.281                 | 0.1                    | 18.7                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.893         | 0.293                 | 0.1                    | 19.5                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.901         | 0.301                 | 0.1                    | 20.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.906         | 0.306                 | 0.1                    | 20.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.910         | 0.310                 | 0.1                    | 20.6                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.908         | 0.308                 | 0.1                    | 20.5                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.901         | 0.301                 | 0.1                    | 20.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.891         | 0.291                 | 0.1                    | 19.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.869         | 0.269                 | 0.1                    | 17.9                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.847         | 0.247                 | 0.1                    | 16.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.825         | 0.225                 | 0.1                    | 15.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.127         | 1600                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.708         | 1992                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.253         | 2812                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.005         | 3632                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.846         | 4464                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.736         | 5192                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |

|                                                     |                        |                              |                              |                                       |                                                                                     |               |
|-----------------------------------------------------|------------------------|------------------------------|------------------------------|---------------------------------------|-------------------------------------------------------------------------------------|---------------|
| Cole Easdon Consultants                             |                        |                              |                              |                                       | Page 2                                                                              |               |
| York House Edison Park                              |                        | Portsdown Hill               |                              |                                       |  |               |
| Dorcan Way                                          |                        |                              |                              |                                       |                                                                                     |               |
| Swindon SN3 3RB                                     |                        | Highway SA 1                 |                              |                                       |                                                                                     |               |
| Date Oct 2013                                       |                        | Designed By NP               |                              |                                       |                                                                                     |               |
| File HSA2.SRCX                                      |                        | Checked By                   |                              |                                       |                                                                                     |               |
| Elstree Computing Ltd                               |                        | Source Control W.12.4        |                              |                                       |                                                                                     |               |
| <u>Summary of Results for 30 year Return Period</u> |                        |                              |                              |                                       |                                                                                     |               |
|                                                     | <b>Storm<br/>Event</b> | <b>Max<br/>Level<br/>(m)</b> | <b>Max<br/>Depth<br/>(m)</b> | <b>Max<br/>Infiltration<br/>(l/s)</b> | <b>Max<br/>Volume<br/>(m³)</b>                                                      | <b>Status</b> |
|                                                     | 10080 min Summer       | 9.786                        | 0.186                        | 0.1                                   | 12.4                                                                                | Flood Risk    |
|                                                     | 15 min Winter          | 9.724                        | 0.124                        | 0.1                                   | 8.2                                                                                 | Flood Risk    |
|                                                     | 30 min Winter          | 9.764                        | 0.164                        | 0.1                                   | 10.9                                                                                | Flood Risk    |
|                                                     | 60 min Winter          | 9.807                        | 0.207                        | 0.1                                   | 13.8                                                                                | Flood Risk    |
|                                                     | 120 min Winter         | 9.852                        | 0.252                        | 0.1                                   | 16.8                                                                                | Flood Risk    |
|                                                     | 180 min Winter         | 9.878                        | 0.278                        | 0.1                                   | 18.5                                                                                | Flood Risk    |
|                                                     | 240 min Winter         | 9.895                        | 0.295                        | 0.1                                   | 19.6                                                                                | Flood Risk    |
|                                                     | 360 min Winter         | 9.918                        | 0.318                        | 0.1                                   | 21.2                                                                                | Flood Risk    |
|                                                     | 480 min Winter         | 9.933                        | 0.333                        | 0.1                                   | 22.2                                                                                | Flood Risk    |
|                                                     | 600 min Winter         | 9.943                        | 0.343                        | 0.1                                   | 22.8                                                                                | Flood Risk    |
|                                                     | 720 min Winter         | 9.950                        | 0.350                        | 0.1                                   | 23.3                                                                                | Flood Risk    |
|                                                     | 960 min Winter         | 9.957                        | 0.357                        | 0.1                                   | 23.8                                                                                | Flood Risk    |
|                                                     | 1440 min Winter        | 9.958                        | 0.358                        | 0.1                                   | 23.8                                                                                | Flood Risk    |
|                                                     | 2160 min Winter        | 9.947                        | 0.347                        | 0.1                                   | 23.1                                                                                | Flood Risk    |
|                                                     | 2880 min Winter        | 9.933                        | 0.333                        | 0.1                                   | 22.2                                                                                | Flood Risk    |
|                                                     | 4320 min Winter        | 9.900                        | 0.300                        | 0.1                                   | 20.0                                                                                | Flood Risk    |
|                                                     | 5760 min Winter        | 9.866                        | 0.266                        | 0.1                                   | 17.7                                                                                | Flood Risk    |
|                                                     | 7200 min Winter        | 9.833                        | 0.233                        | 0.1                                   | 15.5                                                                                | Flood Risk    |
|                                                     | 8640 min Winter        | 9.802                        | 0.202                        | 0.1                                   | 13.4                                                                                | Flood Risk    |
|                                                     | <b>Storm<br/>Event</b> |                              |                              | <b>Rain<br/>(mm/hr)</b>               | <b>Time-Peak<br/>(mins)</b>                                                         |               |
|                                                     | 10080 min Summer       |                              |                              | 0.654                                 | 5960                                                                                |               |
|                                                     | 15 min Winter          |                              |                              | 69.605                                | 19                                                                                  |               |
|                                                     | 30 min Winter          |                              |                              | 46.335                                | 33                                                                                  |               |
|                                                     | 60 min Winter          |                              |                              | 29.553                                | 64                                                                                  |               |
|                                                     | 120 min Winter         |                              |                              | 18.298                                | 122                                                                                 |               |
|                                                     | 180 min Winter         |                              |                              | 13.667                                | 180                                                                                 |               |
|                                                     | 240 min Winter         |                              |                              | 11.055                                | 240                                                                                 |               |
|                                                     | 360 min Winter         |                              |                              | 8.183                                 | 356                                                                                 |               |
|                                                     | 480 min Winter         |                              |                              | 6.606                                 | 472                                                                                 |               |
|                                                     | 600 min Winter         |                              |                              | 5.592                                 | 588                                                                                 |               |
|                                                     | 720 min Winter         |                              |                              | 4.877                                 | 702                                                                                 |               |
|                                                     | 960 min Winter         |                              |                              | 3.929                                 | 926                                                                                 |               |
|                                                     | 1440 min Winter        |                              |                              | 2.893                                 | 1356                                                                                |               |
|                                                     | 2160 min Winter        |                              |                              | 2.127                                 | 1708                                                                                |               |
|                                                     | 2880 min Winter        |                              |                              | 1.708                                 | 2164                                                                                |               |
|                                                     | 4320 min Winter        |                              |                              | 1.253                                 | 3072                                                                                |               |
|                                                     | 5760 min Winter        |                              |                              | 1.005                                 | 3928                                                                                |               |
|                                                     | 7200 min Winter        |                              |                              | 0.846                                 | 4760                                                                                |               |
|                                                     | 8640 min Winter        |                              |                              | 0.736                                 | 5616                                                                                |               |
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|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 3                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 30 year Return Period

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m <sup>3</sup> ) | Status     |
|------------------|---------------------|---------------------|------------------------------|------------------------------------|------------|
| 10080 min Winter | 9.773               | 0.173               | 0.1                          | 11.5                               | Flood Risk |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 0.654           | 6352                |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 30                | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +0    |

#### Time / Area Diagram

Total Area (ha) 0.057

| <b>Time</b>   | <b>Area</b> |
|---------------|-------------|
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.057 |
|-----|-------|

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA2.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 70.0                   | 70.0                        | 0.400     | 70.0                   | 83.4                        |

|                                                             |                     |                       |                              |                                                                                     |            |
|-------------------------------------------------------------|---------------------|-----------------------|------------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |                     |                       |                              | Page 1                                                                              |            |
| York House Edison Park                                      |                     | Portsdown Hill        |                              |  |            |
| Dorcan Way                                                  |                     | Highway SA 1          |                              |                                                                                     |            |
| Swindon SN3 3RB                                             |                     |                       |                              |                                                                                     |            |
| Date Oct 2013                                               |                     | Designed By NP        |                              |                                                                                     |            |
| File HSA3.srcx                                              |                     | Checked By            |                              |                                                                                     |            |
| Elstree Computing Ltd                                       |                     | Source Control W.12.4 |                              |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |                     |                       |                              |                                                                                     |            |
| Half Drain Time : 2387 minutes.                             |                     |                       |                              |                                                                                     |            |
| Storm<br>Event                                              | Max<br>Level<br>(m) | Max<br>Depth<br>(m)   | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³)                                                               | Status     |
| 15 min Summer                                               | 9.776               | 0.176                 | 0.1                          | 10.9                                                                                | Flood Risk |
| 30 min Summer                                               | 9.836               | 0.236                 | 0.1                          | 14.6                                                                                | Flood Risk |
| 60 min Summer                                               | 9.901               | 0.301                 | 0.1                          | 18.6                                                                                | Flood Risk |
| 120 min Summer                                              | 9.967               | 0.367                 | 0.1                          | 22.7                                                                                | Flood Risk |
| 180 min Summer                                              | 10.005              | 0.405                 | 0.1                          | 25.0                                                                                | FLOOD      |
| 240 min Summer                                              | 10.030              | 0.430                 | 0.1                          | 26.5                                                                                | FLOOD      |
| 360 min Summer                                              | 10.063              | 0.463                 | 0.1                          | 28.6                                                                                | FLOOD      |
| 480 min Summer                                              | 10.086              | 0.486                 | 0.1                          | 30.0                                                                                | FLOOD      |
| 600 min Summer                                              | 10.102              | 0.502                 | 0.1                          | 31.0                                                                                | FLOOD      |
| 720 min Summer                                              | 10.113              | 0.513                 | 0.1                          | 31.7                                                                                | FLOOD      |
| 960 min Summer                                              | 10.127              | 0.527                 | 0.1                          | 32.5                                                                                | FLOOD      |
| 1440 min Summer                                             | 10.134              | 0.534                 | 0.1                          | 33.0                                                                                | FLOOD      |
| 2160 min Summer                                             | 10.123              | 0.523                 | 0.1                          | 32.3                                                                                | FLOOD      |
| 2880 min Summer                                             | 10.109              | 0.509                 | 0.1                          | 31.4                                                                                | FLOOD      |
| 4320 min Summer                                             | 10.079              | 0.479                 | 0.1                          | 29.6                                                                                | FLOOD      |
| 5760 min Summer                                             | 10.050              | 0.450                 | 0.1                          | 27.8                                                                                | FLOOD      |
| 7200 min Summer                                             | 10.021              | 0.421                 | 0.1                          | 26.0                                                                                | FLOOD      |
| 8640 min Summer                                             | 9.995               | 0.395                 | 0.1                          | 24.4                                                                                | Flood Risk |
| Storm<br>Event                                              |                     |                       | Rain<br>(mm/hr)              | Time-Peak<br>(mins)                                                                 |            |
| 15 min Summer                                               |                     |                       | 117.069                      | 19                                                                                  |            |
| 30 min Summer                                               |                     |                       | 78.692                       | 34                                                                                  |            |
| 60 min Summer                                               |                     |                       | 50.485                       | 64                                                                                  |            |
| 120 min Summer                                              |                     |                       | 31.269                       | 124                                                                                 |            |
| 180 min Summer                                              |                     |                       | 23.274                       | 184                                                                                 |            |
| 240 min Summer                                              |                     |                       | 18.738                       | 244                                                                                 |            |
| 360 min Summer                                              |                     |                       | 13.779                       | 362                                                                                 |            |
| 480 min Summer                                              |                     |                       | 11.072                       | 482                                                                                 |            |
| 600 min Summer                                              |                     |                       | 9.336                        | 602                                                                                 |            |
| 720 min Summer                                              |                     |                       | 8.117                        | 722                                                                                 |            |
| 960 min Summer                                              |                     |                       | 6.503                        | 962                                                                                 |            |
| 1440 min Summer                                             |                     |                       | 4.749                        | 1440                                                                                |            |
| 2160 min Summer                                             |                     |                       | 3.461                        | 1924                                                                                |            |
| 2880 min Summer                                             |                     |                       | 2.761                        | 2276                                                                                |            |
| 4320 min Summer                                             |                     |                       | 2.005                        | 3028                                                                                |            |
| 5760 min Summer                                             |                     |                       | 1.595                        | 3864                                                                                |            |
| 7200 min Summer                                             |                     |                       | 1.335                        | 4680                                                                                |            |
| 8640 min Summer                                             |                     |                       | 1.156                        | 5448                                                                                |            |
| ©1982-2010 Micro Drainage Ltd                               |                     |                       |                              |                                                                                     |            |

|                                                             |               |                       |                        |                                                                                     |            |
|-------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               |                       |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               | Highway SA 1          |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Designed By NP        |                        |                                                                                     |            |
| File HSA3.srcx                                              |               | Checked By            |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                            | 9.971         | 0.371                 | 0.1                    | 22.9                                                                                | Flood Risk |
| 15 min Winter                                               | 9.797         | 0.197                 | 0.1                    | 12.2                                                                                | Flood Risk |
| 30 min Winter                                               | 9.865         | 0.265                 | 0.1                    | 16.3                                                                                | Flood Risk |
| 60 min Winter                                               | 9.937         | 0.337                 | 0.1                    | 20.8                                                                                | Flood Risk |
| 120 min Winter                                              | 10.013        | 0.413                 | 0.1                    | 25.5                                                                                | FLOOD      |
| 180 min Winter                                              | 10.056        | 0.456                 | 0.1                    | 28.1                                                                                | FLOOD      |
| 240 min Winter                                              | 10.084        | 0.484                 | 0.1                    | 29.9                                                                                | FLOOD      |
| 360 min Winter                                              | 10.123        | 0.523                 | 0.1                    | 32.3                                                                                | FLOOD      |
| 480 min Winter                                              | 10.150        | 0.550                 | 0.1                    | 34.0                                                                                | FLOOD      |
| 600 min Winter                                              | 10.170        | 0.570                 | 0.1                    | 35.2                                                                                | FLOOD      |
| 720 min Winter                                              | 10.184        | 0.584                 | 0.1                    | 36.1                                                                                | FLOOD      |
| 960 min Winter                                              | 10.203        | 0.603                 | 0.1                    | 37.2                                                                                | FLOOD      |
| 1440 min Winter                                             | 10.218        | 0.618                 | 0.1                    | 38.2                                                                                | FLOOD      |
| 2160 min Winter                                             | 10.214        | 0.614                 | 0.1                    | 37.9                                                                                | FLOOD      |
| 2880 min Winter                                             | 10.195        | 0.595                 | 0.1                    | 36.7                                                                                | FLOOD      |
| 4320 min Winter                                             | 10.155        | 0.555                 | 0.1                    | 34.3                                                                                | FLOOD      |
| 5760 min Winter                                             | 10.113        | 0.513                 | 0.1                    | 31.7                                                                                | FLOOD      |
| 7200 min Winter                                             | 10.071        | 0.471                 | 0.1                    | 29.1                                                                                | FLOOD      |
| 8640 min Winter                                             | 10.030        | 0.430                 | 0.1                    | 26.6                                                                                | FLOOD      |
| Storm Event                                                 | Rain (mm/hr)  | Time-Peak (mins)      |                        |                                                                                     |            |
| 10080 min Summer                                            | 1.023         | 6256                  |                        |                                                                                     |            |
| 15 min Winter                                               | 117.069       | 19                    |                        |                                                                                     |            |
| 30 min Winter                                               | 78.692        | 34                    |                        |                                                                                     |            |
| 60 min Winter                                               | 50.485        | 64                    |                        |                                                                                     |            |
| 120 min Winter                                              | 31.269        | 122                   |                        |                                                                                     |            |
| 180 min Winter                                              | 23.274        | 182                   |                        |                                                                                     |            |
| 240 min Winter                                              | 18.738        | 240                   |                        |                                                                                     |            |
| 360 min Winter                                              | 13.779        | 358                   |                        |                                                                                     |            |
| 480 min Winter                                              | 11.072        | 476                   |                        |                                                                                     |            |
| 600 min Winter                                              | 9.336         | 594                   |                        |                                                                                     |            |
| 720 min Winter                                              | 8.117         | 710                   |                        |                                                                                     |            |
| 960 min Winter                                              | 6.503         | 942                   |                        |                                                                                     |            |
| 1440 min Winter                                             | 4.749         | 1398                  |                        |                                                                                     |            |
| 2160 min Winter                                             | 3.461         | 2056                  |                        |                                                                                     |            |
| 2880 min Winter                                             | 2.761         | 2652                  |                        |                                                                                     |            |
| 4320 min Winter                                             | 2.005         | 3284                  |                        |                                                                                     |            |
| 5760 min Winter                                             | 1.595         | 4208                  |                        |                                                                                     |            |
| 7200 min Winter                                             | 1.335         | 5112                  |                        |                                                                                     |            |
| 8640 min Winter                                             | 1.156         | 5960                  |                        |                                                                                     |            |
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| Cole Easdon Consultants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               |                       |                        | Page 3                                                                              |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|-------------|---------------|---------------|------------------------|-----------------|--------|------------------|-------|-------|-----|------|------------|-------------|--------------|------------------|------------------|-------|------|
| York House Edison Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               | Portsdown Hill        |                        |  |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| Dorcan Way                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               | Highway SA 1          |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| Swindon SN3 3RB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               | Designed By NP        |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| Date Oct 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               | Checked By            |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| File HSA3.srcx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                       |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| Elstree Computing Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               | Source Control W.12.4 |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| <p><u>Summary of Results for 100 year Return Period (+30%)</u></p> <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>9.993</td><td>0.393</td><td>0.1</td><td>24.2</td><td>Flood Risk</td></tr></tbody></table><br><table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>10080 min Winter</td><td>1.023</td><td>6760</td></tr></tbody></table> |               |                       |                        |                                                                                     |            | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 10080 min Winter | 9.993 | 0.393 | 0.1 | 24.2 | Flood Risk | Storm Event | Rain (mm/hr) | Time-Peak (mins) | 10080 min Winter | 1.023 | 6760 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9.993         | 0.393                 | 0.1                    | 24.2                                                                                | Flood Risk |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Rain (mm/hr)  | Time-Peak (mins)      |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
| 10080 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.023         | 6760                  |                        |                                                                                     |            |             |               |               |                        |                 |        |                  |       |       |     |      |            |             |              |                  |                  |       |      |
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|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA3.srcx                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

#### Time / Area Diagram

Total Area (ha) 0.050

| <b>Time<br/>(mins)</b> | <b>Area<br/>(ha)</b> |
|------------------------|----------------------|
| 0-4                    | 0.050                |

|                                                         |                                    |                                                                                    |
|---------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA3.srcx                         | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

#### Model Details

Storage is Online Cover Level (m) 10.000

#### Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 65.0                   | 65.0                        | 0.400     | 65.0                   | 77.9                        |

| Cole Easdon Consultants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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-----------|-------|-----|----------------|-------|-----|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|
| York House Edison Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               | Portsdown Hill        |                        |  |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                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 |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Dorcan Way                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Swindon SN3 3RB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Date Oct 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| File HSA3.SRCX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Elstree Computing Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| <p style="text-align: center;"><u>Summary of Results for 30 year Return Period</u></p> <p style="text-align: center;">Half Drain Time : 1343 minutes.</p> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>9.704</td><td>0.104</td><td>0.1</td><td>6.4</td><td>Flood Risk</td></tr><tr><td>30 min Summer</td><td>9.738</td><td>0.138</td><td>0.1</td><td>8.5</td><td>Flood Risk</td></tr><tr><td>60 min Summer</td><td>9.774</td><td>0.174</td><td>0.1</td><td>10.8</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>9.811</td><td>0.211</td><td>0.1</td><td>13.0</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>9.832</td><td>0.232</td><td>0.1</td><td>14.3</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>9.846</td><td>0.246</td><td>0.1</td><td>15.2</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>9.864</td><td>0.264</td><td>0.1</td><td>16.3</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>9.875</td><td>0.275</td><td>0.1</td><td>17.0</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>9.882</td><td>0.282</td><td>0.1</td><td>17.4</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>9.886</td><td>0.286</td><td>0.1</td><td>17.6</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>9.888</td><td>0.288</td><td>0.1</td><td>17.8</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>9.886</td><td>0.286</td><td>0.1</td><td>17.7</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>9.879</td><td>0.279</td><td>0.1</td><td>17.2</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>9.869</td><td>0.269</td><td>0.1</td><td>16.6</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>9.848</td><td>0.248</td><td>0.1</td><td>15.3</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>9.825</td><td>0.225</td><td>0.1</td><td>13.9</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>9.804</td><td>0.204</td><td>0.1</td><td>12.6</td><td>Flood Risk</td></tr><tr><td>8640 min Summer</td><td>9.785</td><td>0.185</td><td>0.1</td><td>11.4</td><td>Flood Risk</td></tr></table><br><table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>69.605</td><td>19</td></tr><tr><td>30 min Summer</td><td>46.335</td><td>34</td></tr><tr><td>60 min Summer</td><td>29.553</td><td>64</td></tr><tr><td>120 min Summer</td><td>18.298</td><td>124</td></tr><tr><td>180 min Summer</td><td>13.667</td><td>182</td></tr><tr><td>240 min Summer</td><td>11.055</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.183</td><td>362</td></tr><tr><td>480 min Summer</td><td>6.606</td><td>482</td></tr><tr><td>600 min Summer</td><td>5.592</td><td>602</td></tr><tr><td>720 min Summer</td><td>4.877</td><td>720</td></tr><tr><td>960 min Summer</td><td>3.929</td><td>960</td></tr><tr><td>1440 min Summer</td><td>2.893</td><td>1184</td></tr><tr><td>2160 min Summer</td><td>2.127</td><td>1560</td></tr><tr><td>2880 min Summer</td><td>1.708</td><td>1964</td></tr><tr><td>4320 min Summer</td><td>1.253</td><td>2808</td></tr><tr><td>5760 min Summer</td><td>1.005</td><td>3624</td></tr><tr><td>7200 min Summer</td><td>0.846</td><td>4400</td></tr><tr><td>8640 min Summer</td><td>0.736</td><td>5184</td></tr></table> |               |                       |                        |                                                                                     |            | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 9.704 | 0.104 | 0.1 | 6.4 | Flood Risk | 30 min Summer | 9.738 | 0.138 | 0.1 | 8.5 | Flood Risk | 60 min Summer | 9.774 | 0.174 | 0.1 | 10.8 | Flood Risk | 120 min Summer | 9.811 | 0.211 | 0.1 | 13.0 | Flood Risk | 180 min Summer | 9.832 | 0.232 | 0.1 | 14.3 | Flood Risk | 240 min Summer | 9.846 | 0.246 | 0.1 | 15.2 | Flood Risk | 360 min Summer | 9.864 | 0.264 | 0.1 | 16.3 | Flood Risk | 480 min Summer | 9.875 | 0.275 | 0.1 | 17.0 | Flood Risk | 600 min Summer | 9.882 | 0.282 | 0.1 | 17.4 | Flood Risk | 720 min Summer | 9.886 | 0.286 | 0.1 | 17.6 | Flood Risk | 960 min Summer | 9.888 | 0.288 | 0.1 | 17.8 | Flood Risk | 1440 min Summer | 9.886 | 0.286 | 0.1 | 17.7 | Flood Risk | 2160 min Summer | 9.879 | 0.279 | 0.1 | 17.2 | Flood Risk | 2880 min Summer | 9.869 | 0.269 | 0.1 | 16.6 | Flood Risk | 4320 min Summer | 9.848 | 0.248 | 0.1 | 15.3 | Flood Risk | 5760 min Summer | 9.825 | 0.225 | 0.1 | 13.9 | Flood Risk | 7200 min Summer | 9.804 | 0.204 | 0.1 | 12.6 | Flood Risk | 8640 min Summer | 9.785 | 0.185 | 0.1 | 11.4 | Flood Risk | Storm Event | Rain (mm/hr) | Time-Peak (mins) | 15 min Summer | 69.605 | 19 | 30 min Summer | 46.335 | 34 | 60 min Summer | 29.553 | 64 | 120 min Summer | 18.298 | 124 | 180 min Summer | 13.667 | 182 | 240 min Summer | 11.055 | 242 | 360 min Summer | 8.183 | 362 | 480 min Summer | 6.606 | 482 | 600 min Summer | 5.592 | 602 | 720 min Summer | 4.877 | 720 | 960 min Summer | 3.929 | 960 | 1440 min Summer | 2.893 | 1184 | 2160 min Summer | 2.127 | 1560 | 2880 min Summer | 1.708 | 1964 | 4320 min Summer | 1.253 | 2808 | 5760 min Summer | 1.005 | 3624 | 7200 min Summer | 0.846 | 4400 | 8640 min Summer | 0.736 | 5184 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.704         | 0.104                 | 0.1                    | 6.4                                                                                 | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.738         | 0.138                 | 0.1                    | 8.5                                                                                 | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.774         | 0.174                 | 0.1                    | 10.8                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.811         | 0.211                 | 0.1                    | 13.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.832         | 0.232                 | 0.1                    | 14.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.846         | 0.246                 | 0.1                    | 15.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.864         | 0.264                 | 0.1                    | 16.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.875         | 0.275                 | 0.1                    | 17.0                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.882         | 0.282                 | 0.1                    | 17.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |     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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.886         | 0.286                 | 0.1                    | 17.6                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.888         | 0.288                 | 0.1                    | 17.8                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.886         | 0.286                 | 0.1                    | 17.7                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.879         | 0.279                 | 0.1                    | 17.2                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.869         | 0.269                 | 0.1                    | 16.6                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.848         | 0.248                 | 0.1                    | 15.3                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.825         | 0.225                 | 0.1                    | 13.9                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.804         | 0.204                 | 0.1                    | 12.6                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.785         | 0.185                 | 0.1                    | 11.4                                                                                | Flood Risk |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.846         | 4400                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.736         | 5184                  |                        |                                                                                     |            |             |               |               |                        |                 |        |               |       |       |     |     |            |               |       |       |     |     |            |               |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| ©1982-2010 Micro Drainage Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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       |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |                 |       |       |     |      |            |             |              |                  |               |        |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |          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|                                                                                        |               |                       |                        |                                                                                     |            |
|----------------------------------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                                                |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                                                 |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                                             |               |                       |                        |                                                                                     |            |
| Swindon SN3 3RB                                                                        |               | Highway SA 1          |                        |                                                                                     |            |
| Date Oct 2013                                                                          |               | Designed By NP        |                        |                                                                                     |            |
| File HSA3.SRCX                                                                         |               | Checked By            |                        |                                                                                     |            |
| Elstree Computing Ltd                                                                  |               | Source Control W.12.4 |                        |                                                                                     |            |
| <p style="text-align: center;"><u>Summary of Results for 30 year Return Period</u></p> |               |                       |                        |                                                                                     |            |
| Storm Event                                                                            | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                                                       | 9.766         | 0.166                 | 0.1                    | 10.3                                                                                | Flood Risk |
| 15 min Winter                                                                          | 9.717         | 0.117                 | 0.1                    | 7.2                                                                                 | Flood Risk |
| 30 min Winter                                                                          | 9.755         | 0.155                 | 0.1                    | 9.6                                                                                 | Flood Risk |
| 60 min Winter                                                                          | 9.795         | 0.195                 | 0.1                    | 12.1                                                                                | Flood Risk |
| 120 min Winter                                                                         | 9.838         | 0.238                 | 0.1                    | 14.7                                                                                | Flood Risk |
| 180 min Winter                                                                         | 9.862         | 0.262                 | 0.1                    | 16.2                                                                                | Flood Risk |
| 240 min Winter                                                                         | 9.878         | 0.278                 | 0.1                    | 17.2                                                                                | Flood Risk |
| 360 min Winter                                                                         | 9.899         | 0.299                 | 0.1                    | 18.5                                                                                | Flood Risk |
| 480 min Winter                                                                         | 9.913         | 0.313                 | 0.1                    | 19.3                                                                                | Flood Risk |
| 600 min Winter                                                                         | 9.922         | 0.322                 | 0.1                    | 19.9                                                                                | Flood Risk |
| 720 min Winter                                                                         | 9.928         | 0.328                 | 0.1                    | 20.2                                                                                | Flood Risk |
| 960 min Winter                                                                         | 9.933         | 0.333                 | 0.1                    | 20.6                                                                                | Flood Risk |
| 1440 min Winter                                                                        | 9.932         | 0.332                 | 0.1                    | 20.5                                                                                | Flood Risk |
| 2160 min Winter                                                                        | 9.921         | 0.321                 | 0.1                    | 19.8                                                                                | Flood Risk |
| 2880 min Winter                                                                        | 9.907         | 0.307                 | 0.1                    | 19.0                                                                                | Flood Risk |
| 4320 min Winter                                                                        | 9.874         | 0.274                 | 0.1                    | 16.9                                                                                | Flood Risk |
| 5760 min Winter                                                                        | 9.840         | 0.240                 | 0.1                    | 14.8                                                                                | Flood Risk |
| 7200 min Winter                                                                        | 9.807         | 0.207                 | 0.1                    | 12.8                                                                                | Flood Risk |
| 8640 min Winter                                                                        | 9.777         | 0.177                 | 0.1                    | 11.0                                                                                | Flood Risk |
| Storm Event                                                                            |               |                       | Rain (mm/hr)           | Time-Peak (mins)                                                                    |            |
| 10080 min Summer                                                                       |               |                       | 0.654                  | 5952                                                                                |            |
| 15 min Winter                                                                          |               |                       | 69.605                 | 19                                                                                  |            |
| 30 min Winter                                                                          |               |                       | 46.335                 | 33                                                                                  |            |
| 60 min Winter                                                                          |               |                       | 29.553                 | 62                                                                                  |            |
| 120 min Winter                                                                         |               |                       | 18.298                 | 122                                                                                 |            |
| 180 min Winter                                                                         |               |                       | 13.667                 | 180                                                                                 |            |
| 240 min Winter                                                                         |               |                       | 11.055                 | 240                                                                                 |            |
| 360 min Winter                                                                         |               |                       | 8.183                  | 356                                                                                 |            |
| 480 min Winter                                                                         |               |                       | 6.606                  | 472                                                                                 |            |
| 600 min Winter                                                                         |               |                       | 5.592                  | 588                                                                                 |            |
| 720 min Winter                                                                         |               |                       | 4.877                  | 700                                                                                 |            |
| 960 min Winter                                                                         |               |                       | 3.929                  | 924                                                                                 |            |
| 1440 min Winter                                                                        |               |                       | 2.893                  | 1352                                                                                |            |
| 2160 min Winter                                                                        |               |                       | 2.127                  | 1684                                                                                |            |
| 2880 min Winter                                                                        |               |                       | 1.708                  | 2136                                                                                |            |
| 4320 min Winter                                                                        |               |                       | 1.253                  | 3028                                                                                |            |
| 5760 min Winter                                                                        |               |                       | 1.005                  | 3920                                                                                |            |
| 7200 min Winter                                                                        |               |                       | 0.846                  | 4752                                                                                |            |
| 8640 min Winter                                                                        |               |                       | 0.736                  | 5528                                                                                |            |
| ©1982-2010 Micro Drainage Ltd                                                          |               |                       |                        |                                                                                     |            |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 3                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA3.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 30 year Return Period

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m <sup>3</sup> ) | Status     |
|------------------|---------------------|---------------------|------------------------------|------------------------------------|------------|
| 10080 min Winter | 9.750               | 0.150               | 0.1                          | 9.3                                | Flood Risk |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 0.654           | 6256                |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA3.SRCX                         | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 30                | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +0    |

#### Time / Area Diagram

Total Area (ha) 0.050

| <b>Time</b>   | <b>Area</b> |
|---------------|-------------|
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.050 |
|-----|-------|

|                                                         |                                    |                                                                                    |
|---------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File HSA3.SRCX                         | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 9.600 Safety Factor 2.0  
Infiltration Coefficient Base (m/hr) 0.01274 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.01274

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 65.0                   | 65.0                        | 0.400     | 65.0                   | 77.9                        |

| Cole Easdon Consultants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |                       |                        | Page 1                                                                              |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|--------|-------------|---------------|---------------|------------------------|-----------------|--------|---------------|--------|-------|-----|-----|-----|---------------|--------|-------|-----|-----|-----|---------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-------------|--------------|------------------|---------------|---------|----|---------------|--------|----|---------------|--------|----|----------------|--------|-----|----------------|--------|-----|----------------|--------|-----|----------------|--------|-----|----------------|--------|-----|----------------|-------|-----|----------------|-------|-----|----------------|-------|-----|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|------|
| York House Edison Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |               | Portsdown Hill        |                        |  |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Dorcan Way                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                       |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Swindon SN3 3RB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | Private SA2           |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Date Oct 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               | Designed By NP        |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| File 4040-PRIVATE SA1....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               | Checked By            |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Elstree Computing Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               | Source Control W.12.4 |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| <p><u>Summary of Results for 100 year Return Period (+30%)</u></p> <p>Half Drain Time : 1318 minutes.</p> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>27.552</td><td>0.552</td><td>0.0</td><td>2.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>27.738</td><td>0.738</td><td>0.0</td><td>2.9</td><td>O K</td></tr><tr><td>60 min Summer</td><td>27.938</td><td>0.938</td><td>0.0</td><td>3.7</td><td>O K</td></tr><tr><td>120 min Summer</td><td>28.140</td><td>1.140</td><td>0.0</td><td>4.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>28.251</td><td>1.251</td><td>0.0</td><td>4.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>28.320</td><td>1.320</td><td>0.0</td><td>5.2</td><td>O K</td></tr><tr><td>360 min Summer</td><td>28.407</td><td>1.407</td><td>0.0</td><td>5.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>28.458</td><td>1.458</td><td>0.0</td><td>5.7</td><td>O K</td></tr><tr><td>600 min Summer</td><td>28.488</td><td>1.488</td><td>0.0</td><td>5.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>28.503</td><td>1.503</td><td>0.0</td><td>5.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>28.509</td><td>1.509</td><td>0.0</td><td>5.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>28.502</td><td>1.502</td><td>0.0</td><td>5.9</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>28.469</td><td>1.469</td><td>0.0</td><td>5.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>28.422</td><td>1.422</td><td>0.0</td><td>5.6</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>28.318</td><td>1.318</td><td>0.0</td><td>5.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>28.223</td><td>1.223</td><td>0.0</td><td>4.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>28.138</td><td>1.138</td><td>0.0</td><td>4.5</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>28.064</td><td>1.064</td><td>0.0</td><td>4.2</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>117.069</td><td>19</td></tr><tr><td>30 min Summer</td><td>78.692</td><td>34</td></tr><tr><td>60 min Summer</td><td>50.485</td><td>64</td></tr><tr><td>120 min Summer</td><td>31.269</td><td>124</td></tr><tr><td>180 min Summer</td><td>23.274</td><td>182</td></tr><tr><td>240 min Summer</td><td>18.738</td><td>242</td></tr><tr><td>360 min Summer</td><td>13.779</td><td>362</td></tr><tr><td>480 min Summer</td><td>11.072</td><td>482</td></tr><tr><td>600 min Summer</td><td>9.336</td><td>600</td></tr><tr><td>720 min Summer</td><td>8.117</td><td>720</td></tr><tr><td>960 min Summer</td><td>6.503</td><td>896</td></tr><tr><td>1440 min Summer</td><td>4.749</td><td>1126</td></tr><tr><td>2160 min Summer</td><td>3.461</td><td>1516</td></tr><tr><td>2880 min Summer</td><td>2.761</td><td>1932</td></tr><tr><td>4320 min Summer</td><td>2.005</td><td>2768</td></tr><tr><td>5760 min Summer</td><td>1.595</td><td>3576</td></tr><tr><td>7200 min Summer</td><td>1.335</td><td>4392</td></tr><tr><td>8640 min Summer</td><td>1.156</td><td>5192</td></tr></table> |               |                       |                        |                                                                                     |        | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 27.552 | 0.552 | 0.0 | 2.2 | O K | 30 min Summer | 27.738 | 0.738 | 0.0 | 2.9 | O K | 60 min Summer | 27.938 | 0.938 | 0.0 | 3.7 | O K | 120 min Summer | 28.140 | 1.140 | 0.0 | 4.5 | O K | 180 min Summer | 28.251 | 1.251 | 0.0 | 4.9 | O K | 240 min Summer | 28.320 | 1.320 | 0.0 | 5.2 | O K | 360 min Summer | 28.407 | 1.407 | 0.0 | 5.5 | O K | 480 min Summer | 28.458 | 1.458 | 0.0 | 5.7 | O K | 600 min Summer | 28.488 | 1.488 | 0.0 | 5.9 | O K | 720 min Summer | 28.503 | 1.503 | 0.0 | 5.9 | O K | 960 min Summer | 28.509 | 1.509 | 0.0 | 5.9 | O K | 1440 min Summer | 28.502 | 1.502 | 0.0 | 5.9 | O K | 2160 min Summer | 28.469 | 1.469 | 0.0 | 5.8 | O K | 2880 min Summer | 28.422 | 1.422 | 0.0 | 5.6 | O K | 4320 min Summer | 28.318 | 1.318 | 0.0 | 5.2 | O K | 5760 min Summer | 28.223 | 1.223 | 0.0 | 4.8 | O K | 7200 min Summer | 28.138 | 1.138 | 0.0 | 4.5 | O K | 8640 min Summer | 28.064 | 1.064 | 0.0 | 4.2 | O K | Storm Event | Rain (mm/hr) | Time-Peak (mins) | 15 min Summer | 117.069 | 19 | 30 min Summer | 78.692 | 34 | 60 min Summer | 50.485 | 64 | 120 min Summer | 31.269 | 124 | 180 min Summer | 23.274 | 182 | 240 min Summer | 18.738 | 242 | 360 min Summer | 13.779 | 362 | 480 min Summer | 11.072 | 482 | 600 min Summer | 9.336 | 600 | 720 min Summer | 8.117 | 720 | 960 min Summer | 6.503 | 896 | 1440 min Summer | 4.749 | 1126 | 2160 min Summer | 3.461 | 1516 | 2880 min Summer | 2.761 | 1932 | 4320 min Summer | 2.005 | 2768 | 5760 min Summer | 1.595 | 3576 | 7200 min Summer | 1.335 | 4392 | 8640 min Summer | 1.156 | 5192 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 27.552        | 0.552                 | 0.0                    | 2.2                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 27.738        | 0.738                 | 0.0                    | 2.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 27.938        | 0.938                 | 0.0                    | 3.7                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.140        | 1.140                 | 0.0                    | 4.5                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.251        | 1.251                 | 0.0                    | 4.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.320        | 1.320                 | 0.0                    | 5.2                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.407        | 1.407                 | 0.0                    | 5.5                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.458        | 1.458                 | 0.0                    | 5.7                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.488        | 1.488                 | 0.0                    | 5.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.503        | 1.503                 | 0.0                    | 5.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 28.509        | 1.509                 | 0.0                    | 5.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.502        | 1.502                 | 0.0                    | 5.9                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.469        | 1.469                 | 0.0                    | 5.8                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.422        | 1.422                 | 0.0                    | 5.6                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.318        | 1.318                 | 0.0                    | 5.2                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.223        | 1.223                 | 0.0                    | 4.8                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.138        | 1.138                 | 0.0                    | 4.5                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 28.064        | 1.064                 | 0.0                    | 4.2                                                                                 | O K    |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Rain (mm/hr)  | Time-Peak (mins)      |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 117.069       | 19                    |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 78.692        | 34                    |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 50.485        | 64                    |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 31.269        | 124                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 23.274        | 182                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18.738        | 242                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 13.779        | 362                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 11.072        | 482                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9.336         | 600                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8.117         | 720                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6.503         | 896                   |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.749         | 1126                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.461         | 1516                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.761         | 1932                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.005         | 2768                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.595         | 3576                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.335         | 4392                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.156         | 5192                  |                        |                                                                                     |        |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |             |              |                  |               |         |    |               |        |    |               |        |    |                |        |     |                |        |     |                |        |     |                |        |     |                |        |     |                |       |     |                |       |     |                |       |     |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |                 |       |      |
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|                                                             |  |                       |               |                                                                                     |                 |        |
|-------------------------------------------------------------|--|-----------------------|---------------|-------------------------------------------------------------------------------------|-----------------|--------|
| Cole Easdon Consultants                                     |  |                       |               | Page 2                                                                              |                 |        |
| York House Edison Park                                      |  | Portsdown Hill        |               |  |                 |        |
| Dorcan Way                                                  |  |                       |               |                                                                                     |                 |        |
| Swindon SN3 3RB                                             |  | Private SA2           |               |                                                                                     |                 |        |
| Date Oct 2013                                               |  | Designed By NP        |               |                                                                                     |                 |        |
| File 4040-PRIVATE SA1....                                   |  | Checked By            |               |                                                                                     |                 |        |
| Elstree Computing Ltd                                       |  | Source Control W.12.4 |               |                                                                                     |                 |        |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |  |                       |               |                                                                                     |                 |        |
| Storm Event                                                 |  | Max Level (m)         | Max Depth (m) | Max Infiltration (l/s)                                                              | Max Volume (m³) | Status |
| 10080 min Summer                                            |  | 27.996                | 0.996         | 0.0                                                                                 | 3.9             | O K    |
| 15 min Winter                                               |  | 27.619                | 0.619         | 0.0                                                                                 | 2.4             | O K    |
| 30 min Winter                                               |  | 27.828                | 0.828         | 0.0                                                                                 | 3.3             | O K    |
| 60 min Winter                                               |  | 28.052                | 1.052         | 0.0                                                                                 | 4.1             | O K    |
| 120 min Winter                                              |  | 28.282                | 1.282         | 0.0                                                                                 | 5.0             | O K    |
| 180 min Winter                                              |  | 28.408                | 1.408         | 0.0                                                                                 | 5.5             | O K    |
| 240 min Winter                                              |  | 28.487                | 1.487         | 0.0                                                                                 | 5.9             | O K    |
| 360 min Winter                                              |  | 28.589                | 1.589         | 0.0                                                                                 | 6.3             | O K    |
| 480 min Winter                                              |  | 28.652                | 1.652         | 0.1                                                                                 | 6.5             | O K    |
| 600 min Winter                                              |  | 28.690                | 1.690         | 0.1                                                                                 | 6.7             | O K    |
| 720 min Winter                                              |  | 28.713                | 1.713         | 0.1                                                                                 | 6.7             | O K    |
| 960 min Winter                                              |  | 28.730                | 1.730         | 0.1                                                                                 | 6.8             | O K    |
| 1440 min Winter                                             |  | 28.713                | 1.713         | 0.1                                                                                 | 6.7             | O K    |
| 2160 min Winter                                             |  | 28.671                | 1.671         | 0.1                                                                                 | 6.6             | O K    |
| 2880 min Winter                                             |  | 28.607                | 1.607         | 0.1                                                                                 | 6.3             | O K    |
| 4320 min Winter                                             |  | 28.460                | 1.460         | 0.0                                                                                 | 5.7             | O K    |
| 5760 min Winter                                             |  | 28.321                | 1.321         | 0.0                                                                                 | 5.2             | O K    |
| 7200 min Winter                                             |  | 28.200                | 1.200         | 0.0                                                                                 | 4.7             | O K    |
| 8640 min Winter                                             |  | 28.096                | 1.096         | 0.0                                                                                 | 4.3             | O K    |
| Storm Event                                                 |  |                       | Rain (mm/hr)  | Time-Peak (mins)                                                                    |                 |        |
| 10080 min Summer                                            |  |                       | 1.023         | 5952                                                                                |                 |        |
| 15 min Winter                                               |  |                       | 117.069       | 19                                                                                  |                 |        |
| 30 min Winter                                               |  |                       | 78.692        | 33                                                                                  |                 |        |
| 60 min Winter                                               |  |                       | 50.485        | 64                                                                                  |                 |        |
| 120 min Winter                                              |  |                       | 31.269        | 122                                                                                 |                 |        |
| 180 min Winter                                              |  |                       | 23.274        | 180                                                                                 |                 |        |
| 240 min Winter                                              |  |                       | 18.738        | 238                                                                                 |                 |        |
| 360 min Winter                                              |  |                       | 13.779        | 356                                                                                 |                 |        |
| 480 min Winter                                              |  |                       | 11.072        | 470                                                                                 |                 |        |
| 600 min Winter                                              |  |                       | 9.336         | 584                                                                                 |                 |        |
| 720 min Winter                                              |  |                       | 8.117         | 696                                                                                 |                 |        |
| 960 min Winter                                              |  |                       | 6.503         | 914                                                                                 |                 |        |
| 1440 min Winter                                             |  |                       | 4.749         | 1156                                                                                |                 |        |
| 2160 min Winter                                             |  |                       | 3.461         | 1620                                                                                |                 |        |
| 2880 min Winter                                             |  |                       | 2.761         | 2076                                                                                |                 |        |
| 4320 min Winter                                             |  |                       | 2.005         | 2980                                                                                |                 |        |
| 5760 min Winter                                             |  |                       | 1.595         | 3856                                                                                |                 |        |
| 7200 min Winter                                             |  |                       | 1.335         | 4688                                                                                |                 |        |
| 8640 min Winter                                             |  |                       | 1.156         | 5528                                                                                |                 |        |
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|                                                         |                                   |                                                                                    |
|---------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                   | Page 3                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Private SA2 |  |
| Date Oct 2013<br>File 4040-PRIVATE SA1....              | Designed By NP<br>Checked By      |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4             |                                                                                    |

Summary of Results for 100 year Return Period (+30%)

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m <sup>3</sup> ) | Status |
|------------------|---------------------|---------------------|------------------------------|------------------------------------|--------|
| 10080 min Winter | 28.002              | 1.002               | 0.0                          | 3.9                                | O K    |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 1.023           | 6352                |

|                                                         |                                   |                                                                                     |
|---------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                   | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Private SA2 |  |
| Date Oct 2013<br>File 4040-PRIVATE SA1....              | Designed By NP<br>Checked By      |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4             |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

#### Time / Area Diagram

Total Area (ha) 0.010

| <b>Time</b>   | <b>Area</b> |
|---------------|-------------|
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.010 |
|-----|-------|

|                                                         |                                   |                                                                                    |
|---------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                   | Page 5                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Private SA2 |  |
| Date Oct 2013<br>File 4040-PRIVATE SA1....              | Designed By NP<br>Checked By      |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4             |                                                                                    |

Model Details

Storage is Online Cover Level (m) 30.000

Lined Soakaway Structure

|                                      |         |                            |       |
|--------------------------------------|---------|----------------------------|-------|
| Infiltration Coefficient Base (m/hr) | 0.01274 | Ring Diameter (m)          | 1.50  |
| Infiltration Coefficient Side (m/hr) | 0.01274 | Pit Multiplier             | 2.0   |
| Safety Factor                        | 2.0     | Number Required            | 1     |
| Porosity                             | 0.30    | Cap Volume Depth (m)       | 0.000 |
| Invert Level (m)                     | 27.000  | Cap Infiltration Depth (m) | 0.000 |

|                                                             |               |                       |                        |                                                                                     |            |
|-------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |               |                       |                        | Page 1                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               | Highway SA 1          |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               |                       |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Designed By NP        |                        |                                                                                     |            |
| File PERMEABLE PAVING....                                   |               | Checked By            |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Half Drain Time : 390 minutes.                              |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 15 min Summer                                               | 9.770         | 0.270                 | 3.1                    | 71.3                                                                                | Flood Risk |
| 30 min Summer                                               | 9.823         | 0.323                 | 3.7                    | 101.6                                                                               | Flood Risk |
| 60 min Summer                                               | 9.869         | 0.369                 | 4.2                    | 132.6                                                                               | Flood Risk |
| 120 min Summer                                              | 9.906         | 0.406                 | 4.7                    | 160.7                                                                               | Flood Risk |
| 180 min Summer                                              | 9.921         | 0.421                 | 4.8                    | 172.8                                                                               | Flood Risk |
| 240 min Summer                                              | 9.927         | 0.427                 | 4.9                    | 177.9                                                                               | Flood Risk |
| 360 min Summer                                              | 9.932         | 0.432                 | 5.0                    | 181.6                                                                               | Flood Risk |
| 480 min Summer                                              | 9.934         | 0.434                 | 5.0                    | 183.3                                                                               | Flood Risk |
| 600 min Summer                                              | 9.934         | 0.434                 | 5.0                    | 183.6                                                                               | Flood Risk |
| 720 min Summer                                              | 9.933         | 0.433                 | 5.0                    | 182.9                                                                               | Flood Risk |
| 960 min Summer                                              | 9.929         | 0.429                 | 4.9                    | 179.4                                                                               | Flood Risk |
| 1440 min Summer                                             | 9.916         | 0.416                 | 4.8                    | 168.8                                                                               | Flood Risk |
| 2160 min Summer                                             | 9.894         | 0.394                 | 4.5                    | 151.2                                                                               | Flood Risk |
| 2880 min Summer                                             | 9.872         | 0.372                 | 4.3                    | 135.0                                                                               | Flood Risk |
| 4320 min Summer                                             | 9.834         | 0.334                 | 3.8                    | 108.8                                                                               | Flood Risk |
| 5760 min Summer                                             | 9.803         | 0.303                 | 3.5                    | 89.4                                                                                | Flood Risk |
| 7200 min Summer                                             | 9.777         | 0.277                 | 3.2                    | 74.7                                                                                | Flood Risk |
| 8640 min Summer                                             | 9.755         | 0.255                 | 2.9                    | 63.4                                                                                | Flood Risk |
| Storm Event                                                 |               | Rain (mm/hr)          | Time-Peak (mins)       |                                                                                     |            |
| 15 min Summer                                               |               | 117.069               | 19                     |                                                                                     |            |
| 30 min Summer                                               |               | 78.692                | 33                     |                                                                                     |            |
| 60 min Summer                                               |               | 50.485                | 62                     |                                                                                     |            |
| 120 min Summer                                              |               | 31.269                | 122                    |                                                                                     |            |
| 180 min Summer                                              |               | 23.274                | 182                    |                                                                                     |            |
| 240 min Summer                                              |               | 18.738                | 240                    |                                                                                     |            |
| 360 min Summer                                              |               | 13.779                | 304                    |                                                                                     |            |
| 480 min Summer                                              |               | 11.072                | 366                    |                                                                                     |            |
| 600 min Summer                                              |               | 9.336                 | 430                    |                                                                                     |            |
| 720 min Summer                                              |               | 8.117                 | 498                    |                                                                                     |            |
| 960 min Summer                                              |               | 6.503                 | 636                    |                                                                                     |            |
| 1440 min Summer                                             |               | 4.749                 | 910                    |                                                                                     |            |
| 2160 min Summer                                             |               | 3.461                 | 1316                   |                                                                                     |            |
| 2880 min Summer                                             |               | 2.761                 | 1700                   |                                                                                     |            |
| 4320 min Summer                                             |               | 2.005                 | 2464                   |                                                                                     |            |
| 5760 min Summer                                             |               | 1.595                 | 3176                   |                                                                                     |            |
| 7200 min Summer                                             |               | 1.335                 | 3896                   |                                                                                     |            |
| 8640 min Summer                                             |               | 1.156                 | 4664                   |                                                                                     |            |
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|                                                             |               |                       |                        |                                                                                     |            |
|-------------------------------------------------------------|---------------|-----------------------|------------------------|-------------------------------------------------------------------------------------|------------|
| Cole Easdon Consultants                                     |               |                       |                        | Page 2                                                                              |            |
| York House Edison Park                                      |               | Portsdown Hill        |                        |  |            |
| Dorcan Way                                                  |               |                       |                        |                                                                                     |            |
| Swindon SN3 3RB                                             |               | Highway SA 1          |                        |                                                                                     |            |
| Date Oct 2013                                               |               | Designed By NP        |                        |                                                                                     |            |
| File PERMEABLE PAVING....                                   |               | Checked By            |                        |                                                                                     |            |
| Elstree Computing Ltd                                       |               | Source Control W.12.4 |                        |                                                                                     |            |
| <u>Summary of Results for 100 year Return Period (+30%)</u> |               |                       |                        |                                                                                     |            |
| Storm Event                                                 | Max Level (m) | Max Depth (m)         | Max Infiltration (l/s) | Max Volume (m³)                                                                     | Status     |
| 10080 min Summer                                            | 9.736         | 0.236                 | 2.7                    | 54.5                                                                                | Flood Risk |
| 15 min Winter                                               | 9.791         | 0.291                 | 3.3                    | 82.5                                                                                | Flood Risk |
| 30 min Winter                                               | 9.846         | 0.346                 | 4.0                    | 116.6                                                                               | Flood Risk |
| 60 min Winter                                               | 9.894         | 0.394                 | 4.5                    | 151.5                                                                               | Flood Risk |
| 120 min Winter                                              | 9.934         | 0.434                 | 5.0                    | 183.7                                                                               | Flood Risk |
| 180 min Winter                                              | 9.951         | 0.451                 | 5.2                    | 198.0                                                                               | Flood Risk |
| 240 min Winter                                              | 9.958         | 0.458                 | 5.3                    | 204.6                                                                               | Flood Risk |
| 360 min Winter                                              | 9.963         | 0.463                 | 5.3                    | 208.9                                                                               | Flood Risk |
| 480 min Winter                                              | 9.963         | 0.463                 | 5.3                    | 209.3                                                                               | Flood Risk |
| 600 min Winter                                              | 9.963         | 0.463                 | 5.3                    | 208.7                                                                               | Flood Risk |
| 720 min Winter                                              | 9.960         | 0.460                 | 5.3                    | 206.7                                                                               | Flood Risk |
| 960 min Winter                                              | 9.953         | 0.453                 | 5.2                    | 200.1                                                                               | Flood Risk |
| 1440 min Winter                                             | 9.933         | 0.433                 | 5.0                    | 182.9                                                                               | Flood Risk |
| 2160 min Winter                                             | 9.901         | 0.401                 | 4.6                    | 156.7                                                                               | Flood Risk |
| 2880 min Winter                                             | 9.871         | 0.371                 | 4.3                    | 133.9                                                                               | Flood Risk |
| 4320 min Winter                                             | 9.819         | 0.319                 | 3.7                    | 99.3                                                                                | Flood Risk |
| 5760 min Winter                                             | 9.778         | 0.278                 | 3.2                    | 75.5                                                                                | Flood Risk |
| 7200 min Winter                                             | 9.746         | 0.246                 | 2.8                    | 58.9                                                                                | Flood Risk |
| 8640 min Winter                                             | 9.720         | 0.220                 | 2.5                    | 47.0                                                                                | Flood Risk |
| Storm Event                                                 |               |                       | Rain (mm/hr)           | Time-Peak (mins)                                                                    |            |
| 10080 min Summer                                            |               |                       | 1.023                  | 5344                                                                                |            |
| 15 min Winter                                               |               |                       | 117.069                | 19                                                                                  |            |
| 30 min Winter                                               |               |                       | 78.692                 | 33                                                                                  |            |
| 60 min Winter                                               |               |                       | 50.485                 | 62                                                                                  |            |
| 120 min Winter                                              |               |                       | 31.269                 | 120                                                                                 |            |
| 180 min Winter                                              |               |                       | 23.274                 | 176                                                                                 |            |
| 240 min Winter                                              |               |                       | 18.738                 | 232                                                                                 |            |
| 360 min Winter                                              |               |                       | 13.779                 | 338                                                                                 |            |
| 480 min Winter                                              |               |                       | 11.072                 | 382                                                                                 |            |
| 600 min Winter                                              |               |                       | 9.336                  | 458                                                                                 |            |
| 720 min Winter                                              |               |                       | 8.117                  | 536                                                                                 |            |
| 960 min Winter                                              |               |                       | 6.503                  | 686                                                                                 |            |
| 1440 min Winter                                             |               |                       | 4.749                  | 982                                                                                 |            |
| 2160 min Winter                                             |               |                       | 3.461                  | 1404                                                                                |            |
| 2880 min Winter                                             |               |                       | 2.761                  | 1792                                                                                |            |
| 4320 min Winter                                             |               |                       | 2.005                  | 2552                                                                                |            |
| 5760 min Winter                                             |               |                       | 1.595                  | 3288                                                                                |            |
| 7200 min Winter                                             |               |                       | 1.335                  | 4032                                                                                |            |
| 8640 min Winter                                             |               |                       | 1.156                  | 4752                                                                                |            |
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|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 3                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File PERMEABLE PAVING....              | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

Summary of Results for 100 year Return Period (+30%)

| Storm<br>Event   | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m <sup>3</sup> ) | Status |
|------------------|---------------------|---------------------|------------------------------|------------------------------------|--------|
| 10080 min Winter | 9.698               | 0.198               | 2.3                          | 38.3                               | O K    |

| Storm<br>Event   | Rain<br>(mm/hr) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------|
| 10080 min Winter | 1.023           | 5448                |

|                                                         |                                    |                                                                                     |
|---------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 4                                                                              |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File PERMEABLE PAVING....              | Designed By NP<br>Checked By       |                                                                                     |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                     |

#### Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.200            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.350             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +30   |

#### Time / Area Diagram

Total Area (ha) 0.430

| <b>Time</b>   | <b>Area</b> |
|---------------|-------------|
| <b>(mins)</b> | <b>(ha)</b> |

|     |       |
|-----|-------|
| 0-4 | 0.430 |
|-----|-------|

|                                                         |                                    |                                                                                    |
|---------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------|
| Cole Easdon Consultants                                 |                                    | Page 5                                                                             |
| York House Edison Park<br>Dorcan Way<br>Swindon SN3 3RB | Portsdown Hill<br><br>Highway SA 1 |  |
| Date Oct 2013<br>File PERMEABLE PAVING....              | Designed By NP<br>Checked By       |                                                                                    |
| Elstree Computing Ltd                                   | Source Control W.12.4              |                                                                                    |

#### Model Details

Storage is Online Cover Level (m) 10.000

#### Porous Car Park Structure

|                                      |         |                         |       |
|--------------------------------------|---------|-------------------------|-------|
| Infiltration Coefficient Base (m/hr) | 0.01274 | Width (m)               | 65.0  |
| Membrane Percolation (mm/hr)         | 1000    | Length (m)              | 65.0  |
| Max Percolation (l/s)                | 1173.6  | Slope (1:X)             | 100.0 |
| Safety Factor                        | 2.0     | Depression Storage (mm) | 5     |
| Porosity                             | 0.30    | Evaporation (mm/day)    | 3     |
| Invert Level (m)                     | 9.500   | Cap Volume Depth (m)    | 0.000 |

# **Appendix 4**



Cole Easdon Consultants  
Unit 2, York House  
Dorcan Way  
Edison Park  
Swindon  
Wiltshire  
SN3 3RB

Your Ref SC/sc/4040sw  
Our Ref 160765  
Date 26 September 2013  
Contact [searches@southernwater.co.uk](mailto:searches@southernwater.co.uk)  
Fax 01634 844514  
DX:400450 Chatham 5

Attention: Sarah Coates

Dear Sirs

**Provision of Public Sewer Main Record Extracts – VAT Receipt**  
**Portsdown Hill, Havant, Hampshire, PO6 1BJ**

Further to your recent enquiry regarding the provision of Southern Water apparatus record extracts for the above location.

Please be aware that there are areas within our region in which there are neither sewers nor water mains. Similarly, whilst the enclosed extract may indicate the approximate location of our apparatus in the area of interest, it should not be relied upon as showing that further infrastructure does not exist and may subsequently be found following site investigation. Therefore actual positions of the disclosed (and any undisclosed) infrastructure should be determined on site, because Southern Water does not accept any responsibility for inaccuracy or omission regarding the enclosed plan and accordingly it should not be considered to be a definitive document.

I confirm payment of the appropriate fee in the sum of £ **48.00**

The breakdown of costs is as follows: -

- Provision of record extracts £ 40.00
- VAT @ 20.0% £ 8.00

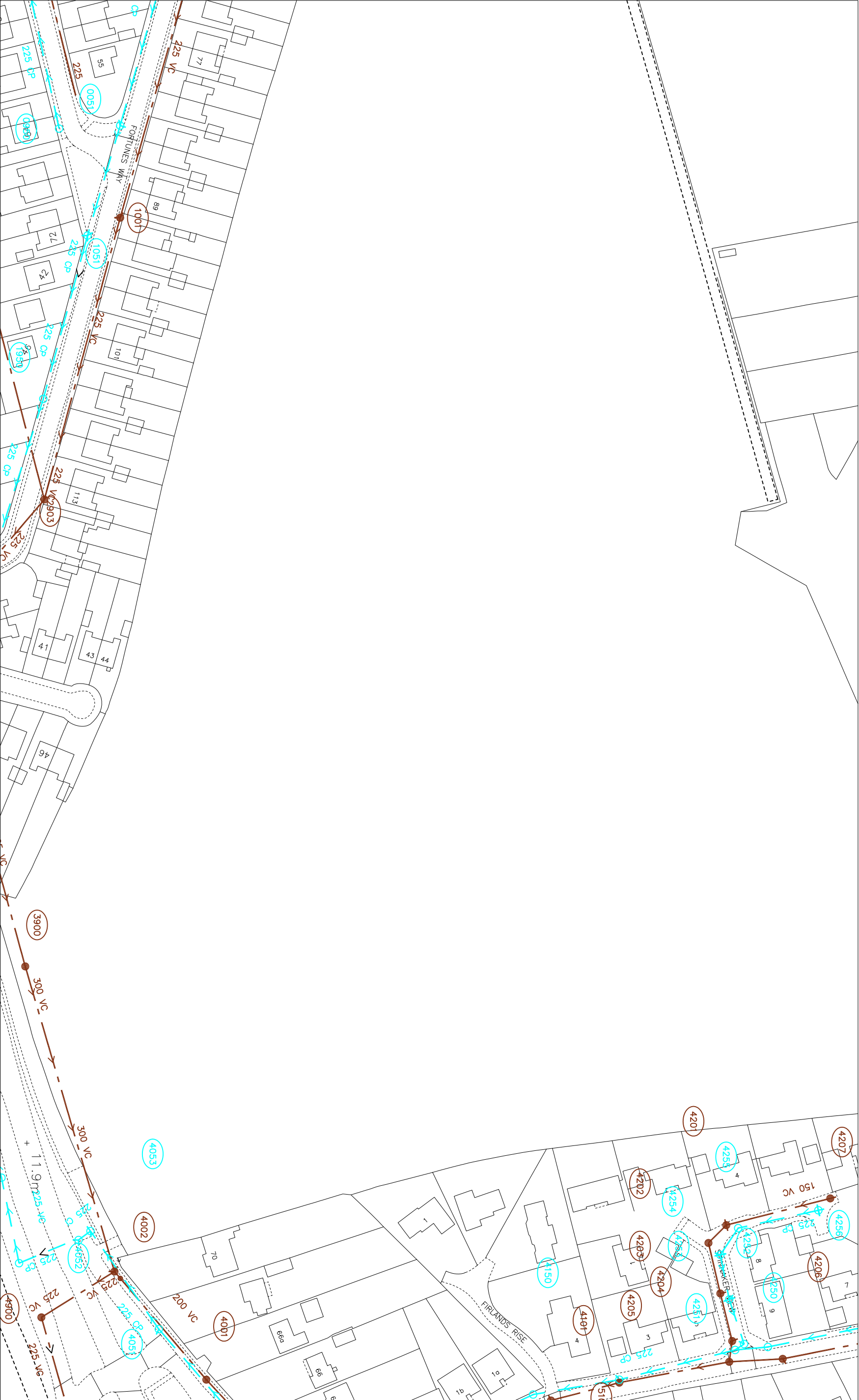
**VAT Registration Number 543 9000 63**

Should you require any additional information regarding this matter please contact this office at the address given at the foot of this letter.

Yours faithfully

Land Search Department

SEWER RECORDS PAGE 1 OF 2



O.S. REF.  
**SU6906SW**

Drawn by: spaceyk

Scale: 1:1250

Date: 26/09/2013

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy.  
The actual positions should be determined on site.  
**WARNING: BAC pipes are constructed of Bonded Asbestos Cement**  
**WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement**

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## SEWER RECORDS PAGE 2 OF 2

[illegible]

| LINE STYLES / COLOURS |                               | MATERIALS |                             | LEGEND - SEWERS          |                         | SHAPES (S)          |                            |
|-----------------------|-------------------------------|-----------|-----------------------------|--------------------------|-------------------------|---------------------|----------------------------|
| Brown                 | Food                          | AC        | Asphalts                    | Manhole (SV)             | Washout (SV)            | Other (S)           | Wastewater treatment works |
|                       | Food System Sewer             | BC        | Brick (Robotic Cement)      | Manhole (F&C)            | Washout (F&C)           | Other               | Native treatment works     |
|                       | Food Vacuum Main              | BE        | Brick (Engineering)         | Lamp hole (SV)           | Roofing Ev (SV)         | Change to sewer (S) | Outfall headworks          |
|                       | Food Rising Main              | CC        | Concrete Box Culvert        | Pumping Station (SV)     | Roofing pot (SV)        | Roll-up valve       | Valve                      |
| Red                   | Confined                      | CI        | Cast iron (In-Situ)         | Pumping Station (F&C)    | Roofing pot (F&C)       | Roll-up valve       | Valve                      |
|                       | Confined Rising Main          | CP        | Concrete (Pre-Cast)         | Site entry manhole (SV)  | Intercept chamber (SV)  | Roll-up valve       | Valve                      |
|                       | Confined Rising Main          | CSU       | Concrete Segment (uncoated) | Site entry manhole (F&C) | Intercept chamber (F&C) | Roll-up valve       | Valve                      |
|                       | Blasting Over Agreement (F&C) | LC        | Liner (Liner)               | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Orange                | Blasting Over Agreement (F&C) | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Dark Blue             | Unlined Effluent              | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Purple                | Sewer Catchment               | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
|                       | Surface Water                 | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Light Blue            | Surface Water                 | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
|                       | Surface Water Rising Main     | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Yellow                | Private                       | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
|                       | Access Shaft                  | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
| Green                 | Decommissioned                | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |
|                       | ZZZ Unknown                   | MC        | Masonry (regular Course)    | Storm tank (SV)          | Storm tank (F&C)        | Roll-up valve       | Valve                      |

|                              |                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------|
| Drawn by: spaceyk            |  |
| Title: 160765_Portsdown Hill |                                                                                     |
| Date: 26/09/2013             |                                                                                     |