



Shurgard Hampton Drainage Strategy

For Shurgard UK Ltd

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1. Introduction

1.1 Purpose of The Report

Hydrock have been appointed by Shurgard UK Ltd to provide a Drainage Strategy report in support of proposed development at Shurgard Hampton, TW12 2HR.

This report has been prepared to accompany the detailed planning application for the proposed development as outlined in Section 1.2 below.

1.2 Proposed Development

An detailed planning application is being submitted for the demolition of an existing buildings Shurgard Hampton and the construction of an new self-storage facility.

Refer to Appendix A for the proposed site layout.

1.3 Scope of The Report

The proposed drainage strategy will be in accordance with both local and national guidelines and will incorporate a 'best practice' approach in reducing the impact of the flooding caused by the new development.

The report is based upon sewer asset information provided by the Thames Water as the sewerage undertaker in relation to public assets within the vicinity of the development site.

The report highlights the key stakeholders in terms of ownership and maintenance to ensure the drainage system is kept well maintained and so reduce the risk of failure. Should the network fail at any point, clearly defined ownership liabilities will ensure that issues can quickly be rectified thereby reducing the potential impact of damage caused by flooding.

1.4 Limitations of The Report

This report has been prepared by Hydrock Consultants Ltd on behalf of Shurgard UK Ltd in connection with the scope of the report as described in Section 1.3 above and takes into account the particular instructions and requirements. It is not intended for and should not be relied upon by any third party.

The information received is summarised within this report. In the event that the information is relied upon and is subsequently found to be incorrect, Hydrock Consultants Ltd accepts no responsibility for any direct and/or consequential loss that may occur as a result.

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1.5 References / Design Codes

- » BS EN 752 - Drain and Sewer Systems Outside Buildings.
- » Building Regulations Approved Document Part H - Drainage and Waste Disposal.
- » Water UK Sewerage Sector Guidance.
- » The London Plan (2021)
- » CIRIA C753 - SuDS Manual.
- » DEFRA Non-Statutory Technical Standards for Sustainable Drainage.

2. Site Information

2.1 Site Location

The application site covers an total area of 0.308hectares. It is located on the existing site's hardstanding yard area within the London borough of Southwark. The site's postcode is TW12 2HR with the approximate centre of the site being at grid reference E 513140 N 169763.

Figures 2.1 and 2.2 following show the site location and boundary respectively.

Table 2.1: Site Reference Information

Site Address	Shurgard Hampton
	74 Oldfield Road Hampton London
Postcode:	TW12 2HR
National Grid Reference	E 513140 N 169763

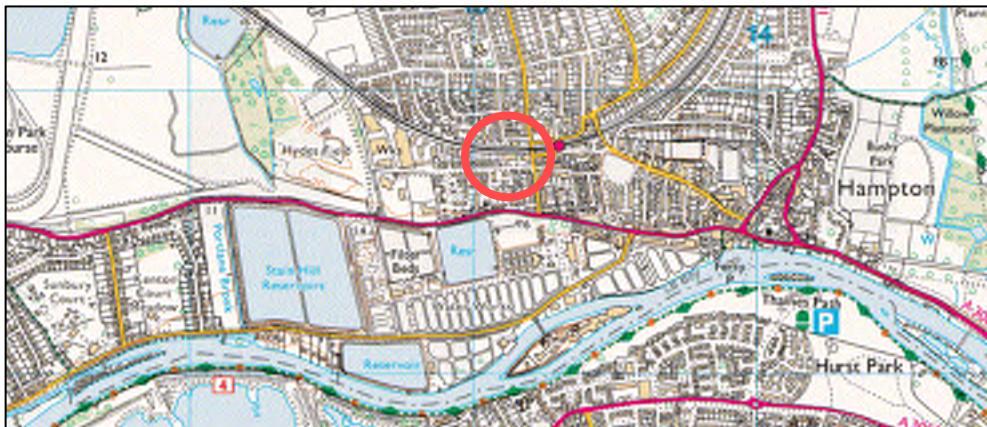


Figure 2.1: Site Location

2.2 Existing Site

The site is currently occupied by existing structures and hard-standing and is therefore considered to be brownfield in nature.

2.3 Site Topography

A July 2018 survey undertaken by Geographical Engineering Operations shows the site slopes ently towards north eastern corner from 17.3m AOD to 16.7m AOD.

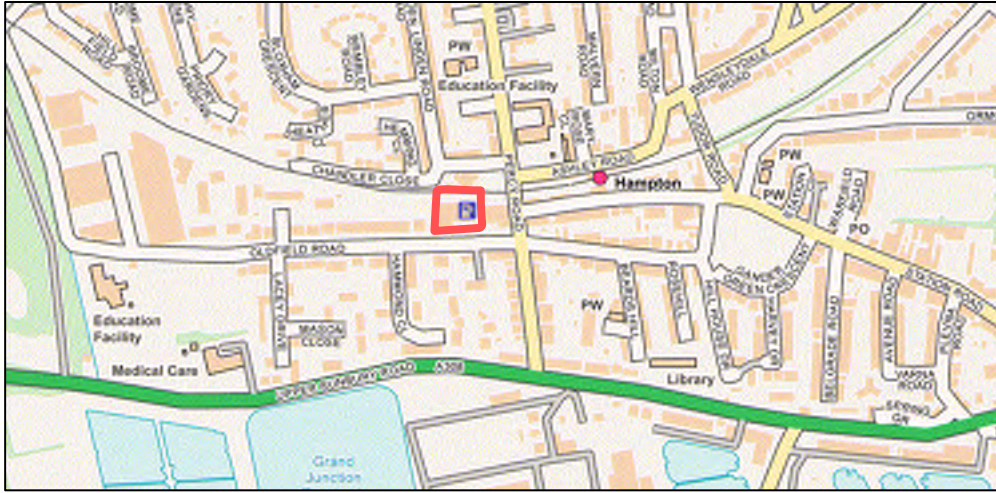


Figure 2.2: Site Boundary Plan

Refer to Appendix B for the topographic and utilities survey.

2.4 Geology & Hydrogeology

British Geological Survey (BGS) mapping indicate that the site geology comprises of a London Clay bedrock with superficial layers of Taplow Gravel.

Boreholes by Southeastern Drilling Services from August 2023 show the site has clay ground.

2.5 Existing Drainage

2.5.1 Watercourse

Environment Agency (EA) maps show the nearest watercourse is the River Thames 600m south.

2.5.2 Sewers and Drains

2.5.2.1 Thames Water Sewers

There are Thames Water sewer in Oldfield Road to South of the site. We believe it is 150mm foul water and 225mm surface water.

Refer to Appendix C for the relevant extract from Thames Water sewer records.

2.5.2.2 Private Drains

The topographic and utilities survey identified that the site has existing surface and foul drainage networks that connect to the Thames Water sewer. The current outfall is combined.

The existing private drainage serving the site will be removed to enable the proposed development.

3. Flood Risk

The site is at 'low' risk of surface water flooding from all sources.

Refer to flood risk assessment 31569-HYD-XX-XX-RP-WENV-0001.

4. Surface Water Management Strategy

4.1 Existing Surface Water Drainage Network

A topographic and utilities survey of the site was done in 2023.

The drainage discharges into the Thames Water sewer at many points inside the site.

Refer to Appendix B for the Topographic and Utilities Survey.

4.2 Existing and Proposed Development Areas

The table below indicates each catchment type area, pre-development:

Table 4.1: Site Catchment Areas

Catchment	Existing (sqm)	Proposed (sqm)	Difference (%age)
<u>Impermeable</u>			
Building / Roof	1270	1786	+40%
Roads / Hardstanding	1525	841	-45%
Soft Landscaping	325	493	+52%
Total Area	3120	3120	-

Refer to Appendices G and I for the pre and post development catchment plans respectively.

4.3 Pre-Development Surface Water Drainage

4.3.1 Greenfield Run-Off Rates

It is a requirement that on new developments consideration is given to limit discharge as close as reasonably practical to the undeveloped greenfield rate. The following table indicates surface water discharge rates if the site was greenfield i.e., not developed:

Table 4.2: Pre-Development Greenfield Equivalent Run-Off Rates

Storm Event	Greenfield Equivalent Run-off (L/s)
1 in 1 AEP	0.78
1 in 30 AEP	2.10
1 in 100 AEP	2.91
Q _{BAR}	0.91

Refer to Appendix D for the Greenfield Run-off Calculation.

4.3.2 Brownfield Run-Off Rates

A utilities survey found that the site seems to leave the site using a 150mm combined connection heading towards Oldfield Road. The survey did not identify that any form of flow restriction has been installed to limit discharge into the network.

The existing brownfield rate has been based upon the capacity of the existing surface water connection to the Thames Water sewer with no form of flow restriction in place.

The existing discharge rates based upon the results of the site survey are shown in Table 4.4, below.

Table 4.3 Pre-Development Brownfield Discharge Rates

Storm Event	Brownfield Discharge Rate (l/s)
1 in 1 AEP	36.9
1 in 30 AEP	48.6
1 in 100 AEP	48.9

4.3.3 Pre-Development Run-off Volumes

Based on the existing discharge rates shown above, the discharge volume from the site for the 1 in 100 AEP, 6 hour storm events has been calculated as 0.0 m³.

4.3.4 Pre-Development Flood Exceedance Flows

Topographical survey information indicates that, should the existing drainage network fail or otherwise have its capacity exceeded, overland flows would follow the site topography and pond above gullies.

Refer to Appendix F for the existing overland flow route plan.

4.4 Proposed Surface Water Drainage Strategy

4.4.1 Surface Water Discharge Hierarchy

In line with the requirement of the NPPF, Building Regulations Part H, the London Plan Policy SI.13, and local council planning policy, the method of discharging surface water from the site has been considered via a sequential hierarchy.

The following methods of discharging surface water run-off were considered, in order of preference:

1. Interception and reuse via rainwater harvesting;
2. Infiltration to the ground via a soakaway or other percolation system;
3. Attenuate in ponds or open water features;
4. Attenuate in tanks or sealed water features;
5. A natural watercourse, main river, or tidal outfall;
6. A Thames Water surface water sewer;
7. A Thames Water combined water sewer;
8. A Thames Water foul water sewer;
9. A highway drain.

Table 4.4, below, summarises the suitability of each potential discharge method in line with the drainage hierarchy.

Table 4.4: Drainage Hierarchy Review

Method	Reasoning	Suitable for the site
Interception / Reuse	The development is to consist of limited facilities and landscaping meaning that any harvesting system installed will be regularly left idle	X
Infiltration	Due to site constraints, it is not possible achieve the minimum 6m standoff from the site boundary or building foundations for safe infiltration.	X
Attenuation in above ground features	The site layout has not made allowance for the inclusion of above ground attenuation features.	X
Attenuation in below ground features	Surface water will be stored in a geocellular storage tank located underneath the proposed car parking area.	✓
Surface water body	There are no watercourses or drains within or close to the site.	X
Surface Water Sewer	225mm Thames Water sewer in Oldfield Road	✓
Combined Sewer	N/A	X
Foul Water Sewer	N/A	X
Highway Drain	N/A	X

4.4.2 Proposed Discharge Rates

In line with the requirements of the London Plan, Policy SI.13, surface water discharge rates should be restricted to the greenfield run-off rate where possible. On previously developed sites the final discharge rate can be no more than three times the calculated greenfield rate with exceptions for pumped discharge or discharge to tidal waters.

As shown in Section 4.3.1, the greenfield Qbar discharge rate for the site is 0.9 l/s.

It is therefore proposed to restrict discharge rates to 2.0 l/s. This is the same as an old pre-development approval from 2020.

4.4.3 Allowance for Climate Change and Urban Creep

In accordance with EA guidance, an allowance for climate change has been added to the proposed surface water network. As the development work beyond the 2050's, a climate change allowance of 40% is added to the 1 in 100 AEP design storm.

Urban Creep is an additional allowance made to the impermeable catchment of a surface water network to account for potential future increases. As the development proposal is for a self-storage unit and the site is to be over 100% impermeable, no urban creep allowance has been made.

4.4.4 Proposed Surface Water Drainage Strategy

As the proposed development is being submitted as a full planning application, a detailed drainage strategy has been prepared. This strategy demonstrates that the site can be positively drained within national and London requirements.

It is proposed that surface water run-off will be positively drained via a gravity system and attenuated in a below ground geocellular storage tank before being discharged at a restricted rate of 2 L/s for all storm events up to and including the 1 in 100 AEP plus 40% allowance for climate change into the Thames Water sewer using a pump.

4.4.5 Attenuation Storage Requirements

In line with the requirements of the DEFRA Non-Statutory Technical Standards for SuDS, all storm events up to and including the 1 in 30 AEP storm event will be retained within the proposed surface water drainage network and exceedance volumes from all other storm events up to and including the 1 in 100 AEP plus 40% allowance for climate change will be retained within the site and managed to as to minimise the risks to people and property.

Expected attenuation requirements are shown in Table 4.5, below.

Table 4.5: Indicative Attenuation Requirements

Impermeable Area (ha)	Discharge Rate (L/s)	1 in 30 AEP Volume (m ³)	Additional 1 in 100 AEP +40% CC Volume (m ³)	Total Attenuation Required (m ³)
0.263	2.0	61	129	190

Refer to Appendices H and I for the proposed drainage general arrangement and supporting calculations.

4.4.6 Overland Flow Routes

In the event that there is a failure of the surface water drainage network beyond the design storm or through other circumstances, exceedance flows will be kept inside the site.

5. Sustainable Drainage Systems

5.1 Requirement for Sustainable Drainage Systems

In line with the requirements of the NPPF¹, the Non-Statutory Technical Standards for SuDS and the London Sustainable Design & Construction SPG², the design of the surface water drainage system should seek to implement and maximise the use of Sustainable Drainage Systems (SuDS) where possible.

This section reviews the suitability and benefits of the various potential SuDS systems for the proposed development.

5.2 The SuDS Management Train and 4-Pillars of SuDS

The primary purpose of a SuDS system is to manage surface water run-off within a development via mimicking natural methods, attenuating additional water volume generated by the introduction of impermeable areas whilst providing a degree of water treatment to run-off alongside amenity and biodiversity benefits to the local community. These 4 benefits are defined as the 4-Pillars of SuDS as shown in figure xxx below.

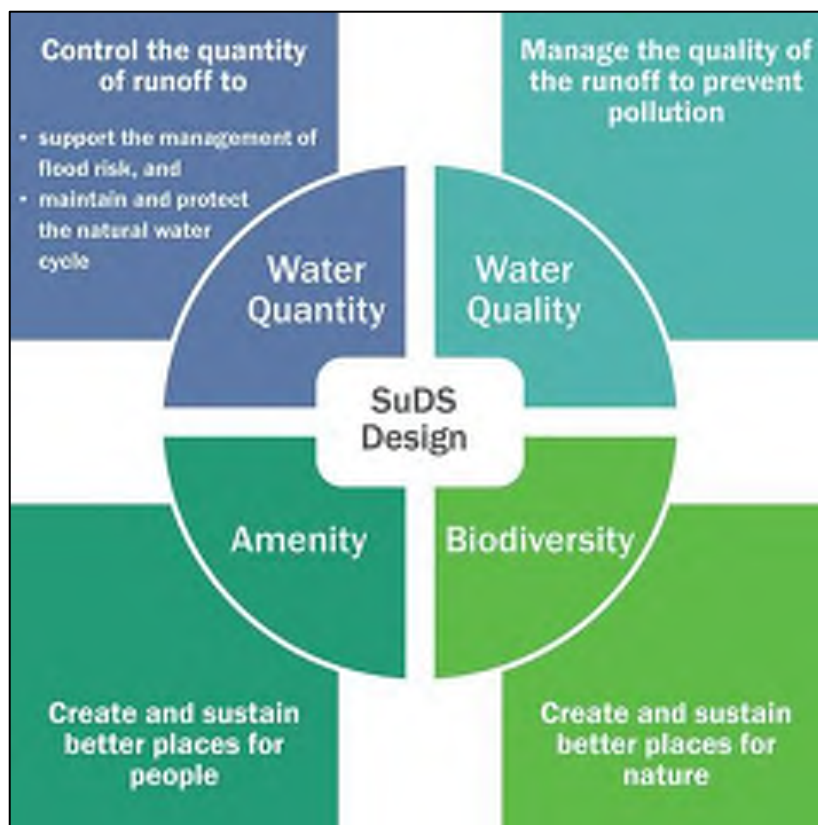


Figure 5.1: The 4 Pillars of SuDS

SuDS are generally implemented following the principle of a management train with systems capturing run-off as early as possible at the source and cascading down into wider site and regional systems. Figure xxx below demonstrates how a SuDS management train may be applied to a development.

¹ Paragraph 169

² Paragraph 3.4.13

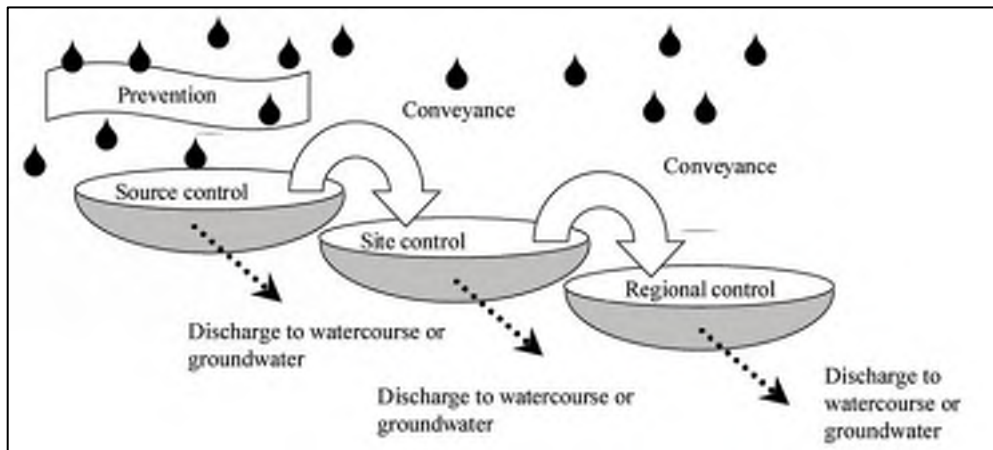


Figure 5.2: The SuDS Management Train

5.3 Suitability of SuDS Elements

The drainage design will adopt the principles and philosophy of SuDS as described above taking into the consideration the site context and location. Wherever possible, opportunities to maximise the use of SuDS have been taken. However, the implementation and selection of SuDS techniques is dependent on the site layout and context. Certain SuDS systems may be more appropriate than others in certain situations.

Table 5.1 below reviews the suitability of potential different SuDS systems against the proposed development.

Table 5.1: Suitability of SuDS Components

Hierarchy	System	Description	Site Suitability
Source Control	Green Roofs	Planted roofs that reduce run-off volume and treat pollutants	Suitable for the development
	Rainwater Harvesting	Capture of run-off for reuse as grey water, flushing toilets and irrigation	Not Suitable for the development
	Permeable Surfaces	Surfaces that allow water to penetrate into underlying layers. Can be made to infiltrate to groundwater.	May be Suitable for the development
	Bioretention Areas	Vegetated area with gravel and sand layers to filter and cleanse run-off.	Not Suitable for the development

Hierarchy	System	Description	Site Suitability
Site and Regional Control	Filter Drain	Linear drains or trenches with granular fill. Can be made to infiltrate to groundwater.	Not be suitable for the development
	Swale	Shallow depressions to convey and filter water. May be 'wet' with above ground attenuation or 'dry' with a gravel layer. Can be made to infiltrate to groundwater.	Is not suitable for the development
	Hardscape Storage	Store water above ground within a constructed container. Can be integrated into public realm spaces with an urban character.	Is not suitable for the development
	Pond/Basin	Store and treat water. Ponds have a level of standing water whilst basins are generally dry. Can be made to infiltrate to groundwater.	Is not suitable for the development
	Wetland	Shallow, vegetated water bodies with a varying water level. Can be integrated with natural or hardscape environment.	Is not suitable for the development

5.4 Proposed SuDS Principles

As indicated in Table 5.1 above, the use of geocellular storage and permeable surfaces and green roof are considered suitable for the development. Further, there is the potential to include rainwater harvesting, rain gardens and green roofing within the proposed development.

» Green Roofs

A green/brown roof may be installed on the roof of the new teaching block to provide aesthetic and biodiversity benefits as well as providing source treatment.

» Permeable Surfaces

Permeable road and parking bays in the new vehicle access would provide source treatment to runoff with the secondary benefit of providing a degree of attenuation in extreme storm events without sacrificing any access capacity.

5.5 Water Quality

In line with the 4-Pillars of SuDS, the design should seek to provide an appropriate level of water treatment to effectively mitigate the pollution risk associated with the site and not affect the quality of water downstream.

The proposed development has 2 key drivers of pollutant risks to the receiving sewer system, namely pollution from the new parking areas and building roofs.

As the proposed parking area provides less than 50 spaces and is also less than 800m², it is presenting a low pollution risk to surface water and a petrol/oil interceptor is not needed. Treatment will be provided by SuDS components.

It will be required that any gullies and drainage channels will be fitted with silt traps, and catch pits will be incorporated into the system to reduce the risk of silts/salts entering the network.

Table 26.2 of The SuDS Manual identifies the overall pollution hazard level from the site to be xxx. As it is proposed to discharge to surface water, the 'Simple Index Approach' (SIA) as detailed in Box 26.2 of The SuDS Manual has been used.

Step 1 of the SIA is to identify the relevant pollution hazard indices for the proposed development, these are shown in Table 5.2 below.

Table 5.2: Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metal	Hydro-carbons
Non-Residential Roofs	Low	0.3	0.2	0.05
Low traffic roads and car parking with infrequent change	Low	0.5	0.4	0.4

Table 26.3 of the SuDS Manual provides various mitigation indices for discharge to surface waters. The mitigation indices for SuDS elements that could be included within the proposed development show in Table 5.3 below.

Table 5.3: Pollution Mitigation Indices

SuDS System	Total Suspended Solids (TSS)	Metal	Hydro-carbons
Permeable Surfaces	0.7	0.6	0.7
Bioretention Areas	0.8	0.8	0.8

The total SuDS mitigation index for each pollutant is a combination of the mitigation index of each proposed SuDS system in the management train. The first element will always be more effective than subsequent elements given that the concentration of pollutants in the runoff decreases.

Equation 5.1: SuDS Mitigation

$$\text{Total SuDS Mitigation} = \text{Mitigation Index}_1 + 0.5(\text{Mitigation Index}_n)$$

Although potential SuDS options have been stated, alternative options may be considered provided that the management train meets or exceeds the water quality requirements.

Provided that the mitigation indices of the various treatment trains meet or exceed the requirements of each pollutant, it is expected that there will be no reduction in the quality of water being discharged into the public sewer network.

6. Foul Water Management Strategy

6.1 Pre-Development Foul Water Drainage

As described in Section 2.5, initial site investigations and Thames Water sewer records have identified the following:

6.1.1 *Thames Water*

There is a 150mm foul sewer in oldfield road.

6.1.2 *Private Drains*

There is existing drains for the current building.

6.2 Post-Development Foul Water Drainage

The proposed foul water network will connect all new soil, waste and ventilating pipes, sanitary appliances, and gullies at ground level and discharge into the Thames Water sewer.

It is expected that discharge into the system will be domestic in nature. Any future expansions which will result in the discharge of trade effluent will require a formal application to Thames Water.

It is proposed that the system will drain via gravity and pumped into Thames Water sewer.

The design of all foul sewers and lateral drains must conform to BS EN 752, BS EN 16933, Building Regulations 2010 Part H, planning policy and best practice guidelines wherever applicable. Sanitary systems within building should be designed in accordance with BS EN 12056-2.

Refer to Appendix H for the proposed drainage strategy.

6.3 Post-Development Foul Water Flow Rates

Existing drains will not need diverting and will keep using current connections. New foul flows are negligible.

7. Ownership and Maintenance Responsibilities

It is anticipated and expected that the future maintenance of the drainage network will be undertaken by Shurgard UK Ltd or a suitably qualified management company.

Both the foul and surface water drainage systems will require regular maintenance to prevent a failure of the system or a reduction in the capacity as designed.

The following tables set out the required maintenance actions and frequency for the various elements of the drainage network.

Table 7.1: Proposed Maintenance Schedules for Below Ground Drainage

Permeable Surfaces		
Maintenance Schedule	Required Action	Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Annually, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – particular attention should be given to areas where water runs onto pervious surfaces from adjacent impermeable areas.
	Stabilise and mow contributing and adjacent areas.	As required.
Occasional maintenance	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – annually on less frequently used pavements.
	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
Remedial actions	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required.
	Initial inspection.	Monthly for three months after installation.
Monitoring	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Every three months, 48 hrs after large storms in first six months.

Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
Monitor inspection chambers.	Annually.

Reference should be made to the manufacturer recommendations where applicable

Underground Geocellular Tanks

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

Reference should be made to the manufacturer recommendations where applicable

Other Drainage Items		
Feature	Maintenance	Frequency
Private Drains	Inspection	CCTV survey every 5-10 years.
	Regular Maintenance	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey).
	Remedial / Occasional Maintenance	Carry out remedial works as identified in CCTV survey.
Discharge orifice manholes/flow control devices	Inspection	Quarterly.
	Regular Maintenance	Remove silt and debris as necessary to prevent build up.
Gully / Drainage Channels	Inspection	Quarterly
	Regular Maintenance	Remove silt and debris as necessary to prevent build up.

An initial risk assessment has been carried out, Table 5.3 below, and a detailed risk assessment should be undertaken at the detailed design stage and passed on to the development operator as part of the Operations and Maintenance Manual during the handover phase of works.

A formal risk review should be undertaken on an annual basis:

Table 7.2: Pollution Hazard Indices

Operation	Risks	Mitigating Measures
Access to manholes for Inspection and Maintenance.	1. Confined spaces	1. Entry to confined space to be minimised and, where unavoidable, to be carried out by appropriately trained personnel
Removal of silt from outfall	1. Risk to members of the public	1. Access to hazardous areas by members of the public to be prohibited. 2. To be carried out by appropriately trained personnel
Removal of silt from drainage channel	1. Risk to members of the public	1. Access to hazardous areas by members of the public to be prohibited

All inspection and maintenance works should take into consideration the implications of 'lone working' and a suitable assessment should be carried out with suitable risk mitigation measures being implemented.

8. Residual Risk

Provided that the surface and foul water regimes as set out in Sections 4 and 6, above, is implemented, it is expected that the primary residual failure would be as a result of some form of failure of the site drainage system during the life of the development. Therefore, regular, ongoing maintenance as set out in Section 7, above, will be required to ensure that the capacity of the system is maintained as designed.

In addition, there remains the risk of a storm event beyond that of the 1 in 100 AEP plus 40% allowance for climate change design storm which have not have been explicitly accounted for.

9. Consent / Planning

9.1 Thames Water

9.1.1 Sewer Connection

Thames Water requires that any connection to the public sewer network is subject to a S106 application.

9.2 Lead Local Flood Authority

In addition to the above, the LLFA is a statutory consultee for planning applications with regards to flood risk and drainage. It is therefore expected that the Local Planning Authority will consult with the LLFA and seek comments.

9.3 Network Rail

The site is close to Network Rail train tracks.

10. Conclusions and Recommendations

10.1 Conclusions

This report has been produced to develop a surface and foul water drainage strategy in support of the detailed planning application for the extension. It has concluded the following conclusions:

1. Surface water is discharged at 2 l/s
2. 190m³ of attenuation storage is needed
3. There is a very small foul water discharge.
4. SuDS are to be green roof and porous paving.
5. Surface and foul water will be pumped into Thames Water sewers.

10.2 Recommendations

Based on the above conclusions, the following recommendations are made:

1. Site levels design is mindful of surface water flows
2. Site levels do not let water flow or pond inside the building or leave the site
3. Invert levels of Thames Water sewers are confirmed
4. S106 applications are made to Thames Water

Appendix A

Proposed Site Layout

All levels and dimensions to be checked on site prior to construction / fabrication; report discrepancies immediately. Do not scale dimensions from this drawings. This drawing is copyright protected.

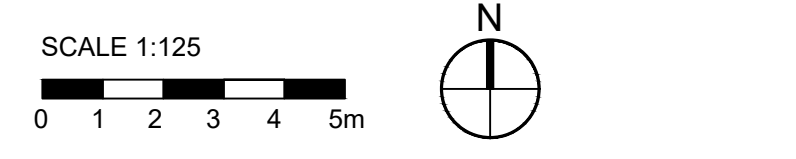
REVISION



Sub Sta

- Visitor Parking:
2 x Car space
(1 of which is Accessible)
- Customer Parking:
7 x Car space
(2 of which are Electrical Charge points)
- Staff Parking:
1 x Car space
- Electrical Car "Twin" charging point
- Bicycle Parking:
1 short stay Cargo Bikes
5 short stay - standard
20 long stay - of which 1 is cargo
- Refuse Requirement = 0.1 sqm
Actual Refuse Store = 11m²
- Landscaping zone = 493m²

Site Boundary = 3094 m²



PLANNING

SCALE	DATE	DRAWN	CHECKED
1:125@A1	FEB'24	AF	

PROJECT
SHURGARD UK
 OLDFIELD ROAD, HAMPTON
 TW12 2HR

DRAWING
 Site Plan
 As Proposed

Threesixty Architecture
 10 MONTROSE STREET
 GLASGOW
 G1 1RE
 0141 229 7575
 www.360architecture.com

DRAWING No.
23053GA_D_002

OLDFIELD ROAD

Appendix B

Topographic and Utilities Survey

DISCLAIMER

At GEO UK LTD we use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of GEO UK LTD. Therefore GEO UK LTD cannot guarantee that all utilities present or likely to be located. It is the responsibility of the Client to consult regional authority records and undertake their own investigations.

Where similar services run close proximity it may be impossible to separately trace individual services as the trace signal can experience interference in such cases, services will therefore be single, unidentified line. The displayed depth will refer to the shallowest detected utility.

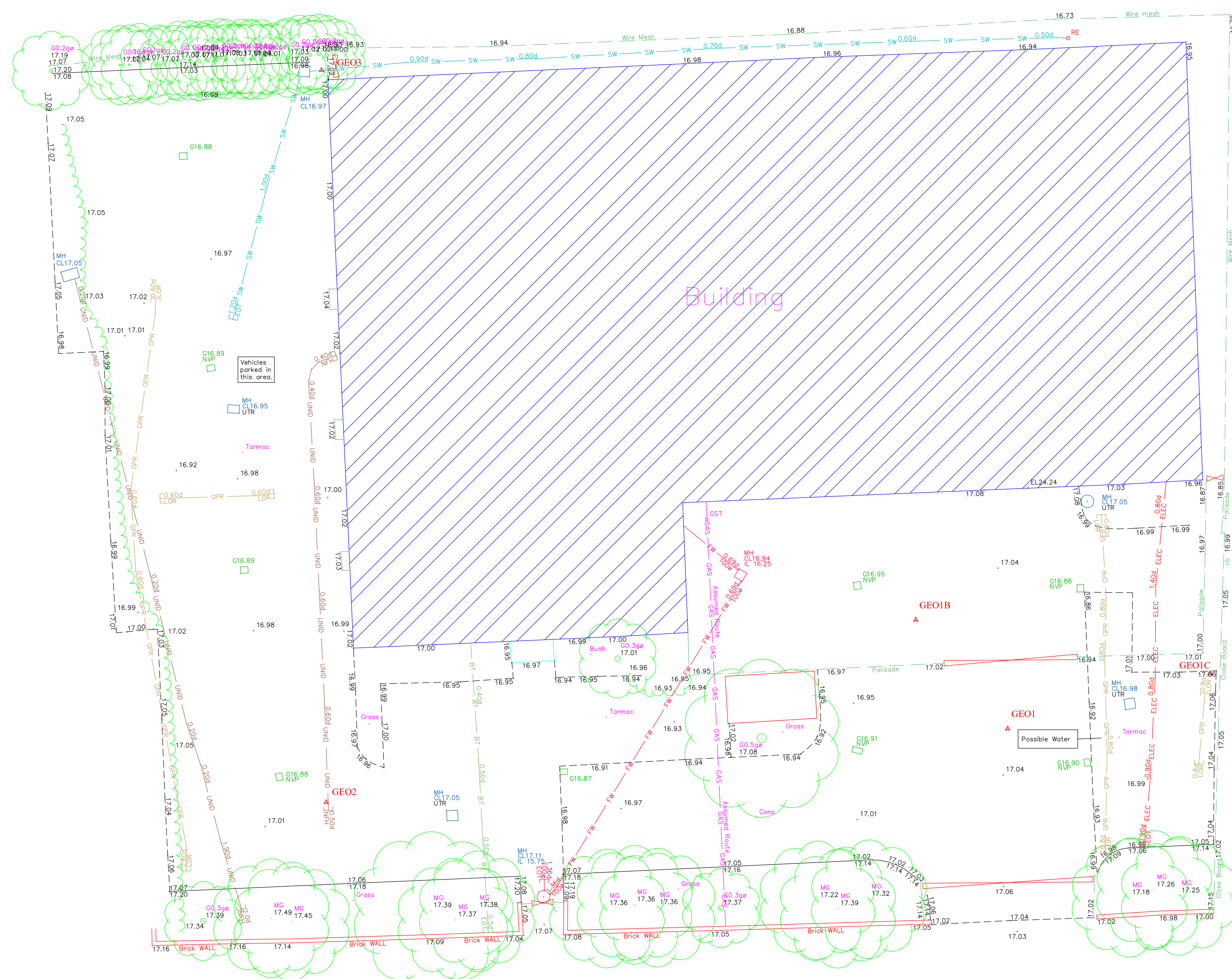
Successful tracing of non-conductive materials may be limited. Drainage gullies are one tested where possible to prove connectivity but it is not always possible to introduce the probe due to narrow clear size and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe of 2m deep may be located to +/- 200mm) but this cannot be guaranteed. Depth shown usually refer to the top of the service. Clearly severe and sharp depths are usually to invert (base of average channel) unless otherwise stated.

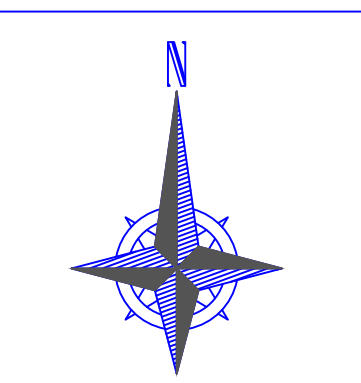
Some above ground features may have been observed at time of survey, it is not always possible to generate the Ground Penetrating Radar in areas including, but not limited to, dense vegetation, rubble, debris and/or equipment ground.

Existing record information that was made available to GEO UK LTD by the Client or by the relevant utility provider should be regarded only as an indication and cannot be guaranteed.

Excavation in the vicinity of services shown should be carried out with due diligence (see report).



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1:100 Scale G2457 - Chelsea Road Hampton Topographical Utility Survey New/Rev

LEGEND

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00

FROM STATUTORY AUTHORITIES PLANS

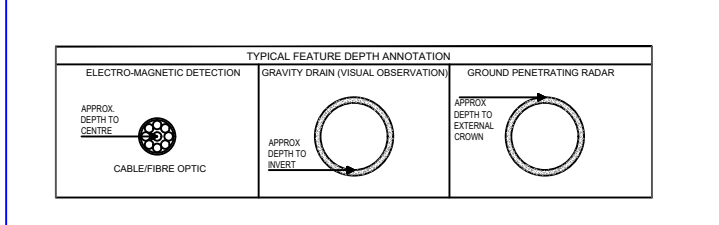
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00

LEGEND

As shown to OS (Newark) Datum. Established using network RTK. All reference to a given point are given as absolute National Grid.

Services shown as 'From Statutory Authority Plans' (the data are taken from Statutory Records plans supplied by the relevant regional authority. These services were not located and are shown for reference purposes only).

Survey Control markers established for mapping purposes only and should not be used for construction without the written approval of GEO UK LTD.



DISCLAIMER

At GEO UK LTD we use skilled and experienced staff, modern up to date techniques and top of the range electromagnetic and radar technology to locate and trace sub surface utilities. However the performance of the equipment employed in non-invasive surveys can be adversely affected by factors outside the control of GEO UK LTD. Therefore GEO UK LTD cannot guarantee that all utilities present or likely to be located. It is the responsibility of the Client to consult regional authority records and undertake their own investigations.

Where similar services run close proximity it may be impossible to separately trace individual services as the trace signal can experience interference in such cases, services will therefore be single, unidentified line. The displayed depth will refer to the shallowest detected utility.

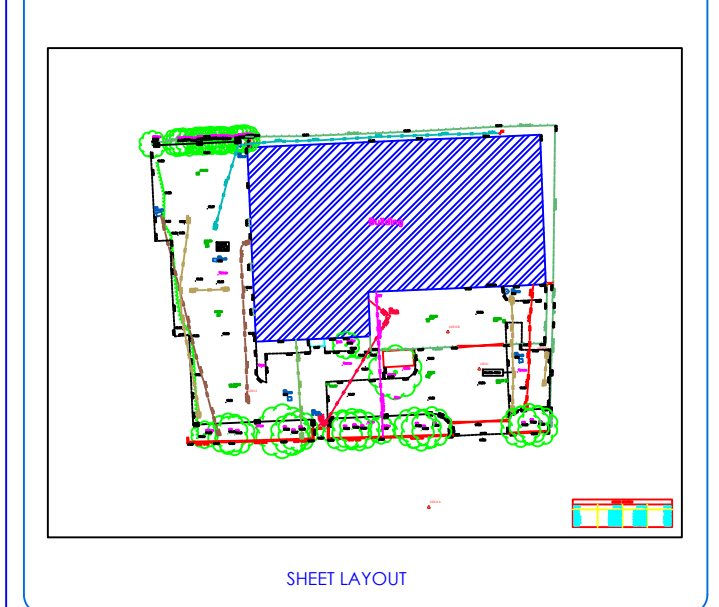
Successful tracing of non-conductive materials may be limited. Drainage gullies are one tested where possible to prove connectivity but it is not always possible to introduce the probe due to narrow clear size and/or accumulated silt.

Depth information of underground services/features are generally accurate to within +/- 10% (i.e. a pipe of 2m deep may be located to +/- 200mm) but this cannot be guaranteed. Depth shown usually refer to the top of the service. Clearly severe and sharp depths are usually to invert (base of average channel) unless otherwise stated.

Some above ground features may have been observed at time of survey, it is not always possible to generate the Ground Penetrating Radar in areas including, but not limited to, dense vegetation, rubble, debris and/or equipment ground.

Existing record information that was made available to GEO UK LTD by the Client or by the relevant utility provider should be regarded only as an indication and cannot be guaranteed.

Excavation in the vicinity of services shown should be carried out with due diligence (see report).



REV DATE DESCRIPTION

--	--	--



Client
 Brownfield Solutions LTD
 William Smith House
 175-183 Wilton Street
 Northwich
 Cheshire
 CW9 5LP

Project Title
 Utility Survey of Land at:
 Chelsea Road
 Hampton
 TW12 2HR

SURVEY STATIONS			
Name	Easting	Northing	Height
GEO1	513153.822	169741.716	17.043
GEO2	513116.349	169737.659	17.011
GEO1B	513148.767	169747.703	17.002
GEO1C	513164.944	169744.749	17.059
GEO1A	513149.704	169719.456	17.033
GEO3	513116.095	169777.929	16.991

Surveyed	Drawn	Checked
DHLM	JAS	GEO UK LTD
Scale 1:100	Date JUL 23	Drawing Ref. G2457
No. 01	Sta AO	Rev --

Appendix C

Thames Water Sewer Records

SearchFlow Limited
42
Kings Hill Avenue
Kings Hill
West Malling
ME19 4AJKent

Search address supplied	Hilton Banks Ltd, Floor:Not applicable, 74, Oldfield Road, HAMPTON, TW12 2HR
Your reference	SHU001/0041
Our reference	CDWS/CDWS Standard/2023_4846311
Received date	21 June 2023
Search date	21 June 2023

Keeping you up-to-date

Notification of Price Changes

From 1st April 2023 Thames Water property Searches will be increasing the price of it CON29DW, CommercialDW Drainage & Water Enquiries and Asset Location Searches.

Historically cost would rise in line with RPI but as this currently sits at 14.2%, we are capping it at 10%. Customer will be emailed with the new price by January 1st 2023. Any orders received with higher payments prior to 1st April 2023 will be non-refundable. For further details on the price increase please visit our website at www.thameswater-propertysearches.co.uk



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Question

Summary Answer

Maps

1.1	Where relevant, please include a copy of an extract from the public sewer map.	Map Provided
1.2	Where relevant, please include a copy of an extract from the map of waterworks.	Map Provided

Drainage

2.1	Does foul water from the property drain to a public sewer?	Connected
2.2	Does surface water from the property drain to a public sewer?	Connected
2.3	Is a surface water drainage charge payable?	See Details
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	No
2.4.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?	No
2.5	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	Yes
2.5.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the 50metres of any buildings within the property?	No
2.6	Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
2.7	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	No
2.8	Is the building, which is or forms part of the property, at risk of internal flooding due to overloaded public sewers?	Not At Risk
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	3.576 Kilometres

Water

3.1	Is the property connected to mains water supply?	Connected
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	Yes
3.3	Is any water main or service pipe serving, or which is proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
3.4	Is the property at risk of receiving low water pressure or flow?	No
3.5	What is the classification of the water supply for the property?	HARD
3.6	Is there a meter installed at this property?	Yes
3.7	Please include details of the location of any water meter serving the property.	See Details

Question	Summary Answer
----------	----------------

Charging

4.1.1	Who is responsible for providing the sewerage services for the property?	Thames Water
--------------	--	--------------

4.1.2	Who is responsible for providing the water services for the property?	Thames Water
--------------	---	--------------

4.2	Who bills the property for sewerage services?	See Details
------------	---	-------------

4.3	Who bills the property for water services?	See Details
------------	--	-------------

Trade Effluent

5.1	Is there a consent, on this property, to discharge Trade Effluent under S118 of the Water Industry Act(1991) into the public sewerage system?	No
------------	---	----

Wayleaves, Easements, Manhole Cover and Invert levels

6.1	Is there a wayleave/easement agreement giving Thames Water the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?	Yes
------------	--	-----

6.2	On the copy extract from the public sewer map, please show manhole cover, depth and invert levels where the information is available .	See Details
------------	--	-------------

Search address supplied: Hilton Banks Ltd, Floor:Not applicable, 74, Oldfield Road, HAMPTON, TW12 2HR

Any new owner or occupier will need to contact Thames Water on 0800 316 9800 or log onto our website www.thameswater.co.uk and complete our online form to change the water and drainage services bills to their name.

The following records were searched in compiling this report: - the map of public sewers, the map of waterworks, water and sewer billing records, adoption of public sewer records, building over public sewer records, the register of properties subject to internal foul flooding, the register of properties subject to poor water pressure and the drinking water register. Thames Water Utilities Ltd (TWUL) holds all of these.

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched
- (ii) any negligent or incorrect interpretation of the records searched
- (iii) any negligent or incorrect recording of that interpretation in the search report
- (iv) and compensation payments

Maps

1.1 Where relevant, please include a copy of an extract from the public sewer map.

A copy of an extract of the public sewer map is included, showing the public sewers, disposal mains and lateral drains in the vicinity of the property.

1.2 Where relevant, please include a copy of an extract from the map of waterworks.

A copy of an extract of the map of waterworks is included, showing water mains, resource mains or discharge pipes in the vicinity of the property.

Drainage

2.1 Does foul water from the property drain to a public sewer?

Records indicate that foul water from the property drains to a public sewer.

2.2 Does surface water from the property drain to a public sewer?

Records indicate that surface water from the property drains to a public sewer.

2.3 Is a surface water drainage charge payable?

Records indicate that a surface water charge is applicable at this property.

2.4 Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundary of the property?

The public sewer map indicates that there are no public sewers, disposal mains or lateral drains within the boundaries of the property. However, from the 1st October 2011 there may be lateral drains and/or public sewers which are not recorded on the public sewer map but which may prevent or restrict development of the property.

2.4.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?

The public sewer map included indicates that there is no public pumping station within the boundaries of the property.

2.5 Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

The public sewer map included indicates that there is a public sewer within 30.48 metres (100 feet) of a building within the property.

2.5.1 Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?

The public sewer map included indicates that there is no public pumping station within 50 metres of any buildings within the property.

2.6 Are any sewers or lateral drains serving, or which are proposed to serve, the property the subject of an existing adoption agreement or an application for such an agreement?

Records confirm that Foul sewers serving the development, of which the property forms part are not the subject of an existing adoption agreement or an application for such an agreement.

The Surface Water sewer(s) and/or Surface Water lateral drain(s) are not the subject of an adoption agreement.

2.7 Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?

There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

2.8 Is the building which is or forms part of the property, at risk of internal flooding due to overloaded public sewers?

The property is not recorded as being at risk of internal flooding due to overloaded public sewers.

From the 1st October 2011 most private sewers, disposal mains and lateral drains were transferred into public ownership. It is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.

2.9 Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.

The nearest sewage treatment works is Esher STW which is 3.576 kilometres to the south of the property.

Water

3.1 Is the property connected to mains water supply?

Records indicate that the property is connected to mains water supply.

3.2 Are there any water mains, resource mains or discharge pipes within the boundary of the property?

The map of waterworks indicates that there are water mains, resource mains or discharge pipes within the boundaries of the property.

3.3 Is any water main or service pipe serving, or which is proposed to serve, the property the subject of an existing adoption agreement or an application for such an agreement?

Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.

3.4 Is the property at risk of receiving low water pressure or flow?

Records confirm that the property is not recorded on a register kept by the water undertaker as being at risk of receiving low water pressure or flow.

3.5 What is the classification of the water supply for the property?

The water supplied to the property has an average water hardness of 111.4mg/l calcium which is defined as HARD by ThamesWater.

3.6 Is there a meter installed at this property?

Records indicate that there is a meter installed at this property.

3.7 Please include details of the location of any water meter serving the property.

Records indicate that the property is served by a water meter, which is located within the property.

Charging

4.1.1 – Who is responsible for providing the sewerage services for the property?

Thames Water Utilities Limited, Clearwater Court, Reading, RG1 8DB is the sewerage undertaker for the area.

4.1.2 – Who is responsible for providing the water services for the property?

Thames Water Utilities Limited, Clearwater Court, Reading, RG1 8DB is the water undertaker for the area.

4.2 Who bills the property for sewerage services?

If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit www.open-water.org.uk

4.3 Who bills the property for water services?

If you wish to know who bills the water services for this property then you will need to contact the current owner. For a list of all potential retailers of water services for the property please visit www.open-water.org.uk

Trade Effluent

5.1 Is there a consent, on this property, to discharge Trade Effluent under S118 of the water Industry act (1991) into the public sewerage systems?

No.

Wayleaves, Easements, Manhole Cover and Invert levels

6.1 Is there a wayleave/easement agreement giving Thames water the right to lay or maintain assets or right of access to pass through private land in order to reach the Company's assets?

Yes, records indicate that there is a wayleave and/or an easement affecting this site. Please note that if you require further information about wayleaves and/or easements, these enquiries cannot be dealt with over the phone. To request more details about the wayleave and/or an easement please email TWPROPERTYRECORDS@thameswater.co.uk. Please include a boundary plan which clearly shows the site boundary along with a copy of this search result. Failure to include the plan and copy of this search result may delay the response. Alternatively you may write to: Thames Water Property, 1st Floor West, Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB, however email is preferred. We endeavour to respond within 20 working days.

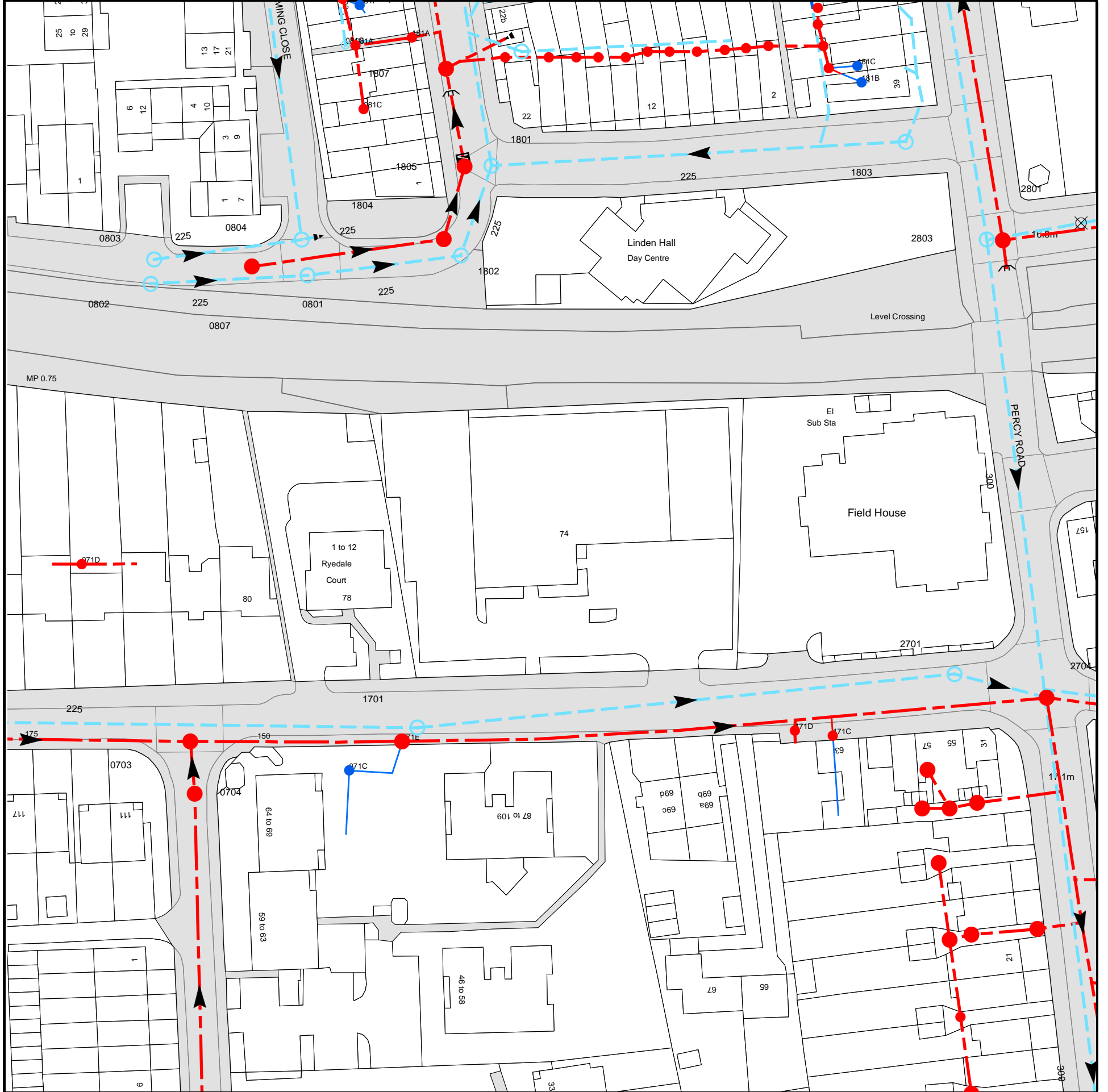
6.2 On the copy extract from the public sewer map, please show manhole cover, depth, and invert levels where the information is available.

Details of any manhole cover and invert levels applicable to this site are enclosed.

Payment for this Search

The charge will be added to the NLIS Account. This search was ordered through National Land Information Services, Russell Square House, 10-12 Russell Square, London WC1B 5LF.

CommercialDW Drainage and Water Enquiry Sewer Map- CDWS/CDWS Standard/2023 4846311



The width of the displayed area is 200m

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no survey information is available.














Manhole Reference	Manhole Cover Level	Manhole Invert Level
071D	n/a	n/a
1805	17.01	n/a
081D	n/a	n/a
081G	n/a	n/a
081A	n/a	n/a
081F	n/a	n/a
181A	n/a	n/a
1807	15.24	n/a
18YZ	n/a	n/a
18ZQ	n/a	n/a
18VW	n/a	n/a
18VX	n/a	n/a
18VY	n/a	n/a
18VZ	n/a	n/a
18WP	n/a	n/a
18WQ	n/a	n/a
18WR	n/a	n/a
18WS	n/a	n/a
18WT	n/a	n/a
18WV	n/a	n/a
18VT	n/a	n/a
18VV	n/a	n/a
18VS	n/a	n/a
18VR	n/a	n/a
181C	n/a	n/a
181B	n/a	n/a
26ZQ	n/a	n/a
26ZP	n/a	n/a
26YZ	n/a	n/a
26YY	n/a	n/a
26YX	n/a	n/a
26YV	n/a	n/a
27YY	n/a	n/a
17ZY	n/a	n/a
27YX	n/a	n/a
071C	n/a	n/a
27YQ	n/a	n/a
171E	n/a	n/a
171C	n/a	n/a
171D	n/a	n/a
1701	n/a	n/a
2704	n/a	n/a
2701	n/a	n/a
1802	16.96	n/a
2801	16.8	15.05
2803	16.8	12.33
1804	n/a	n/a
1801	17.03	15.01
1803	n/a	n/a
081C	n/a	n/a
0802	16.92	n/a
0803	16.97	n/a
0703	16.89	n/a
0704	16.94	n/a
0807	n/a	n/a
0804	16.89	n/a
0801	16.97	n/a

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Con29DW Commercial Drainage and Water Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

-  **Foul Sewer:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
-  **Surface Water Sewer:** A sewer designed to convey surface water (e.g. rain water from roofs, paths and car parks) to rivers or watercourses.
-  **Combined Sewer:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
-  **Storm Sewer**
-  **Sludge Sewer**
-  **Foul Trunk Sewer**
-  **Surface Trunk Sewer**
-  **Combined Trunk Sewer**
-  **Four Rising Main**
-  **Surface Water Rising Main**
-  **Combined Rising Main**
-  **Vacuum**
-  **Thames Water Proposed**
-  **Vent Pipe**
-  **Gallery**

Other Sewer Types (Not operated and maintained by Thames Water)

-  **Sewer**
-  **Culverted Watercourse**
-  **Proposed**
-  **Decommissioned Sewer**
-  **Content of this drainage network is currently unknown.**
-  **Ownership of this drainage network is currently unknown.**

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

-  **Air Valve**
-  **Meter**
-  **Gam Chase**
-  **Vent**
-  **Fitting**

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

-  **Ancillary**
-  **Drop Pipe**
-  **Control Valve**
-  **Weir**

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

-  **Inlet**
-  **Outfall**
-  **Undefined End**

Other Symbols

Symbols used on maps which do not fall under other general categories.

-  **Change of Characteristics Indicator**
-  **Public / Private Pumping Station**
-  **Invert Level**
-  **Summit**

Areas

Lines denoting areas of underground surveys, etc.

-  **Agreement**
-  **Chamber**
-  **Operational Site**

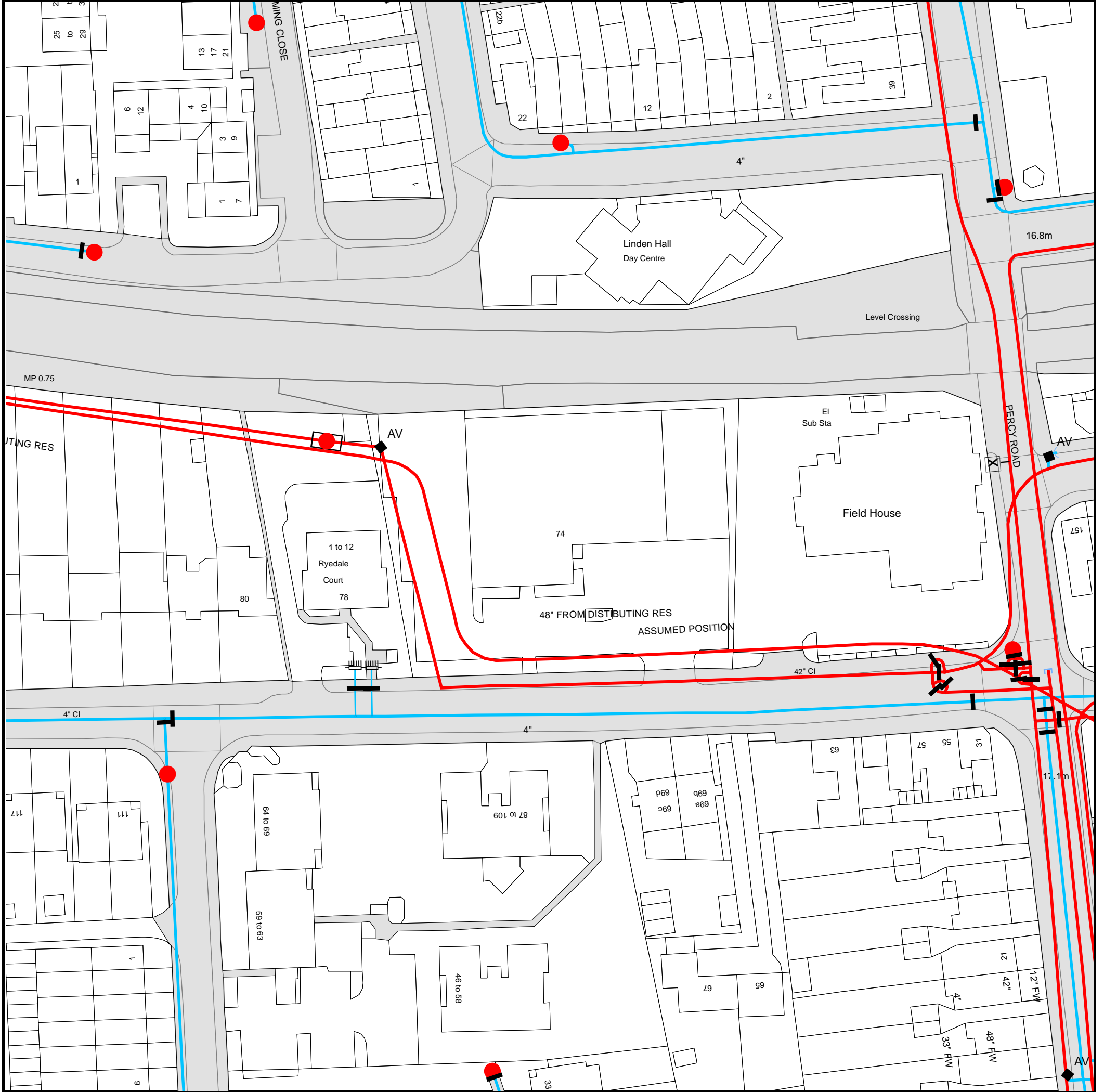
Ducts or Crossings

-  **Casement**
 -  **Conduit Bridge**
 -  **Subway**
 -  **Tunnel**
- Ducts may contain high voltage cables. Please check with Thames Water.

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flags (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

- 5) 'In' or 'O' on a manhole indicates that data is unavailable.
- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology please contact Property Searches on 0800 509 4540.



The width of the displayed area is 200m

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.



Con29DW Commercial Drainage and Water Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

- Distribution Main:** The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
- Trunk Main:** A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
- Supply Main:** A supply main indicates that the water main is used as a supply for a single property or group of properties.
- Fire Main:** Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
- Metered Pipe:** A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
- Transmission Tunnel:** A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
- Proposed Main:** A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 6")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manhole
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger
- Casement: Ducts may contain high voltage cables. Please check with Thames Water.

Other Water Pipes (Not Operated or Maintained by Thames Water)

- Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the name of the pipe displayed along them.
- Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

For your guidance:

- Thames Water Property Searches Complaints Procedure:
 - Thames Water Property Searches offers a robust complaints procedure. Complaints can be made by telephone, in writing, by email (searches@thameswater.co.uk) or through our website (www.thameswater-propertysearches.co.uk)

As a minimum standard Thames Water Property Searches will:

- endeavour to resolve any contact or complaint at the time of receipt. If this isn't possible, we will advise of timescales;
- investigate and research the matter in detail to identify the issue raised (in some cases third party consultation will be required);
- provide a response to the customer within 10 working days of receipt of the complaint;
- provide compensation, if no response or acknowledgment that we are investigating the case is given within 10 working days of receipt of the complaint;
- keep you informed of the progress and, depending on the scale of investigation required, update with new timescales as necessary;
- provide an amended search, free of charge, if required;
- provide a refund if we find your complaint to be justified; take the necessary action within our power to put things right.

If you want us to liaise with a third party on your behalf, just let us know.

If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager, for resolution, who will respond again within 5 working days.

If you remain dissatisfied with our final response you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk

Question 1.1

For your guidance:

- The Water Industry Act 1991 defines Public Sewers as those which Thames Water have responsibility for. Other assets and rivers, watercourses, ponds, culverts or highway drains may be shown for information purposes only.
- The company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.
- Assets other than public sewers may be shown on the copy extract, for information.

Question 1.2

For your guidance:

- The "water mains" in this context are those, which are vested in and maintainable by the water company under statute.
- Assets other than public water mains may be shown on the plan, for information only.
- Water companies are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Question 2.1

For your guidance:

- Water companies are not responsible for any private drains that connect the property to the public sewerage system and do not hold details of these. The property owner will normally have sole responsibility for private drains serving the property. These may pass through land outside the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- If foul water does not drain to the public sewerage system, the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.2

For your guidance:

- Sewerage Undertakers are not responsible for any private drains that connect the property to the public sewerage system, and do not hold details of these.
- The property owner will normally have sole responsibility for private drains serving the property. These private drains may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
- In some cases, 'Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system.
- At the time of privatisation in 1989, Sewerage Undertakers were sold with poorly-kept records of sewerage infrastructure. The records did not always show which properties were connected for surface water drainage purposes. Accordingly, billing records have been used to provide an answer for this element of the drainage and water search.
- Due to the potential inadequacy of 'Sewerage Undertakers' infrastructure records with respect to surface water drainage, it is the customer's responsibility to inform the Sewerage Undertaker that they do not receive the surface water drainage service. If on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit www.open-water.org.uk.
- If surface water from the property does not drain to the public sewerage system, the property may have private facilities in the form of a soakaway or private connection to a watercourse.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.3

For your guidance:

- If surface water from the property drains to a public sewer, then a surface water drainage charge is payable.
- Where a surface water drainage charge is currently included in the property's water and sewerage bill but, on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit www.open-water.org.uk.

Question 2.4

For your guidance:

- Thames Water has a statutory right of access to carry out work on its assets. Employees of Thames Water or its contractors may, therefore, need to enter the property to carry out work.
- Please note if the property was constructed after 1st July 2011 any sewers and/or lateral drain within the boundary of the property are the responsibility of the householder.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public sewer running within the boundary of the property may restrict further development. The Company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Question 2.4.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public pumping station within the boundary of the property may restrict further development. The company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the company, or its contractors, needing to enter the property to carry out work.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Question 2.5

For your guidance:

- From the 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.
- The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Question 2.5.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The presence of a public pumping station within 50 metres of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Question 2.6

For your guidance:

- Any sewers and/or lateral drains within the boundary of the property are not the subject of an adoption agreement and remain the responsibility of the householder. Adoptable sewers are normally those situated in the public highway.
- This enquiry is of interest to purchasers who will want to know whether or not the property will be linked to a public sewer.
- Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities.
- Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991 and meeting the requirements of 'Sewers for Adoption' 6th Edition.

Question 2.7

For your guidance:

- From the 1st October 2011 most private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have been approved or consulted about any plans to erect a building or extension on the property over or in the vicinity of these.
- Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.

Question 2.8

For your guidance:

- For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water Utilities Ltd on Tel: 0800 316 9800 or website www.thameswater.co.uk

Question 2.9

For your guidance:

- The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated.
- The sewerage undertaker’s records were inspected to determine the nearest sewage treatment works.
- It should be noted that there may be a private sewage treatment works closer than the one detailed above that has not been identified.
- As a responsible utility operator, Thames Water Utilities Ltd seeks to manage the impact of odour from operational sewage works on the surrounding area. This is done in accordance with the Code of Practice on Odour Nuisance from Sewage Treatment Works issued via the Department of Environment, Food and Rural Affairs (DEFRA). This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works. However DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments. For more information visit www.thameswater.co.uk

Question 3.1

For your guidance:

- The Company does not keep details of private supplies. The situation should be checked with the current owner of the property.

Question 3.2

For your guidance:

- The boundary of the property has been determined by reference to the plan supplied. Where a plan was not supplied, the Ordnance Survey Record was used. If the Water undertaker mentioned in Question 4.1.2 is not Thames Water Utilities Ltd the boundary of the property has been determined by the Ordnance Survey.
- The presence of a public water main within the boundary of the property may restrict further development within it. Water companies have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.

Question 3.3

For your guidance:

- This enquiry is of interest to purchasers who will want to know whether or not the property will be linked to the mains water supply.

Question 3.4

For your guidance:

- “Low water pressure” means water pressure below the regulatory reference level, which is the minimum pressure when demand on the system is not abnormal.
- Water Companies are required to include in the Regulatory Register that is presented annually to the Director General of Water Services, properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level)
- The reference level of service is a flow of 9 litres/minute at a pressure of 10metres / head on the customer's side of the outside stop valve (osv). The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. The reference level applies to a single property. Where more than one property is served by a common service pipe, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served. For two properties, a flow of 18 litres/minute at a pressure of 10metres/head on the customers' side of the osv is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS806-3 or the Institute of Plumbing handbook.
- **Allowable exclusions** The Company is required to include in the Regulatory Register properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.
- **Abnormal demand:** This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Companies should exclude from the reported figures properties which are affected by low pressure only on those days with the highest peak demands. During the report year companies may exclude, for each property, up to five days of low pressure caused by peak demand.
- **Planned maintenance:** Companies should not report low pressures caused by planned maintenance. It is not intended that companies identify the number of properties affected in each instance. However, companies must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded because of planned maintenance are actually caused by maintenance.
- **One-off incidents:** This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); firefighting; and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.
- **Low-pressure incidents of short duration:** Properties affected by low pressure, which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded from the reported figures.
- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water pressure.

Question 3.5

For your guidance:

- Water hardness can be expressed in various indices for example the hardness settings for dishwashers are commonly expressed in Clark's degrees, but check with the manufacturer as there are also other units. The following table shows the normal ranges of hardness.

Thames Water Hardness Category	Calcium (mg/l)	Calcium Carbonate (mg/l)	English Clarke degrees	French degrees	General/ German degrees
Soft	0 to 40	0 to 500	0 to 7	0 to 10	0 to 5.6
Medium	41 to 80	101 to 200	8 to 14	11 to 20	5.7 to 11.2
Hard	Over 80	Over 200	Over 14	Over 20	over 11.2

- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water hardness.

Question 3.6

For your guidance:

- The Water Industry Act 1991 Section 150, The Water Resale Order 2001 provides protection for people who buy their water or sewerage services from a person or company instead of directly from a water or sewerage company. Details are available from the Office of Water Services (OFWAT) website is www.ofwat.gov.uk.
- The Company may install a meter at the premises where a buyer makes a change of use of the property or where the buyer uses water for:
 - Watering the garden other than by hand (this includes the use of sprinklers).
 - Automatically replenishing a pond or swimming pool with a capacity greater than 10,000 litres.
 - A bath with a capacity in excess of 230 litres.
 - A reverse osmosis unit Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the sewerage and water services for this property. For a list of all potential retailers of sewerage and water services for the property please visit www.open-water.org.uk.

Question 3.7

For your guidance:

- Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the water services for this property. For a list of all potential retailers of water services for the property please visit www.open-water.org.uk.

Question 5.1

For your guidance:

- If a Trade effluent consent applies to the premises which are the subject of this search, it is for the applicant to satisfy itself as to the suitability of the consent for its client's requirements. The occupier of any trade premises in the area of a sewerage undertaker may discharge any trade effluent proceeding from those premises into the undertaker's public sewers if he does so with the undertaker's consent. If, in the case of any trade premises, any trade effluent is discharged without such consent or other authorisation, the occupier of the premises shall be guilty of an offence.
- Please note any existing consent is dependent on the business being carried out at the property and will not transfer automatically upon change of ownership.
- For further information regarding Trade Effluent consents please contact: Trade Effluent Control, Crossness STW, Belvedere Road, Abbey Wood London SE2 9AQ.

Question 6.1

For your guidance:

- This question relates only to private agreements between the water company acting in a private capacity and a landowner. Such contracts may often be part of a conveyance or land transfer, or a deed of grant of easement.
- If there is no formal easement, then a sewer or water main may have been constructed following the service of notice under the provisions of the Public Health Act 1936, Water Act 1945, Water Act 1989 or Water Industry Act 1991 as applicable. The company does not hold copies of these notices. However, in the absence of evidence to the contrary there is a legal presumption that all matters were properly dealt with. All rights and obligations relating to sewers and water mains are now covered by the Water Industry Act 1991. Where rights exist at the boundary of the property, but we are not sure of the exact correlation, we will answer "Yes" to this question. A documentary right can exist even if the physical asset itself has not yet been laid, or has been moved, or removed. Likewise the position of the right and of the asset may differ.
- You may also find that an asset is protected both with contractual rights and statutory rights. Please consult your solicitor as to why this may happen, and its effects.
- We refer to "defined" assets for the following reasons: Often a contract may give the water company an expressed right to install and maintain assets within an area but without stating the exact position or route of such assets. Also, the law may imply rights where none have been mentioned specifically in a related contract, such as a conveyance. Finally, rights may come into being through long use. In any of these cases the rights are undefined, and although the water company may need to rely on them from time to time, as we cannot map the rights accurately, we will answer "no" to this question.
- Information obtainable from physical inspection (including Trial Bore Holes) overrides information contained in the report.
- Any error in answering this question is not to be regarded as a waiver of the water company's rights or title, or an agreement or representation that the water company is prepared to vary or discharge any of its rights or title.

CommercialDW Drainage and Water Enquiry Terms and Conditions

Customer and Clients are asked to note these terms, which govern the basis on which this CommercialDW Drainage & Water Enquiry is supplied

Definitions

'Client' means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

'Company' means a water service company or their data service provider producing the Report.

'Customer' means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

'Order' means any request completed by the Customer requesting the Report.

'Property' means the address or location supplied by the Customer in the Order.

'Report' means the drainage and/or water report prepared by The Company in respect of the Property.

'Thames Water' means Thames Water Utilities Limited registered in England and Wales under number 2366661 whose registered office is at Clearwater Court, Vastern Road, Reading, Berks, RG1 8DB;

Agreement

1 Thames Water agrees to supply the Report to the Customer and the Client subject to these terms. The scope and limitations of the Report are described in paragraph 2 of these terms. Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing these terms to the attention of the Client. The Customer and Client agree that the placing of an Order for a Report indicates their acceptance of these terms.

The Report

2. Whilst Thames Water will use reasonable care and skill in producing the Report, it is provided to the Customer and the Client on the basis that they acknowledge and agree to the following:-

2.1 The information contained in the Report can change on a regular basis so Thames Water cannot be responsible to the Customer and the Client for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and other information supplied by the Customer or Client.

2.4 The Report provides information as to the location and connection of existing services and should not be relied on for any other purpose. The Report may contain opinions or general advice to the Customer and the Client and Thames Water cannot ensure that any such opinion or general advice is accurate, complete or valid and accepts no liability therefore.

2.5 The position and depth of apparatus shown on any maps attached to the Report are approximate, and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of apparatus shown on any maps.

Liability

3 Thames Water shall not be liable to the Client for any failure, defect or non-performance of its obligations arising from any failure of, or defect in any machine, processing system or transmission link or anything beyond Thames Water's reasonable control or the acts or omissions of any party for whom Thames Water are not responsible.

3.1 Where the Customer sells this report to a Client (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) Thames Water shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) be liable for any loss or damage whatsoever and the Customer shall indemnify Thames Water in respect of any claim by the Client.

3.2 Where a report is requested for an address falling within a geographical area where Thames Water and another Company separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by Thames Water or the Company as the case may be will remain with Thames Water or the Company as the case may be in respect of the accuracy of the information supplied. Where Thames Water is supplying information which has been provided to it by another Company for the purposes outlined in this agreement Thames Water will therefore not be liable in any way for the accuracy of that information and will supply that information as agent for the Company from which the information was obtained.

3.3 Except in respect of death or personal injury caused by negligence, or as expressly provided in these Terms:

3.3.1 The entire liability of Thames Water or the Company as the case may be in respect of all causes of action arising under or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall not exceed £2,000,000 (two million pounds); and

3.3.2 Thames Water shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) be liable for any loss of profit, loss of goodwill, loss of

reputation, loss of business or any indirect, special or consequential loss, damage or other claims, costs or expenses;

Copyright and Confidentiality

4. The Customer and the Client acknowledge that the Report is confidential and is intended for the personal use of the Client. The copyright and any other intellectual property rights in the Report shall remain the property of Thames Water or the Company as the case may be. No intellectual or other property rights are transferred or licensed to the Customer or the Client except to the extent expressly provided

4.1 The Customer or Client is entitled to make copies of the Report but is not permitted to copy any maps contained in, or attached to the Report

4.2 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.3 The Customer and Client agree (in respect of both the original and any copies made) to respect and not to alter any trademark, copyright notice or other property marking which appears on the Report.

Payment

5. Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay for the price of the Report specified by Thames Water, without any set off, deduction or counterclaim.

5.1 Unless payment has been received in advance, Customers shall be invoiced for the agreed fee once their request has been processed. Any such invoice must be paid within 14 days. Where the Customer has an account with Thames Water, payment terms will be as agreed with Thames Water.

5.2 No payment shall be deemed to have been received until Thames Water has received cleared funds.

5.3 If the Customer fails to pay Thames Water any sum due Thames Water shall be entitled but not obliged to charge the Customer interest on the sum from the due date for payment at the annual rate of 2% above the base lending rate from time to time of Natwest Bank, accruing on a daily basis until payment is made. Thames Water reserves the right to claim interest under the Late Payment of Commercial Debts (Interest) Act 1998.

5.4 Thames Water reserves the right to increase fees on reasonable prior written notice at any time.

Cancellations or Alterations

6. Once an Order is placed, Thames Water shall not be under any obligation to accept any request to cancel that Order and payment for the Order shall still be due upon completion of the Report. In cases where an error has been made in the original Order (e.g. the Customer has supplied an incorrect address), the Customer will need to place a second Order, detailing the correct information, and shall be liable to pay a second charge in accordance with clause 5 above.

Delivery

7. On receiving your order the reports will be posted to you within 10 working days from receipt.

7.1 Delivery is subject to local post conditions and regulations. All items should arrive within 12 working days, but Thames Water cannot be held responsible should delays be caused by local post conditions, postal strikes or other causes beyond the control of Thames Water.

General

8. If any provision of these terms is or becomes invalid or unenforceable, it will be taken to be removed from the rest of these terms to the extent that it is invalid or unenforceable. No other provision of these terms shall be affected.

8.1 These terms shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

8.2 Nothing in this notice shall in any way restrict the Customer or Clients statutory or any other rights of access to the information contained in the Report.

These Terms & Conditions are available in larger print for those with impaired vision.

Payment Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment within 14 days of the date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service or will be held to be invalid.
4. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800.

If you are unhappy with our service, you can speak to your original goods or customer service provider. If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0300 034 2222 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking
Please call 0800 009 4540 quoting your invoice number starting CBA or ADS	Account Number 90478703 Sort code 60-00-01 A remittance advice must be sent to Thames Water Utilities Ltd. PO Box 3189 Slough SL1 4WW or email ps.billing@thameswater.co.uk	By calling your bank and quoting Account number 90478703 Sort code 60-00-01 and your invoice number

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Appendix D

Greenfield Run-off Calculation

Calculated by:	Oliver Chard
Site name:	Shurgard Hampton
Site location:	TW12 2HR

Site Details

Latitude:	51.41561° N
Longitude:	0.37451° W
Reference:	1647952421
Date:	Feb 29 2024 09:05

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Runoff estimation approach

FEH Statistical

Site characteristics

Total site area (ha): 0.308

Methodology

Q _{MED} estimation method:	Calculate from BFI and SAAR
BFI and SPR method:	Calculate from dominant HOST
HOST class:	22
BFI / BFIHOST:	0.374
Q _{MED} (l/s):	0.8
Q _{BAR} / Q _{MED} factor:	1.14

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Hydrological characteristics

	Default	Edited
SAAR (mm):	598	598
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Q_{BAR} (l/s):	0.91	0.91
1 in 1 year (l/s):	0.78	0.78
1 in 30 years (l/s):	2.1	2.1
1 in 100 year (l/s):	2.91	2.91
1 in 200 years (l/s):	3.42	3.42

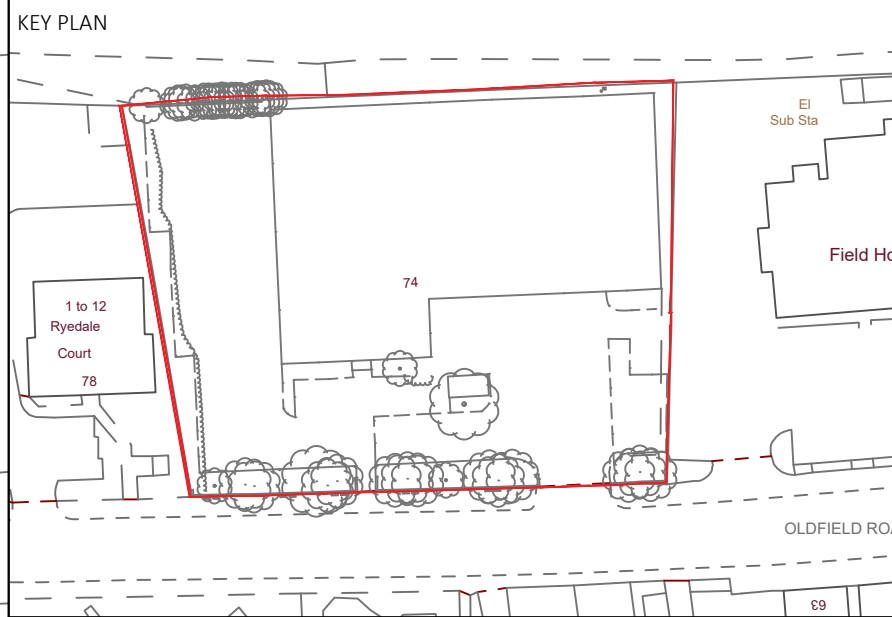
This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Appendix E

Not Used

Appendix F

Existing Overland Flow Routes and Catchment Plan



NOTES
1. FOR DRAINAGE NOTES REFER TO DRAWING 31569-HYD-XX-XX-DR-C-52010

LEGEND		
	BUILDING / ROOF	= 1270m ²
	HARDSTANDING (YARD)	= 1525m ²
	SOFT LANDSCAPING	= 325m ²
		TOTAL = 3120m²

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REVISIONS

Rev.	INITIAL ISSUE	14/03/24	VK	CMH CMH
	Revision Notes	Date	Drawn By	Checked Approved

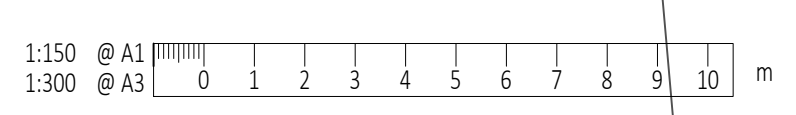
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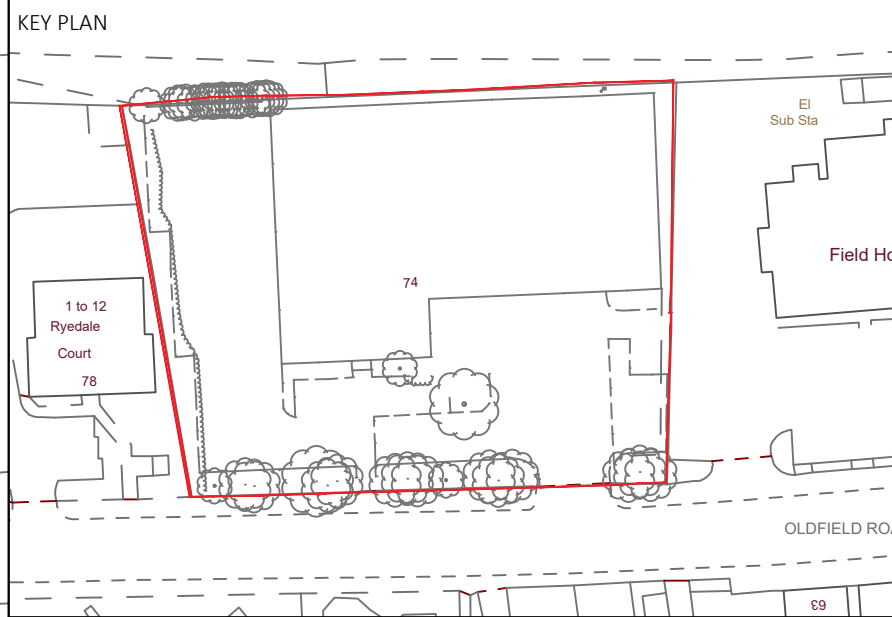
PROJECT
SHURGARD HAMPTON

TITLE
EXISTING DRAINAGE CATCHMENT PLAN

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STATUS DESCRIPTION SUITABLE FOR INFORMATION	STATUS S2
DRAWING NO. 31569-HYD-00-ZZ-DR-C-52011	REVISION P01



Filename: C:\Users\OtherChara\Documents\Projects\Hampton\CAD\31569-HYD-00-ZZ-DR-C-52011.dwg



NOTES
1. FOR DRAINAGE NOTES REFER TO DRAWING 31569-HYD-XX-DR-C-52010

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Field House

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1 to 12
Ryedale
Court
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CLIENT **SHURGARD**
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PROJECT
SHURGARD HAMPTON

TITLE
EXISTING DRAINAGE
EXCEEDANCE FLOWS

HYDROCK PROJECT NO.
C-31569

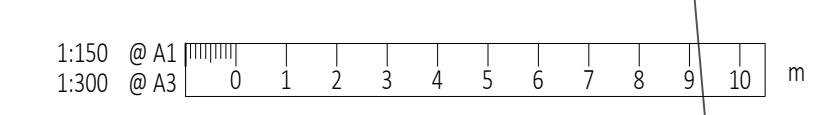
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STATUS DESCRIPTION
SUITABLE FOR INFORMATION

STATUS
S2

DRAWING NO.
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REVISION
P01

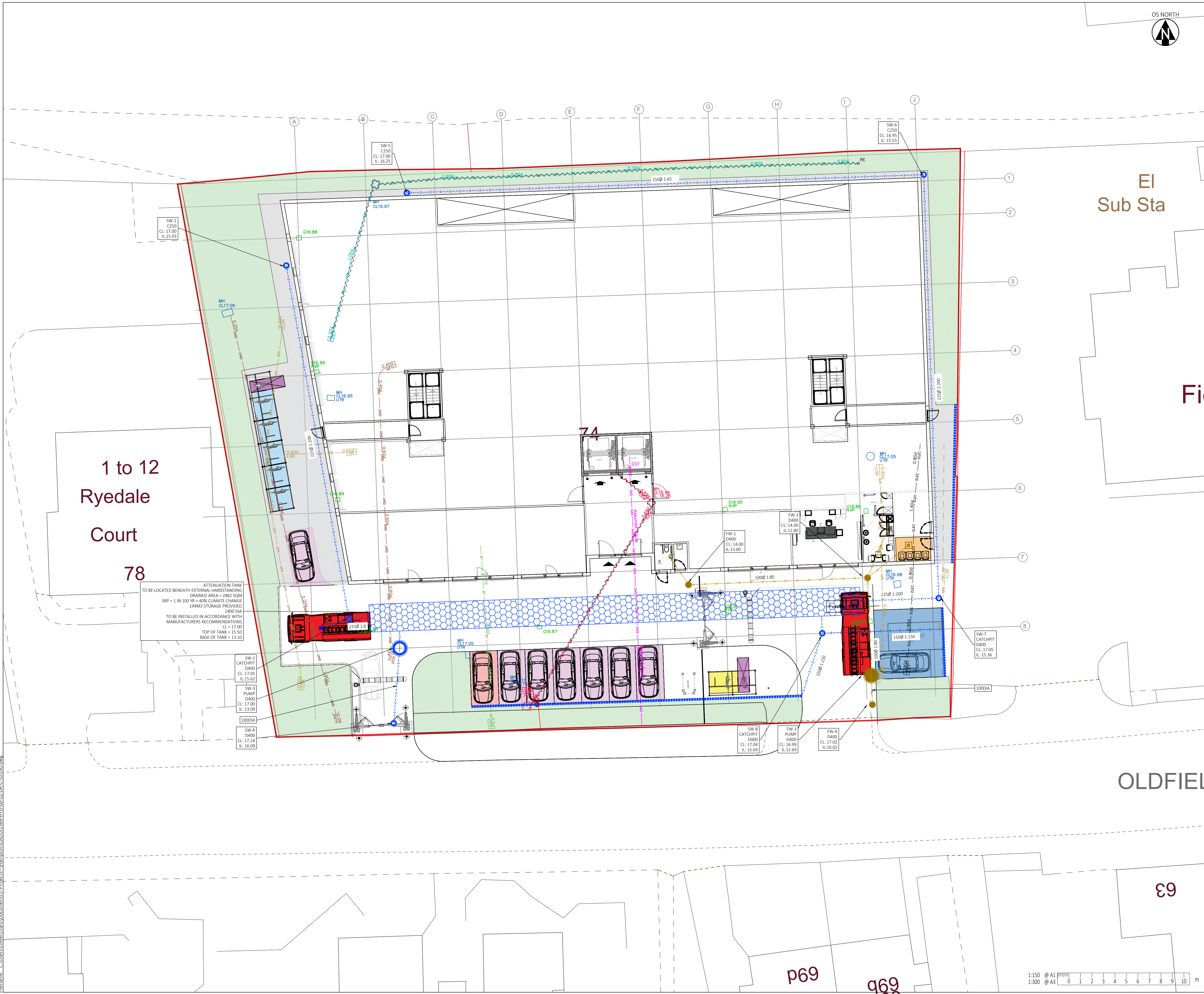


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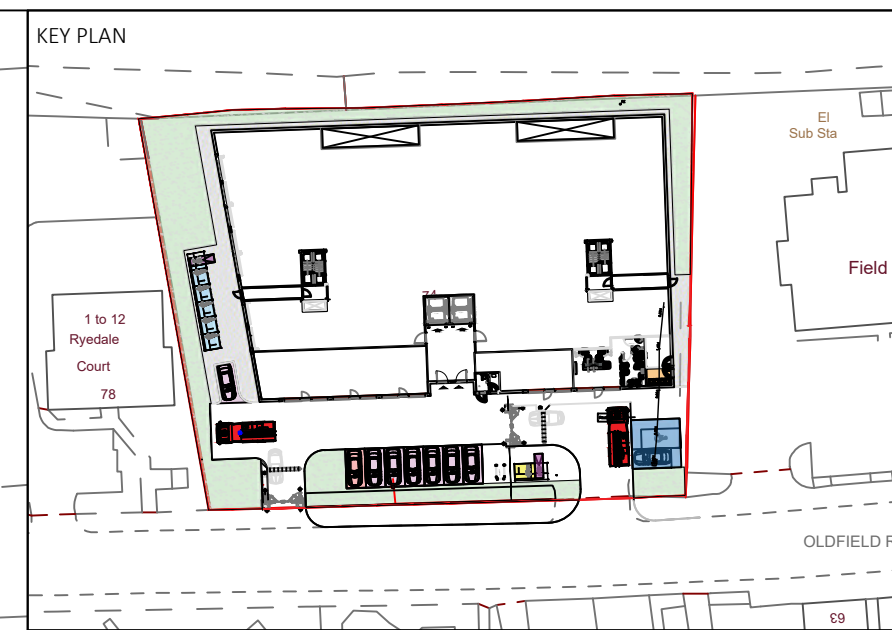
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Appendix G

Proposed Drainage Strategy General Arrangement



ATTENUATION TANK
 TO BE LOCATED BENEATH EXTERNAL HARVESTING
 DRAINED AREA = 2882 SQM
 SRP = 1 IN 100 YR + 40% CLIMATE CHANGE
 194M3 STORAGE PROVIDED
 2400 DIA
 TO BE INSTALLED IN ACCORDANCE WITH
 MANUFACTURERS RECOMMENDATIONS
 CL = 17.00
 TOP OF TANK = 15.50
 BASE OF TANK = 13.10



- NOTES
- FOR DRAINAGE NOTES REFER TO DRAWING 31569-HYD-XX-DR-C-52010
 - RAINWATER DOWNPIPE POSITIONS TO BE CONFIRMED BY ARCHITECT
 - SOIL PIPE POSITIONS TO BE CONFIRMED BY ARCHITECT
 - PUBLIC SEWER CONNECTIONS SUBJECT TO THAMES WATER S106

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Field House

1 to 12
 Ryedale
 Court
 78

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- KEY
- PROPOSED SURFACE WATER
 - PROPOSED FOUL WATER
 - TO BE ABANDONED
 - LINEAR DRAIN
 - YARD GULLY
 - SOIL PIPE
 - GULLY

REVISIONS

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
P01	INITIAL ISSUE	14/03/24	VK	CMH	CMH
Rev.	Revision Notes	Date	Drawn By	Checked	Approved

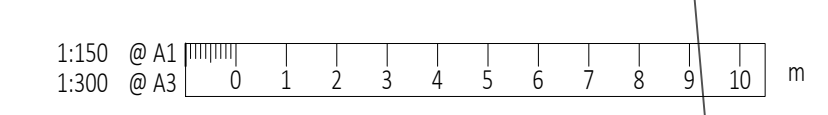
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PROJECT
 SHURGARD HAMPTON

TITLE
 PROPOSED DRAINAGE
 GENERAL ARRANGEMENT

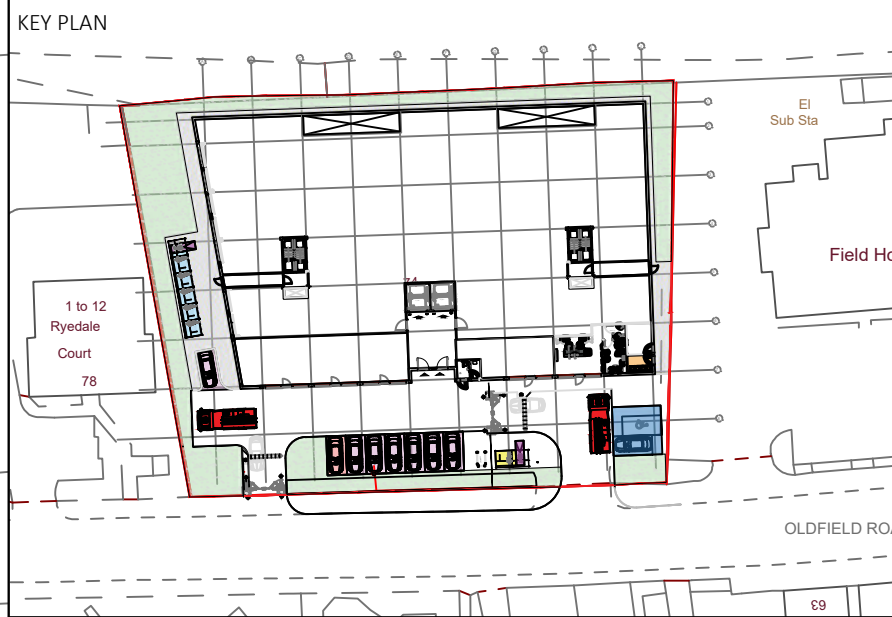
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STATUS DESCRIPTION SUITABLE FOR INFORMATION	STATUS S2
DRAWING NO. 31569-HYD-00-ZZ-DR-C-52030	REVISION P01



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Appendix H

Proposed Overland Flow Routes and Catchment Plan



NOTES
1. FOR DRAINAGE NOTES REFER TO DRAWING 31569-HYD-XX-XX-DR-C-52010

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Field House

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Ryedale
Court
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PROJECT
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TITLE
PROPOSED DRAINAGE
EXCEEDANCE FLOWS

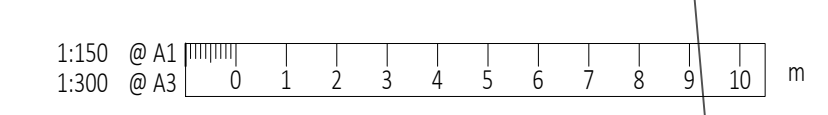
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DRAWING NO. 31569-HYD-00-ZZ-DR-C-52025	REVISION P01

OLDFIELD ROAD

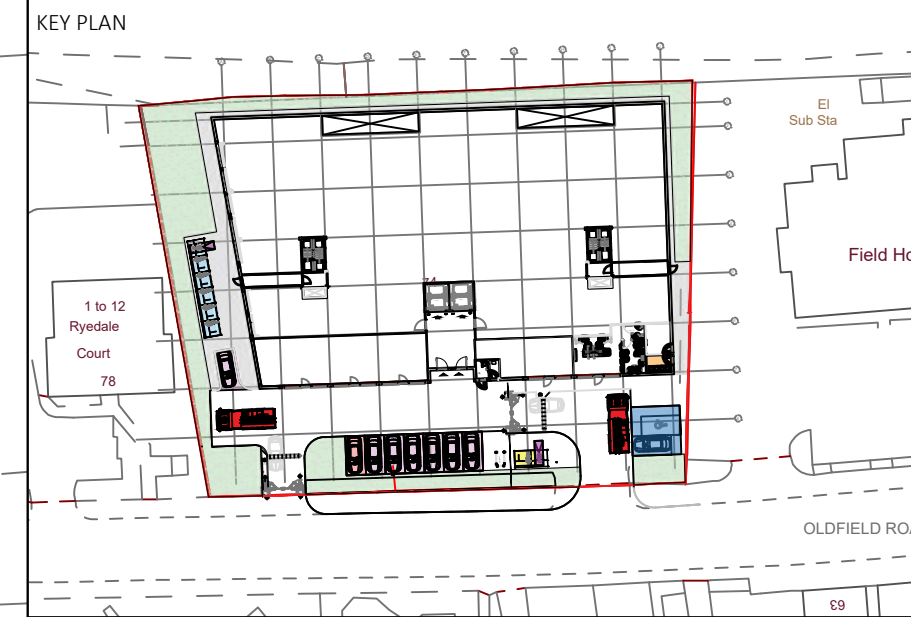
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NOTES
1. FOR DRAINAGE NOTES REFER TO DRAWING 31569-HYD-XX-XX-DR-C-52010

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Field House

LEGEND		
	BUILDING / ROOF	= 1786m ²
	HARDSTANDING	= 841m ²
	SOFT LANDSCAPING	= 493m ²
		TOTAL = 3120m²

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	Revision Notes	Date	Drawn By	Checked Approved

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PROJECT
SHURGARD HAMPTON

TITLE
PROPOSED DRAINAGE
CATCHMENT PLAN

HYDROCK PROJECT NO. C-31569	SCALE @ A1 1:150
STATUS DESCRIPTION SUITABLE FOR INFORMATION	STATUS S2
DRAWING NO. 31569-HYD-00-ZZ-DR-C-52020	REVISION P01



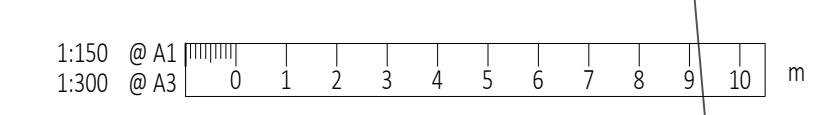
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Ryedale
Court
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OLDFIELD ROAD

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Appendix I

Proposed Drainage Supporting Calculations

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Junctions Storm Phase: Phase (2) (1)	Company Address:		



Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type	
SW-1	Outlet	Pipe	Free Discharge	
SW-2	Outlet	Pipe (1)	Free Discharge	
SW-3	Outlet	Pipe (5)	Pump	
	Invert Level (m)		13.090	
	Depth (m)	Outflow (L/s)		
	0.100	2.0		
	0.200	2.0		
	0.300	2.0		
	0.400	2.0		
	0.500	2.0		
	0.600	2.0		
	0.700	2.0		
	0.800	2.0		
	0.900	2.0		
	1.000	2.0		
	1.100	2.0		
	1.200	2.0		
	1.300	2.0		
	1.400	2.0		
	1.500	2.0		
	1.600	2.0		
	1.700	2.0		
	1.800	2.0		
	1.900	2.0		
	2.000	2.0		
	2.100	2.0		
	2.200	2.0		
	2.300	2.0		
	2.400	2.0		
	2.500	2.0		
	2.600	2.0		
	2.700	2.0		
	2.800	2.0		
2.900	2.0			
3.000	2.0			
3.100	2.0			
3.200	2.0			
3.300	2.0			
3.400	2.0			
3.500	2.0			
3.600	2.0			
3.700	2.0			
3.800	2.0			
3.900	2.0			
4.000	2.0			
4.100	2.0			
4.200	2.0			
4.300	2.0			
4.400	2.0			
4.500	2.0			
4.600	2.0			
4.700	2.0			
4.800	2.0			
4.900	2.0			
5.000	2.0			
5.100	2.0			
5.200	2.0			
5.300	2.0			
5.400	2.0			
5.500	2.0			
5.600	2.0			
5.700	2.0			
5.800	2.0			
5.900	2.0			

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Junctions Storm Phase: Phase (2) (1)	Company Address:		



Junction	Outlet Name	Outgoing Connection	Outlet Type
	6.000	2.0	
	6.100	2.0	
	6.200	2.0	
	6.300	2.0	
	6.400	2.0	
	6.500	2.0	
	6.600	2.0	
	6.700	2.0	
	6.800	2.0	
	6.900	2.0	
	7.000	2.0	
	7.100	2.0	
	7.200	2.0	
	7.300	2.0	
	7.400	2.0	
	7.500	2.0	
	7.600	2.0	
	7.700	2.0	
	7.800	2.0	
	7.900	2.0	
	8.000	2.0	
	8.100	2.0	
	8.200	2.0	
	8.300	2.0	
	8.400	2.0	
	8.500	2.0	
	8.600	2.0	
	8.700	2.0	
	8.800	2.0	
	8.900	2.0	
	9.000	2.0	
	9.100	2.0	
	9.200	2.0	
	9.300	2.0	
	9.400	2.0	
	9.500	2.0	
	9.600	2.0	
	9.700	2.0	
	9.800	2.0	
	9.900	2.0	
	10.000	2.0	
SW-5	Outlet	Pipe (6)	Free Discharge
SW-6	Outlet	Pipe (7)	Free Discharge
SW-7	Outlet	Pipe (8)	Free Discharge
SW-8	Outlet	Pipe (3)	Free Discharge

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Stormwater Controls Storm Phase: Phase (2) (1)	Company Address:		



Chamber

Type : Chamber

Dimensions

Exceedance Level (m)	15.500
Depth (m)	2.400
Base Level (m)	13.100
Number of Chambers	1
Number of Rows	1
Distance Between Rows (mm)	0
Total Volume (m³)	193.170

Chamber Shape

Type	Circular Chamber
Chamber Length (m)	42.700
Wall Thickness (mm)	0
Diameter / Base Width (mm)	2400

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (8)
Bypass Destination	(None)
Capacity Type	No Restriction


Inlet (2)

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

Outlets

Outlet

Outgoing Connection	Pipe (2)
Outlet Type	Free Discharge

Project:	Date: 29/02/2024			
	Designed by: VK	Checked by: CMH	Approved By: CMH	
Report Details: Type: Network Design Criteria Storm Phase: Phase (2) (1)	Company Address:			

Flow Options


Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	<input type="checkbox"/>
Reduce Channel Depths	<input type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
--------------	--------------------------

Project:	Date: 29/02/2024			
	Designed by: VK	Checked by: CMH	Approved By: CMH	
Report Title: Rainfall Analysis Criteria	Company Address:			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall

FSR	Type: FSR
------------	-----------

Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.425
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
30.0	0.000
100.0	40.000
100.0	0.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Inflows Summary Storm Phase: Phase (2) (1)	Company Address:		



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)
Catchment Area	FSR: 1 years: +0 %: 15 mins: Winter	0.04	6.5	2.982
Catchment Area (1)	FSR: 1 years: +0 %: 15 mins: Winter	0.04	5.2	2.388
Catchment Area (2)	FSR: 1 years: +0 %: 15 mins: Winter	0.04	6.4	2.949
Catchment Area (3)	FSR: 1 years: +0 %: 15 mins: Winter	0.05	7.9	3.633
Catchment Area (4)	FSR: 1 years: +0 %: 15 mins: Winter	0.02	2.2	1.032
Catchment Area (5)	FSR: 1 years: +0 %: 15 mins: Winter	0.01	1.5	0.690
Catchment Area (6)	FSR: 1 years: +0 %: 15 mins: Winter	0.01	1.5	0.690
Catchment Area (7)	FSR: 1 years: +0 %: 15 mins: Winter	0.01	0.9	0.426
Catchment Area (8)	FSR: 1 years: +0 %: 15 mins: Winter	0.01	1.8	0.837
Catchment Area (9)	FSR: 1 years: +0 %: 15 mins: Winter	0.04	5.2	2.397
Catchment Area (10)	FSR: 1 years: +0 %: 15 mins: Winter	0.02	2.4	1.131

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Inflows Summary Storm Phase: Phase (2) (1)	Company Address:		



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)
Catchment Area	FSR: 30 years: +0 %: 15 mins: Winter	0.04	15.8	7.320
Catchment Area (1)	FSR: 30 years: +0 %: 15 mins: Winter	0.04	12.7	5.865
Catchment Area (2)	FSR: 30 years: +0 %: 15 mins: Winter	0.04	15.7	7.236
Catchment Area (3)	FSR: 30 years: +0 %: 15 mins: Winter	0.05	19.3	8.913
Catchment Area (4)	FSR: 30 years: +0 %: 15 mins: Winter	0.02	5.5	2.541
Catchment Area (5)	FSR: 30 years: +0 %: 15 mins: Winter	0.01	3.7	1.701
Catchment Area (6)	FSR: 30 years: +0 %: 15 mins: Winter	0.01	3.7	1.698
Catchment Area (7)	FSR: 30 years: +0 %: 15 mins: Winter	0.01	2.3	1.044
Catchment Area (8)	FSR: 30 years: +0 %: 15 mins: Winter	0.01	4.4	2.055
Catchment Area (9)	FSR: 30 years: +0 %: 15 mins: Winter	0.04	12.7	5.877
Catchment Area (10)	FSR: 30 years: +0 %: 15 mins: Winter	0.02	6.0	2.778

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Inflows Summary Storm Phase: Phase (2) (1)	Company Address:		



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FSR: 100 years: +40 %: 15 mins: Winter	0.04	28.8	13.305
Catchment Area (1)	FSR: 100 years: +40 %: 15 mins: Winter	0.04	23.1	10.668
Catchment Area (2)	FSR: 100 years: +40 %: 15 mins: Winter	0.04	28.5	13.161
Catchment Area (3)	FSR: 100 years: +40 %: 15 mins: Winter	0.05	35.1	16.200
Catchment Area (4)	FSR: 100 years: +40 %: 15 mins: Winter	0.02	10.0	4.626
Catchment Area (5)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	6.7	3.099
Catchment Area (6)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	6.7	3.087
Catchment Area (7)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	4.1	1.902
Catchment Area (8)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	8.1	3.738
Catchment Area (9)	FSR: 100 years: +40 %: 15 mins: Winter	0.04	23.1	10.680
Catchment Area (10)	FSR: 100 years: +40 %: 15 mins: Winter	0.02	10.9	5.052

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Junctions Summary Storm Phase: Phase (2) (1)	Company Address:		



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
SW-1	FSR: 1 years: +0 %: 15 mins: Winter	17.00 0	15.93 0	15.995	0.065	8.9	0.018	0.000	8.6	4.096	OK
SW-2	FSR: 1 years: +0 %: 15 mins: Winter	17.05 0	15.62 0	15.674	0.054	18.3	0.015	0.000	18.0	8.566	OK
SW-3	FSR: 1 years: +0 %: 120 mins: Winter	17.00 0	13.09 0	13.562	0.472	2.2	0.533	0.000	2.0	27.129	Surcharged
SW-4	FSR: 1 years: +0 %: 15 mins: Summer	17.14 0	16.09 0	16.090	0.000	2.0	0.000	0.000	2.0	3.124	OK
SW-5	FSR: 1 years: +0 %: 15 mins: Winter	17.00 0	16.25 0	16.280	0.030	2.2	0.009	0.000	2.1	1.031	OK
SW-6	FSR: 1 years: +0 %: 15 mins: Winter	16.95 0	15.55 0	15.650	0.100	15.2	0.028	0.000	14.0	7.063	OK
SW-7	FSR: 1 years: +0 %: 15 mins: Winter	17.05 0	15.36 5	15.465	0.100	14.0	0.028	0.000	12.9	7.044	OK
SW-8	FSR: 1 years: +0 %: 15 mins: Winter	17.04 0	15.69 0	15.710	0.020	7.6	0.003	0.000	7.6	3.527	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Junctions Summary Storm Phase: Phase (2) (1)	Company Address:		



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 (m ³)	Max. Flooded Volume (m ³)	Max. Outflow (L/s)	Total Discharge Volume (m ³)	Status
SW-1	FSR: 30 years: +0 %: 15 mins: Winter	17.00 0	15.93 0	16.036	0.106	21.8	0.030	0.000	21.2	10.060	OK
SW-2	FSR: 30 years: +0 %: 15 mins: Winter	17.05 0	15.62 0	15.715	0.095	44.9	0.027	0.000	44.3	21.027	OK
SW-3	FSR: 30 years: +0 %: 240 mins: Winter	17.00 0	13.09 0	14.114	1.024	2.2	1.159	0.000	2.0	55.947	Surcharged
SW-4	FSR: 30 years: +0 %: 15 mins: Summer	17.14 0	16.09 0	16.090	0.000	2.0	0.000	0.000	2.0	3.279	OK
SW-5	FSR: 30 years: +0 %: 15 mins: Winter	17.00 0	16.25 0	16.298	0.048	5.5	0.014	0.000	5.3	2.540	OK
SW-6	FSR: 30 years: +0 %: 15 mins: Winter	16.95 0	15.55 0	15.741	0.191	37.3	0.054	0.000	34.8	17.346	OK
SW-7	FSR: 30 years: +0 %: 15 mins: Winter	17.05 0	15.36 5	15.547	0.182	34.8	0.052	0.000	33.1	17.326	OK
SW-8	FSR: 30 years: +0 %: 15 mins: Winter	17.04 0	15.69 0	15.722	0.032	18.7	0.005	0.000	18.7	8.654	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Junctions Summary Storm Phase: Phase (2) (1)	Company Address:		



FSR: 100 years: Increase Rainfall (%): +40: 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 (m ³)	Max. Flooded Volume (m ³)	Max. Outflow (L/s)	Total Discharge Volume (m ³)	Status
SW-1	FSR: 100 years: +40 %: 15 mins: Winter	17.00 0	15.93 0	16.086	0.156	39.6	0.044	0.000	38.6	18.292	OK
SW-2	FSR: 100 years: +40 %: 15 mins: Winter	17.05 0	15.62 0	15.763	0.143	81.8	0.040	0.000	80.7	38.229	OK
SW-3	FSR: 100 years: +40 %: 360 mins: Winter	17.00 0	13.09 0	15.011	1.921	2.3	2.173	0.000	2.0	84.728	Surcharged
SW-4	FSR: 100 years: +40 %: 15 mins: Summer	17.14 0	16.09 0	16.090	0.000	2.0	0.000	0.000	2.0	3.351	OK
SW-5	FSR: 100 years: +40 %: 15 mins: Winter	17.00 0	16.25 0	16.344	0.094	10.0	0.027	0.000	6.8	4.619	OK
SW-6	FSR: 100 years: +40 %: 15 mins: Winter	16.95 0	15.55 0	16.291	0.741	65.1	0.210	0.000	62.7	31.548	Surcharged
SW-7	FSR: 100 years: +40 %: 15 mins: Winter	17.05 0	15.36 5	15.703	0.338	62.7	0.096	0.000	62.1	31.540	Surcharged
SW-8	FSR: 100 years: +40 %: 15 mins: Winter	17.04 0	15.69 0	15.735	0.045	34.1	0.007	0.000	34.0	15.731	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (2) (1)	Company Address:		



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. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Chamber	FSR: 1 years: +0 %: 120 mins: Winter	13.562	13.562	0.462	0.462	13.0	24.581	0.000	0.000	2.2	27.464	87.275	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (2) (1)	Company Address:		



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
Chamber	FSR: 30 years: +0 %: 240 mins: Winter	14.115	14.115	1.015	1.015	18.2	76.160	0.000	0.000	2.2	56.813	60.574	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (2) (1)	Company Address:		



FSR: 100 years: Increase Rainfall (%): +40: 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 (m ³)	Max. Flooded Volume (m ³)	Total Lost Volume (m ³)	Max. Outflow (L/s)	Total Discharge Volume (m ³)	Percentage Available (%)	Status
Chamber	FSR: 100 years: +40 %: 360 mins: Winter	15.012	15.012	1.912	1.912	24.2	163.344	0.000	0.000	2.3	86.443	15.441	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Connections Summary Storm Phase: Phase (2) (1)	Company Address:		



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

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
Pipe	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-1	SW-2	17.000	15.995	0.059	4.096	1.0	0.17	8.6	OK
Pipe (5)	FSR: 1 years: +0 %: 15 mins: Summer	Pipe	SW-3	SW-4	17.000	13.429	0.016	3.124	0.0	0.15	2.0	Surcharged
Pipe (6)	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-5	SW-6	17.000	16.280	0.065	1.031	0.3	0.09	2.1	OK
Pipe (7)	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-6	SW-7	16.950	15.650	0.100	7.063	0.8	0.38	14.0	OK
Pipe (1)	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-2	Chamber	17.050	15.674	0.049	8.566	2.8	0.09	18.0	OK
Pipe (8)	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-7	Chamber	17.050	15.465	0.096	7.044	0.8	0.35	12.9	OK
Pipe (2)	FSR: 1 years: +0 %: 240 mins: Summer	Pipe	Chamber	SW-3	17.000	13.498	0.150	41.149	0.5	0.15	2.2	Surcharged
Pipe (3)	FSR: 1 years: +0 %: 15 mins: Winter	Pipe	SW-8	Chamber	17.040	15.710	0.100	3.527	1.0	0.1	7.6	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Connections Summary Storm Phase: Phase (2) (1)	Company Address:		



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

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
Pipe	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-1	SW-2	17.000	16.036	0.100	10.060	1.2	0.41	21.2	OK
Pipe (5)	FSR: 30 years: +0 %: 15 mins: Summer	Pipe	SW-3	SW-4	17.000	13.728	0.015	3.279	0.0	0.15	2.0	Surcharged
Pipe (6)	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-5	SW-6	17.000	16.298	0.120	2.540	0.3	0.24	5.3	OK
Pipe (7)	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-6	SW-7	16.950	15.741	0.186	17.346	1.0	0.95	34.8	OK
Pipe (1)	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-2	Chamber	17.050	15.715	0.082	21.027	3.4	0.21	44.3	OK
Pipe (8)	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-7	Chamber	17.050	15.547	0.167	17.326	1.0	0.9	33.1	OK
Pipe (2)	FSR: 30 years: +0 %: 480 mins: Summer	Pipe	Chamber	SW-3	17.000	13.932	0.150	108.097	0.5	0.15	2.2	Surcharged
Pipe (3)	FSR: 30 years: +0 %: 15 mins: Winter	Pipe	SW-8	Chamber	17.040	15.722	0.100	8.654	2.4	0.24	18.7	OK

Project:	Date: 29/02/2024		
	Designed by: VK	Checked by: CMH	Approved By: CMH
Report Details: Type: Connections Summary Storm Phase: Phase (2) (1)	Company Address:		



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Velocity

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
Pipe	FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW-1	SW-2	17.000	16.086	0.149	18.292	1.4	0.74	38.6	OK
Pipe (5)	FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW-3	SW-4	17.000	14.079	0.015	3.351	0.0	0.15	2.0	Surcharged
Pipe (6)	FSR: 100 years: +40 %: 15 mins: Summer	Pipe	SW-5	SW-6	17.000	16.321	0.150	4.118	0.5	0.37	8.3	OK
Pipe (7)	FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW-6	SW-7	16.950	16.291	0.225	31.548	1.6	1.71	62.7	Surcharged
Pipe (1)	FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW-2	Chamber	17.050	15.763	0.120	38.229	3.8	0.38	80.7	OK
Pipe (8)	FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW-7	Chamber	17.050	15.703	0.225	31.540	1.6	1.68	62.1	Surcharged
Pipe (2)	FSR: 100 years: +40 %: 240 mins: Winter	Pipe	Chamber	SW-3	17.000	14.984	0.150	58.278	0.5	0.16	2.4	Surcharged
Pipe (3)	FSR: 100 years: +40 %: 15 mins: Winter	Pipe	SW-8	Chamber	17.040	15.735	0.100	15.731	4.3	0.43	34.0	OK