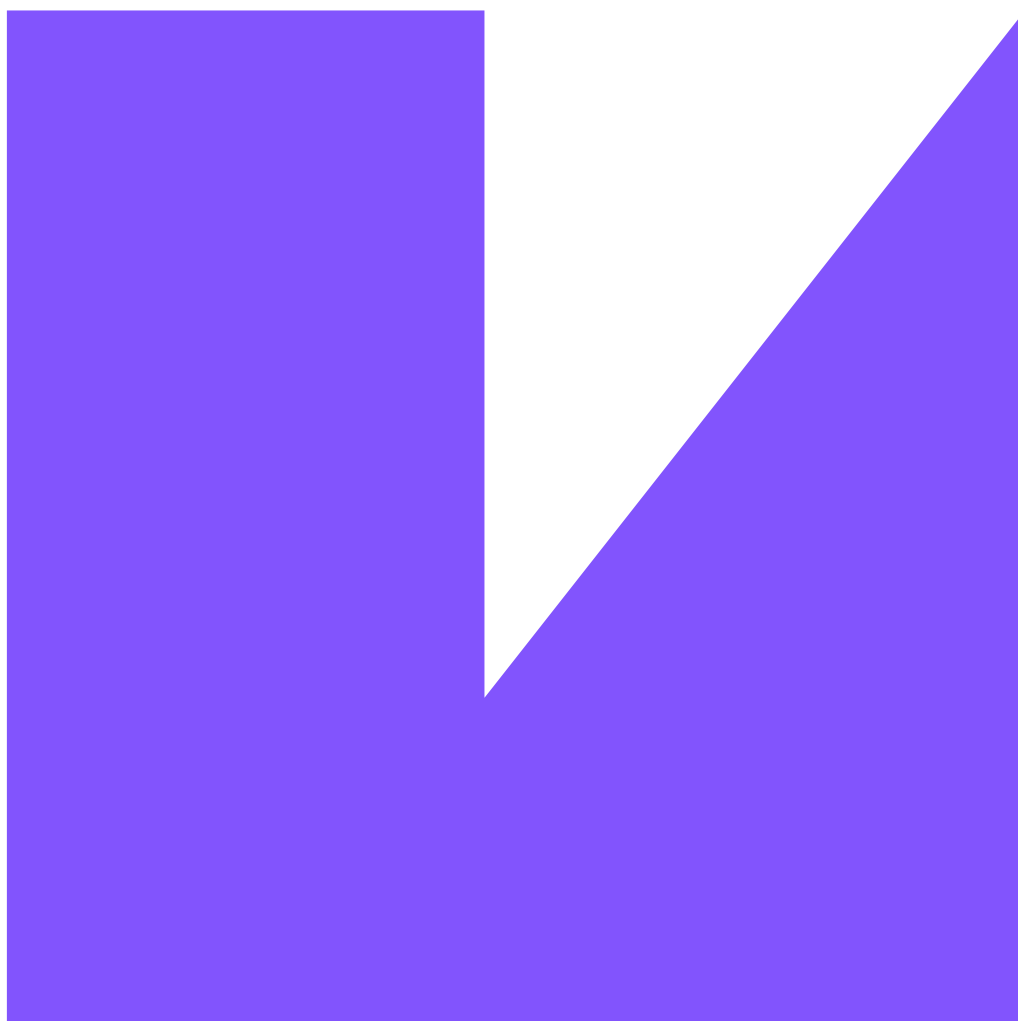




QVH CDCs - East Grinstead

Flood Risk and Runoff Assessment

January 2025

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Flood Risk and Runoff Assessment

January 2025

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Executive summary

The Queen Victoria Hospital Trust (QVH) has commissioned Mott MacDonald to undertake a Flood Risk and Runoff Assessment relating to the proposed development of a new Community Diagnostic Centre (CDC) on the grounds of the existing Queen Victoria Hospital, East Grinstead.

The site is to be assessed regarding the requirements of the National Planning Policy Framework (NPPF), Planning Policy Guidance (PPG), and Flood Risk and Coastal Change guidance.

If required, mitigation measures and recommendations will be made that will inform current site management and advise future development.

The following guidelines and references have been used in the preparation of this report:

- Planning Practice Guidance - Flood risk and coastal change¹
- Environment Agency (EA) Flood Risk Standing Advice for England²
- Environment Agency Flood Map for Planning Service³
- Mott MacDonald archives

The report is also based on additional information from:

- British Geological Society (BGS) WMS (Web Mapping Services) data; and
- UK SuDS greenfield runoff rate estimation.

The report identifies the following:

- The proposed development at the QVH East Grinstead site is located in Flood Zone 1 indicating a low risk of flooding from rivers and the sea.
- The majority of the site is at low risk from pluvial and overland flooding.
- Based on available information it is assumed that ground water flooding will not affect the site, however a site-wide intrusive ground investigation is needed to determine the depth.
- The risk of flooding due to highway drainage failure or inundation is low, based on the topography, the exceedance route in the event of flood would not direct flow into the site.
- The risk of flooding due to reservoir failure is medium the site falls within multiple reservoir flood extents; however, the probability of reservoir failure is low.
- Residual risks associated with the failure of adjacent private drainage infrastructure and the control of runoff generated by the development have been identified as residual risks with specific mitigation measures proposed in the design of the site. The proposed mitigation will reduce the residual risk to an acceptable and low level for the lifetime of the development.

¹ "[Guidance - Flood risk and coastal change](#)" from the Ministry of Housing, Communities & Local Government, 06/03/2014

² "[Guidance - Flood risk assessments](#)" from the Department for Environment, Food & Rural Affairs and the Environment Agency, last updated 26/02/2021

³ "[Flood map for planning - GOV.UK \(flood-map-for-planning.service.gov.uk\)](#)" from the UK Government, Environmental Agency

1 Introduction

The Queen Victoria Hospital Trust (QVH) has commissioned Mott MacDonald to undertake a Flood Risk and Runoff Assessment relating to the proposed development of a new Community Diagnostic Centre (CDC) on the grounds of the existing Queen Victoria Hospital, East Grinstead.

1.1 Scope and Objectives of the Report

The Government has placed increasing priority on the need to take full account of the risks associated with flooding at all stages of the planning and development process, to reduce future damage to property and loss of life. The PPG identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications.

The purpose of this report is to assist our client to make an informed decision on the flood risks associated with the site development.

Local Planning Authorities have the powers to control development in accordance with the guidelines contained in PPG-TG, and are expected to apply a risk-based approach to development with the Sequential Test in Table 1.1. This sets out a sequential characterisation of flood risk in terms of annual probability of river, tidal and coastal flooding.

In accordance with the sequential test in the technical guidance, sites are to be classed as follows:⁴

Table 1.1: Flood Zones – PPG-TG Table 3

Flood Zone	Appropriate Users
Flood Zone 1 - Low Probability This zone comprises land having less than 1 in 1000 annual probability of river or sea flooding (<0.1%)	All uses of land are appropriate in this zone
Flood Zone 2 - Medium Probability This zone comprises land assessed as having between 1 in 100 and 1 in 1000 annual probability of river flooding (1%-0.1%) or between 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%- 0.1%) in any year	The water-compatible, less vulnerable, and more vulnerable uses of land and essential infrastructure in Annex 3 ⁵ are appropriate in this Zone Subject to the Sequential Test being applied, the highly vulnerable uses in Annex 3 are only appropriate in this zone if the Exception Test is passed
Flood Zone 3a - High Probability This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	The water-compatible and less vulnerable uses of land in Annex 3 area appropriate in this zone. The highly vulnerable uses in Annex 3 should not be permitted in this zone. The more vulnerable and essential infrastructure uses in Annex 3 should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this should be designed and constructed to remain operational and safe for users in time of flood.
Flood Zone 3b - Functional Floodplain This zone comprises land where water has to flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%)	Only the water-compatible uses and the essential infrastructure listed in Annex 3 that has to be there should be permitted in this zone. It should be designed and constructed to: Remain operational and safe for users in times of

⁴ <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

⁵ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>

Flood Zone	Appropriate Users
flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes)	flood; Result in no net loss of floodplain storage; – Not impede water flows; and – Not increase flood risk elsewhere. – Essential infrastructure in this zone should pass the Exception Test.

Source: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#par76>

The objectives of this report are to:

- Establish and evaluate viable flood risks to the development;
- Identify strategies for mitigating any residual flood risks; and
- Identify a potential surface water and runoff management strategy to positively impact on flood risk on the site and downstream.

1.2 Sources of Information

The following have been acquired for the completion of this report:

- Existing site drainage information.
- Southern Water Pre-development application.

The following freely available online sources of information have been used for this report:

- British Geological Society (BGS) WMS (Web Mapping Services) data;
- CIRIA SuDS Manual 2015;
- Environment Agency (EA) Flood Risk Standing Advice for England;
- Environmental Agency (EA) – Flood Map for Planning;
- Environmental Agency (EA) – Long Term Flood Risk Check;
- Planning Practice Guidance - Flood risk and coastal change;
- UK SUDs greenfield runoff rate estimation; and

1.3 Development Proposal

Queen Victoria Hospital (QVH) is located in East Grinstead on Holtye Road, RH19 3DZ and provides life-changing reconstructive surgery, burns care and rehabilitation services for people who have been damaged or disfigured through accident or disease.

The Trust wish to expand their range of community and primary care services, including the ownership and operation of Community Diagnostic Centres (CDC).

The Sussex Integrated Care System (ICS) has plans for a number of CDCs at locations across the ICS area. The ICS has completed 4 such facilities to date.

The Queen Victoria Hospital has been identified via an Outline Business Case process as a site to host a CDC Hub. The facility is known as the East Grinstead (EG) CDC.

The Schedule of Accommodation for the CDC must be designed around the services and clinical pathways that are required to improve access to diagnostic testing, reduce waiting times, tackle the backlog of diagnostic activity and reduce health inequalities within the local communities that they serve.

The ambition of the Sussex CDC's is to have multiple CDC's to support the delivery of care in Sussex. The programme objectives are to;

- Support delivery of faster diagnosis targets – through rapid diagnosis services
- Increase diagnostic capacity and accessibility
- Provide COVID-secure environments for diagnostic services
- De-pressurise acute sites and acute NHS services
- Develop sites that will offer the full range of diagnostic imaging and physiological tests, to build a 'one stop' model approach

The proposed site for the EG CDC is on the green at the entrance to the hospital site in front and the right of the existing Jubilee Building.

The proposal is for a single-story building of a traditional type construction, that is designed in a style that fits into the proposed environment. This will include matching the brick type and building style to that of the existing Jubilee Building to provide a cohesive link between old and new.

1.4 Limitations of this Report

Mott MacDonald has followed accepted procedure in providing the services but given the residual risk associated with any prediction and the variability which can be experienced in flood conditions, we take no liability for and give no warranty against actual flooding of any property (client's or third party) or the consequences of flooding in relation to the performance of the service. This report has been prepared for the purposes of planning approval only and is to assist our client and the Local Planning Authority to make an informed decision on the flood risks associated with the site redevelopment.

Allowance for the effects of climate change will be made in accordance with government recommendations in place and statistical data available at the time of writing this report. These recommendations may become more onerous, and the statistical data may be revised in the future; we will not make any estimate of what changes may result from this. Please be aware that this, and other issues over which Mott MacDonald has no control, may affect future flood risk at the development and require further work to be undertaken for which we accept no liability.

2 Existing Site

2.1 Project Information

Project Name: Queen Victoria Hospital – East Grinstead CDC

Project Client: Queen Victoria Hospital NHS Trust

2.2 Site Description

Queen Victoria Hospital is located in East Grinstead, West Sussex, England, situated approximately 1.5km east of the town centre. The hospital is renowned for its specialist services in reconstructive surgery, burns care, and rehabilitation.

The site predominantly features mid-20th century architecture, with significant modern additions and refurbishments enhancing its facilities.

The surrounding area is characterised by a mix of residential, and light commercial uses. The site is located within a predominantly suburban setting.

The proposed building location is bordered to the south by Holtye Road (A264), with several residential areas beyond. To the west, the site adjoins an access road leading to the QVH car park, with multiple healthcare facilities of various uses and construction types situated on the remainder of the site towards the north and northwest. The wider surrounding areas include further car parks, walkways, public open (green) spaces and smaller parks.

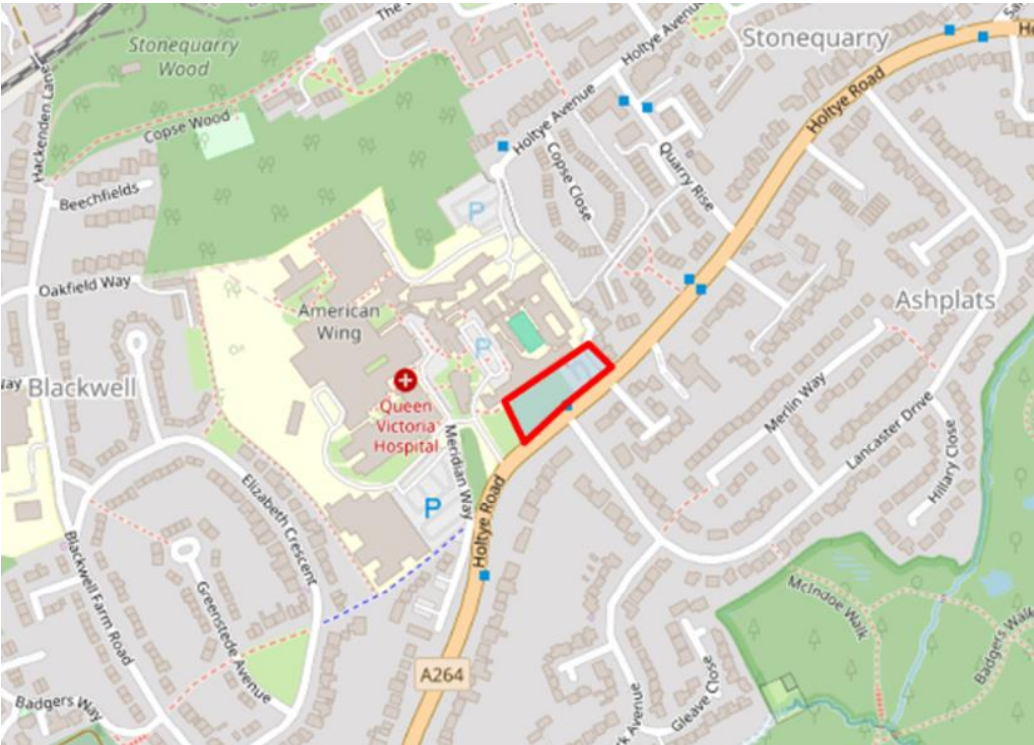
Access to the site is primarily via the A22, followed by Holtye Road, ensuring reasonable transport links for both construction and post-construction phases. East Grinstead Railway Station is located approximately 1.5km to the southwest of the site.

2.3 Site Location

Site location is highlighted in Figure 2.1. The hospital grounds are bordered by Holtye Road to the South and woodland to the north. Residential areas generally surround the site.

Grid Reference: TQ 40010 39204

Figure 2.1: Site Location Plan



Source: [Map data \(©\) OpenStreetMap.org contributors](#)

The trust have directed for the building to be situated on the green in front of the Jubilee Building.

2.4 Site Details

Based on the information available, a general description of the site is presented in Table 2.1. The existing site comprises of two buildings, a car park, playing fields and a playground. The total area of the site is approximately 2.25ha.

The existing site comprises of approximately:

- 0.217ha of soft landscaping
- 0.048ha of impermeable surfacing (car park and access road)

Table 2.1: General Site Details

Site Name	Queen Victoria Hospital
Address	Holtye Road, East Grinstead
Local Authority	West Sussex County Council
Lead Local Flood Authority	West Sussex County Council
National Grid Reference (NGR) / coordinates	TQ 399391
Site Description and Topography	The development site is located in open grassed and to the south of the existing Jubilee Building on the site of QVH.

		The site slopes from north to south, with a level change between 2-3m.
		A topographical survey can be found in Appendix A
Surrounding Area	North	The Jubilee building of the QVH complex
	East	Existing small car park and secondary site entrance with residential development beyond
	South	Holtye Road with residential beyond
	West	Undeveloped grass land and main site entrance

2.5 Existing Adopted Drainage Systems

It is noted that Southern Water asset records (see Appendix B.1) show foul and surface water sewers in Holtye Road to the south of the site, the surface water sewer is recorded to be 300mm in diameter and the foul 225mm in diameter, adjacent to the eastern entrance. The foul sewer continues to flow east to west and the surface water sewer appears to pass into private land before flowing south along Lancaster Drive. A second surface water sewer, indicated to be 225mm in diameter, is shown to originate at the junction of Holtye Road and the main hospital entrance.

At this stage no information regarding depth of the adopted or private assets is not known.

2.6 Existing Private Drainage System

The East Grinstead hospital site is heavily developed with an extensive foul and surface water drainage system. While the development site is currently undeveloped it lies adjacent to the Jubilee Building to the north and existing access and car parking to the east.

Indicative foul and surface water drainage assets operated by QVH are shown on the plans included in Appendix E.

It is also noted that one of the existing site sewers is noted to exit the site under the proposed location of the CDC building.

Records show a second off site surface water drain in the access road to the east of the site and another located further west on the opposite side of the main hospital entrance.

All three sewers appear to connect to adopted drainage assets in Holtye Road.

2.7 Existing Watercourses and Reservoirs

The site lies remote from any recorded Main Rivers. The nearest watercourse is an unnamed watercourse located to the south of Lynton Park Avenue extending into Ashplats Wood approximately 350m southeast of the site.

2.8 Existing Ground Conditions

At present, no ground investigations have been undertaken within the site footprint. Reference to be made to the MML Geotechnical and Geo-environmental Desk Study (100120806-MM-ZZ-EG-RP-GE-0001) for detail, however, a high level summary is provided below.

2.8.1 Published Geology

The BGS Geology Viewer provides the following information about the geology of the site location:

Bedrock and Structural Geology

Figure 2.2 details the bedrock and structural geology surrounding the site. The BGS mapping indicates that the site is underlain by the Ardingly Sandstone Member (Upper layer of Lower Tunbridge Wells Sand Formation). BGS describes the unit as fine- and medium-grained quartzose cross-bedded flaggy sandstone, largely thickly bedded or massive. The lower boundary is a sharp contact marked by an un-named lower part of the informal Lower Tunbridge Wells Sand. The unit has a maximum general thickness of 15-18m, as confirmed within BGS Memoir (British Geological Survey, 1993).

BGS Mapping indicates that the wider areas surrounding the site are severely faulted with numerous faults trending in the east-west direction and a few others orthogonal to these faults. The site, located on a south facing hillside, is part of a broader topography shaped by these faults.

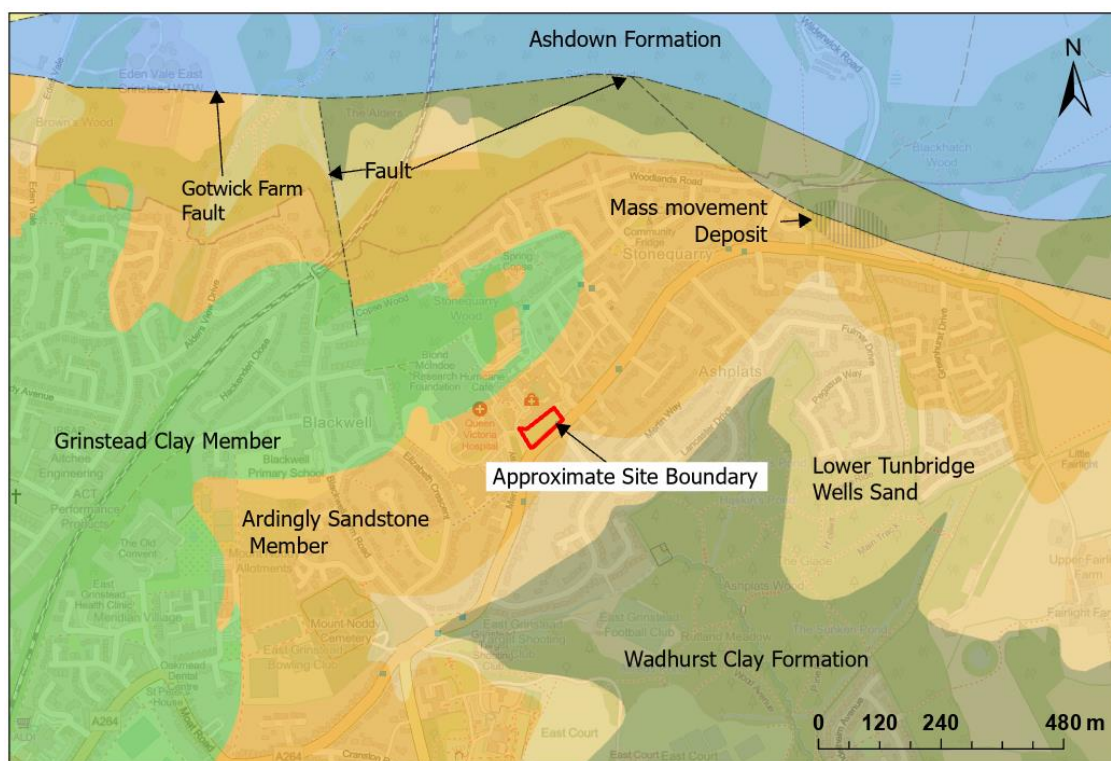
Superficial deposits

According to BGS mapping, there are no superficial deposits within the footprint of the site or within a 1km radius of the site apart from a thin channel of alluvium 950m north of the site.

Exploratory Hole Information

The BGS GeoIndex provides no boreholes within close proximity to the site. However, the Client has provided a factual GI report from works undertaken adjacent to the north of the site in 2023. This is discussed in further detail within the desk study, and to inform the general description of the likely ground conditions in Section 2.8.2.

Figure 2.2: Geology Map of the Site



Source: OS Data © Crown copyright and data right 2024. Contains data from OS Zoomstack Esri UK, British Geological Survey (2024).

2.8.2 Ground Conditions

Based on the summary provided in Section 2.8.1, in addition to the GI information provided by the Client for a site adjacent to the north of the site, it is expected that underlying Topsoil or thin Made Ground the bedrock will be encountered. This is likely to be weathered to a medium dense to very dense silty gravelly SAND. Underlying this, it is likely that the unit will become less weathered and may be encountered as a very weak to medium strong medium to widely jointed thinly to thickly bedded fine to coarse-grained SANDSTONE. Groundwater was not encountered in the GI adjacent to the north of the site during drilling or subsequent monitoring.

Excavation: Highly weathered rock is usually excavatable by hard digging with excavations requiring immediate support. In fresher material ripping or occasionally blasting may be required depending on joint/bedding spacing and orientation excavated side slopes generally stable in short to medium term.

Engineered Fill: May be suitable as selected granular fill if care is taken in selection and abstraction and strength permits. Weaker sandstone may easily break down to granular soil that is usually suitable as general granular fill if of suitable grading.

Site Investigation: Important to determine intact rock strength, spacing and nature of discontinuities (including water flows), and nature/depth of weathered zone materials.

3 Sources and Extents of Flooding

3.1 Summary

Table 2.2 below summarises the assessed extant flood risk on both the temporary and permanent development sites. The sections below evidence and evaluate these flood risks based on site-specific data.

Table 2.2: Summary of Sources and Extent of Flooding

Potential Source of Flooding	Is there a flood risk to the development?	Risk Level	Comment
Fluvial/Tidal Flooding	No	Low	The site is located within a Flood Zone 1.
Pluvial Flooding and Overland Flow	No	Low	There are no pluvial flood extents or overland flow routes identified within the site.
Ground Water Flooding	No	Low	No evidence of elevated groundwater and constant land gradient
Adopted Drainage	No	Low	The site is located above adjacent adopted assets
Private Drainage	Yes	Medium	Existing offsite drainage connection runs through the development area
Highway Drainage	No	Low	The adjacent highways exceedance route is not directed towards the development.
Reservoir Flooding	No	Low	The site is at risk of flooding due to reservoir failure.
Development Drainage	Yes	Low	The development will incorporate a new drainage network designed to current standards with suitable allowances for increases in rainfall intensity due to climate change.

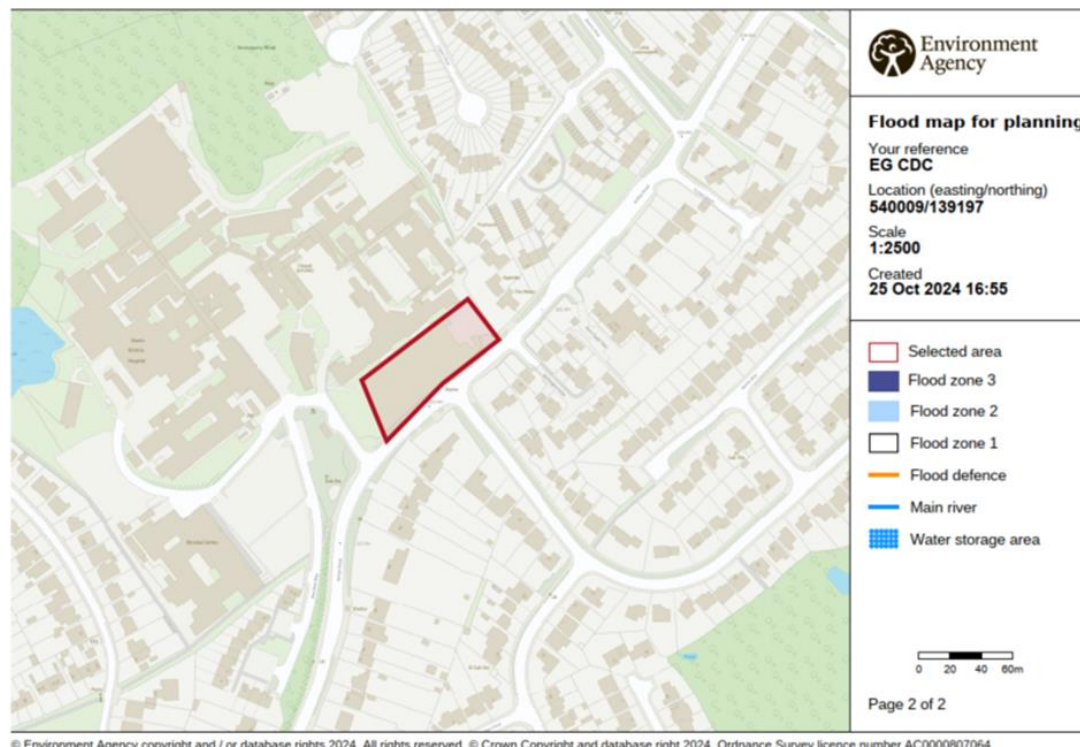
3.2 Natural Drainage

3.2.1 Fluvial and Tidal Flooding

3.2.1.1 Source and Extent

With reference to the EA's indicative flood maps, the entire permanent site lies within Flood Zone 1, having a less than 0.1% annual probability of river or sea flooding. See Figure 2.3 for a map of the flood extents.

Figure 2.3: Environment Agency Fluvial Flood Map



Source: EA Online flood mapping accessed October 2024

3.2.1.2 Flood Risk to Development

The site falls in Flood Zone 1, an area with a low probability of flooding from fluvial or tidal and therefore the flood risk to the development is low.

3.2.2 Pluvial Flooding

3.2.2.1 Source and Extent

Surface water flood mapping is available from the EA's website. This provides indicative modelling of the potential overland flow routes and ponding that could occur should existing drainage systems become inundated or blocked. The EA's online mapping shows that the site is not predicted to be affected by surface water flooding. See extract from the flood maps in Figure 2.4 below.

The flood risk categories for surface water risk are defined thus:

High risk - means that each year this area has a chance of flooding of greater than 3.3%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Medium risk - means that each year this area has a chance of flooding of between 1% and 3.3%. Flooding from surface water is difficult to predict as rainfall location and volume are

difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Low risk - means that each year this area has a chance of flooding of between 0.1% and 1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Very low risk - means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Figure 2.4: Environment Agency Pluvial Flood Map



Source: EA Pluvial Flood mapping accessed October 2024 - [Contains OS data](#) © Crown copyright and database rights

3.2.2.2 Flood Risk to Development

Referring to Figure 2.4, the EA's mapping shows a residual flood risk indicated on the development site is noted to be very low with a small area of low risk noted to the north side of the Jubilee Building, away from the development site.

3.2.3 Overland Flow

3.2.3.1 Source and Extent

Overland flow is surface runoff that occurs in the form of sheet flow on the land surface without concentrating in clearly defined channels. The EA pluvial mapping can also be used to assess this flood risk as it can identify overland flow routes based on existing topography.

3.2.3.2 Flood Risk to Development

No potential overland flow paths have been identified in the site boundary or along the adjacent highways. Therefore, the overland flow flood risk is low.

3.2.4 Groundwater Flooding

3.2.4.1 Source and Extent

There is no visual evidence of elevated groundwater locally such as ponds or marshes. The separately issued RIBA 2 Geotechnical and Geo-environmental Desk Study reference 100120806-MM-ZZ-EG-RP-GE-0001, noted that intrusive testing had been carried out on a site 40m to the north of the proposed development site and that the trial pits carried out there recorded no groundwater.

3.2.4.2 Flood Risk to Development

Given this evidence, while the risk cannot be ruled out until site testing has been completed it is considered to be a very low risk for this site.

3.2.5 Climate Change

3.2.5.1 Source and Extent

The EA requires, in accordance with the Government's PPG-TG document, that there should be no increase in the rate of surface water emanating from a newly developed site above that of any previous development. Furthermore, it is the joint aim of the EA and Local Planning Authorities, to actively encourage a reduction in the discharge of storm water as a condition of approval for new developments.

In addition, all drainage systems should be sized to accommodate the runoff arising from a 1 in 100-year rainfall event and should include a further allowance to account for the future effects of climate change.

Table 2.3 below, shows the anticipated increases in rainfall intensities with time for the Medway Management Catchment.

Table 2.3: Peak Rainfall Intensity Change Allowance – Medway Management Catchment

Type		2050s	2070s
Rainfall	Upper End	45%	45%
	Central	20%	25%

Source: [Climate change allowances for rainfall in England \(data.gov.uk\)](https://data.gov.uk)

As the development will have a design lifespan of 50-75 years the 2070's epoch should be used. The drainage systems are assumed to be designed for 45% climate change.

3.3 Artificial Drainage

3.3.1 Adopted Drainage

3.3.1.1 Source and Extent

The nearest adopted drainage assets to the site are all located in Holtye Road to the south of the site. The topographical survey of the site shows the proposed development location to be elevated significantly above the carriageway levels of Holtye Road to the south. The level difference varies between 0.6 and 1.0m.

3.3.1.2 Flood Risk to Development

Given the levels difference it is considered that the site is passively protected from flooding events on the carriageway.

3.3.2 Private Drainage System

3.3.2.1 Source and Extent

The existing hospital site is drained via several private systems all discharging to the south of the site and the adopted assets in Holtye Road. Currently, information on the size and capacity of this system is unknown other than information indicating that there are surface, foul and combined elements to the system and that the onsite pipe diameters are likely to be similar to the offsite system as there is no evidence of attenuation systems on the existing site. This sizes the onsite drainage between 150-225mm diameter based on the size of the adopted system in the area.

A hydraulic assessment of the existing drainage system is not part of the scope of this document, however, based on a high-level assessment based on simplified assumptions, the capacity of the surface and combined drainage systems appear to be at capacity or slightly undersized.

The existing drainage records (see AppendixA) indicate in the region of 1.0 hectares of developed site including the Jubilee Building and adjacent hardstanding drains to two or possibly three offsite connections. For a 50mm/hr event this would equate to a total runoff rate in the region of 140l/s rising to 210l/s for a 75mm/hr event.

A 225mm diameter pipe with a relatively steep gradient of 1v:30h would have a typical capacity in the region of 83l/s. So across two outfalls the system would be at capacity but may have some headroom if there are three. It should be noted that this is based on the system being in optimum condition.

The possibility of the existing system being inundated either due to heavy rainfall or a significant reduction in capacity (blockage or partial collapse) should be considered for the site.

There is a second exceedance route identified on the site access to the east of the development site. The topographical survey shows this either discharging out through the existing site entrance or building up in the southernmost car parking space in and spilling over the kerb into the lower landscaping along the boundary with Holtye Road.

It is not proposed to modify this arrangement other than more than 60% of the existing car parking being accommodated in the new CDC drainage system.

3.3.2.2 Flood Risk to Development

There is a residual risk from the existing (to be diverted) outfall from the Jubilee Building crossing the site. This feature will require mitigation by diversion but also the provision of a passive exceedance route around the development.

3.3.3 Highway Drainage

3.3.3.1 Source and Extent

The topographical survey of the site shows the proposed development location to be elevated significantly above the carriageway levels of Holtye Road to the south. The level difference varies between 0.6 and 1.0m.

3.3.3.2 Flood Risk to Development

Given the levels difference it is considered that the site is passively protected from flooding events on the carriageway.

3.3.4 Reservoir Flooding

3.3.4.1 Source and Extent

The EA's Risk of Flooding from Reservoir Mapping indicates that the site is not at risk of flooding from reservoirs⁶.

3.3.4.2 Flood Risk to Development

Due to the site not falling within a reservoir flood extent and the extremely low likelihood of reservoir failure the risk to the site is considered low.

3.3.5 Development Drainage

3.3.6 Source and Extent

The existing site is currently undeveloped and in extreme rainfall events will generate small amounts of runoff. The development of the site will introduce approximately 2000m² of impermeable area to the site in the form of roof, paving and hardstanding. This will materially change the response of the site to rainfall events and could generate runoff rates of up to 27.8l/s if not mitigated.

3.3.7 Flood Risk to Development

The proposed development will result in an unavoidable increase in runoff. To manage the risk of flooding, mitigation in the form of SuDS will be incorporated to reduce overall rates, so associated risk is low.

The proposed drainage strategy is discussed further in Section 6. The drainage requirement is achievable so therefore the risk of flooding from the development is low.

⁶ [EA online flood maps - reservoir flooding](#)

4 Flood Risk Assessment and Mitigation

4.1 Summary

Of the identified flood risk, the residual risks to be addressed at this stage are:

- Residual risk from the existing site drainage systems;
- Management of runoff generated by the proposed development

4.1.1 Existing Site Drainage System

To the north of the site is the Jubilee Building, this is the largest building on the site. The CDC is proposed to be built over the main outfall sewer from this area and so realistically would be built on the exceedance route from this system. Currently there is significant fall from the Jubilee Building to Holtye Road across a greenfield space, so this has a well-defined exceedance route and limited receptors. Post-development the CDC will be a sensitive receptor and will create a localised disruption to the exceedance route.

The existing 225mm diameter sewer noted to discharge through the development area into Holtye Road will be a residual risk. It is proposed to divert the sewer around the new development and to increase the hydraulic capacity of the system to protect the new development.

It is also proposed that the interface between the Jubilee Building is developed to have a robust collection system and also a passive exceedance route along the northern elevation to the lower land to the west.

A new drainage channel will be installed along the southern edge of the existing pavement serving the Jubilee Building, this will be connected to the new drainage being installed at the CDC. The CDC building will also have a 150mm damp proof course (DPC) along the same boundary that will be reinforced with a backslope away from the building perimeter. It is currently proposed that a retaining wall is used along this boundary to enable the level change between the Jubilee Building and the CDC. The retaining wall will form the exceedance channel along the north of the site.

The topside of the retained ground will also be planted with shrubs and plants to provide some natural uptake of runoff and also locally detain flow in an exceedance event.

4.1.2 Management of Runoff from the Proposed Development

This is the primary flood risk on the site and as such requires detailed assessment and mitigation. This is included in Section 6.

5 Sequential Test

The site is identified as being in Flood Zone 1 in accordance with NPPF FRCC Table 1⁷.

The development type is classified as being 'More Vulnerable' in accordance with NPPF FRCC Annex 3⁸.

Given the above classifications and with reference the Flood risk vulnerability and flood zone incompatibility table in the NPPF – reproduced below – the proposed development is noted to be appropriate for this location and no Sequential Test is required.

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

Key:

✓ Exception test is not required

X Development should not be permitted

⁷ <https://www.gov.uk/guidance/flood-risk-and-coastal-change#table1>

⁸ <https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>

6 Surface Water System Design

6.1 Control of Surface Water Runoff

It should be acknowledged that the satisfactory collection, control, and discharge of storm water are now principal planning and design considerations.

Part H of the Building Regulations 2015 recommends that surface water run-off shall discharge to one of the following, listed in order of priority:

- An adequate soakaway or some other adequate infiltration system, or where that is not reasonably practicable,
- A watercourse, or, where that is not reasonably practicable,
- A surface water sewer.

It is necessary to identify the most appropriate method of controlling and discharging surface water. The design should seek to improve the local run-off profile by using systems that can either attenuate run-off and reduce peak flow rates or positively impact on the existing flood profile.

6.1.1 Infiltration Based Systems

As noted in Section 2.8, there is an absence of superficial deposits, but the recorded bedrock (Ardingly Sandstone Member) has the potential to be suitable for infiltration as it is recorded as granular and 'flaggy' but also 'massive' meaning reduced fissures through which water can pass.

The bedrock is also noted to be Secondary A aquifer with high-vulnerability.

Given the unknown permeability of the underlying bedrock and the residual risk of discharging to a high-vulnerability aquifer, the use of infiltration has not been pursued at this time, site specific infiltration testing should be carried out on the site.

It should also be noted, that where infiltration based systems are proposed they should be located at least 5m from buildings and highways. Given the existing spatial constraints on the site it is considered unlikely that suitable space would be available for infiltration based devices to provide the primary means of surface water disposal.

6.1.2 Discharge to Watercourse

The site is within a significantly urbanised area and so lies remote from any identified watercourses. The nearest recorded is an unnamed watercourse 350m to the southeast of the site to the south of the residential development.

6.1.3 Discharge to Sewer

It is noted that the current car park to the east of the development site is positively drained, and it is likely that this is connected to the adopted drainage assets in Holtye Road to the south of the site.

A Pre-Development Enquiry was made to Southern Water who confirmed via response reference DSA000038743 that a connection to the existing onsite system and the subsequent communication with the adopted assets in Holtye Road is acceptable. A copy of the response is included in Appendix B.

6.2 Allowable Site Discharge Rate

If the existing connection to the adopted drainage assets is used, then there will be a requirement for a betterment in the discharge from that of the brownfield scenario.

It is estimated that post-development approximately 476m² of the existing car park will drain to the new CDC system. Based on the Modified Rational method for direct runoff this would equate to a flow rate of around 6.6l/s for a 50mm/hr storm event.

Applying a 50% betterment to this flow gives a proposed allowable discharge rate of 3.3l/s for the developed site.

This approach has been agreed directly with Southern Water (see Appendix B.2) and should be confirmed with the LLFA via the planning process.

6.3 Site Discharge Location

The existing car park discharge to a surface/combined sewer to the east of the site that communicates with the adopted assets in Holtye Road. This is the obvious location for the CDC system to connect to particularly as approximately 55% of the car park will be included in the CDC drainage systems.

The depth of the existing system has not been confirmed at this stage and so an approximation has been made based on recorded cover levels and standard depths for installed drainage. In this case, as the sewer is in an access road it will likely have a depth to soffit of 1.2m. The proposed connection point is approximately midway between the last recorded onsite manhole and the adopted manhole Holtye Road.

The approximate gradient of the pipe is assumed to match the pavement gradient between the two record manholes (121.86 – 120.86 @ 26.8m = 1v:27h). Assuming a depth to cover and a pipe diameter of 150mm the midpoint invert level of the existing surface water system would be approximately 120.01m.

As this is an interpolation this will need to be confirmed at the start of the next stage of design, with the design or strategy updated to suit.

6.4 Sustainable Drainage Systems (SuDS)

One of the aims of PPG is to provide not only flood risk mitigation but also maximise additional gains such as improvements in runoff quality and provision of amenity and bio-diversity. Systems incorporating these features are often termed Sustainable Drainage Systems (SuDS) and it is a requirement of PPG that these are considered as the primary means of collection, control, and disposal for surface water as close to source as possible.

The most sustainable surface water attenuation systems should satisfy four main characteristics known as the 'four pillars' of SuDS:

- Flood reduction
- Water quality
- Amenity
- Biodiversity

A summary of the various types of attenuation is included overleaf.

The SuDS manual and EA guidance applies a sustainability hierarchy to the various types of SuDS systems, this is summarised in Table 6.1.

Systems at the top of the hierarchy provide a combination of attenuation, treatment and biodiversity and are deemed the most sustainable options. There are always specific scenarios where some systems are more suitable than others and at this stage it is not possible to guide the development towards a single strategy.

The application of the CIRIA SuDS Manual for the development of brownfield sites stipulates that the runoff from site should be reduced by 30% compared to the pre-development runoff rate and also that SuDS systems be utilised to improve the quality of the runoff prior to outfall to watercourses. West Sussex County Council have developed an extensive SuDS guidance document⁹ that provides detailed advice on all manner of SuDS features and how to include them on a variety of different sites.

Additionally, features such as bioretention areas or SuDS planters are proposed to be incorporated into some of the proposed landscaped areas identified on the site layout, and these would also provide treatment and some biodiversity/amenity improvements.

Table 6.1: SuDS Hierarchy

SuDS Technique		Flood Reductions	Pollution Reductions	Landscape & Wildlife Benefit
Most Sustainable ↑	Living Roofs	√	√	√
	Basins and Ponds	√	√	√
	● Constructed Wetlands ● Balancing Ponds ● Detention Basins ● Retention Ponds			
Least Sustainable ↓	Filter strips and swales	√	√	√
	● Infiltration devices ● Soakaways ● Infiltration trenches and basins			
	Permeable surfaces and filter drains	√	√	
	● Gravelled areas ● Solid paving blocks ● Porous pavements			
	Tanked Systems	√		
	● Oversized pipes/ tanks ● Cellular Storage			

Source: The CIRIA SuDS Manual report C753

The success of any drainage system, but more acutely SuDS schemes, is the long-term maintenance of the system or asset to maximise its benefits and to ensure that it is available for use during an extreme rainfall event. Maintenance of SuDS features will be the responsibility of the landowner/s or managing agents.

⁹ https://www.westsussex.gov.uk/media/2270/suds_design_guidance.pdf

6.4.1 Water Quality and Pollution

Pollution can pose disastrous effects to biodiversity and wildlife and create environments which are hazardous to humans. Therefore, it is important to assess potential pollution risks for the site and design drainage systems that provide adequate treatment to protect surface and ground waters. Though often less obvious than pollution of surface waters, pollution of groundwater tends to be irreversible and permanent. To aid in water quality design, in addition to the above SuDS hierarchy, the SuDS Manual also identifies a simplified method for managing pollution risks posed by surface water runoff. This approach can be applied to provisionally test that the receptor is not put at risk of pollution by a new development.

The method considers the pollution hazards posed by a site with respect to land use (the pollution hazard indices), the effectiveness of the chosen SuDS components at reducing pollutant levels (the mitigation index) and the sensitivity of the receptor.

Table 6.2, below, summarises this method and includes values relating to this site for discharge to surface waters. It has been reproduced in part from Tables 26.2 and 26.3 of the SuDS Manual.

To demonstrate that adequate treatment can be delivered, the selected SuDS components must have a total SuDS mitigation index value that is equal to or greater than the pollution hazard index for each contaminant type. SuDS devices can be combined where the mitigation index of a single feature is insufficient with a factor of 0.5 being applied to the secondary component.

Table 6.2: Watercourse Sensitivity and Treatment Trains

Pollution Hazard Indices				
Land Use	Pollution Hazard Level	Total Suspended Solids	Metals	Hydro-carbons
Roofs (non-residential)	Low	0.3	0.2 (up to 0.8)	0.05
Individual property driveways, low-traffic roads (e.g. general access roads, cul-de-sacs)	Low	0.5	0.4	0.4
Commercial yard and delivery areas, car parking with frequent change (e.g. hospitals, retail).	Medium	0.7	0.6	0.7
SuDS Mitigation Indices for Discharges to Surface Water				
Filter drain		0.4	0.4	0.5
Permeable pavement		0.7	0.6	0.7
Bioretention system		0.8	0.8	0.8

Source: CIRIA SuDS Manual C753, Tables 26.2 and 26.3.

The site is considered to primarily have a low-medium pollution hazard level. Inferring from the table, permeable paving or bioretention features discharging to surface waters are shown to offer a suitable level of treatment for runoff for each contaminant listed.

In addition, each of the SuDS components offers a suitable level of treatment for the roof drainage.

It should be noted that where there is an acute pollution risk such as in areas where refuelling or chemical storage may occur, local specific mitigation and control measures will be implemented.

6.5 Attenuation Assessment

Based on the identified allowable discharge rate in Section 6.2 (3.3l/s) and the estimated drained impermeable area (1740m²), in order to manage flood risk for the 1 in 100-year + 45% climate change an estimated attenuation volume of approximately 110m³ will be required.

This can be provided using a gravity system with small SuDS interventions with attenuation provided primarily by geocellular or void attenuation (such as Hydrorock¹⁰).

Calculations for this assessment are included in Appendix D and an illustrative layout is included in Appendix E.

6.6 Exceedance Routing

The performance of the drainage system in rainfall events in excess of the design event or in the event of blockage of a major component needs to be considered at this stage such that passive mitigation can be integrated into the system and external level strategy.

The topography of the site will make mobilising large volumes of surface storage difficult, there is little soft landscaping in the vicinity of the lower part of the site to the east, where exceedance flow is likely to emanate.

Flows from here would head south and on to Holtye Road and be channelled to the west with the road acting as secondary conveyance.

It is proposed that the drainage system is engineered to provide a safe exceedance route to the landscaping area to the west of the site.

It should be noted that the implementation of the new drainage system will already have provided a positive impact on the downstream system by restricting flows up to the 1 in 100-year +CC event whereas the existing site would discharge at an unrestricted rate for the same event.

These exceedance routes are shown on the general arrangement included in Appendix E.

6.7 System Maintenance

The proposed drainage system and residual flood mitigation measures are all contained within the existing NHS trust site and will fall under the auspices of the established estate and facilities management team.

Some elements of the design may be relatively new to the maintenance team and so it is key that a robust and complete maintenance regime is developed, along with the design for handover to the team on completion of the construction works.

At this stage a general guide to the levels of maintenance and intervention timetable can be advised with the proviso that this is developed as the next stages of detailed design are undertaken.

A summary of this guidance is included in Appendix F with more detailed information if CIRIA SuDS manual C753.

¹⁰ <https://www.hydrorock.com/v>

6.8 Flood Resilience and Resistance

When planning the layout of a site, it is important to take into account the potential risks of extreme flood events. Therefore, flood resilience and resistance measures should be integrated into the development process. Simple measures like elevating utility entry points, installing first floor or ceiling-down electrical circuits, and creating sloping landscapes that direct water away from the property can be easily and economically included in the site's design.

For further information on improving flood performance in new buildings, refer to the publication 'Improving the Flood Performance of New Buildings'¹¹.

¹¹ http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf

7 Foul Water System Design

7.1 Basis of Design

The foul drainage systems for the development will be designed using the following guidance documents:

- BSEN 752 – Drains and Sewer Systems Outside of Buildings
- Part H Approved Building Regulations
- BSEN 12056:2 - Sanitary pipework, layout and calculation

The design will use the following design criteria:

Table 7.1: Design Parameters

Criterion	Value
Pipe friction coefficient (k_s)	1.5mm
BSEN 12056 Usage	1.0 - congested

7.2 Foul Drainage Layout

The internal layouts and slab penetration of the building have been developed to rationalise the location and number of connections. The latest layout is shown on the drainage plan included in Appendix E, further development of this layout is anticipated at the next stage. The principles of the layout will be common at all stages.

- Below slab connections will be a minimum 100mm diameter and be laid at falls not less than 1v:40h.
- Below slab branching of connections will be avoided, but where this is not practical only low flows will be permitted to connect to high-flow or WC connections.
- WCs to have individual connections to external inspection chambers.
- Minimum pipe gradients outside the building will be in accordance with Part H Approved Building Regulations or demonstrate self-cleansing through calculation.
- All flows are considered to be domestic in nature, will not require specialised treatment and can be discharged to the public sewerage system.
- No below slab drainage is permitted under the CT and MRI rooms.

7.3 Existing Foul Drainage

The sewer records included in Appendix A indicate that the existing hospital drainage system discharge to adopted drainage assets in Holtze Road to the south. It is likely that the existing hospital has multiple connections to this system across the site.

It is proposed that these are identified using a ground penetrating radar (GPR and EMD) survey of the development area.

7.4 Foul Drainage Design

7.4.1 Desing Flow Rate

Based on a preliminary Building Services layout the anticipated peak foul flow rate is estimated to be 5.2l/s and the average flow rate approximately 1.73l/s based on a total number of discharge units of 26.9 as defined in BSEN12056 for congested use.

7.4.2 Discharge Location

As noted previously, the hospital site has several existing drainage connections (both surface water and foul) to the adopted assets located in Holtye Road to the south of the site.

The existing site slopes generally to the west and the current proposed layout has several foul connections on the west elevation of the building. Connecting these to the existing foul drainage to the east of the site (similar to the surface water) is likely to be challenging based on the topography.

Existing drainage records for the hospital, included in Appendix A show a foul drainage connection to the west of the development site which is at a relatively lower level than the development site and therefore is likely to provide a gravity connection. The route will require the new connection to cross the main site access road, however, as this is a small diameter pipe this can be accommodated via a variety of common construction methods that will minimise disruption.

Southern Water have confirmed that the adopted assets, to which the proposed connection communicates, has capacity for the average flow rate anticipated from the site – see Appendix B.1.

The depth of the existing system has not been confirmed at this stage and so an approximation has been made based on recorded cover levels and standard depths for installed drainage. In this case, as the sewer is in an access road it will likely have a depth to soffit of 1.5m – this is lower than the assumed surface water system depth as it is good practice to locate foul drainage assets below surface water asset. The proposed connection point is approximately midway between the last recorded onsite manhole and the adopted manhole Holtye Road.

The approximate gradient of the pipe is assumed to match the pavement gradient between the two record manholes ($121.86 - 120.86 @ 26.8m = 1v:27h$). Assuming a depth to cover and a pipe diameter of 150mm the midpoint invert level of the existing surface water system would be approximately 119.71m.

As this is an interpolation this will need to be confirmed at the start of the next stage of design, with the design or strategy updated to suit.

7.4.3 Pipework Design

Onsite foul drainage is designed and will be installed in accordance with Building Regulations Part H minimum gradient criteria where applicable.

No below slab drainage connections are proposed under the MRI and CT scanner parts of the building.

Modification of the existing foul drainage regime will require agreement with Southern Water via an indirect S106 application.

7.5 Existing Sewer Diversion

The proposed location of the CDC is currently crossed by a combined sewer of unrecorded diameter. This is shown indicatively on the plan in Appendix A.

No invert levels for this sewer have been recorded for the asset other than cover levels. It has been assumed that the sewer is at standard depth (1.2m to soffit). The sewer discharges to the adopted assets in Holtye Road which has a diameter of 225mm and thus the maximum this sewer could be is 225mm.

It will be necessary to divert this sewer around the CDC building but will retain its existing offsite connection to the assets in Holtye Road.

The existing sewer is 32.3m in length, and assuming a constant gradient between the two existing manholes at the nominal 1.2m depth gives a change in level of 1.72m and a gradient of approximately 1v:19h. This in turn indicates a potential full bore capacity of the pipe of approximately 105l/s.

The diverted sewer has the same overall fall across the site but is extended in length to 78m, giving an equivalent gradient of 1v:45h. This equates to a potential full bore capacity of approximately 68l/s.

It is therefore proposed that the diversion pipework is upsized to 300mm diameter to give a full bore capacity of 146l/s.

The offsite pipework will remain the same (likely to be 225mm) and so the offsite flow rate will be the same as the pre-development scenario while the increased capacity of the diversion will protect the new CDC building.

8 Conclusions

The development is situated in Flood Zone 1, which indicates a low risk of flooding from rivers and the sea.

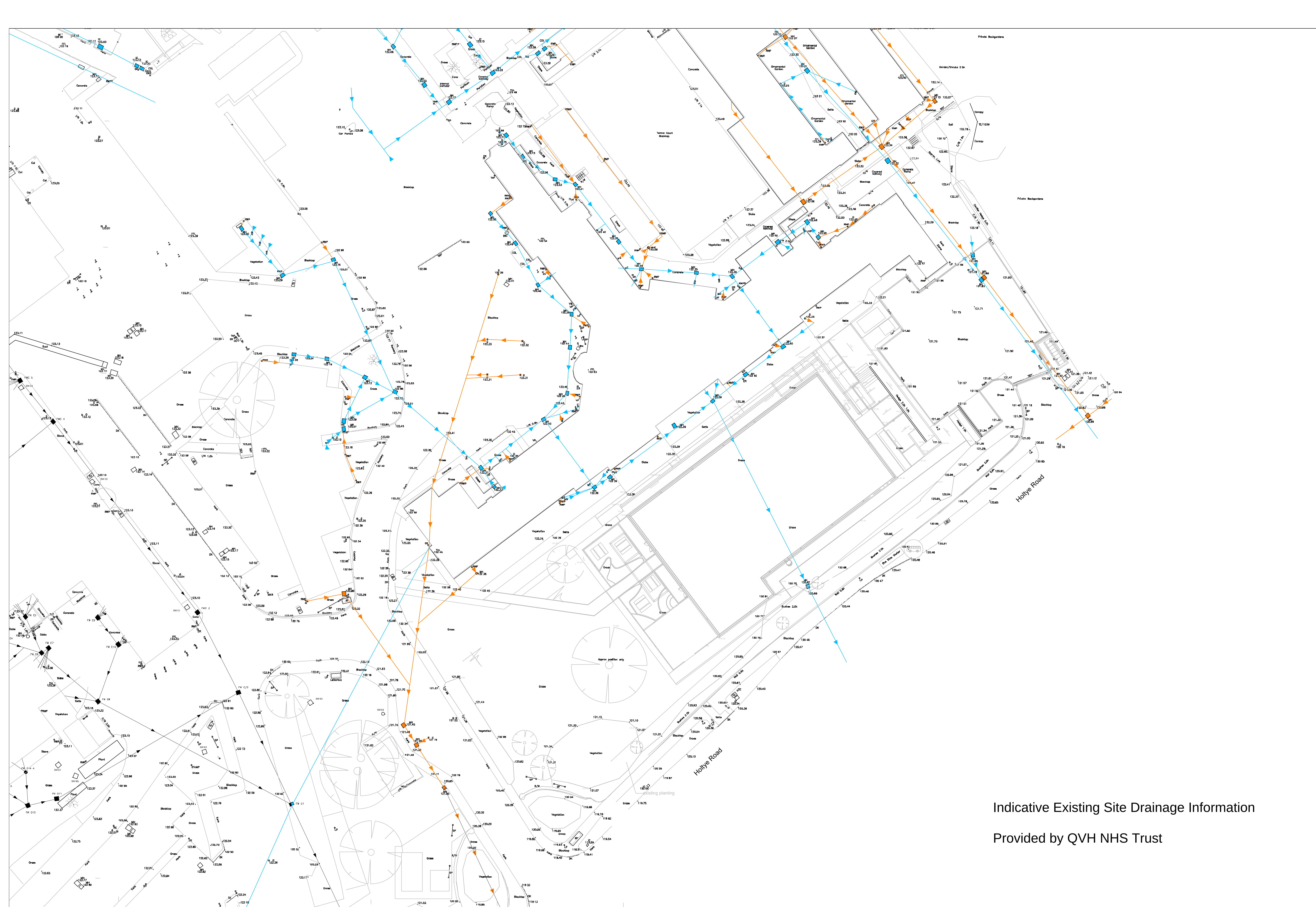
The site has been assessed to be at low residual risk from all other sources other than the existing site drainage system and diversion and the management of surface water from the new development.

Specific mitigation is recommended for each of these:

- Existing system sewer and diversion – oversized diversion proposed with passive flood exceedance route built in to the level strategy for the proposed development (see Section 4.1.1).
- Surface Water Management – robust drainage system with flow restriction set to a 50% reduction in the runoff from the existing car park area draining to proposed system (3.3l/s). An attenuation volume of 110m³ is provided to balance the flows up to an including the 1 in 100-year plus 45% climate change event (see Section 6).

Given the above it can be concluded that in accordance with the NPPF – Flood Risk and Coastal Change the development site is suitable for the proposed development and the associated 'More Vulnerable' development classification.

A. Existing Site Drainage Records and Topographical Survey



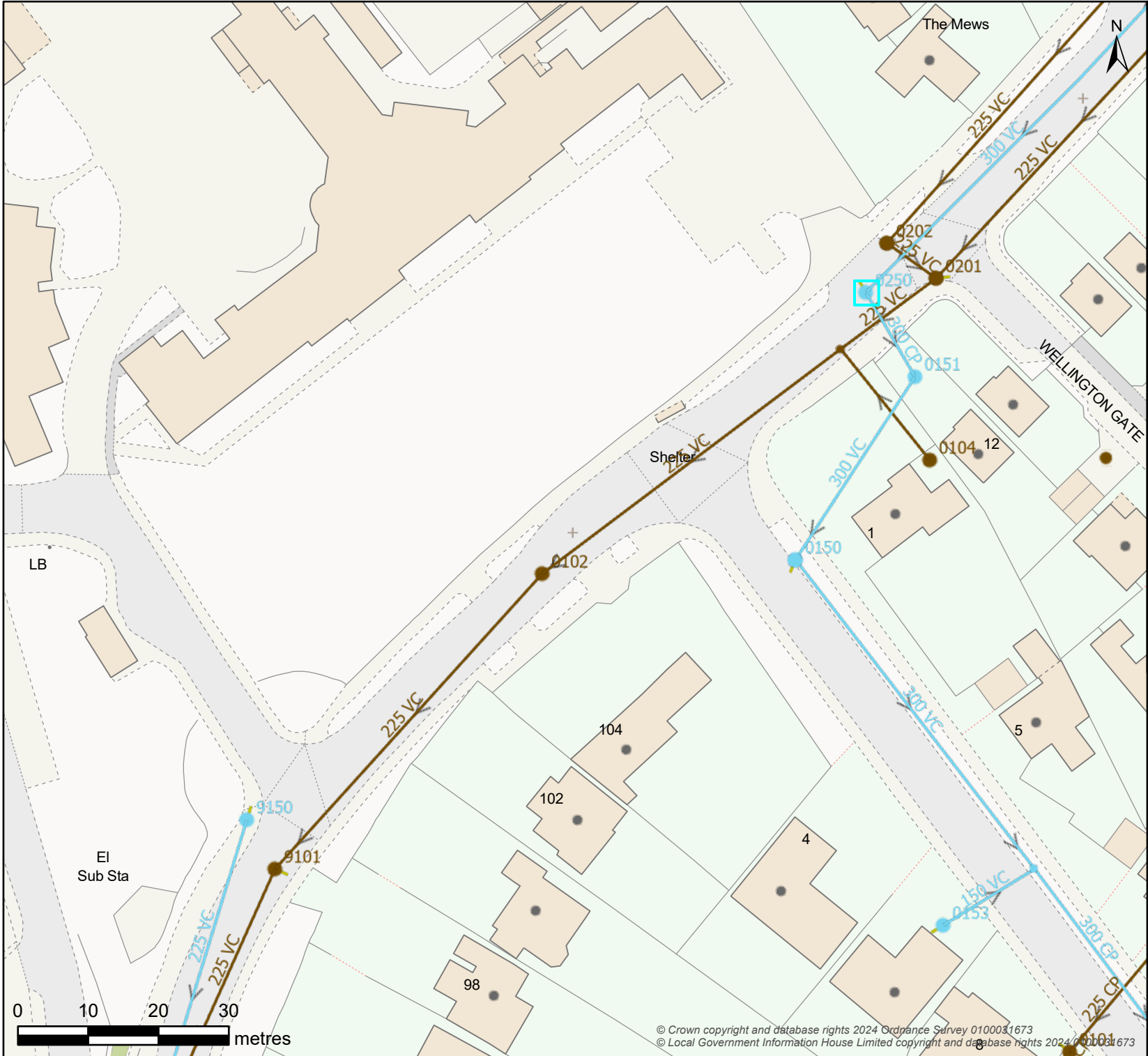
Indicative Existing Site Drainage Information

Provided by QVH NHS Trust

B. Southern Water Asset Records and Correspondence

B.1 Adopted Sewer Records

B.2 Pre-development Enquiry Response



Controllable Valve			Inlet-Outfall	
Damboards	Penstock	Valve	Inlet	Outfall
Flow Control			Outfall Headworks	
Anti Flood Device	Pumped Anti Flood Device	Reflux Valve	Outfall Headworks	
Manhole				
Bifurcation	Cascade	Catchpit	Head Of Public Sewer	
Interceptor Chamber	Manhole	Soakaway	Washout	
Overflow Chamber			Pipe Bridge	
Combined Sewer Overflow	Emergency Overflow	Pipe Bridge		
Pumping Station			Sewer Level Monitor	
Micro Pumping Station	Pumping Station	Sewer Level Monitor		
Storage			Treatment Works	
Storm Tank	Tidal Storage Tank	Treatment Works		
Weir	Wastewater Site	Developer Services		
Weir	Wastewater Site	Build Over Agreement	Section 104	
Wastewater Pipe				
Culverted Water Course		Syphon		
Drain		Tank Sewer		
Outfall		Trunk Sewer		
Overflow		Vacuum Main		
Rising Main		Decommissioned Pipe		
Sewer				
Wastewater Use			Wastewater Area	
Foul	Treated Effluent	Catchment		
Combined	Surface Water	Sub-Catchment		
Sludge	Private			

Map Title: SW Print

Printed By: Ruby.Bernard
Date Printed: 18/11/2024
Map Scale: 750

The information provided is believed to be correct but is provided on an 'as is' basis and without any warranty or condition express or implied, statutory or otherwise as to its quality or fitness for purpose. Actual positions of assets should always be determined on site.





Andrew Precious
4th Floor Derwent House
150 Arundel Gate
Sheffield
S1 2JY

Your ref
17991

Our ref
DSA000038743

Date
10/12/2024

Contact
Tel 0330 303 0119

Dear Mr Precious,

Level 1 Capacity Check Enquiry: Queen Victoria Hospital, Holtye Road, East Grinstead, West Sussex, RH19 3DZ.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

The enquiry has been reassessed to determine the capacity available for 1.73l/s l/s at manhole reference Foul - TQ39399101 (E539661, N139127)

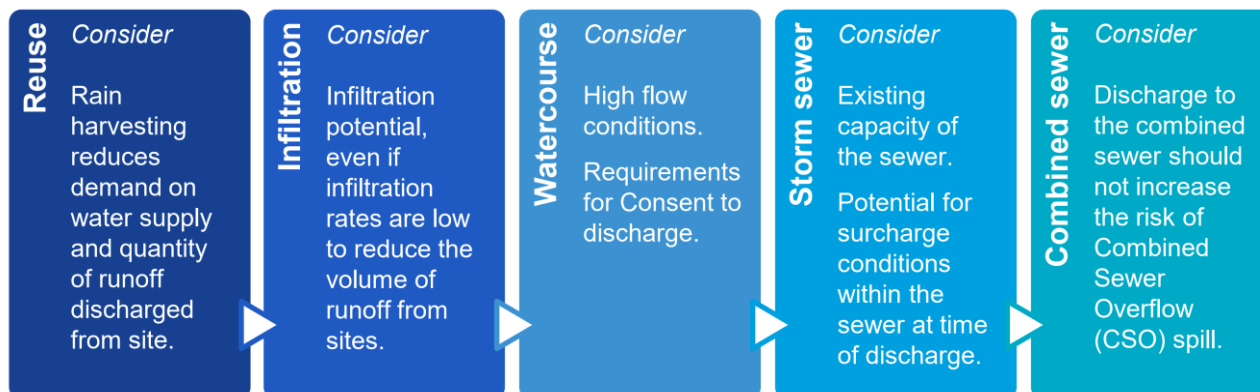
There is currently adequate capacity in the local sewerage network to accommodate a foul flow of **1.73l/s** for the above development at manhole reference Foul - TQ39399101 (E539661, N139127). Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system unless agreed by the Lead Local Flood Authority in consultation with Southern Water, after the hierarchy Part H3 of Building Regulations has been complied with.

Surface Water

The enquiry has been reassessed to determine the capacity available for 3.3 l/s at manhole reference TQ40390250 (E540049, N139209)

There is currently adequate capacity in the local surface water network to accommodate a surface water flow of **3.3 l/s** for the above development at manhole reference TQ40390250 (E540049, N139209)

Although capacity in the surface water network has been identified, in all situations where surface water is being considered for discharge to our network, we require the below hierarchy for surface water to be followed which is reflected in part H3 of the Building Regulations. Whilst reuse does not strictly form part of this hierarchy, Southern Water would encourage the consideration of reuse for new developments.



Guidance on Building Regulations is here: gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

We would welcome the opportunity to engage with you on the design for disposal of surface water, with a particular focus on the potential for incorporating Sustainable Drainage Systems (SuDS), for this development at the earliest opportunity and we recommend that civil engineers and landscape architects work together and with Southern Water.

Where a surface water connection to the foul or combined sewer is being considered, this should be agreed by the Lead Local Flood Authority, in consultation with Southern Water.

It should be noted that although the above assessment indicates that there is capacity available for your proposed surface water flows the LLFA (Local Lead Flood Authority) may impose/request that a lower flow is discharged to the public surface water sewer.

If the excess surface water flows are to be attenuated on site, it could have a significant effect on any proposed Sewer Adoption (S104) Agreements. Any attenuation proposals should be agreed before any works are implemented on site. Where capacity is limited/restricted, agreement should be sought if you are to include any highway drainage within your proposals as Southern Water is not obligated to accept highway flows.



Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit: developerservices.southernwater.co.uk

The results quoted above are only valid for 12 months from the date of issue of this letter.

[ONLINE]

Please get in touch via the Get Connected customer dashboard if you have any queries.

[OTHER]

Should it be necessary to contact us please quote our above reference number in all communications relating to this application by email at southernwaterplanning@southernwater.co.uk

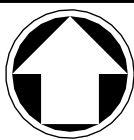
Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

C. Proposed Site Location Plan

C.1 100120806-MM-A1-EG-GA-AR-0304 - Proposed Site Location Plan



- Cycle shelter with 5 Sheffield stands or equivalent.
- Reconfigured car park layout
- Underground attenuation tank. For further information, footprint and location refer to drainage and flooding specialist drawings
- Proposed Binstore (4 wheelie bins with recycling)
- Pergola - Timber 200x200mm square section
- Existing mature hedge to be removed
- Proposed bench
- Bollards
- Existing tarmac to be removed - new planting zone
- Tactile flag paving 400 x 400 x 50mm - Buff
- Proposed access from Holtye Road
- Medical gas cage (1m x 0.5m x 1m)
- Existing retaining wall
- Existing bus stop
- Proposed CDC footprint
- Existing benches - to be relocated
- Safe and lockable ladder access to roof
- 3000mm timber enclosure to external plant area
- Proposed location of existing donated benches
- Existing footpath
- Existing cycle route. Proposed cycle route into site

- Notes
- Do not scale from this drawing.
 - All dimensions are in millimetres unless otherwise stated.
 - All levels are in meters and relate to AOD.
 - This drawing is part of RIBA Stage 3 Spatial Coordination.
 - Any drawing errors or discrepancies should be brought to the attention of Mott MacDonald.
 - The designs shown are subject to detailed site survey, investigations, the CDM Regulations and the comments and/ or approval of various relevant Local Authority Officers, Statutory Undertakers, etc.
 - Any areas shown are approximate only and have been measured off preliminary drawings as the likely measured areas of the current design. These may be affected by future design development and construction tolerances.
 - This drawing is to be used for the purposes of assisting with design development and is not to be used for construction.
 - This drawing is to be read in conjunction with all relevant documents and drawings, including those from other disciplines.
 - No unauthorised use, disclosure, storage or copying.
 - Drawing to be read in conjunction with all other tender information, including M&E and structural engineers packages.
 - To be read in conjunction with Fire strategy and Acoustic report.
 - Drawing is provided for initial information and costing only, all details to be confirmed
 - Drawing to be colour printed.

- Legend
- Proposed CDC site boundary
 - Ownership boundary
 - Parking & vehicular access
 - Footpath & hardscape landscape
 - Existing grassed / planting zone
 - Concrete
 - Proposed low shrubs area
 - Proposed Bin store
 - Proposed cycle store
 - Existing bushes / hedges
 - Gravel path - for facade maintenance
 - Proposed low box hedge
 - Areas to be kept clear for access to disabled / drop-off bays
 - Proposed maintenance path - Grasscrete
 - Main building entrance
 - Other building entrance
 - Existing vehicular entrance
 - Bicycle entrance
 - Pedestrian entrance
 - Existing Tree (Quantity, type & exact location TBC in next stage)
 - Existing Tree (Quantity, type & exact location TBC in next stage)
 - Slope
 - Pedestrian access
 - Existing Vehicular access
 - Bicycle access
 - Existing retaining wall
 - Existing trees/bushes to be removed

Reference Drawings

100120806-MMD-02-XX-DR-A-1802 - Proposed Site Plan					
P02	20.01.2025	MR	Issued for Planning	NA	AF
P01	04.11.2024	CB	Issue for pre planning	NA	AF
Rev	Date	Drawn	Description	Ch'k'd	App'd

Status Stamp

M

M

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RH19 3DZ

Title

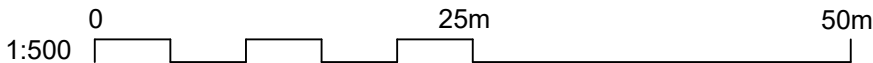
Queen Victoria Hospital CDC
East Grinstead
Proposed Site Arrangement Plan

Designed	C.Bromley	CB	Eng. Check		
Drawn	A.Khan	AK	Coordination		COR
Dwg. Check	N.Arjmandi	NA	Approved	A. Farish	AF
MMD Project Number	Scale at A1		Seq. Number	Security	
100120806	1:500		000	STD	
Suitability Description					Suit. Code
Suitable for Review & Comment					S4
Drawing Number					Rev
100120806-MM-A1-EG-GA-AR-0304					P02

Proposed Site Location Plan

1 : 500

This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose.
We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.



Note: This drawing previous number was 100120806-MMD-02-XX-DR-A-1801, this number is superseded now.

D. Preliminary Surface Water Model Outputs

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Storm Phase: Surface Water	Mott MacDonald:			



2.000

Type : Catchment Area

Area (ha)	0.025
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



2.001

Type : Catchment Area

Area (ha)	0.01
-----------	------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



1.000

Type : Catchment Area

Area (ha)	0.02
-----------	------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



1.001

Type : Catchment Area

Area (ha)	0.019
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
Report Details:	B.Brown	A Precious	A Sims	
Type: Inflows	Mott MacDonald:			
Storm Phase: Surface Water				



Catchment Area

Type : Catchment Area

Area (ha)	0.011
-----------	-------

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (1)

Type : Catchment Area

Area (ha)	0.03
-----------	------

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (2)

Type : Catchment Area

Area (ha)	0.021
-----------	-------

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (4)

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Storm Phase: Surface Water	Mott MacDonald:			



Catchment Area (3)

Type : Catchment Area

Area (ha)	0.009
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (5)

Type : Catchment Area

Area (ha)	0.019
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (6)

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results		Date: 20/01/2025			
Report Details: Type: Junctions Storm Phase: Surface Water		Designed by: B.Brown	Checked by: A Precious		Approved By: A Sims
		Mott MacDonald:			

Name	Junction Type	Easting (m)	Northing (m)	Cover Level (m)	Depth (m)	Invert Level (m)	Chamber Shape	Diameter (m)
SW5	Manhole	539994.102	139177.813	121.200	0.968	120.232	Circular	0.600
SW1	Manhole	539979.079	139201.930	121.200	0.550	120.650	Circular	0.600
SW3	Manhole	540015.063	139228.944	122.317	2.017	120.300	Circular	1.200
SW7	Manhole	540035.194	139216.897	121.200	1.155	120.045	Circular	1.800
SW8	Manhole	540045.027	139224.559	120.860	0.850	120.010	Circular	1.200
SW2	Manhole	540009.039	139224.483	121.200	0.775	120.425	Circular	0.600
SW4	Manhole	540026.441	139213.569	121.370	1.297	120.073	Circular	0.600
SW6	Manhole	540004.649	139185.705	121.200	1.049	120.151	Circular	0.600
Manhole	Manhole	540038.893	139208.811	120.900	0.300	120.600	Rectangular	

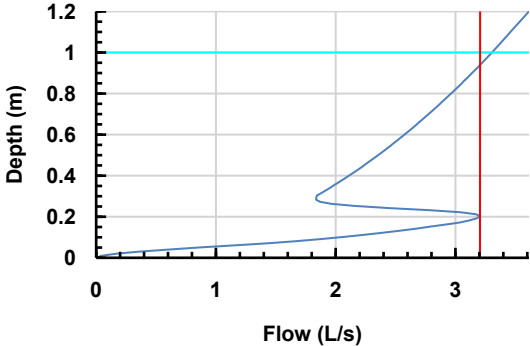
Name	Diameter (m)	Width (m)	Lock
SW5			None
SW1			None
SW3			None
SW7			None
SW8			None
SW2			None
SW4			None
SW6			None
Manhole	0.300	0.300	None

Inlets

Junction	Inlet Name	Incoming Item(s)	Bypass Destination	Capacity Type
SW5	Inlet	2.000	(None)	No Restriction
	Inlet (2)	Catchment Area (4)	(None)	No Restriction
	Inlet (3)	2.000	(None)	No Restriction
SW1	Inlet	1.000 Catchment Area	(None)	No Restriction
SW3	Inlet	1.001	(None)	No Restriction
	Inlet (1)	Catchment Area (5)	(None)	No Restriction
	Inlet (3)	Catchment Area (1)	(None)	No Restriction
SW7	Inlet	1.004	(None)	No Restriction
	Inlet (1)	3.000	(None)	No Restriction
SW8	Inlet (1)	1.005	(None)	No Restriction
SW2	Inlet (1)	1.000.1	(None)	No Restriction
SW4	Inlet	1.002	(None)	No Restriction
	Inlet (1)	Catchment Area (2)	(None)	No Restriction
SW6	Inlet	2.001	(None)	No Restriction
	Inlet (1)	2.001	(None)	No Restriction
Manhole	Inlet	Catchment Area (6)	(None)	No Restriction

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by: B.Brown	Checked by: A Precious	Approved By: A Sims	
	Report Details: Type: Junctions Storm Phase: Surface Water			

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
SW5	Outlet	2.001	Free Discharge
SW1	Outlet	1.000	Free Discharge
SW3	Outlet	1.002	Free Discharge
SW7	Outlet	1.005	Hydro-Brake®
	Invert Level (m)	120.045	
	Design Depth (m)	1.000	
	Design Flow (L/s)	3.3	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0083-3300-1000-3300	
			
SW2	Outlet	1.001	Free Discharge
SW4	Outlet	1.003	Free Discharge
SW6	Outlet	2.002	Free Discharge
Manhole	Outlet (1)	3.000	Flap Valve
	Diameter (m)	0.150	
	Coefficient of Discharge	0.600	
	Invert Level (m)	120.600	

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025		
	Designed by: B.Brown	Checked by: A Precious	Approved By: A Sims
	Report Details: Type: Stormwater Controls Storm Phase: Surface Water		





Infiltration Trench

Type : Infiltration Trench

Dimensions

Exceedance Level (m)	121.200
Depth (m)	0.825
Base Level (m)	120.375
Freeboard (mm)	0
Porosity (%)	30
Length (m)	35.135
Long. Slope (1:X)	300.00
Width (m)	0.450
Total Volume (m³)	4.891

Under Drain

Height Above Base (m)	0.150
Diameter (mm)	225
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	1.000
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	1.001
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	1.000.1
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	500.0
---------------------	-------

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Stormwater Controls Storm Phase: Surface Water		Mott MacDonald:		



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	121.200
Depth (m)	0.400
Base Level (m)	120.300
Number of Crates Long	5
Number of Crates Wide	23
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	1
Crate Height (m)	0.4
Total Volume (m³)	44.200

Inlets

Outlets

Outlet

Outgoing Connection	2.000
Outlet Type	Free Discharge

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025		
	Designed by: B.Brown	Checked by: A Precious	Approved By: A Sims
	Report Details: Type: Stormwater Controls Storm Phase: Surface Water		





Cellular Storage (1)

Type : Cellular Storage

Dimensions

Exceedance Level (m)	121.200
Depth (m)	0.600
Base Level (m)	120.057
Number of Crates Long	10
Number of Crates Wide	12
Number of Crates High	3
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	1
Crate Height (m)	0.2
Total Volume (m³)	68.943

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	1.003
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	2.002
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (3)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	1.004
Outlet Type	Free Discharge

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results		Date: 20/01/2025			
Report Details: Type: Connections Storm Phase: Surface Water		Designed by: B.Brown	Checked by: A Precious		Approved By: A Sims
		Mott MacDonald:			

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	No. of Barrels	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.001	7.497	Pipe	59.972		0.6	1	225	121.200
1.000.1	1.326	Pipe	13.257		0.6	1	225	122.400
1.000	1.697	Pipe	212.150		0.6	1	225	121.200
1.005	12.466	Pipe	356.183		0.6	1	150	121.200
1.002	19.127	Pipe	84.260		0.6	1	225	122.317
2.001	13.173	Pipe	162.626		0.6	1	150	121.200
2.000	11.090	Pipe	163.088		0.6	1	150	121.250
1.004	2.673	Pipe	222.728		0.6	1	300	121.523
1.003	1.343	Pipe	83.956		0.6	1	225	121.370
2.002	15.393	Pipe	164.579		0.6	1	150	121.200
3.000	8.892	Pipe	16.021		0.6	1	100	120.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)	Velocity (m/s)
1.001	120.425	122.317	120.300		None		
1.000.1	120.525	121.200	120.425		Levels		
1.000	120.650	122.449	120.642		Levels		
1.005	120.045	120.860	120.010		None	3.5	
1.002	120.300	121.370	120.073		None		
2.001	120.232	121.200	120.151		None		
2.000	120.300	121.200	120.232		None		
1.004	120.057	121.200	120.045		None		
1.003	120.073	121.269	120.057		None		
2.002	120.151	120.800	120.057		Levels		
3.000	120.600	121.200	120.045		None	22.3	

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results		Date: 20/01/2025			
Report Details: Type: Manhole Schedule Storm Phase: Surface Water		Designed by: B.Brown	Checked by: A Precious		Approved By: A Sims
		Mott MacDonald:			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW5	121.200 120.232	Diameter / Length: 0.600	{1} 2.000	Pipe	120.232	Diam/Width:150	Manhole
E:539994.102 N:139177.813	0.968		{a} 2.001	Pipe	120.232	Diam/Width:150	Not Applicable
SW1	121.200 120.650	Diameter / Length: 0.600					Manhole
E:539979.079 N:139201.930	0.550		{a} 1.000	Pipe	120.650	Diam/Width:225	Not Applicable
SW3	122.317 120.300	Diameter / Length: 1.200	{1} 1.001	Pipe	120.300	Diam/Width:225	Manhole
E:540015.063 N:139228.944	2.017		{a} 1.002	Pipe	120.300	Diam/Width:225	Not Applicable
SW7	121.200 120.045	Diameter / Length: 1.800	{1} 1.004	Pipe	120.045	Diam/Width:300	Manhole
E:540035.194 N:139216.897	1.155		{2} 3.000	Pipe	120.045	Diam/Width:100	
			{a} 1.005	Pipe	120.045	Diam/Width:150	Not Applicable
SW8	120.860 120.010	Diameter / Length: 1.200	{1} 1.005	Pipe	120.010	Diam/Width:150	Manhole
E:540045.027 N:139224.559	0.850						Not Applicable

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results		Date: 20/01/2025			
Report Details: Type: Manhole Schedule Storm Phase: Surface Water		Designed by: B.Brown	Checked by: A Precious		Approved By: A Sims
		Mott MacDonald:			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SW2	121.200 120.425	Diameter / Length: 0.600	{1} 1.000.1	Pipe	120.425	Diam/Width:225	Manhole
E:540009.039 N:139224.483	0.775		{a} 1.001	Pipe	120.425	Diam/Width:225	Not Applicable
SW4	121.370 120.073	Diameter / Length: 0.600	{1} 1.002	Pipe	120.073	Diam/Width:225	Manhole
E:540026.441 N:139213.569	1.297		{a} 1.003	Pipe	120.073	Diam/Width:225	Not Applicable
SW6	121.200 120.151	Diameter / Length: 0.600	{1} 2.001	Pipe	120.151	Diam/Width:150	Manhole
E:540004.649 N:139185.705	1.049		{a} 2.002	Pipe	120.151	Diam/Width:150	Not Applicable
Manhole	120.900 120.600	Diameter / Length: 0.300					Manhole
E:540038.893 N:139208.811	0.300		{a} 3.000	Pipe	120.600	Diam/Width:100	Not Applicable
		Width: 0.300					

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Title: Rainfall Analysis Criteria	Mott MacDonald:			

Runoff Type	Dynamic
Output Interval (mins)	1
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Surface Water	B.Brown	A Precious	A Sims	
Mott MacDonald:				



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 1 years: +0 %: 15 mins: Summer	0.02	4.2	1.817
2.001	FSR: 1 years: +0 %: 15 mins: Summer	0.01	1.7	0.742
1.000	FSR: 1 years: +0 %: 15 mins: Summer	0.02	3.4	1.493
1.001	FSR: 1 years: +0 %: 15 mins: Summer	0.02	3.3	1.426
Catchment Area	FSR: 1 years: +0 %: 15 mins: Summer	0.01	1.9	0.814
Catchment Area (1)	FSR: 1 years: +0 %: 15 mins: Summer	0.03	5.2	2.239
Catchment Area (2)	FSR: 1 years: +0 %: 15 mins: Summer	0.02	3.6	1.543
Catchment Area (4)	FSR: 1 years: +0 %: 15 mins: Summer	0.01	0.9	0.398
Catchment Area (3)	FSR: 1 years: +0 %: 15 mins: Summer	0.01	1.5	0.645
Catchment Area (5)	FSR: 1 years: +0 %: 15 mins: Summer	0.02	3.2	1.391
Catchment Area (6)	FSR: 1 years: +0 %: 15 mins: Summer	0.00	0.5	0.202

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Summary Storm Phase: Surface Water		Mott MacDonald:		



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 30 years: +0 %: 15 mins: Summer	0.02	10.3	4.452
2.001	FSR: 30 years: +0 %: 15 mins: Summer	0.01	4.2	1.814
1.000	FSR: 30 years: +0 %: 15 mins: Summer	0.02	8.5	3.665
1.001	FSR: 30 years: +0 %: 15 mins: Summer	0.02	8.1	3.499
Catchment Area	FSR: 30 years: +0 %: 15 mins: Summer	0.01	4.6	1.994
Catchment Area (1)	FSR: 30 years: +0 %: 15 mins: Summer	0.03	12.7	5.489
Catchment Area (2)	FSR: 30 years: +0 %: 15 mins: Summer	0.02	8.7	3.780
Catchment Area (4)	FSR: 30 years: +0 %: 15 mins: Summer	0.01	2.3	0.976
Catchment Area (3)	FSR: 30 years: +0 %: 15 mins: Summer	0.01	3.7	1.586
Catchment Area (5)	FSR: 30 years: +0 %: 15 mins: Summer	0.02	7.9	3.414
Catchment Area (6)	FSR: 30 years: +0 %: 15 mins: Summer	0.00	1.1	0.493

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Summary Storm Phase: Surface Water		Mott MacDonald:		



FSR: 50 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 50 years: +0 %: 15 mins: Summer	0.02	11.5	4.969
2.001	FSR: 50 years: +0 %: 15 mins: Summer	0.01	4.7	2.024
1.000	FSR: 50 years: +0 %: 15 mins: Summer	0.02	9.4	4.086
1.001	FSR: 50 years: +0 %: 15 mins: Summer	0.02	9.0	3.904
Catchment Area	FSR: 50 years: +0 %: 15 mins: Summer	0.01	5.1	2.228
Catchment Area (1)	FSR: 50 years: +0 %: 15 mins: Summer	0.03	14.1	6.127
Catchment Area (2)	FSR: 50 years: +0 %: 15 mins: Summer	0.02	9.7	4.219
Catchment Area (4)	FSR: 50 years: +0 %: 15 mins: Summer	0.01	2.5	1.091
Catchment Area (3)	FSR: 50 years: +0 %: 15 mins: Summer	0.01	4.1	1.771
Catchment Area (5)	FSR: 50 years: +0 %: 15 mins: Summer	0.02	8.8	3.807
Catchment Area (6)	FSR: 50 years: +0 %: 15 mins: Summer	0.00	1.3	0.553

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Summary Storm Phase: Surface Water		Mott MacDonald:		



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 100 years: +0 %: 15 mins: Summer	0.02	13.3	5.768
2.001	FSR: 100 years: +0 %: 15 mins: Summer	0.01	5.4	2.349
1.000	FSR: 100 years: +0 %: 15 mins: Summer	0.02	11.0	4.745
1.001	FSR: 100 years: +0 %: 15 mins: Summer	0.02	10.5	4.533
Catchment Area	FSR: 100 years: +0 %: 15 mins: Summer	0.01	6.0	2.586
Catchment Area (1)	FSR: 100 years: +0 %: 15 mins: Summer	0.03	16.4	7.111
Catchment Area (2)	FSR: 100 years: +0 %: 15 mins: Summer	0.02	11.3	4.901
Catchment Area (4)	FSR: 100 years: +0 %: 15 mins: Summer	0.01	2.9	1.266
Catchment Area (3)	FSR: 100 years: +0 %: 15 mins: Summer	0.01	4.7	2.053
Catchment Area (5)	FSR: 100 years: +0 %: 15 mins: Summer	0.02	10.2	4.421
Catchment Area (6)	FSR: 100 years: +0 %: 15 mins: Summer	0.00	1.5	0.641

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Inflows Summary Storm Phase: Surface Water		Mott MacDonald:		



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 100 years: +45 %: 15 mins: Summer	0.02	19.3	8.369
2.001	FSR: 100 years: +45 %: 15 mins: Summer	0.01	7.9	3.406
1.000	FSR: 100 years: +45 %: 15 mins: Summer	0.02	15.9	6.885
1.001	FSR: 100 years: +45 %: 15 mins: Summer	0.02	15.2	6.577
Catchment Area	FSR: 100 years: +45 %: 15 mins: Summer	0.01	8.6	3.751
Catchment Area (1)	FSR: 100 years: +45 %: 15 mins: Summer	0.03	23.8	10.318
Catchment Area (2)	FSR: 100 years: +45 %: 15 mins: Summer	0.02	16.4	7.107
Catchment Area (4)	FSR: 100 years: +45 %: 15 mins: Summer	0.01	4.2	1.837
Catchment Area (3)	FSR: 100 years: +45 %: 15 mins: Summer	0.01	6.9	2.982
Catchment Area (5)	FSR: 100 years: +45 %: 15 mins: Summer	0.02	14.8	6.414
Catchment Area (6)	FSR: 100 years: +45 %: 15 mins: Summer	0.00	2.1	0.931

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Surface Water	B.Brown	A Precious	A Sims	
Mott MacDonald:				



FSR: 20 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
2.000	FSR: 20 years: +0 %: 15 mins: Summer	0.02	9.4	4.080
2.001	FSR: 20 years: +0 %: 15 mins: Summer	0.01	3.8	1.662
1.000	FSR: 20 years: +0 %: 15 mins: Summer	0.02	7.7	3.357
1.001	FSR: 20 years: +0 %: 15 mins: Summer	0.02	7.4	3.204
Catchment Area	FSR: 20 years: +0 %: 15 mins: Summer	0.01	4.2	1.830
Catchment Area (1)	FSR: 20 years: +0 %: 15 mins: Summer	0.03	11.6	5.033
Catchment Area (2)	FSR: 20 years: +0 %: 15 mins: Summer	0.02	8.0	3.466
Catchment Area (4)	FSR: 20 years: +0 %: 15 mins: Summer	0.01	2.1	0.896
Catchment Area (3)	FSR: 20 years: +0 %: 15 mins: Summer	0.01	3.4	1.453
Catchment Area (5)	FSR: 20 years: +0 %: 15 mins: Summer	0.02	7.2	3.127
Catchment Area (6)	FSR: 20 years: +0 %: 15 mins: Summer	0.00	1.0	0.452

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025		
	Designed by: B. Brown	Checked by: A. Precious	Approved By: A. Sims
	Report Details: Type: Junctions Summary Storm Phase: Surface Water		





FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 1 years: +0 %: 15 mins: Summer	121.200	120.232	120.297	0.065	5.1	0.018	0.000	5.0	2.214	OK
SW1	FSR: 1 years: +0 %: 15 mins: Summer	121.200	120.650	120.742	0.092	5.3	0.026	0.000	5.3	2.305	OK
SW3	FSR: 1 years: +0 %: 15 mins: Summer	122.317	120.300	120.387	0.087	16.7	0.098	0.000	16.6	6.633	OK
SW7	FSR: 1 years: +0 %: 240 mins: Summer	121.200	120.045	120.233	0.188	2.5	0.479	0.000	2.5	31.001	Surcharged
SW8	FSR: 1 years: +0 %: 240 mins: Summer	120.860	120.010	120.063	0.053	2.5	0.000	0.000	2.5	30.979	OK
SW2	FSR: 1 years: +0 %: 15 mins: Summer	121.200	120.425	120.483	0.058	8.4	0.016	0.000	8.5	2.999	OK
SW4	FSR: 1 years: +0 %: 240 mins: Summer	121.370	120.073	120.234	0.161	6.7	0.045	0.000	6.6	24.350	OK
SW6	FSR: 1 years: +0 %: 240 mins: Summer	121.200	120.151	120.234	0.083	2.2	0.023	0.000	2.2	8.301	OK
Manhole	FSR: 1 years: +0 %: 15 mins: Summer	120.900	120.600	120.619	0.019	0.5	0.002	0.000	0.4	0.200	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Junctions Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 30 years: +0 %: 240 mins: Summer	121.200	120.232	120.422	0.190	6.4	0.054	0.000	3.3	34.148	Surcharged
SW1	FSR: 30 years: +0 %: 15 mins: Summer	121.200	120.650	120.815	0.165	13.1	0.047	0.000	12.9	5.656	OK
SW3	FSR: 30 years: +0 %: 15 mins: Summer	122.317	120.300	120.457	0.157	41.1	0.178	0.000	40.6	17.329	OK
SW7	FSR: 30 years: +0 %: 240 mins: Summer	121.200	120.045	120.427	0.382	3.6	0.973	0.000	3.2	52.798	Surcharged
SW8	FSR: 30 years: +0 %: 960 mins: Summer	120.860	120.010	120.070	0.060	3.2	0.000	0.000	3.2	111.822	OK
SW2	FSR: 30 years: +0 %: 15 mins: Summer	121.200	120.425	120.524	0.099	20.6	0.028	0.000	20.7	8.421	OK
SW4	FSR: 30 years: +0 %: 240 mins: Summer	121.370	120.073	120.428	0.355	15.0	0.100	0.000	14.8	54.530	Surcharged
SW6	FSR: 30 years: +0 %: 240 mins: Summer	121.200	120.151	120.422	0.271	5.0	0.077	0.000	4.4	32.569	Surcharged
Manhole	FSR: 30 years: +0 %: 15 mins: Summer	120.900	120.600	120.634	0.034	1.1	0.003	0.000	1.1	0.490	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
Report Details: Type: Junctions Summary Storm Phase: Surface Water	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
	Mott MacDonald:			



FSR: 50 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 50 years: +0 %: 240 mins: Summer	121.200	120.232	120.457	0.225	8.0	0.064	0.000	3.3	38.767	Surcharged
SW1	FSR: 50 years: +0 %: 15 mins: Summer	121.200	120.650	120.831	0.181	14.6	0.051	0.000	14.4	6.312	OK
SW3	FSR: 50 years: +0 %: 15 mins: Summer	122.317	120.300	120.471	0.171	45.8	0.194	0.000	45.3	19.409	OK
SW7	FSR: 50 years: +0 %: 120 mins: Summer	121.200	120.045	120.461	0.416	4.0	1.057	0.000	3.2	23.742	Surcharged
SW8	FSR: 50 years: +0 %: 480 mins: Summer	120.860	120.010	120.070	0.060	3.2	0.000	0.000	3.2	98.101	OK
SW2	FSR: 50 years: +0 %: 15 mins: Summer	121.200	120.425	120.531	0.106	23.0	0.030	0.000	23.1	9.482	OK
SW4	FSR: 50 years: +0 %: 120 mins: Summer	121.370	120.073	120.462	0.389	26.6	0.110	0.000	26.2	50.121	Surcharged
SW6	FSR: 50 years: +0 %: 240 mins: Summer	121.200	120.151	120.457	0.306	6.1	0.087	0.000	4.5	35.789	Surcharged
Manhole	FSR: 50 years: +0 %: 15 mins: Summer	120.900	120.600	120.636	0.036	1.3	0.003	0.000	1.2	0.550	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Junctions Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 100 years: +0 %: 240 mins: Summer	121.200	120.232	120.512	0.280	10.2	0.079	0.000	3.3	45.277	Surcharged
SW1	FSR: 100 years: +0 %: 15 mins: Summer	121.200	120.650	120.858	0.208	16.9	0.059	0.000	16.7	7.328	OK
SW3	FSR: 100 years: +0 %: 30 mins: Summer	122.317	120.300	120.546	0.246	48.7	0.278	0.000	47.5	30.446	Surcharged
SW7	FSR: 100 years: +0 %: 120 mins: Summer	121.200	120.045	120.512	0.467	4.0	1.188	0.000	3.2	25.438	Surcharged
SW8	FSR: 100 years: +0 %: 1440 mins: Summer	120.860	120.010	120.070	0.060	3.2	0.000	0.000	3.2	156.209	OK
SW2	FSR: 100 years: +0 %: 30 mins: Summer	121.200	120.425	120.558	0.133	25.0	0.038	0.000	24.3	15.248	OK
SW4	FSR: 100 years: +0 %: 120 mins: Summer	121.370	120.073	120.514	0.441	30.4	0.125	0.000	30.1	58.673	Surcharged
SW6	FSR: 100 years: +0 %: 240 mins: Summer	121.200	120.151	120.512	0.361	7.4	0.102	0.000	4.5	40.096	Surcharged
Manhole	FSR: 100 years: +0 %: 15 mins: Summer	120.900	120.600	120.640	0.040	1.5	0.004	0.000	1.4	0.638	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Junctions Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 100 years: +45 %: 360 mins: Summer	121.200	120.232	120.826	0.594	12.8	0.168	0.000	2.4	80.214	Surcharged
SW1	FSR: 100 years: +45 %: 15 mins: Summer	121.200	120.650	121.148	0.498	24.5	0.141	0.000	22.2	10.635	Flood Risk
SW3	FSR: 100 years: +45 %: 30 mins: Summer	122.317	120.300	120.834	0.534	62.6	0.604	0.000	61.3	44.230	Surcharged
SW7	FSR: 100 years: +45 %: 360 mins: Summer	121.200	120.045	120.825	0.780	3.5	1.986	0.000	3.2	93.224	Surcharged
SW8	FSR: 100 years: +45 %: 1440 mins: Summer	120.860	120.010	120.070	0.060	3.2	0.000	0.000	3.2	226.875	OK
SW2	FSR: 100 years: +45 %: 30 mins: Summer	121.200	120.425	120.875	0.450	31.2	0.127	0.000	31.7	22.385	Surcharged
SW4	FSR: 100 years: +45 %: 360 mins: Summer	121.370	120.073	120.825	0.752	20.7	0.213	0.000	20.5	113.746	Surcharged
SW6	FSR: 100 years: +45 %: 360 mins: Summer	121.200	120.151	120.826	0.675	8.4	0.191	0.000	3.1	68.038	Surcharged
Manhole	FSR: 100 years: +45 %: 360 mins: Summer	120.900	120.600	120.825	0.225	0.5	0.020	0.000	0.5	2.642	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Junctions Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 20 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SW5	FSR: 20 years: +0 %: 240 mins: Summer	121.200	120.232	120.397	0.165	5.1	0.047	0.000	3.1	29.009	Surcharged
SW1	FSR: 20 years: +0 %: 15 mins: Summer	121.200	120.650	120.805	0.155	12.0	0.044	0.000	11.9	5.185	OK
SW3	FSR: 20 years: +0 %: 15 mins: Summer	122.317	120.300	120.446	0.146	37.7	0.166	0.000	37.3	15.823	OK
SW7	FSR: 20 years: +0 %: 240 mins: Summer	121.200	120.045	120.406	0.361	3.6	0.918	0.000	3.2	53.894	Surcharged
SW8	FSR: 20 years: +0 %: 960 mins: Summer	120.860	120.010	120.070	0.060	3.2	0.000	0.000	3.2	103.280	OK
SW2	FSR: 20 years: +0 %: 15 mins: Summer	121.200	120.425	120.519	0.094	18.9	0.027	0.000	18.9	7.655	OK
SW4	FSR: 20 years: +0 %: 240 mins: Summer	121.370	120.073	120.406	0.333	13.7	0.094	0.000	13.5	49.978	Surcharged
SW6	FSR: 20 years: +0 %: 240 mins: Summer	121.200	120.151	120.399	0.248	4.2	0.070	0.000	4.1	28.425	Surcharged
Manhole	FSR: 20 years: +0 %: 15 mins: Summer	120.900	120.600	120.632	0.032	1.0	0.003	0.000	1.0	0.449	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water			Mott MacDonald:	



**FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max.
Avg. Depth**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 1 years: +0 %: 15 mins: Summer	120.738	120.571	0.246	0.196	8.6	1.113	0.000	0.000	8.4	3.003	77.242	OK
Cellular Storage	FSR: 1 years: +0 %: 15 mins: Summer	120.300	120.300	0.000	0.000	0.0	0.000	0.000	0.000	0.0	0.000	100.000	OK
Cellular Storage (1)	FSR: 1 years: +0 %: 240 mins: Summer	120.234	120.234	0.177	0.177	9.3	20.168	0.000	0.000	2.5	30.579	70.747	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Stormwater Controls Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 30 years: +0 %: 15 mins: Summer	120.810	120.608	0.318	0.233	21.0	1.396	0.000	0.000	20.6	8.426	71.453	OK
Cellular Storage	FSR: 30 years: +0 %: 240 mins: Summer	120.422	120.422	0.122	0.122	6.4	13.379	0.000	0.000	1.2	11.860	69.731	OK
Cellular Storage (1)	FSR: 30 years: +0 %: 240 mins: Summer	120.427	120.427	0.370	0.370	20.1	42.322	0.000	0.000	3.3	59.629	38.613	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details:		Mott MacDonald:		
Type: Stormwater Controls Summary				
Storm Phase: Surface Water				



FSR: 50 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max.
Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 50 years: +0 %: 15 mins: Summer	120.825	120.614	0.333	0.239	23.4	1.450	0.000	0.000	23.0	9.487	70.350	OK
Cellular Storage	FSR: 50 years: +0 %: 240 mins: Summer	120.457	120.457	0.157	0.157	8.0	17.232	0.000	0.000	1.1	12.635	61.013	OK
Cellular Storage (1)	FSR: 50 years: +0 %: 120 mins: Summer	120.461	120.461	0.404	0.404	35.7	46.109	0.000	0.000	3.4	32.918	33.121	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details:	Mott MacDonald:			
Type: Stormwater Controls Summary				
Storm Phase: Surface Water				



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max.
Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 100 years: +0 %: 15 mins: Summer	120.852	120.625	0.360	0.250	27.1	1.539	0.000	0.000	26.7	11.131	68.541	OK
Cellular Storage	FSR: 100 years: +0 %: 240 mins: Summer	120.512	120.512	0.212	0.212	10.1	23.213	0.000	0.000	1.0	13.095	47.483	OK
Cellular Storage (1)	FSR: 100 years: +0 %: 120 mins: Summer	120.512	120.512	0.455	0.455	40.6	51.972	0.000	0.000	3.4	37.709	24.616	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details:	Mott MacDonald:			
Type: Stormwater Controls Summary				
Storm Phase: Surface Water				



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By:
Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 100 years: +45 %: 15 mins: Summer	121.139	120.895	0.647	0.520	37.3	2.776	0.000	0.000	34.2	16.487	43.241	OK
Cellular Storage	FSR: 100 years: +45 %: 360 mins: Summer	120.826	120.826	0.526	0.526	12.8	43.973	0.000	0.000	2.4	24.306	0.513	OK
Cellular Storage (1)	FSR: 100 years: +45 %: 360 mins: Summer	120.825	120.825	0.768	0.768	22.0	68.757	0.000	0.000	3.2	114.574	0.270	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details:	Mott MacDonald:			
Type: Stormwater Controls Summary				
Storm Phase: Surface Water				



FSR: 20 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max.
Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Infiltration Trench	FSR: 20 years: +0 %: 15 mins: Summer	120.800	120.603	0.308	0.228	19.3	1.358	0.000	0.000	18.9	7.660	72.239	OK
Cellular Storage	FSR: 20 years: +0 %: 240 mins: Summer	120.397	120.397	0.097	0.097	5.1	10.629	0.000	0.000	1.2	9.593	75.954	OK
Cellular Storage (1)	FSR: 20 years: +0 %: 240 mins: Summer	120.406	120.406	0.349	0.349	18.3	39.866	0.000	0.000	3.3	59.136	42.175	OK

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Connections Summary Storm Phase: Surface Water			Mott MacDonald:	



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.483	0.072	2.999	0.8	0.13	8.5	OK
1.000.1	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.610	0.052	3.003	1.2	0.06	8.4	OK
1.000	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	120.742	0.094	2.305	0.4	0.15	5.3	OK
1.005	FSR: 1 years: +0 %: 240 mins: Summer	Pipe	SW7	SW8	121.200	120.233	0.054	30.979	0.4	0.27	2.5	Surcharged
1.002	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.387	0.091	6.633	1.1	0.29	16.6	OK
2.001	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.297	0.071	2.214	0.6	0.36	5.0	OK
2.000	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.300	0.032	0.000	0.0	0	0.0	OK
1.004	FSR: 1 years: +0 %: 360 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.233	0.182	37.098	0.1	0.03	2.5	OK
1.003	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.168	0.086	8.042	2.1	0.35	20.0	OK
2.002	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.228	0.067	2.963	1.2	0.49	6.7	OK
3.000	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.619	0.055	0.197	0.6	0.03	0.4	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
Report Details: Type: Connections Summary Storm Phase: Surface Water	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
	Mott MacDonald:			



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.524	0.128	8.421	0.9	0.31	20.7	OK
1.000.1	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.669	0.091	8.426	1.4	0.14	20.6	OK
1.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	120.815	0.167	5.656	0.4	0.36	12.9	OK
1.005	FSR: 30 years: +0 %: 960 mins: Summer	Pipe	SW7	SW8	121.200	120.386	0.062	111.822	0.5	0.34	3.2	Surcharged
1.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.457	0.170	17.329	1.3	0.72	40.6	OK
2.001	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.366	0.147	5.146	0.7	0.85	11.8	OK
2.000	FSR: 30 years: +0 %: 240 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.422	0.150	0.000	0.2	0.09	1.2	OK
1.004	FSR: 30 years: +0 %: 60 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.401	0.300	11.556	0.2	0.05	3.4	Surcharged
1.003	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.290	0.225	20.662	2.5	0.85	48.5	OK
2.002	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.318	0.150	6.694	1.3	1.1	15.2	Surcharged
3.000	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.634	0.100	0.481	0.7	0.07	1.1	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Connections Summary Storm Phase: Surface Water		Mott MacDonald:		



FSR: 50 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.531	0.139	9.482	0.9	0.34	23.1	OK
1.000.1	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.681	0.098	9.487	1.4	0.16	23.0	OK
1.000	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	120.831	0.182	6.312	0.4	0.41	14.4	OK
1.005	FSR: 50 years: +0 %: 480 mins: Summer	Pipe	SW7	SW8	121.200	120.453	0.062	98.101	0.5	0.34	3.2	Surcharged
1.002	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.471	0.191	19.409	1.4	0.8	45.3	OK
2.001	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.419	0.150	5.411	0.7	0.9	12.5	Surcharged
2.000	FSR: 50 years: +0 %: 60 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.400	0.134	0.000	0.1	0.09	1.2	OK
1.004	FSR: 50 years: +0 %: 60 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.433	0.300	11.381	0.2	0.05	3.5	Surcharged
1.003	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.316	0.225	23.147	2.5	0.95	54.1	Surcharged
2.002	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.352	0.150	7.113	1.3	1.19	16.4	Surcharged
3.000	FSR: 50 years: +0 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.636	0.100	0.540	0.7	0.08	1.2	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
Report Details: Type: Connections Summary Storm Phase: Surface Water	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
	Mott MacDonald:			



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.547	0.176	11.126	0.9	0.4	26.7	OK
1.000.1	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.699	0.109	11.131	2.0	0.19	26.7	OK
1.000	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	120.858	0.209	7.328	0.4	0.47	16.7	OK
1.005	FSR: 100 years: +0 %: 1440 mins: Summer	Pipe	SW7	SW8	121.200	120.438	0.062	156.209	0.5	0.34	3.2	Surcharged
1.002	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.529	0.225	22.505	1.4	0.92	52.2	Surcharged
2.001	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.481	0.150	5.644	0.8	0.98	13.6	Surcharged
2.000	FSR: 100 years: +0 %: 60 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.442	0.150	0.000	0.1	0.09	1.2	OK
1.004	FSR: 100 years: +0 %: 30 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.432	0.300	5.700	0.3	0.05	3.6	Surcharged
1.003	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.356	0.225	26.887	2.4	1.1	62.6	Surcharged
2.002	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.402	0.150	7.585	1.3	1.32	18.3	Surcharged
3.000	FSR: 100 years: +0 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.640	0.100	0.627	0.7	0.09	1.4	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Connections Summary Storm Phase: Surface Water	Mott MacDonald:			



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.872	0.225	16.483	0.9	0.54	36.2	Surcharged
1.000.1	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.960	0.225	16.487	1.4	0.24	34.2	Surcharged
1.000	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	121.148	0.225	10.635	0.6	0.62	22.2	Flood Risk
1.005	FSR: 100 years: +45 %: 1440 mins: Summer	Pipe	SW7	SW8	121.200	120.624	0.062	226.875	0.5	0.34	3.2	Surcharged
1.002	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.822	0.225	32.672	1.7	1.17	66.5	Surcharged
2.001	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.689	0.150	6.330	1.0	1.21	16.8	Surcharged
2.000	FSR: 100 years: +45 %: 360 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.826	0.150	0.000	0.1	0.17	2.4	Surcharged
1.004	FSR: 100 years: +45 %: 120 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.787	0.300	29.811	0.2	0.09	7.0	Surcharged
1.003	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.488	0.225	39.154	2.5	1.43	81.1	Surcharged
2.002	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.571	0.150	8.937	1.3	1.71	23.5	Surcharged
3.000	FSR: 100 years: +45 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.652	0.100	0.914	0.8	0.14	2.1	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
Report Details: Type: Connections Summary Storm Phase: Surface Water	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
	Mott MacDonald:			



FSR: 20 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW2	SW3	121.200	120.519	0.120	7.655	0.9	0.28	18.9	OK
1.000.1	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	Infiltration Trench	SW2	122.400	120.661	0.086	7.660	1.4	0.13	18.9	OK
1.000	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW1	Infiltration Trench	121.200	120.805	0.156	5.185	0.4	0.33	11.9	OK
1.005	FSR: 20 years: +0 %: 960 mins: Summer	Pipe	SW7	SW8	121.200	120.348	0.062	103.280	0.5	0.34	3.2	Surcharged
1.002	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW3	SW4	122.317	120.446	0.158	15.823	1.3	0.66	37.3	OK
2.001	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW5	SW6	121.200	120.344	0.125	4.796	0.7	0.79	11.0	OK
2.000	FSR: 20 years: +0 %: 240 mins: Summer	Pipe	Cellular Storage	SW5	121.250	120.397	0.131	0.000	0.3	0.09	1.2	OK
1.004	FSR: 20 years: +0 %: 120 mins: Summer	Pipe	Cellular Storage (1)	SW7	121.523	120.402	0.300	25.285	0.2	0.04	3.3	Surcharged
1.003	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW4	Cellular Storage (1)	121.370	120.270	0.205	18.879	2.5	0.78	44.6	OK
2.002	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	SW6	Cellular Storage (1)	121.200	120.291	0.150	6.230	1.3	1.05	14.4	OK
3.000	FSR: 20 years: +0 %: 15 mins: Summer	Pipe	Manhole	SW7	120.900	120.632	0.100	0.440	0.7	0.07	1.0	Flood Risk

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			



Surface Water
FSR: 1 years: Increase Rainfall (%): +0: 240 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			2.5	30.979
TOTAL	9.6	35.656	2.5	30.979

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			



Surface Water
FSR: 30 years: Increase Rainfall (%): +0: 960 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			3.2	111.822
TOTAL	7.7	112.949	3.2	111.822

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			



Surface Water
FSR: 50 years: Increase Rainfall (%): +0: 480 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			3.2	98.101
TOTAL	14.4	105.592	3.2	98.101

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			



Surface Water
FSR: 100 years: Increase Rainfall (%): +0: 1440 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			3.2	156.209
TOTAL	7.1	157.079	3.2	156.209

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			



Surface Water
FSR: 100 years: Increase Rainfall (%): +45: 1440 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			3.2	226.875
TOTAL	10.3	227.900	3.2	226.875

Queen Victoria Hospital CDC: East Grinstead RIBA 3 Modelling Results	Date: 20/01/2025			
	Designed by:	Checked by:	Approved By:	
	B.Brown	A Precious	A Sims	
Report Details: Type: Phase Management Storm Phase: Surface Water	Mott MacDonald:			

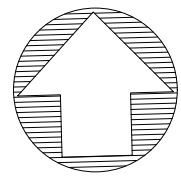


Surface Water
FSR: 20 years: Increase Rainfall (%): +0: 960 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
SW8			3.2	103.280
TOTAL	7.1	104.309	3.2	103.280

E. RIBA 3 Drainage Layout Arrangement



Existing Staff
Car Park



Jubilee Building

Existing route to be abandoned with the drain diverted around the building. Assumed to be combined water sewer, to be confirmed at next design stage.

Proposed 115m², 0.4m deep geocellular attenuation or hydrorock, located within soft landscaping.

Geocell vent arrangements to be confirmed at the next design stage

Diameter and approximate gradient 1v:45h, 3000

Geocellular storage to be fully compliant with C737. Rodding and access to the geocellular storage for maintenance to be confirmed by manufacturer

Generator provision and refueling to be agreed - additional drainage may be required.

Passive exceedance route.

Private foul water network, extents taken from existing services records. To be confirmed at the next design stage.

Levels to be confirmed at next design stage

Manhole to include flow control limiting surface water to 3.3l/s.

Wastop non-return valve to be located on the outlet of LD07.

Proposed 120m², 0.6m deep geocellular attenuation or hydrorock, located within soft landscaping and under access track.

Geocell vent arrangements to be confirmed at the next design stage

Pipework to be excavated through existing root protection zone and protected with a root barrier.

Existing manhole cover level lifted to match new levels

Connection from diverted drain to be confirmed.



RESIDUAL RISK ASSESSMENT

Wherever possible, risk is designed-out of this proposal during the design process. Where this is not possible, the risk will be minimised and any residual risk will be noted and indicated by the symbol.

- DC01, DC02 Excavations
- DC03 Diversion of live drainage systems
- SC04 Connection to live drainage
- DC05 Excavation near existing planting
- DM01 Silt management
- DM02 Drainage to building entrance
- DM03 Exceedance routing
- DM04 Maintenance of plant on plant room

0 10m 20m
1:200

Notes

General

- This drawing is to be read in conjunction with all other drawings.
- All dimensions are in millimetres unless otherwise noted.
- Adopted drainage assets taken from records and shown indicatively only.
- Internal SVP and RWP locations are not yet confirmed and SW and FW system are based on assumed locations.
- all below slab drainage to be minimum 1v:40

Setting out

- All levels are given in metres Above Ordnance Datum (AOD).
- For manhole information refer to manhole schedule reference 100120806-MM-ZZ-EG-DR-DF-0006
- All co-ordinates and setting out information are to the Ordnance Survey National Grid.
- Refer to architect drawings for pop-up location setting out information.

Existing drainage infrastructure

- Existing sewerage infrastructure, ground floor penetration and flow rates advised by others. No guarantee can be given as to accuracy or completeness.
- Invert levels, dimensions and locations of existing sewers and manholes affecting the works to be verified and assessed for suitability prior to commencement, particularly at points of connection.
- For design philosophy refer to RIBA 3 Drainage Report reference 100120806-MM-ZZ-EG-RP-DF-0002
- Flows and levels in existing sewers/drains to be maintained throughout the contract.
- No existing sewers to be abandoned without engineer's approval.

Key to symbols

- Existing foul water sewer and manhole
- Proposed foul water and manhole
- Existing surface water and manhole
- Proposed surface water and manhole
- Existing combined water and manhole
- Proposed combined water and manhole
- Existing drainage to be abandoned
- Proposed filter drain
- Proposed channel drain
- Proposed geocellular attenuation, with proprietary access units
- Exceedance route

Reference drawings

100120806-MM-A1-EG-GA-AR-0300 - Existing Site Location Plan
100120806-MM-A1-EG-GA-AR-0301 - Proposed Site Location Plan
100120806-MM-A1-EG-GA-AR-0011 - Proposed Ground Floor Plan
100120806-MM-ZZ-EG-DR-DF-0003 - Drainage Details Sheet 1 of 3
100120806-MM-ZZ-EG-DR-DF-0004 - Drainage Details Sheet 3 of 3
100120806-MM-ZZ-EG-DR-DF-0005 - Drainage Details Sheet 3 of 3
100120806-MM-ZZ-EG-RP-DF-0003 - EG Drainage Specification
100120806-MM-ZZ-EG-DR-DF-0006 - Drainage Manhole Schedule Sheet

P02	20/01/2025	BB	Issue for Planning	AP	AS
P01	20/12/2024	BB	Client Issue	AP	AS
Rev	Date	Drawn	Description	Ch'k'd	App'd

Status Stamp

NOT FOR CONSTRUCTION

M
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Client

Queen Vistoria Hospital NHS
Foundation Trust
Holtye Road
East Grinstead, West Sussex
RH19 3DZ

Title

Queen Victoria Hospital CDC
East Grinstead
Drainage General Arrangement

Designed	B BROWN	BB	Eng.check.	A PRECIOUS	AP
Drawn	B BROWN	BB	Coordination	A PRECIOUS	AP
Dwg.check.	A PRECIOUS	AP	Approved	A SMIS	AS

MMD Project Number	100120806	Scale at A1	1:200	Security	STD
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Suitability Description	Suitable for Review & Comment	Suit. Code	S2
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Drawing Number	100120806-MM-ZZ-EG-DR-DF-0001	Rev	P02
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F. Indicative SuDS Maintenance Guidance

Typical SuDS Drainage Maintenance Regime

Schedule	Required Action	Typical Frequency			
		Geocellular Storage	Flow Control	Collection Systems	Bio-retention / Rain Gardens
Regular	Visual Inspection	Monthly for three months after installation	Monthly	Monthly	Monthly for three months after installation
	Remove Litter and Debris	Monthly removal of litter from catchment area	Once a year after Autumn leaves fall, or reduced frequency as required	Monthly	Monthly (or as required)
	Inspect and Identify Any Areas Not Operating Correctly.	Monthly or 3 months, then annually	-	Monthly	-
	Manage Other Vegetation and Remove Nuisance Plants	-	-	Monthly	At end of growing season, leave 50% of cuttings as mulch
	Inspect Inlets, Outlets and Overflows for Blockages/Damage	Monthly for first year then annually	Monthly	Monthly	Monthly
	Inspect Vegetation Coverage	-	-	-	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect Banksides, Pipework and Structures for Physical Damage	-	-	-	Monthly
	Inspect Inlets and facility surface for silt accumulation	-	-	-	Half Yearly until appropriate removal frequency is established
	Tidy All Dead Growth Before Start of Growing Season	-	-	-	Remove visible dead material
	Remove Sediment from Inlets, Outlets and Forebays	-	Annually	Annually	As required - increased frequency in autumn/winter
	Check surface of permeable paving for blockages and clear	Annually	-	-	-
Occasional	Reseed Areas of Poor Vegetation Growth	-	-	-	As required or if bare soil is exposed over 10% or more of treatment area
	Remove Sediment from Main Body	Every 5 years or as required	-	-	As required
	Remove Sediment from Inlets, Outlets and Forebays	-	-	Annually	As required
Remedial Actions	Repair Erosion or other Damage by Reseeding or Re-turfing	-	-	-	As required
	Repair /Rehabilitation of Inlets, Outlets and Overflows	Visual inspection after storm, replace as required	-	-	-
	Relevel Uneven Surfaces and Reinstate Design Levels	-	-	-	As required
	Rehabilitate of surface and upper substructure by vacuum sweeping	-	-	-	-
	Remove and dispose of oils or petrol residues using safe practices	-	Annually	Annually	As required - dig out and replace growing medium and reseed

