

19 Charterhouse Street

Project No. 23-52

Drainage Strategy Report DMAG-2352-DSR March 2025

Produced for Farrview Limited

FS 571154

20 Flaxman Terrace London WC1H 9AT T +44 (0)20 7388 9406 E info@dmag.com

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Prepared by:

Chartopfacebes

Chantelle Gonçalves Senior Civil Engineer Approved by:

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Garth Foley Senior Engineer

1 Introduction

Davies Maguire have been commissioned by Farrview Limited to undertake a drainage strategy for the proposed development at 19 Charterhouse St, London EC1N 6RA located in the London Borough of Camden.

The purpose of this document is to outline the proposed drainage strategy for the development in relation to the management of surface water, flood risk assessment requirements, local SuDS approval and adoption policy requirements.

We have prepared this report to demonstrate measures to reduce both the volume and velocity of water run-off to the existing drainage environment. This will confirm surface water run-off is managed as close to its source as possible in line with the hierarchy in the London Plan.

This report has been prepared in accordance with the National Planning Policy Framework and Local Authority.

2 Policy Context

2.1 National Planning Policy Framework

The revised National Planning Policy Framework (NPPF) was updated in December 2024 and sets out the government's planning policies for England and how these are expected to be applied.

Based on the guidance in the NPPF new developments require an appropriate drainage strategy to ensure that surface water does not have detrimental impact on surrounding drainage infrastructure, watercourses and property. Therefore, this drainage strategy will take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, biodiversity and landscapes, and the risk of overheating from rising temperatures.

A climate change allowance will be considered to help to minimise vulnerability and provide resilience to flooding and coastal change in the future.

2.2 The London Plan

Policy SI 13 Sustainable Drainage

The London Plan 2021 states that developments should utilise sustainable drainage systems (SuDS) unless there are practical reasons for not doing so and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible.

Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water run-off outside these areas also need to be identified and addressed.

Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

- Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- Rainwater infiltrating into the ground at or close to source



- Rainwater attenuation in green infrastructure features for gradual release (green roofs, rain gardens)
- Rainwater discharge direct to a watercourse (unless not appropriate)
- Controlled rainwater discharge to a surface water sewer or drain;
- Controlled rainwater discharge to a combined sewer.

Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways. Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

Section 6.2. of this report explains in more detail how the above drainage hierarchy has been implemented considering the requirements of this project.

2.3 London Borough of Camden

2.3.1 Camden Local Plan 2017

The Camden Local Plan sets out the Council's planning policies. Policy CC3 relates to the water and flooding policy for the borough.

Policy CC3 Water and flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. The Council requires the development to:

- incorporate water efficiency measures
- avoid harm to the water environment and improve water quality
- consider the impact of the development in areas at risk of flooding (including drainage)
- incorporate flood resilient measures in areas prone to flooding
- utilised Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

The Council will protect the borough's existing drinking water and foul water infrastructure, including the reservoirs at Borrow Hill, Hampstead Heath, Highgate and Kidderpore.

2.3.2 London Borough of Camden Surface Water Management Plan

This document outlines the preferred surface water management strategy for London Borough of Camden including consideration from all sources of flooding.

The SWMP has developed a Regional Flood Risk Appraisal (RFRA) with strategic recommendations relevant to the borough. Recommendation 5 states that developments across London should reduce surface water discharge in line with the Sustainable Drainage Hierarchy set out in the London Plan.



2.3.3 London Borough of Camden Local Flood Risk Management Strategy

The Camden's Local Flood Risk Management Strategy (LFRMS) discusses the different sources of flooding in the Borough, and outlines actions to increase Building community resilience to flooding to be implemented by the following stakeholders:

- Thames Water and Camden Council to pilot a Community Flood Plan to identify practical actions to take before and during a flood
- GLA to deliver the Climate Resilient Schools Programme, seeking to install measures in schools to manage surface water flood risk
- Camden Council, GLA, London Councils & Thames Water to continue to highlight the issue of flood insurance in Camden.

Similarly, it outlines measures to improve flood risk management through development; developments which have been identified as being at risk of surface water flooding must be designed to cope with storm events with a 1% chance of happening in any one year (including an appropriate allowance for climate change). All new basement developments whether domestic or non-domestic to conduct Basement Impact Assessments which consider both groundwater and surface water flooding.

3 Design Standard and Criteria

The development will be designed in accordance with the following documents (where appropriate):

- Building Regulations Approved Document H;
- BS EN 12056: Parts 1-5: Gravity Drainage Systems Inside Buildings;
- BS EN 752: Drain and Sewer Systems outside buildings;
- Sustainable Drainage Systems Design manual for England and Wales (CIRIA);
- Sewers for Adoption A Design and Construction Guide for Developers 8th edition;
- The Local Authorities guidelines, rules and regulations.

Self-cleansing velocity in the foul and surface water drainage networks will be achieved in all instances and flows will generally be kept above 0.75m/s and 1m/s respectively within the pipelines to ensure that self-cleansing velocities are achieved.

To give a long design life, with minimum embodied energy, the buried external pipe work will generally be vitrified clay and cast iron when laid below or casting within or through foundations or the buildings structures.

External chambers will generally be either polypropylene inspection chambers (if less than 1.2m to invert) or pre-cast concrete manholes (deeper than 1.2m to invert and in vehicle access areas), this is subject to availability of space.

Foul drains will generally be DN150 to minimise the risk of blockage while connections from appliances and stacks will generally be DN100 to maintain self-cleansing flows.

4 Site Description

4.1 Existing Site

The site is located at 19 Charterhouse St, London EC1N 6RA (Grid Reference: TQ315816 / TQ3153581686). The site is located on the corner of Charterhouse Street and Farringdon Road, immediately northwest of the new London Museum and southwest of Farringdon Station. The site is 0.1422 ha (hectares) in area.



The site is currently occupied by an office building, with a lower ground level accessible via Saffron Hill and a basement.



Figure 1 Location Plan

4.2 Topography

A topographical survey of the site has been undertaken by Maltby Surveys, in March 2024. The survey indicates that Saffron Hill is at a lower level than Charterhouse Street and Farringdon Street and that levels across the surrounding footways fall away from the building. Road levels have been reviewed and are as follows:

- Saffron Hill falls from north to south, with levels varying from circa 9.7m to 8.0m.
- Farringdon Street falls from south to north, with levels varying from circa 11.8m to 11.5m.
- Charterhouse Street falls from southwest to northeast, with levels varying from circa 12.3m to 11.8m.

The topography survey is included in Appendix B.

4.3 Geology and Hydrology

The British Geological Survey (BGS) website shows the site in an area primarily composed of two geological formations:

London Clay Formation (Bedrock Geology):

- The bedrock geology underlaying the site is primarily comprised of the London Clay Formation (clay, silt and sand). Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.
- London Clay is a well-known geological formation, characterized by its predominantly clayey composition.
- It is known for its low permeability, which generally results in poor infiltration rates for water.



Figure 2 British Geological Survey map – Bedrock Geology

Alluvium (Superficial Deposits):

• The superficial deposits underlaying the site is recorded to be Alluvium (clay, silt, sand and gravel). Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.



Figure 3 British Geological Survey map – Superficial Geology

A ground investigation has not been carried out at the time of writing this report.

The Site is within a Secondary A Aquifer as shown on the London Borough of Camden SFRA Aquifer Designation map.



Figure 4 SFRA Aquifer Designation

4.4 Existing drainage

4.4.1 Thames Water Asset Map

Thames Water Asset Maps (Appendix C) have been acquired and shows that the site is surrounded by the following public combined sewers:

- 1321x762mm combined water sewer in Saffron Hill, running north to south
- 1672x1372mm combined water sewer in Charterhouse Street, running southwest to northeast
- 3048mm diameter combined water sewer in Farringdon Street, running north to south



Figure 5 Thames Water Sewer Records (extract)

4.4.2 CCTV Drainage Survey

A CCTV drainage survey has been undertaken on site by A1 Total Drain Solutions, in March 2024 (Appendix D). The survey has identified 2 outfalls to the combined public sewer in Saffron Road. However, it is unknown whether any other outfall exists from the Site. A further CCTV drainage survey should be undertaken to identify any other connections from the Site to the public sewers.

4.4.3 Existing Surface Water Drainage Runoff

The Site area is covered by an existing building and has an approximate area of 0.14ha. Our understanding is that the surface water generated at the Site is discharging at an unrestricted rate to the combined sewers in the highways. It is likely that the existing building was built before the need to provide restriction on surface water discharge rate and, therefore, the need to provide surface water attenuation. Hence, the drainage system was, likely, designed to accord with Building Regulations.

The existing peak run-off rate has been calculated using the Modified Rational Method in accordance with the following equation:

$$A = 2.78.C.i.A$$

Where C is the run-off coefficient (1.3), A is the catchment area in hectares (0.14 ha) and i is the peak rainfall intensity in mm/hr, which was obtained using FEH rainfall data.

Table 1 summarises the existing peak run-off rate for the Site that enters the sewers for each storm event for a 100% impermeable area.

Return Period	Rainfall Intensity	Existing Peak Run-off Rate
1 in 2 year	29.34 mm/hr	14.84 l/s
1in 30 year	89.76 mm/hr	45.51 l/s
1 in 100 year	119.02 mm/hr	60.22 l/s
1 in 100 year + 40% CC	166.62 mm/hr	84.30 l/s

Table 1 Existing Surface Water Peak Run-off Rates

5 Flood Risk

The Environment Agency (EA) was consulted using their online mapping tools. EA flood map for planning shows the site is located within Flood Zone 1. This zone comprises land assessed as having less than 1 in 1000 annual probability of flooding from fluvial and tidal sources.



Figure 6 – EA Flood Map for Planning

A Flood Risk Assessment (FRA) has been completed by Davies Maguire (Ref. 2352-DMAG-FRA) and indicates the Site flooding risk from all sources, including rivers and the sea, surface water, groundwater, sewers and reservoirs and artificial sources.

6 Proposed Drainage Strategy

Surface and foul water flows from the site will discharge to the public sewer in Saffron Hill. A predevelopment enquiry has been sent to Thames Water to confirm capacity in their network and Thames Water's response can be found in Appendix C. This confirms capacity for both foul and surface water. It should be noted, however, that there has been a change to the blue roofs layout since the pre development enquiry was submitted. Revised drainage calculations have shown that the peak runoff rate for the 1:100 year event + 40% climate change (7.13 l/s) is 1.17l/s higher than the previous runoff rate for which Thames Water confirmed capacity. This should not be a concern however a revised pre planning enquiry has been submitted to Thames Water, but a response is yet due.

Where possible, it is proposed to re-use the existing below ground drainage system as much as practically possible. Surface and foul water systems will be separate within the building, designed in accordance with Building Regulations Part H, and combined in the last manhole within the site prior do discharge to the Thames Water combined sewer in Saffron Hill. It is proposed to re-use the existing private outfalls to the public sewer to avoid works in Saffron Hill, with any remedial works required to be carried out in line with the CCTV below ground drainage report recommendations to ensure optimal operation conditions.

6.1 Proposed Foul Water Drainage

The foul water drainage strategy is based on the unrestricted discharge rate from the development. Foul water generated at the lower ground, ground floor and upper floor levels are proposed to drain by gravity, while foul water drainage generated at basement level will be pumped to the higher-level drainage system, prior to connecting to the public sewer in Saffron Hill.

Gravity connections to the public sewer in Saffron Hill should be provided with a non-return valve to protect against backflow from the public sewer.

The use of pumps at the basement level will incorporate non-return valves, protecting the basement from flooding if/when sewers are surcharged. According to Building Regulations Part H, domestic foul water generated at basement level require a 24-hour foul storage. However, the need for a 24-hour storage may be omitted if the pump system provides:

- Duty/standby pumps
- Alarm system to advise the failure and required maintenance.
- Backup power (generator)

A schematic foul water drainage strategy diagram can be found in Appendix G.

6.2 Proposed Surface Water Drainage

6.2.1 Discharge Location

The proposed surface water strategy follows the hierarchy of surface water disposal as stated in Policy SI 13 of the London Plan and the London Borough of Camden guidance. Surface water should be managed as close to source as possible, and to prioritise green features over grey engineering drainage measures, as well as gravity drainage over pumped systems. Development proposals should be in line with the following drainage hierarchy:

SuDS Technique	Feasibility	Site limitations / Use
Rainwater use as a resource (for example rainwater harvesting, blue	\checkmark	Blue roofs are proposed on most roofs/terraces of the proposed building.
roofs for irrigation		- -
Rainwater infiltration to ground at or	×	Infiltration systems under the building are unsuitable due
close to source		to the inability to maintain the required 5m distance from building.
Rainwater attenuation in green	\checkmark	The catchment areas and the Site area will be attenuated
infrastructure features for gradual		within the Site, in blue roof systems. There is no space in
release (for example green roofs, rain		the development for external green infrastructure given
gardens)		the building occupies the whole site area.
Rainwater discharge direct to a	×	There is no watercourse (except for the culverted River
watercourse (unless not appropriate)		Fleet) in the vicinity of the Site to be able to feasibly
		discharge the surface water to. As such, this is not
		practical and has not been considered.
Controlled rainwater discharge to a	×	There are no surface water sewers in the vicinity of the
surface water sewer or drain		Site. Therefore, it is not feasible to discharge to a surface
		water sewer.
Controlled rainwater discharge to a	\checkmark	Surface water generated within the Site will be discharged
combined sewer		at a restricted rate to the existing public combined water
		sewers.

Table 2 SuDS Hierarchy



6.2.2 SuDS Components

The use of SuDS is intended to provide benefits to the development in four areas: water quantity, water quality, amenity and biodiversity.

The Environment Agency's SuDS hierarchy lists the techniques in the order they are being most sustainable in line with the intent of their SuDS benefits and aims. A hierarchical approach to the drainage strategy has been considered for this development in accordance with the following table, considering the constraints and opportunities to attenuate rainwater within the site.

	SuDS Technique	Feasibility	Site limitations / Use
Most	Living Roofs / Blue Roofs	\checkmark	Blue roofs are proposed. Although not
Sustainable			technically green infrastructure, collect
			and store rainfall at source until it can be
			gradually released (controlled rate) to a
			watercourse/sewer.
A	Basins and Ponds	×	Not feasible. The building footprint
			occupies the entire site area.
	Filter Strips and Swales	×	Not feasible. The building footprint
			occupies the entire site area.
	Infiltration devices	×	Not feasible. The building footprint
	 soakaways, 		occupies the entire site area. Infiltration
	Infiltration trenches		systems under the building is unsuitable
	and basins		due to the inability to maintain the required
			5m distance from buildings.
	Permeable Surfaces and	×	Not feasible. The building footprint
	filter drains		occupies the entire site area.
	• gravelled areas		
+	 solid paving blocks 		
	porous paviors		
	Tanked systems	×	
Least	• over-sized pipes/tanks		Below ground attenuation are not feasible.
Sustainable	• storms cells		

Table 3 SuDS Techniques

6.2.3 Surface Water Runoff Rates

Referring to Greater London Authority Sustainable Design and Construction Supplementary Planning Guidance (SPG) and The London Plan (2021), the preferred option for surface water drainage to development sites is to target greenfield runoff rates.

Hence, the greenfield discharge rate has been reviewed below to assess if it is a practical option.

The greenfield runoff rate correspondent to Site area (0.14ha) has been calculated using the "Greenfield Runoff Estimation Tool" on the HR Wallingford UK SuDS website and is in Appendix E. The Q_{bar} rate calculated for the site is 0.22 l/s. This is an extremely low discharge rate and there are no products in the market that can discharge at such rates without a significant increased risk of blockages.

Whilst the London Plan (2021) aims to target greenfield runoff, the Sustainable Design & Construction Supporting Planning Guidance (2014) states "on previously developed sites, runoff rates should not be more than three times the calculated greenfield rate".



Also, the SuDS Manual Section 24.5 allows for the peak discharge rate of previously developed sites to be calculated by applying the greenfield calculation method using the high soil runoff type (lowest infiltration potential – i.e High SOIL).

	Greenfield	3x Greenfield	SuDS Manual High SOIL	3x Greenfield High SOIL
Q _{bar} (l/s)	0.22	0.66	0.74	2.22
1 in 1 year (l/s)	0.18	0.54	0.63	1.89
1 in 30 years (l/s)	0.50	1.5	1.71	5.13
1 in 100 years (l/s)	0.69	2.07	2.37	7.11

The greenfield run-off rates have been shown on the below table for comparison.

Table 4 Greenfield Runoff Rates for Site Area of 0.14ha

To follow current legislation, the peak run-off rate for previously developed sites, for the 1 in 1 year and the 1 in 100-year rainfall fall events must be as close as reasonably practicable to the greenfield run-off rate for the same rainfall event but should never exceed the rate of discharge from the development prior to the redevelopment.

Blue roofs

Blue roofs will be designed to manage surface water run-off volumes and peak flows to the required rates. Blue roof specialists (ABG) were engaged and provided preliminary calculations based on blue roof build-ups with storage depths of 108mm. It has been calculated that the blue roof systems will give a total peak discharge rate of 7.13 l/s for the 1 in 100year + 40% climate change. A breakdown of depths and run-off rates is included in Table 5.

Roof	Catchment (m²)	Blue Roof System Area (m²)	Maximum attenuation depth (mm)	Restricted Flow (1:100year + 40% cc)	Restricted Flow (1:100year)	Restricted Flow (1:30year)	Restricted Flow (1:2year)
L6 Roof 1	30	28		0.30	0.24	0.20	0.08
L7 Roof 1	32	22		0.34	0.27	0.23	0.08
L7 Roof 2	59	49		0.36	0.28	0.24	0.12
L7 Roof 3	38	29		0.34	0.27	0.23	0.09
L8 Roof 1	96	63		0.51	0.42	0.35	0.18
L8 Roof 2	60	43		0.38	0.30	0.26	0.12
L9 Roof 1	73	51		0.39	0.32	0.27	0.14
L9 Roof 2	60	42	108	0.38	0.30	0.26	0.12
L9 Roof 3	173	137		0.58	0.47	0.40	0.22
L9 Roof 4	34	24		0.34	0.27	0.23	0.09
LMEZ Roof 1	126	85		0.63	0.52	0.44	0.22
L10 Roof 1	348	300		0.89	0.73	0.61	0.35
L10 Roof 2	29	21		0.33	0.26	0.22	0.08
LR Roof 1	172	123		0.72	0.59	0.50	0.26
LR Roof 2	87	49		0.64	0.52	0.44	0.18
			TOTAL	7.13	5.76	4.88	2.33

Table 5 Blue Roof Flow Rates

The reduced run-off from the blue roofs will be achieved using restricted outlets. Blue roof calculations are included within Appendix F.



6.2.4 Proposed Discharge Rates

	Run-o		
Return Period	Existing	Proposed (Blue Roofs)	Betterment
1 in 2 year	14.84 l/s	2.33 l/s	84 %
1 in 30 year	45.51 l/s	4.88 l/s	89 %
1 in 100 year	60.22 l/s	5.76 l/s	90 %
1 in 100 year + 40% CC	84.30 l/s	7.13 l/s	92 %

It is estimated that the proposed surface water discharge rates are as follows:

Table 6 Existing and Proposed Discharge Rates

As noted, the posed SuDS (blue roofs) result in a significant reduction to the peak run-off from the development Site. Greenfield run-off rates are not achievable due to the limitations of the existing building to install a below ground attenuation tank, which would require pumping. However, the blue roofs represent good SuDS features and there has been an improvement from existing on peak flow rates, which are yet lower than 3x greenfield rates for High SOIL.

The surface water drainage system is designed to accommodate the 1:100-year storm event with an increase in peak rainfall intensity of 40% to allow for the predicted effects of climate change. This will ensure that the development does not increase flood risk both on and off site and it is also expected that it will offer a significant improvement over the existing Site and its drainage regime.

Existing and proposed runoff rate calculations have been undertaken using FEH rainfall data for return periods of 2, 30 and 100 years.

A schematic surface water drainage strategy diagram can be found in Appendix G. A full design will still need to be undertaken and co-ordinated with all other aspects of the development prior to any construction to verify that the final scheme does not exceed the parameters set out in this document.

6.3 Sustainability

In accordance with the NPPF and The London Plan, the aim of the SuDS design has been to provide multi-functional benefits with a focus on water quality, biodiversity, amenity as well as reducing the peak run-off.

The inclusion of blue roof systems contributes to SuDS by:

- Interception or rainwater at source
- Reduce volume run-off due to evaporation
- Reduce peak flows (controlled flow rate)
- Provide amenity (by use of space above, i.e inclusion of terraces)

With the use of a blue roof system on all roofs and terraces, it is proposed to reduce existing run-off rates to achieve at least an 84% betterment (1:2-year return event) and a maximum of 92% (1:100-year return event + 40% climate change) on peak run-off rates. Although blue roofs do not have any inherent biodiversity value, the proposed system will intercept rainwater at source, reduce the impact of heavy flows on the receiving water course by reducing peak flows, reduce volume of runoff due to evaporation and provide amenity.

Furthermore, where possible the existing below ground drainage will be reused as well as the existing connections from the Site to the public sewer. This will reduce the extent of new below ground drainage to be installed and promotes sustainability. As forementioned, any remedial works required to the



existing drainage system and outfalls are to be carried out in line with the CCTV below ground drainage report recommendations to ensure optimal operation conditions.

Regarding water quality, the development is considered to have a low pollution hazard level in accordance with the CIRIA SuDS Manual Table 26.2 (Figure 7).

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro- carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ ndustrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
dividual property driveways, sidential car parks, low traffic roads g cul de sacs, homezones and eneral access roads) and non- sidential car parking with infrequent hange (eg schools, offices) ie < 300 affic movements/day	Low	0.5	0.4	0.4
mmercial yard and delivery areas, n-residential car parking with quent change (eg hospitals, retail), all ds except low traffic roads and trunk ds/motorways ¹	Medium	0.7	0.6	0.7
tes with heavy pollution (eg haulage rds, lorry parks, highly frequented rry approaches to industrial estates, aste sites), sites where chemicals and els (other than domestic fuel oil) are be delivered, handled, stored, used manufactured; industrial sites; trunk ads and motorwavs ¹	High	0.8²	0.8²	0.9²

Figure 7 Pollution hazard indices

The blue roof system is provided with clear access openings and should be cleaned and maintained regularly to ensure effective operation in accordance with the SuDS Maintenance Manual in Section 7 and the blue roof specialist maintenance statement in Appendix F.

Additionally, the blue roof system is wrapped in a nonwoven geotextile filter with maintainable/replaceable nonwoven geotextile filter in each restrictor chamber (these sit over each of the rainwater outlets). The pore size of the filter is approx. 120 microns. The void formers utilised in the system are constructed in such a way that they would be expected to trap any remaining sediment as it settles while the water flows laterally to the restrictor chamber.

6.4 Flood Exceedance Management

The drainage system will be designed to contain up to 1 in 100-year storm event plus 40% climate change following current government guidance.

The event of a system failure, a blockage or a storm event that exceeds the worst-case design storm event has been considered in the design. As such, flow outlets at roof levels will be fitted with overflows to bypass the restrictor and rainwater can be alleviated at a higher rate to the public sewer to avoid ponding at roof level. Storm events up to the 1 in 500-year entering the blue roofs will be managed by the overflow/exceedance routes.

7 SuDS Maintenance Manual

Maintenance regimes should be regularly assessed to make sure that the approach is still meeting the drainage, landscape and any other objectives. This may result in changes to the maintenance of a feature or area.

The function of the surface water management system should be understood by those responsible for maintenance.

Any proprietary system should be maintained as per the manufacturer's specifications.

Reference shall be made to CIRIA publication C753 (The SuDS Manual) and to the relevant maintenance guidance from the products manufacturers.

7.1 Pipe work and catchpits

The pipes and the catchpits need to be checked regularly as well. This will need to be done to avoid any debris build-up. Specifications should be consulted to determine what maintenance needs to be conducted and how often this should be done.

7.2 Blue roofs

The blue roof system (geo-cellular crates) is wrapped in a nonwoven geotextile filter with a maintainable/replaceable nonwoven geotextile filter in each restrictor chamber (these sit over each of the rainwater outlets). The pore size of the filter is approximately 120 microns. The void formers used in the system are constructed in such a way that they would be expected to trap any remaining sediment as it settles while the water flows laterally to the restrictor chamber

Geo-cellular crates need to be regularly inspected and maintained to make sure that long-term operation is effective. The recommendations below give some guidance on the types of maintenance that might be appropriate and a suggested frequency. Specific needs of the blue roof system used should be adhered to and the schedule proposed below should be adjusted accordingly.

- 1. Following any significant storm event, the outlets should be visually inspected to ensure no blockage has occurred.
- 2. Following any significant traffic or remedial works that take place on or around the roof, each of the outlets should be visually inspected to ensure all drainage holes are clear and free draining.
- 3. Quarterly each outlet, should be inspected and cleared of any build-up or debris. All leaf litter mainly autumnal visit should be removed from the roof surface. Debris must be removed from the roof and not simply flushed down rainwater pipes.
- 4. 4. Cut back tree limbs that overhang the roof to give at least a 1 metre clearance, this will significantly reduce any risk of any blockage to outlets.
- 5. Inspect/check outlets, overflows and vents annually to make sure they are operating correctly. Repair/rehabilitate as required.

It is also recommended during maintenance visits to visually inspect the waterproofing system at all upstands, to ensure it is firmly adhered to the detail that it is waterproofing.

An indicative maintenance report has been included in Appendix F, provided by ABG Ltd. Once a supplier and product are chosen at the detailed design stage, a specific maintenance schedule should be requested.



8 Conclusions

The proposed development will not increase the existing impermeable area.

The foul water strategy is to discharge foul flows from the lower ground floor and above floors unrestrictedly by gravity to the public sewer reusing the existing connection to the sewer. Flows from the basement will be pumped to high level.

The hierarchy for surface water disposal has been followed to establish the drainage strategy for the site. The building footprint occupies the full extent of the site; therefore, infiltration systems are not feasible and there are no watercourses near the site to feasibly discharge surface water, except for the culverted River Fleet in Farringdon Street. Therefore, it is proposed to continue to discharge flows to the public sewer in Saffron Hill at a restricted rate with prior attenuation within the site.

Rainwater will be attenuated at roof/terrace levels in blue roof systems, to restrict discharge rate to a maximum of 7.13 l/s (1:100 year storm event + 40% climate change), which has been accepted in principle by Thames Water. The use of blue roofs will reduce the existing run-off rates and provide a betterment of at least 84% and up to 92% for the maximum existing run-off rate. The proposed surface water system of the building will discharge to the public sewer via an existing outfall, if possible.

An increase in peak rainfall intensity of 40% to allow for the predicted effects of climate change is considered in the design in line with the current government guidance.

The drainage strategy has been written in accordance with the National Planning Policy Framework (NPPF), the Sustainable Design and Construction Supplementary Planning Guidance (SPG), the London Plan and London borough of Camden local guidance.



Appendix A. Site Layout

Appendix B. Topographical Survey

	181780N S3 120 m	+	181780N 531 1460 E	Tactile Pering 10.00 13.19 CL 13.09 13.34 10 10 10 10 10 10 10 10 10 10 10 10 10
	<u>18</u> 1760N	+	<u>1</u> 81760N	12.26 12.26 12.26 12.27 12.35 12.27 12.35 12.27 12.35 12.26 12.27 12.35 12.27 12.35 12.27 12.35 12.27 12.35 12.27 11.95 12.27 11.95 11
	<u>18</u> 1740N	+	<u>1</u> 81740N	
	<u>18</u> 1720N	+	<u>181720N</u>	+ -
	<u>18</u> 1700N	+	3146 OF 181700N	
	<u>18</u> 1680N	+	+	181680N 31 480 E
	1 <u>8</u> 1660N	+	+	<u>1</u> 81660N
	<u>18</u> 1640N	+	+	<u>1</u> 81640N
	1 <u>8</u> 1620N	+	+	53 181620N
	181600N 53 1420 E	+	+	+ –





Appendix C. Thames Water Asset Map & Pre-Planning Enquiry Response

Asset location search



Davies Maguire 20Flaxman Terrace LONDON WC1H 9AT

Search address supplied

19 Charterhouse Street Charterhouse Street Farringdon Road Farringdon London EC1N 6RA

Your reference	19 Charterhouse Street
Our reference	ALS/ALS Standard/2024_4932812

Search date

12 January 2024

Notification of Price Changes

From 1st April 2023 Thames water Property Searches will be increasing the prices of its CON29DW, CommercialDW Drainage & Water Enquiries and Asset Location Searches. Historically costs would rise in line with RPI but as this currently sits at 14.2%, we are capping it at 10%.

Customers will be emailed with the new prices by January 1st 2023.

Any orders received with a higher payment prior to the 1^{st} April 2023 will be non-refundable. For further details on the price increase please visit our website at <u>www.thameswater-propertysearches.co.uk</u>



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



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



0800 009 4540

Asset location search



Search address supplied: 19 Charterhouse Street, Charterhouse Street, Farringdon Road, Farringdon, London, EC1N 6RA

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

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

Email: <u>searches@thameswater.co.uk</u> Web: <u>www.thameswater-propertysearches.co.uk</u>

Asset location search



Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- 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.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

<u>Thames Water Utilities Ltd</u>, Property Searches, PO Box 3189, Slough SL1 4WW T 0800 009 4540 E <u>searches@thameswater.co.uk</u> I <u>www.thameswater-propertysearches.co.uk</u>





pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- 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.

Payment for this Search

A charge will be added to your suppliers account.





Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water) Thames Water Clearwater Court Vastern Road Reading RG1 8DB

Tel: 0800 009 3921 Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water) Thames Water Clearwater Court Vastern Road Reading RG1 8DB

Tel: 0800 009 3921 Email: developer.services@thameswater.co.uk



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.

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Manhole Reference	Manhole Cover Level	Manhole Invert Level
651F	n/a	n/a
391A 3904	n/a 16-58	n/a n/a
4903	15.27	n/a
491A	n/a	n/a
49BH 3901	n/a 18 31	n/a 61
5902	11.11	n/a
5901	n/a	n/a
691B	n/a	n/a
691D 6905	n/a 15.65	n/a 11 5
6907	16.49	11.99
6901	16.87	14.87
7908	16.77	14
7909	17.51	13.48
7904	17.19	12.45
6704	n/a	n/a
770TA 781D	n/a n/a	n/a n/a
781E	n/a	n/a
581B	111.35	110.53
7812	n/a	n/a n/a
6801B	n/a	n/a
581A	3.52	3.09
6802	n/a	n/a
58AU 7809	n/a n/a	n/a n/a
6804	n/a	n/a
6805	12.09	9.01
681C	n/a	n/a
6801A	тиа 11.82	1va 3.26
58AF	n/a	n/a
4803	n/a	n/a
6806 681 A	14.28 n/2	11.4
691E	n/a	n/a
691A	n/a	n/a
691C	n/a	n/a
6904 781H	13.02 n/a	9.04 n/a
781C	n/a	n/a
7811	n/a	n/a
781B	n/a	n/a
781J 7808	n/a 15.83	n/a 11 73
47FA	n/a	n/a
4602	15.71	n/a
47El 4703	n/a 16 17	n/a 11.66
4707	15.76	11.05
4704	15.93	11.57
471B	12.05	n/a
4/10 471C	n/a 12 05	n/a 11 45
4708	12.8	7.41
5601	7.16	5.37
5606 5603	7.91 12 16	4.4 3.58
5605	11.61	4.6
5701A	11.44	2.55
571C 5780	5.75 n/a	2.65 p/a
5607	11.05	n/a
571A	7.06	2.73
6799	6	2.73
671C 671A	6.65 6.65	2.92 3.57
6602	14.16	n/a
6603	n/a	n/a
6703	n/a	n/a
7703 7601	15.75 15.63	n/a 8 89
2505	n/a	n/a
3602	n/a	n/a
3603	n/a	n/a
2602	19.55	.34 13.85
2603	n/a	n/a
4701	16.23	12.12
4702 4714	16.32 n/a	11.8 n/a
3703	17.33	12.28
4706	16.58	12.02
2707	19.56	14.15
4709 7801	16.61 16.68	12.38 13.06
381B	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level	
381A	n/a	n/a	
38BI	n/a	n/a	
2805	18.77	14.82	
3802	n/a	n/a	
38BH	n/a	n/a	
38BG	n/a	n/a	
3804	17.93	13.24	
3803	17.12	12.69	
3902	16.6	13.59	
4901	n/a	n/a	
4902	15.61	11.51	
7608	17.19	n/a	
7609	17.02	n/a	
7605	n/a	n/a	
5402	n/a	n/a	
5403	n/a	n/a	
3405	17.24	12.97	
641A	n/a	n/a	
5401	9.23	6.13	
541A	n/a	n/a	
4407	16.01	n/a	
541B	n/a	n/a	
n/a	n/a	n/a	
4504	15.37	9.76	
4505	10.44	5.41	
3501	16.32	10.86	
4507	16.59	11.61	
6501	11.27	2.43	
2508	18.04	12.63	
7501	14.03	9.41	
651B	n/a	n/a	
6506	13.49	7.9	
651A	n/a	n/a	
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			
or mains and services must be vermed and established on site before any works are undertaken.			

Thames Water Utilities Ltd, Property Searches, PO Box 3189, Slough SL1 4W, T 0800 009 4540 E searches@thameswater.co.uk I www.thameswater-propertysearches.co.uk



Asset Location Search - Sewer Key



1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plan are metric.

Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
 Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a server 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 009 4540.



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.

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Asset Location Search - Water Key



Operational Sites

Meter



Booster Station

Other Symbols

Data Logger



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

Other V	Vater 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 owner of the pipe displayed along them.	
-	Private Main: Indiales that the water main in question is not owned by Thames Water. These mains normally have text associated with them indiretion the diameter and owner of the nine.	

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 $\pounds 25,000$ 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.



Chantelle Gonçalves

Davies Maguire Ltd 20 Flaxman Terrace London WC1H 9AT Wastewater pre-planning Our ref DS6131879/DTS78424

30 December 2024

Pre-planning enquiry: Confirmation of sufficient capacity

Site Address: 19 Charterhouse Street, London, EC1N 6RA

Dear Chantelle,

Thank you for providing information on your development:

- Existing to be demolished: 7,334 m² of offices.
- Proposed: 13,327 m² of offices, 923 m² of commercial premises.

Foul and surface water to discharge via gravity into the 1372x762mm combined sewer on Saffron Hill. Surface water restricted to 5.96 l/s for 1:100yr+40%CC.

We have completed the assessment of the foul water flows and surface water run-off based on the information submitted in your application with the purpose of assessing sewerage capacity within the existing Thames Water sewer network.

Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the adjacent combined sewer network to serve your development.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

Surface Water

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. Before we can consider your surface water needs, you'll need written approval from the lead local flood authority that you have followed the sequential approach to the disposal of surface water and considered all practical means.

When developing a site, policy SI 13 of the London Plan states "Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:"

The disposal hierarchy being:

- 1) rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- 2) rainwater infiltration to ground at or close to source

3) rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)

- 4) rainwater discharge direct to a watercourse (unless not appropriate)
- 5) controlled rainwater discharge to a surface water sewer or drain
- 6) controlled rainwater discharge to a combined sewer.

Where connection to the public sewerage network is required to manage surface water flows we will accept these flows at a discharge rate in line with CIRIA's best practice guide on SuDS or that stated within the sites planning approval.

If the above surface water hierarchy has been followed and if the flows are restricted to a total of 5.96 l/s for 1:100yr+40%CC, then Thames Water would not have any objections to the proposal.

Please see our <u>FAQ's leaflet</u> for additional information.

Capacity at STW?

The receiving network is served by Becton STW and there isn't a known performance issue which may cause the EA to object to the development.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you have any further questions, please contact us.

Yours sincerely,

Jiahang Yu Adoption Engineer Developer Services
Davies Maguire

Appendix D. CCTV Drainage Survey



Project Description:

Project Project Name:

Project Date:

19_CHARTERHOUSE_STREET WinCan Import in Miraculix WRc4 Standard 14/03/2024





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Section Item 6: G5 > PS1 (G5X)					
Section Item 7: G6 > G4 (G6X)					
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Section Item 9: G8 > G2 (G8X)					
Section Item 10: G9 > PS2 (G9X)					
Section Item 11: G10 > PS2 (G10X)					
Section Item 12: G11 > PS2 (G11X)					
Section Item 13: G12 > PS2 (G12X)					
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Lateral Item 4: FW2 > OUTFALL (FW2Y)					

19_CHARTERHOUSE_STREET

P-1

A1 Total	A1 Total Drain						
SOLUTIO	NS		andrei.apopei@a1tds.co.uk				
	Project In	formation	Braiast Data				
19_CH	ARTERHOUSE_STREET	Project Number	14/03/2024				
Client							
Company: Contact: Department: Street: Town or City: County: Post Code: Phone: Email:	Davies Maguire Garth Foley Design Engineer 20 Flaxman Terrace London London WC1H 9AT 02073889406 gfo@dmag.com		Davies Maguire				
Site							
Company: Contact: Department: Street: Town or City: County: Post Code: Phone: Email:	19 Charterhouse Street Garth Foley Design Engineer 19 Charterhouse Street London London EC1N 6RA 02073889406 gfo@dmag.com						
Contractor							
Company: Contact: Department: Street: Town or City: County: Post Code: Phone: Fax: Mobile: Email:	A1 Total Drain Solutions Andrei Apopei Drainage Hartspring Lane Aldenham Hertfordshire WD25 8AQ 020 8424 7999 020 8424 7998 0779 2340 054 andrei.apopei@a1tds.co.uk						



Project Information

Project Name 19_CHARTERHOUSE_STREET Project Number

Project Date 14/03/2024

Project Notes

A1 TDS attended site 19 Charterhouse Street, London, to carry out a drainage survey of the existing pipes.

The existing pipes are in a generally good structural condition with attached deposits of rust specific to old cast iron pipes.

One of the manholes could not be open without damaging the covers.

It is recommended that the seized covers are replaced for maintenance purposes and the remaining pipes are surveyed.





Unable to lift cover lids (1)



Unable to lift cover lids (3)



Unable to lift cover lids (5)



Project Pictures

Project Number

Project Date 14/03/2024



Unable to lift cover lids (2)



Unable to lift cover lids (4)



(A1	Total Drain		A1 Iotal Drain Solutions Hartspring Lane, Aldenharr Tel. 020 8424 7999						
	Defect Grade Des Project Name 19_CHARTERHOUSE_STREET	Scription (Section) Project Number	Project Date 14/03/2024						
1:	Brick: Minor structural defects. Other: Minor structural defects, i.e. open or	displaced joints without additiona	al characteristics.						
	Acceptable structural condition.								
2:	Brick: Circumferential cracking. Single longitudinal crack. Surface mortar loss (depth missing < 15 mm). Surface damage - spalling slight (breaking away of small fragments from the surface). Surface damage - wear slight (increased roughness).								
	Other: Circumferential cracking. Surface dan the surface). Surface damage - wear slight (mage - spalling slight (breaking a increased roughness).	away of small fragments from						
	Minimal collapse likelihood in the sho	ort term but potential for fur	ther deterioration.						
3:	Brick: Total mortar loss (depth missing > 50 mm) without other defects. More than one longitudinal crack (at a single location). Multiple cracking. Single bricks displaced. Deformation < 5%, no fracture and only moderate mortar loss. Surface damage - spalling medium (large areas of chipped brick). Surface damage - wear medium (entire surface of brick is missing).								
	Other: Fracture with no deformation or deformation < 5%. Longitudinal cracking or multiple cracking. Minor loss of level. Severe joint defects i.e. Surface damage - spalling medium. Surface damage - wear medium.								
	Collapse unlikely in the near future but further deterioration likely								
4:	Brick: Total mortar loss (depth missing > 50mm) with deformation > 10%; deformation up to 10% and fractured; displaced or hanging brickwork; small number of missing bricks; dropped invert (drop > 20mm); moderate loss of level; surface damage - large spalling (entire surface of brick is missing); surface damage - large wear (entire surface of brick is missing).								
	Other: Broken; deformation up to 10% and b serious loss of level; serious joint defects wi visible or joint displacement > 25% of diame severly worn.	oroken; fracture with deformation th voids or soil visible (open joint tter); surface damage - entire are	5-10%; multiple fractures; t with > 50mm soil or void a of pipe surface is missing or						
	Collapse likely in the foreseeable futu	ire							
5:	Brick: Already collapsed; missing Invert; def and deformation < 10%; extensive areas of	ormation > 10% and fractured; d missing brickwork.	isplaced or hanging brickwork						
	Other: Already collapsed; deformation > 10% with deformation > 10%	% and broken; extensive areas o	f pipe fabric missing; fractures						
	Collapsed or collapse imminent								

A1 Total Drain Solutions Hartspring Lane, Aldenham Tel. 020 8424 7999

	101. 020	042 4 7 0 0 0
andrei.a	apopei@a	1tds.co.uk

A1	Total Drain		A1 Iotal Drain Solutions Hartspring Lane, Aldenham Tel. 020 8424 7999 andrei apopei@a1tds.co.uk						
	Defect Grade	Description (Lateral)							
	Project Name 19_CHARTERHOUSE_STREET	Project Number	Project Date 14/03/2024						
1:	Brick: Minor structural defects.								
	Other: Minor structural defects, i.e. op	en or displaced joints without addition	al characteristics.						
	Acceptable structural condition.								
2:	Brick: Circumferential cracking. Single longitudinal crack. Surface mortar loss (depth missing < 15 mm). Surface damage - spalling slight (breaking away of small fragments from the surface). Surface damage - wear slight (increased roughness).								
	Other: Circumferential cracking. Surfact the surface). Surface damage - wear s	ce damage - spalling slight (breaking slight (increased roughness).	away of small fragments from						
	Minimal collapse likelihood in the	e short term but potential for fu	ther deterioration.						
3:	Brick: Total mortar loss (depth missing > 50 mm) without other defects. More than one longitudinal crack (at a single location). Multiple cracking. Single bricks displaced. Deformation < 5%, no fracture and only moderate mortar loss. Surface damage - spalling medium (large areas of chipped brick). Surface damage - wear medium (entire surface of brick is missing).								
	Other: Fracture with no deformation or deformation < 5%. Longitudinal cracking or multiple cracking. Minor loss of level. Severe joint defects i.e. Surface damage - spalling medium. Surface damage - wear medium.								
	Collapse unlikely in the near future but further deterioration likely								
4:	Brick: Total mortar loss (depth missing > 50mm) with deformation > 10%; deformation up to 10% and fractured; displaced or hanging brickwork; small number of missing bricks; dropped invert (drop > 20mm); moderate loss of level; surface damage - large spalling (entire surface of brick is missing); surface damage - large wear (entire surface of brick is missing).								
	Other: Broken; deformation up to 10% and broken; fracture with deformation 5-10%; multiple fractures; serious loss of level; serious joint defects with voids or soil visible (open joint with > 50mm soil or void visible or joint displacement > 25% of diameter); surface damage - entire area of pipe surface is missing or severly worn.								
	Collapse likely in the foreseeable	e future							
5:	Brick: Already collapsed; missing Inve and deformation < 10%; extensive are	rt; deformation > 10% and fractured; as of missing brickwork.	displaced or hanging brickwork						
	Other: Already collapsed; deformation with deformation > 10%	> 10% and broken; extensive areas	of pipe fabric missing; fractures						
	Collapsed or collapse imminent								

A1 Total Drain Solutions

Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk

Section Profile

Project Name 19_CHARTERHOUSE_STREET Project Number

Project Date 14/03/2024

Circular, 100 mm

A1 Total Drain

ltem No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
5	G4	PS1	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	0.30 m	0.30 m
6	G5	PS1	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	8.74 m	8.74 m
7	G6	G4	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	1.14 m	1.14 m
8	G7	G2	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	1.48 m	1.48 m
9	G8	G2	12/03/2024	CHARTERHOUSE STREET	ARTERHOUSE STREET Cast iron		3.46 m
10	G9	PS2	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	25.95 m	25.95 m
11	G10	PS2	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	4.67 m	4.67 m
12	G11	PS2	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	9.50 m	9.50 m
14	G13	PS3	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	0.19 m	0.19 m
17	G15	FW2	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	4.29 m	4.29 m
18	FW2A	FW2	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	12.01 m	12.01 m
19	G16	FW2A	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	1.79 m	1.79 m
20	G17	FW2	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	10.03 m	10.03 m
22	G19	FW2	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	1.79 m	1.79 m

Total: 14 Inspections x Circular 100 mm, 0 mm = 85.36 m Total Length and 85.36 m Inspected Length

Circular, 150 mm

ltem No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length			
2	G1	FW1	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	9.16 m	9.16 m			
3	G2	FW1	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	1.25 m	1.25 m			
4	G3	FW1	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	5.05 m	5.05 m			
13	G12	PS2	11/03/2024	CHARTERHOUSE STREET	Grey cast iron	0.38 m	0.38 m			
21	G18	FW2	12/03/2024	CHARTERHOUSE STREET	Grey cast iron	5.05 m	5.05 m			

Total: 5 Inspections x Circular 150 mm, 0 mm = 20.90 m Total Length and 20.90 m Inspected Length Total: 19 Inspections = 106.26 m Total Length and 106.26 m Inspected Length

A1	Total Drain	
	SOLUTIONS	/

Project Name 19_CHARTERHOUSE_STREET Project Number

Project Date 14/03/2024

Total: 0 Laterals = 0.00 m Total Length and 0.00 m Inspected Length

			-	Section	on Insp	ection	- 12/03/2	2024 -	G1X		i.upoper eu l	103.00.04
Item No.	Insp. No.	Da	ite	Time	Client`s	Job Ref	Weather	er	Pre Clear	ned	PLR	<u>,</u>
∠ Oper	ator	12/0	Veh	icle	Camera		Preset Length Legal S		Legal Sta	tatus Alternati		ve ID
Lo	rin	1	Vot Sp	ecified	Scan	probe	Not Spec	ified	Private Dr	ain	Not Spee	cified
Town or Vi	llage:	Lond	on		Inspection	Direction:	Upstream	l	Jpstream Noc	le:	G1	
Road:	-	Chart	erhous	se Street	Inspected	Length:	9.16 m	ı	Jpstream Pipe	e Depth:	0.000 m	
Location:		Under	a perma	anent building	Total Leng	th:	9.16 m	ſ	Downstream N	lode:	FW1	
Surface Ty	pe:				Joint Leng	th:		ſ	Downstream F	Pipe Depth	n: 0.000 m	
Use:		Foul					Pipe Shape:	(Circular			
Type of Pip	e:	Gravi	ty drai	n/sewer			Dia/Height:		150 mm			
Flow Contr	ol:	No flo	ow con	trol			Pipe Material	: (Grey cast iron			
Year Const	ructed:	Not S	pecifie	ed			Lining Type:	I	No Lining			
Inspection	Purpose:	Samp	le sur	vey to dete	rmine asset	condition	Lining Materi	al:	No Lining			
Comments Recommer	: idations:											
Scale:	1:80 P	osition	[m]	Code	Observa	tion				MPEG	Photo	Grade
Dep FV	th: 0.00 m V1											
		0.00		IC	Start nod	e, inspectior	n chamber, refe	rence: FW	1	00:00:00	G1X_cd92 9f2a-8bcd- 44ce-bed6	
	$\mathbb{N} \mathbb{N}$	0.00		WL	Water lev	el, 5% of the	e vertical dimen	ision		00:00:01		
		0.08	S01	SCP	Surface o o'clock, s	lamage, corr tart: rust	rosion products	from 12 o'	clock to 12	00:00:06	G1X_ccdd e4b8-ca3d -40e4-a16	
		0.15		SC	Size char	nges, new siz	ze(s), 100mm h	ligh		00:00:07		
	$ \rangle \rangle$	0.46		LL	Line devi	ates left				00:00:12		
1		2.32	F01	SCP	Surface c o'clock, fi	lamage, corr nish: rust	rosion products	from 12 o'	clock to 12	00:00:25	G1X_0d4d 1348-9d12 -48ac-9c0	2
G Dep	1 th: 0.00 m	9.16		GYF	Finish no	de, gully, ref	erence: G1			00:01:20		
STR No. Do	ef STR P	Peak	STR I	Mean S	FR Total	STR Grade	SER No. Def	SER Pea 0.0	ak SER Mea	an SER	Total SE	R Grade

19_CHARTERHOUSE_STREET

A1 Total Drain





G1X_0d4d1348-9d12-48ac-9c04-da5c2d59dba1_20240314_0 83005_121.jpg, 00:00:25, 2.32 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish, rust

	Section Inspection - 11/03/2024 - G2X											
Item No. Insp. No. Date Time 3 3 11/03/24 10:56		Time 10:56	Client`s Job RefWeather01No Rain Or Snow		Pre Clear	ned	PLR G2X					
Oper	ator	Veh	icle	Camera	Preset Length	Legal Sta	tus	Alternati	ve ID			
Lo	rin	Not Sp	ecified	Scanprobe	Not Specified	Private Dr	rain	Not Spec	cified			
Town or Vi	llage:	London		Inspection Direction:	Upstream	Upstream Noc	le:	G2				
Road:	U	Charterhou	se Street	Inspected Length:	1.25 m	Upstream Pip	e Depth:	0.000 m				
Location:		Under a perm	anent building	Total Length:	1.25 m	Downstream I	Node:	FW1				
Surface Tv	pe:			Joint Length:	-	Downstream F	Pipe Dept	1: 0.000 m				
Use:		Combined		3	Pipe Shape:	Circular	-pp-					
Type of Pig	be:	Gravitv drai	n/sewer		Dia/Height:	150 mm						
Flow Contr	ol:	No flow con	trol		Pipe Material:	Grey cast iron						
Year Const	tructed:	Not Specifie	ed		Lining Type:	No Lining						
Inspection	Purpose	: Sample sur	vev to deter	mine asset condition	Lining Material:	No Lining						
Comments	: .	•			0							
Recommer	ndations	:										
Scale:	1:50	Position [m]	Code	Observation			MPEG	Photo	Grade			
Dep FV	th: 0.00 V1	m										
	\leftarrow	0.00	IC	Start node, inspection	n chamber, reference: F	W1	00:00:01					
		0.00	WL	Water level, 5% of the	e vertical dimension		00:00:01					
	$\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i$	0.19	SC	Size changes, new si	ze(s), 100mm high		00:00:08					
	211	0.19	SCP	Surface damage, corr o'clock: rust	rosion products from 12	o'clock to 12	00:00:08	G2X_2c3c 6d0d-94d4 -48ad-a8a	2			
G	2	0.61	LL	Line deviates left			00:00:12					
		0.76	LU	Line deviates up			00:00:14					
_		1.25	GYF	Finish node, gully, ref	erence: G2		00:00:22					
Dep												

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	20.0	15.9	20.0	2.0	0	0.0	0.0	0.0	1.0

19_CHARTERHOUSE_STREET

A1 Total Drain OLUTION:





G2X_2c3c6d0d-94d4-48ad-a8a1-30fb1e76f51e_20240314_08 3125_845.jpg, 00:00:08, 0.19 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust

A1 Total Drain Solutions

Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk



19_CHARTERHOUSE_STREET

Total Drain



FW1 <<< G3 150 mm Circular (C) 0.49m

G3X_45320adb-739e-4579-869e-f48f43425c7d_20240314_08 3708_145.jpg, 00:00:09, 0.49 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, start, rust

G3X_1253a060-a5e9-42cf-9e0a-2620a4f6fd35_20240314_08 3723_114.jpg, 00:00:29, 4.26 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish, rust

4.26m

FW1 <<< G3 150 mm Circular (C)

			Sectio	on Inspection	- 11/03/2024	- G4X			
Item No.	Insp. No	. Date	Time 11:26	Client`s Job Ref	Weather No Rain Or Snow	Pre Cleaned		PLR G4X	
Оре	erator	Veh	icle	Camera	Preset Length	Legal Status		Alternati	ve ID
Lo	orin	Not Sp	ecified	Scanprobe	Not Specified	Private Drain		Not Spec	ified
Town or V	/illage:	London		Inspection Direction:	Upstream	Upstream Node:		G4	
Road:	•	Charterhous	se Street	Inspected Length:	0.30 m	Upstream Pipe De	epth:	0.000 m	
Location:		Under a perm	anent building	Total Length:	0.30 m	Downstream Nod	e:	PS1	
Surface T	ype:		-	Joint Length:		Downstream Pipe	Depth	1: 0.000 m	
Use:		Surface wat	ter	•	Pipe Shape:	Circular			
Type of Pi	ipe:	Gravity drai	n/sewer		Dia/Height:	100 mm			
Flow Cont	trol:	No flow con	trol		Pipe Material:	Grey cast iron			
Year Cons	structed:	Not Specifie	ed		Lining Type:	No Lining			
Inspection	n Purpose:	Sample sur	vey to deter	mine asset condition	Lining Material:	No Lining			
Comment	s:				1				
Recomme	endations:								
Scale:	1:50 F	osition [m]	Code	Observation		М	PEG	Photo	Grade
De P	pth: 0.00 m PS1	I							
		0.00	OC	Start node, other spece SURFACE WATER P	cial chamber, reference S	: PS1: 00:	00:04	G4X_55d4 1737-d19d -4f23-9601	
	\sum	0.00	WL	Water level, 5% of the	e vertical dimension	00:	00:12		
	G4	0.30	GYF	Finish node, gully, ref	erence: G4	00:	00:20		
De	pth: 0.00 m	1							

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

A1 Total Drain SOLUTIONS



A1 Total Drain Solutions

Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk



19_CHARTERHOUSE_STREET

Total Drain





G5X_6594ff58-c8d0-4b1c-a4c2-c6b85e141af2_20240314_08 4652_165.jpg, 00:01:12, 8.74 m Finish node, gully, reference: G5, PIPE NOT IN USE

			Sectio	on Inspection	- 11/03/2024	- G6X			
Item No. 7 Oper	Insp. No. 8 rator	Date 11/03/24 Veh	Time 11:32 icle	Client's Job Ref 01 Camera	Weather No Rain Or Snow Preset Length Not Specified	Pre Cleaned No Legal Status Private Drain		PLR G6X Alternati	ve ID
Town or Vi	llage:	London		Inspection Direction:	Upstream	Upstream Node:		G6	
Road: Location: Surface Ty	pe:	Charterhou: Under a perm	se Street anent building	Inspected Length: Total Length: Joint Length:	1.14 m 1.14 m	Upstream Pipe De Downstream Node Downstream Pipe	pth: e: Deptl	0.000 m G4 h: 0.000 m	
Use: Type of Pip Flow Contr Year Const Inspection Comments	oe: ol: tructed: Purpose: :	Surface wat Gravity drai No flow con Not Specifie Sample sur	ter n/sewer trol ed vey to deter	mine asset condition	Pipe Shape: Dia/Height: Pipe Material: Lining Type: Lining Material:	Circular 100mm Grey cast iron No Lining No Lining			
Recommer	ndations:	sition [m]	Code	Observation		MF	PFG	Photo	Grade
Dep	th: 0.00 m 4	0.00 0.04 0.23	GY WL SCP GYF	Start node, gully, refer Water level, 5% of the Surface damage, corr o'clock: rust Finish node, gully, refe	rence: G4 e vertical dimension osion products from 12 erence: G6	00:0 00:0 0'clock to 12 00:0 00:0	00:03 00:03 00:10	G6X_db21 4e98-e105 -44f4-bca0 G6X_c329 8f4c-0d94- 4f17-88fb-	2
G Dep	6 th: 0.00 m	1.14		i mar node, guiy, rei					

STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade 20.0 17.5 20.0 2.0 0 0.0 0.0 0.0 1.0 1

A1 Total Drain



			Sectio	on Inspection	- 11/03/2024	- G7X		
Item No.	Insp. No	. Date	Time	Client's Job Ref	Weather	Pre Cleaned	PLF	र
8	9	11/03/24	11:39	01	No Rain Or Snow	No	G7)	<
Ope	rator	Veh	icle	Camera	Preset Length	Legal Status	Alternat	ive ID
Lo	orin	Not Sp	ecified	Scanprobe	Not Specified	Private Drain	Not Spe	cified
Town or Vi	illage:	London		Inspection Direction:	Upstream	Upstream Node:	G7	
Road:		Charterhou	se Street	Inspected Length:	1.48 m	Upstream Pipe Depth:	0.000 m	
Location:		Under a perm	anent building	Total Length:	1.48 m	Downstream Node:	G2	
Surface Ty	/pe:			Joint Length:		Downstream Pipe Dep	th: 0.000 m	
Use:		Surface wa	ter		Pipe Shape:	Circular		
Type of Pip	pe:	Gravity drai	n/sewer		Dia/Height:	100 mm		
Flow Cont	rol:	No flow cor	trol		Pipe Material:	Grey cast iron		
Year Cons	tructed:	Not Specifie	ed		Lining Type:	No Lining		
Inspection	Purpose:	Sample sur	vey to deter	mine asset condition	Lining Material:	No Lining		
Comments Recommen	s: ndations:							
Scale:	1:50 F	osition [m]	Code	Observation		MPEG	Photo	Grade
Dep	oth: 0.00 m	1						
G	52							
		0.00	GY	Start node, gully, refe	rence: G2	00:00:02	2	
•		0.00	WL	Water level, 5% of the	e vertical dimension	00:00:02	2	
۲.		1.14	SCP	Surface damage, corr o'clock: rust	rosion products from 12	o'clock to 12 00:00:15	5 G7X_b453 e101-1ac8 -4560-a09f	2
		1.18	LL	Line deviates left		00:00:15	5	
G	67	1.48	GYF	Finish node, gully, ref	erence: G7	00:00:25	5	

Depth: 0.00 m

A1 Total Drain OLUTIONS

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	20.0	13.5	20.0	2.0	0	0.0	0.0	0.0	1.0





G7X_b453e101-1ac8-4560-a09f-3b2f80ce0565_20240314_09 3823_988.jpg, 00:00:15, 1.14 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust

			Sectio	on Ins	pection	- 12/03/	2024	- G8X			
Item No.	Insp. No.	Date	Time	Client	S Job Ref	Weath	er Snow	Pre Cle	eaned	P	
Oper Lo	rator rin	Veh Not Sp	icle ecified	C: Sca	amera anprobe	Preset Le Not Spec	ength ified	Legal S Private	Status Drain	Altern Not S	ative ID pecified
Town or Vi Road:	llage:	London Charterhous	se Street	Inspection	on Direction: d Length:	Upstream 3.46 m		Upstream N Upstream P	lode: ipe Depth:	G8 0.000	m
Location.		Under a perm	anent building	Total Lei	ath.	3 46 m		Downstream	n Node	G2	
Surface Tv	ne.	ender a penn	anon bunang	Joint Lei	nath:	0110111		Downstream	n Pine Dent	h 0 000	m
Use:		Surface wat	er		.g	Pipe Shape:		Circular			
Type of Pir	ne.	Gravity drai	n/sewer			Dia/Height:		100 mm			
Flow Contr	ol.	No flow con	trol			Pipe Material	-	Cast iron			
Year Const	tructed.	Not Specifie	ed .			l ining Type		No Lining			
Inspection	Purnose	Sample sur	vev to deter	mine asse	t condition	Lining Materi	ial·	No Lining			
Comments		Campic Sur			Condition	Linnig Mater	ιαι.				
Recommer	ndations:										
Scale:	1:50 Po	osition [m]	Code	Observ	ation				MPEG	Photo	Grade
G	2	0.00	GY WL	Start no Water le	de, gully, refe	rence: G2 e vertical dimer	nsion		00:00:00		
†											
-		2.24	SCP	Surface o'clock:	damage, corr rust	osion products	from 12 o	o'clock to 12	00:00:23	G8X_83 88b8-ce -4d3a-b8	a0 2 63 8c
		2.39	LL	Line de	viates left				00:00:24		
		3.15	SCP	Surface o'clock:	damage, corr rust	osion products	from 12 o	o'clock to 12	00:00:30	G8X_d0 7cb3-b3 -4035-a	80 2 8c :9
	\bigcirc	3.31	LR	Line de	viates right				00:00:32		
G	8	3.46	GYF	Finish r	ode, gully, ref	erence: G8: A0	CO CHAN	NEL	00:00:39		
Dep	tn: 0.00 m										
									leen 075		
2 2 SIK NO. De	20.0	еак SIRI) 11	nean ST .6	K I Otal 40.0	2.0	DER NO. Det	5ER Pe 0.0	зак SER N 0.0	nean SEF	x i otal	JER Grade

19_CHARTERHOUSE_STREET

A1 Total Drain





G8X_83a088b8-ce63-4d3a-b8c8-9b50ea16ae07_20240314_0 94508_379.jpg, 00:00:23, 2.24 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust



G8X_d0807cb3-b38c-4035-ac9b-d24c8175ca0c_20240314_0 94533_498.jpg, 00:00:30, 3.15 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust

	Section Inspection - 11/03/2024 - G9X											
Item No.	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Clear	ned	PLR				
10	11	11/03/24	12:16	01	No Rain Or Snow	No		G9X				
Oper	rator	Ve	hicle	Camera	Preset Length	Legal Sta	itus	Alternati	ve ID			
LO	rin	Not S	pecified	Scanprobe	Not Specified	Private D	rain	Not Spec	cified			
Town or Vi	llage:	London		Inspection Direction:	Upstream	Upstream No	de:	G9				
Road:		Charterho	use Street	Inspected Length:	25.95 m	Upstream Pip	e Depth:	0.000 m				
Location:		Under a perr	nanent building	Total Length:	25.95 m	Downstream I	Node:	PS2				
Surface Ty	pe:			Joint Length:		Downstream	Pipe Dept	h: 0.000 m				
Use:		Foul			Pipe Shape:	Circular						
Type of Pip	be:	Gravity dra	ain/sewer		Dia/Height:	100 mm						
Flow Contr	rol:	No flow co	ntrol		Pipe Material:	Grey cast iron						
Year Const	tructed:	Not Specif	ied		Lining Type:	No Lining						
Inspection	Purpose:	Sample su	rvey to deter	mine asset condition	Lining Material:	No Lining						
Comments	:											
Recommer	ndations:											
Scale: 1	:173 Po	sition [m]	Code	Observation			MPEG	Photo	Grade			
Dem	44.000											
P	52	0.00	OC	Start node, other spec PUMPING STATION	cial chamber, reference:	PS2:	00:00:02	G9X_3ddb 165c-6889				
	\swarrow	0.00	WL	Water level, 5% of the	e vertical dimension		00:00:10	-4550-0000				
		0.08	SCP	Surface damage, corr o'clock: rust	rosion products from 12	o'clock to 12	00:00:14	G9X_bbf6 6fca-f3a6-	2			
		<u>1.94</u> S03	B DEZ	Attached deposits, oth cross-sectional area le	ner from 12 o'clock to 12 oss, start: rust	2 o'clock, 5%	00:00:20	431e-9a01 G9X_c87e bb54-ef2c- 4d79-8511				
		<u>5.40</u> F03	B DEZ	Attached deposits, oth cross-sectional area	ner from 12 o'clock to 12 oss, finish: rust	2 o'clock, 5%			2			
		5.40	MCCI	Material changes to c	ast iron		00:00:41					
	$\mathbb{N} \setminus \mathbb{A}$	5.40	JN	Junction at 1 o'clock,	diameter: 100mm		00:00:43					
T		5.74	SCP	Surface damage, corr o'clock: rust	osion products from 12	o'clock to 12	00:00:45	G9X_8e35 82c3-deff- 42cc-8898	2			
		<u>6.31</u> S01	SCP	Surface damage, corr o'clock, start: rust	osion products from 3 o	'clock to 9	00:00:49	G9X_4338 3c32-8394 -47ce-9e7				
		<u>7.68</u> S02	2 DEZ	Attached deposits, oth cross-sectional area le	ner from 3 o'clock to 9 o' oss, start: rust	'clock, 5%	00:00:55	G9X_ec86 1d1f-6ea2- 4040-ae0e				
		13.98	JN	Junction at 3 o'clock,	diameter: 100mm		00:01:33					
		14.14	DEZ	Attached deposits, oth cross-sectional area le	ner from 12 o'clock to 12 oss: rust	2 o'clock, 15%	00:01:38	G9X_8ba8 ea85-0c82 -4a51-9dc	3			
		14.40	JN	Junction at 10 o'clock	, diameter: 100mm		00:01:44					
83	- [.	<u>14.82</u> F02	DEZ	Attached deposits, oth cross-sectional area	ner from 3 o'clock to 9 o' oss, finish: rust	'clock, 5%	00:01:48	G9X_1836 089f-fa55- 4f23-86d8-	2			
	\.	19.72	JN	Junction at 9 o'clock,	diameter: 100mm		00:02:24					

A1 Total Drain

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			Section	on Ins	spectior	n - 11/03/	2024 - G	69X		
Item No. In	nsp. No.	Date	Time	Client	t`s Job Ref	Weath	er	Pre Cleaned		PLR
Operate	or	Veh	icle	с	amera	Preset Le	ngth	Legal Status	Alte	rnative ID
Lorin		Not Sp	ecified	Sc	anprobe	Not Spec	ified	Private Drain	Not	Specified
Scale: 1:17	73 Pos	sition [m] 0.22_	Code JN	Observ Junctio	/ation n at 9 o'clock,	diameter: 100n	ım	M I 00:	PEG Phot 02:28	o Grade
t	20	0.63 F01	SCP	Surface o'clock	e damage, cor , finish: rust	rosion products	from 3 o'clock	to 9 00:	02:31	2
69	25	5.95	GYF	Finish ı	node, gully, re	ference: G9		00:	03:16	
Depth:	0.00 m									
STR No. Def	STR Per	ak STR I	Vean ST	R Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	20.0	13	.1	340.0	2.0	3	3.0	0.5	14.0	3.0

A1 Total Drain

	Drain		A	Hartspring Lane, Aldenham Tel. 020 8424 7999 andrei.apopei@a1tds.co.uk
	Section Pict	ures - 11/03	/2024 - G9X	
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref



G9X_3ddb165c-6889-455c-bccc-03b02a745db1_20240315_1 22105.jpg, 00:00:02, 0.00 m Start node, other special chamber, reference: PS2, PUMPING STATION



G9X_298c2a89-c7d5-4b55-a21e-bca4e45f0cc7_20240315_12 2112.jpg, 00:00:02, 0.00 m Start node, other special chamber, reference: PS2, PUMPING STATION



G9X_bbf66fca-f3a6-431e-9a01-8af7f25f75ff_20240314_11061 2_365.jpg, 00:00:14, 0.08 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust



G9X_c87ebb54-ef2c-4d79-8511-708484e769f9_20240321_09 3238_249.jpg, 00:00:20, 1.94 m Attached deposits, other from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, start, rust





G9X_8e3582c3-deff-42cc-8898-58a5fccdcbdd_20240314_110 730_871.jpg, 00:00:45, 5.74 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust



G9X_43383c32-8394-47ce-9e7b-188e0f4e54ac_20240314_1 12414_050.jpg, 00:00:49, 6.31 m Surface damage, corrosion products from 3 o'clock to 9 o'clock, start, rust



G9X_ec861d1f-6ea2-4040-ae0e-7495884a3066_20240314_1 13418_970.jpg, 00:00:55, 7.68 m Attached deposits, other from 3 o'clock to 9 o'clock, 5% cross-sectional area loss, start, rust



G9X_8ba8ea85-0c82-4a51-9dce-dd1f8d41a8f3_20240314_11 2845_495.jpg, 00:01:38, 14.14 m Attached deposits, other from 12 o'clock to 12 o'clock, 15% cross-sectional area loss, rust





G9X_1836089f-fa55-4f23-86d8-3ead5427c59d_20240314_11 3444_049.jpg, 00:01:48, 14.82 m Attached deposits, other from 3 o'clock to 9 o'clock, 5% cross-sectional area loss, finish, rust

			Sectio	n Insp	pection	- 12/03/2	2024 -	G10X			
Item No.	Insp. No.	Date	Time	Client	s Job Ref	Weath	er	Pre Clear	ned	PL	.R
11	12	12/03/24	16:11		01	No Rain Or	Snow	No		G1	0X
Oper Lo	rator rin	Vehi Not Spe	i cle ecified	Ca Sca	amera Inprobe	Preset Le Not Spec	ngth ified	Legal Sta Private Dr	tus rain	Alterna Not Sp	t ive ID ecified
Town or Vi	llage:	London		Inspectio	on Direction:	Upstream		Upstream Noc	le:	G10	
Road:	•	Charterhous	se Street	Inspecte	d Length:	4.67 m		Upstream Pip	e Depth:	0.000 m	1
Location.		Under a perma	anent building	Total Ler	ath.	4 67 m		Downstream I	Node.	PS2	
Surface Tv	no:	ender a perm	anone bananig		ath:	1.07 111		Downstream I	lina Danti	• 0.000 m	1
Uso:	pe.	Surface wat	or	John Lei	igin.	Dino Shano:		Circular	ipe Depti	I. 0.000 II	
USC.						Die/Height:					
Type of Pip		Gravity drain	i/sewer			Dia/Height:					
Flow Contr								Grey cast from			
Year Const	ructed:	Not Specifie	d			Lining Type:		No Lining			
Inspection	Purpose:	Sample surv	vey to deter	mine asse	t condition	Lining Materi	al:	No Lining			
Comments Recommer	: ndations:										
Scale:	1:50 Po	osition [m]	Code	Observ	ation				MPEG	Photo	Grade
Dep PS	th: 0.00 m	0.00 0.00 0.04 0.19	OC WL SCP LL	Start no PUMPII Water la Surface o'clock: Line dev	de, other spec NG ST evel, 5% of the damage, corr rust viates left	cial chamber, re	eference: I Ision from 12 c	PS2: o'clock to 12	00:00:00 00:00:08 00:00:13 00:00:14	G10X_b4a b0cd9-77 9-4ed6-9e	a 2 e
		<u>3.15</u> 4.67	DEZ	Attache cross-se	d deposits, oti ectional area le ode, gully, ref	ner from 4 o'clo oss: rust erence: G10	ck to 9 o'c	slock, 10%	00:00:30	G10X_a1: f95ad-a36 9-429d-92	3 3 5 2
Gf	10 th: 0.00 m										
STR No. De	ef STR Pe	eak STR M	lean ST	R Total	STR Grade	SER No. Def	SER Pe	ak SER Me	an SER	Total S	ER Grade
1	20.0	4.	3	20.0	2.0	1	2.0	0.4	1	2.0	3.0

19_CHARTERHOUSE_STREET

A1 Total Drain UTIONS





G10X_b4ab0cd9-77e9-4ed6-9eaa-721a4bf0d418_20240314_ 114651_698.jpg, 00:00:13, 0.04 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, rust



G10X_a13f95ad-a369-429d-922a-e6cce53b631a_20240314_ 114259_751.jpg, 00:00:30, 3.15 m Attached deposits, other from 4 o'clock to 9 o'clock, 10% cross-sectional area loss, rust

A1 Total Drain Solutions

Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk



19_CHARTERHOUSE_STREET

Total Drain

			Sectio	n Inspection	- 11/03/2024	- G12X			
Item No. 13 Ope	Insp. No. 15 rator prin	Date 11/03/24 Veh Not Sp	Time 12:31 icle ecified	Client`s Job Ref 01 Camera Scanprobe	Weather No Rain Or Snow Preset Length Not Specified	Pre Clean No Legal Sta Private Dr	tus ain	PLR G12X Alternativ Not Spec	(ve ID ;ified
Town or V Road: Location: Surface Ty	illage: /pe:	London Charterhou: Under a perm	se Street anent building	Inspection Direction: Inspected Length: Total Length: Joint Length:	Upstream 0.38 m 0.38 m	Upstream Nod Upstream Pipe Downstream N Downstream F	le: e Depth: lode: Pipe Depth:	G12 0.000 m PS2 0.000 m	
Use: Type of Pi Flow Cont Year Cons Inspection Comments	pe: rol: tructed: Purpose: s: ndations:	Foul Gravity drai No flow cor Not Specifie Sample sur	n/sewer trol ed vey to detern	mine asset condition	Pipe Shape: Dia/Height: Pipe Material: Lining Type: Lining Material:	Circular 150 mm Grey cast iron No Lining No Lining			
Scale: Dep	1:50 P oth: 0.00 m	osition [m]	Code	Observation			MPEG	Photo	Grade
		0.00	OC	Start node, other spec station	cial chamber, reference:	PS2: pumping	00:00:02		
G	12	0.00	WL GYF	Water level, 5% of the Finish node, gully, refe	e vertical dimension erence: G12: GULLY N	OT VIZIBLE	00:00:09 00:00:23		
Dep	oth: 0.00 m								

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 11/03/2024 - G13X										
Item No. 14 Op	Insp. No 16 erator orin	o. Date Time 11/03/24 12:44 Vehicle Not Specified		Client's Job Ref 01 Camera Scanprobe	Weather No Rain Or Snow Preset Length Not Specified	Pre Cleaned No Legal Status Private Drain	PLR G13X Alternative ID Not Specified			
Town or Village: Road: Location: Surface Type: Use:		London Charterhou Under a perm	se Street anent building	Inspection Direction: Inspected Length: Total Length: Joint Length:	Upstream 0.19 m 0.19 m Pipe Shape:	Upstream Node: Upstream Pipe Depth: Downstream Node: Downstream Pipe Dept Circular	G13 0.000 m PS3 h: 0.000 m			
Type of P Flow Con Year Con Inspectio Commen	Pipe: htrol: structed: n Purpose ts: endations:	Gravity dra No flow cor Not Specifi : Sample su	in/sewer htrol ed vey to deter	mine asset condition	Dia/Height: Pipe Material: Lining Type: Lining Material:	100 mm Grey cast iron No Lining No Lining				
Scale:	1:50 2:50 pth: 0.00 r	Position [m] n	Code	Observation		MPEG	Photo Grade			
	PS3	0.00	OC WL	Start node, other spec Water level, 5% of the	cial chamber, reference: e vertical dimension	PS3: PS 00:00:03 00:00:05				
De	G13	<u>0.19</u>	GYF	Finish node, gully, ref	erence: G13	00:00:22				

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

A1 Total Drain
			Sectio	n Inspection	- 11/03/2024	- G14X			
Item No. 15	Insp. No 17	. Date 11/03/24	Time 12:45	Client`s Job Ref 01	Weather No Rain Or Snow	Pre Clear No	ned	PLR G14>	(
Ope	rator	Not Sp	i cle ecified	Scanprobe	Not Specified	Legal Sta Private D	rain	Alternation	ve ID vified
		Not Sp	ecilieu	Scalipiobe	Not Opechied	T IIVale D	ain		ineu
Town or V	illage:	London	o , ,	Inspection Direction:	Downstream	Upstream Noc	de:	G14	
Road:		Charterhous	se Street	Inspected Length:	0.68 m	Upstream Pip	e Depth:	0.000 m	
Location: Surface Ty	/pe:	Under a perma	anent building	Joint Length:	0.68 m	Downstream I Downstream I	vode: Pipe Deptl	PS3 h: 0.000 m	
Use:		Foul			Pipe Shape:	Circular			
Type of Pi	pe:	Gravity drai	n/sewer		Dia/Height:	100 mm			
Flow Cont	rol:	No flow con	trol		Pipe Material:	Grey cast iron			
Year Cons	tructed:	Not Specifie	ed		Lining Type:	No Lining			
Inspection	Purpose:	Sample sur	vey to deter	mine asset condition	Lining Material:	No Lining			
Comments Recomme	s: ndations:								
Scale:	1:50 F	osition [m]	Code	Observation			MPEG	Photo	Grade
Der G	oth: 0.00 m 14	I							
F	$\left \right\rangle$	0.00	OC	Start node, other spec	cial chamber, reference:	PS3: PS	00:00:01		
		0.00	WL	Water level, 5% of the	e vertical dimension		00:00:05		
0.10			DER	Settled deposits, coar	rse, 75% cross-sectiona	l area loss	00:00:07	G14X_138 b4686-fe1	4
P	S3	0.68	SA	Survey abandoned: u	Survey abandoned: unable to go any further due to deposits 00:00:2				
	/	0.68		End of pipe					
Dep	oth: 0.00 m	1							

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	8.0	11.7	8.0	5.0



A1 Total Drain Solutions Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
15	Downstream	G14X	01	



G14X_138b4686-fe15-44a5-9236-90f6b4b6ff48_20240314_1 30634_433.jpg, 00:00:07, 0.10 m Settled deposits, coarse, 75% cross-sectional area loss

				S	Sectio	n Ins	pection	- 11/03/2	2024 -	- G15X				
Item N	lo.	Insp. No.	Da	te	Time	Client	`s Job Ref	Weath	er	Pre Clear	ned		PLR	
17		19	11/03	3/24	3:19		01	No Rain Or	Snow	No		(615X	
(D per Lor	ator 'in		Vehic lot Spe	i le cified	Sca	amera anprobe	Not Spec	e ngth sified	Private D	rain	Alter Not S	nativ Speci	r e ID ified
Tours		lara	Londo			Increation	n Direction:	Unatraam		Linetreem Nee	de.	015		
Town o	or vii	lage:	Chart	orbouoc	Street	Inspectio	on Direction:	Upstream		Upstream Not	je: o Donthu	G15	~	
Road:			Under	emouse		Tetel	a Length:	4.29 m		Opstream Pip	e Deptn:	0.000	m	
Locatio	on: - T		Under	a permar	ient building		igtn:	4.29 11		Downstream I				
Surrac	ету	pe:	Faul			Joint Lei	igtn:	Dine Change		Downstream	Pipe Depti	n: 0.000	m	
Use:			Foul					Pipe Snape:						
Type o		e:	Gravit	iy arain/	sewer			Dia/Height:	1_	100 mm				
Flow C	ontro		NO TIO	w contr	OI			Pipe Material	12	Grey cast Iron				
rear C	onst	ructea:	NOT 5		. to dotor	mine eeee	toondition	Lining Type:	al	No Lining				
Inspec	tion	Purpose:	Samp	ie surve	ey to deter	mine asse	t condition	Lining Materi	al:					
Recom	imen	dations:												
Scale:	1	:50 Po	osition	[m]	Code	Observ	ation				MPEG	Phote	D	Grade
t	G1	/2 5 th: 0.00 m	0.00 0.00 0.11 3.61 4.29	S01	IC WL SCP LL SCP GYF	Start no Water II Surface o'clock, Line de Surface o'clock, Finish r	ode, inspection evel, 5% of the e damage, corr start: rust viates left e damage, corr finish: rust node, gully, ref	o chamber, refe e vertical dimen osion products osion products erence: G15	from 12 o	V2 D'clock to 12	00:00:01 00:00:02 00:00:09 00:00:29 00:00:29	G15X_2 d15ad- 3-4f7f-8 G15X_8 6bd60-8 e-42c6-	271 0d3 005	2
STR N	0.00	I STP P	eak	STR M	ean ct	R Total	STR Grade	SER No. Def	SEP D		an SED	Total	SEP	Grade
1	J. De	20.0)	18.6	can JI	80.0	2.0	0	0.0).0	JER	1.0

19_CHARTERHOUSE_STREET





G15X_271d15ad-0d33-4f7f-805c-a734677c1be1_20240314_1 32510_254.jpg, 00:00:05, 0.00 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, start, rust



G15X_8c06bd60-837e-42c6-a65d-4e23570d614e_20240314_ 132539_547.jpg, 00:00:29, 3.61 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish, rust

Item No. Into: No. No. Into: No. Into: No. Into: No. Into: No. PLA 11002 100224 Vehicle Contrart Present Length Length Reading Stress Not Specified FV2X Contrart Not Specified Imspecton Direction: Upstream Node: FV2X Read: Charterhouse Stress Imspecton Direction: Upstream Node: FV2X Surface Type: Joint Length: 2.0 m Downstream Node: FV2 Surface Type: Joint Length: Downstream Node: FV2 Diartelight: 100 m Downstream Node: FV2 Surface Type: Grout Mode: FV2 Downstream Node: FV2 Type of Pipe: Grout Mode: FV2 Downstream Node: FV2 Scale: 1104 Postion fmi Code Observation Lining Material: No Lining Recommendations: Scale: 1104 Postion fmi Code Observation MPEG Photo Grade Depth: 0.00 m				Sect	ion	Insp	ection -	11/03/2	024 -	FW2AX			
18 20 110324 3.20 01 No Rain Or Snow No No Press Length Legal Status Alternative ID Town or Village: London Not Specified N	Item No.	Insp. No.	Da	ite Tir	ne	Client	s Job Ref	Weath	er	Pre Clear	ned	F	PLR
Operator Loin Vehicle Not Specified Camera Sampobe Preset Length Var Specified Length Status Private Data Remarker ID Not Specified Town or Village: Charterhouse Street Under a parametholing Inspection Direction: Upstream Node: FV2A Road: Charterhouse Street Under a parametholing Inspection Direction: Upstream Node: FV2A Surface Type: Foul Upstream Pipe Depth: 0.000 m Use: Foul Dim Length: 12.01 m Downstream Node: FV2 Type of Pipe: Gravity drain/sewer Dia/Neight: 100 mm Fepe Material: 00 mm Year Constructed: Not Specified Lining Type: Not Lining Not Lining Comments: Recommendations: Scale: 1164 Observation MPEG Photo Grade 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 00:00:05 FW2A/2 00:00:06 FW2A/2 20:00:07 00:00:06 FW2A/2 00:00:06 FW2A/2 20:00:07 00:00:07 00:00:07 00:00:07 00:00:07	18	20	11/03	3/24 3:2	20		01	No Rain Or	r Snow	No		F۷	V2AX
Continue Longitude Longitude <thlongitude< th=""> Longitude <thlongitude< th=""> <thlongitude< th=""> <thlon< th=""><th>Ope</th><th>rator</th><th></th><th>Vehicle</th><th>4</th><th>C</th><th>amera</th><th>Preset Le</th><th>ength</th><th>Legal Sta Private D</th><th>tus</th><th>Alteri</th><th>native ID</th></thlon<></thlongitude<></thlongitude<></thlongitude<>	Ope	rator		Vehicle	4	C	amera	Preset Le	ength	Legal Sta Private D	tus	Alteri	native ID
Inspection Direction: Upstream Node: PV/2A Surface Type: Upstream Node: Pipe Depth: 0.000 m Surface Type: Joint Length: 12.01 m Downstream Node: PV/2A Surface Type: Joint Length: 12.01 m Downstream Node: PV/2A Surface Type: Foul Joint Length: 12.01 m Downstream Npc Depth: 0.000 m Ves: Foul Joint Length: 12.01 m Downstream Npc Depth: 0.000 m Ves: Foul Start Index Pipe Shape: Circular Downstream Npc Depth: 0.000 m Ves: No lining Lining Material: Solution Ining Material: No Lining Recommentations: Recommentations: Scale: 1:104 Position [m] Code Observation MPEG Photo Grade Depth: 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 300:041 300:041 300:042 433:449 0.00 Sol SCP Surface damage, corresion products from 12 o'clock to 12 o'clock, 10% 00:00:014 FV/2A, z atached deposits, other from 12 o'clock to 12 o'clock			1		4				Jinea			FINO	pecilieu
Rudation Location: Ubdra priminal building Total Length: Downstream Node: FW2 Surface Type: Joint Length: Downstream Pipe Depth: 0.000 m Use: Foul Pipe Shape: Circular Type of Pipe: Gravity drain/sever Dia/Height: 100 mm Fow Control No flow control Pipe Material: No Lining Texa Constructed: Not Specified Lining Type: No Lining Comments: Recommendations: Scale: 1:104 Position (m) Code Scale: 1:000 MPEG Photo Grade PV2 0.000 IC Start node, inspection chamber, reference: FW2 00:00:001 0.00 WL Water level, 5% of the vertical dimension 00:00:005 FW2AX_7 0.00 SO2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 1012 00:00:05 0.03 SO2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 1012 00:00:06 0.03 SO2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 1012 00:00:05 0.03 DEZ Attached deposits, coarse	Town or VI	lliage:	Chort	orhouco Str	act	Inspectio	on Direction:	Upstream		Upstream Not	1e: o Donthu	F VV2A	~ ~
Location: Dues a perimeter (Longth: 12.01 m Downstream Pipe Cepth: 0.000 m Use: Foul Pipe Shape: Circular Type of Pipe: Gravity drain/sever Dia/Height: 100 mm Flow Control: No flow control Pipe Shape: Circular Stance Type: No flow control Pipe Material: Gravity cast for the second control Year Constructed: No flow control Pipe Material: No Lining Comments: Recommendations: Scale: 1:104 Position [m] Code Observation MPE6 Photo Grade FV2 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 0:00:01 0:00:01 FV2 0.00 SCP Surface damage, corresion products from 12 o'clock to 12 00:00:05 FW2AX, 7 306/04:1 0.00 SO1 SCP Surface damage, corresion products from 12 o'clock to 12 00:00:06 FW2AX, 31 52/05/7.456 0.00 SO2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 0:00:01:47 FV2AX, 21 37/2.4564-1 37/2.4564-1 37/2.4564-1 37/2.4564-1	Road:		Under	eniouse Str	eel	Tetel	a Length:	12.01 m		Opstream Pip	e Deptn:	0.000	m
Stantact Foul Foul Pipe Shape: Circular Type of Pipe: Gravity drain/sewer Pipe Shape: Circular Diarbit drain/sewer Diarbit drain/sewer Diarbit drain/sewer Diarbit drain/sewer Flow Control No flow control Diarbit drain/sewer Diarbit drain/sewer Diarbit drain/sewer Flow Control No flow control Diarbit drain/sewer Diarbit drain/sewer No flow control Vear Constructed: Not Specified Lining Type: No Lining Comments: Recommendations: Scale: 1:104 Posto Grade Depth: 0.00 m FW2 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 0.00 WL Water level, 5% of the vertical dimension 00:00:05 FW2AX_7 0.00 SO1 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:06 FW2AX_7 0.00 SO1 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:06 FW2AX_7 0.00 SO2 DEZ Attached deposits, other from 12 o'clock to 12 00:00:01 FW2AX_2 3 <td< th=""><th>Surface Tu</th><th></th><th>Under</th><th>a permanent u</th><th>unung</th><th></th><th>ngun. Agthu</th><th>12.01 111</th><th></th><th>Downstream</th><th>NOUE. Dina Dant</th><th>F VV Z</th><th>~</th></td<>	Surface Tu		Under	a permanent u	unung		ngun. Agthu	12.01 111		Downstream	NOUE. Dina Dant	F VV Z	~
Core Flow Challer Type of Pipe: Gravity drain/sever Dia/Feight: 100 Flow Control: Not flow control Pipe Material: Crey cast iron Lining Type: Not Lining Type: Not Lining Inspection Purpose: Sample survey to determine asset condition Lining Material: Not Lining Commenta: Scale: 1:104 Position [m] Code Observation MPEG Photo Grade Deptr: 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 00:00:01 0.00 VL Water level, 5% of the vertical dimension 00:00:03 FW2AX_7 3006164-1 0.00 So1 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:06 0.02 IL Line deviates left 00:00:06 FW2AX_7 3006164-1 473-469 0.03 So2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:08 FW2AX_3 0.04 LL Line deviates left 00:00:00 6.97.443-443 3 0.03 SO2 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:01 1.41 FO2 DEZ Surface damage, corrosion products from 12 o'c	Surface Ty	pe.	Foul			Joint Lei	igui.	Pine Shane:		Circular	-ipe Dept	I. 0.000	[]]
Type of type: Description Piow Control No live control Year Constructed: Not Specified Inspection Purpose: Sample survey to determine asset condition Comments: Recommendations: Scale: 1:101 Position [m] Code Depth: 0.00 III Comments: Recommendations: Scale: Scale: 1:101 Position [m] Code Observation MPEG PW2 0.00 III Comments: Recommendations: Scale: Scale: 1:101 Position [m] Code Observation MPEG Photo Grade Start node, inspection chamber, reference: FW2 00:00:05 FW2A Torological strain case, start node, inspection chamber, reference: FW2A 00:00:06 Grade Line deviates left 00:00:00:06 III.41 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:01 Grade Grade Grade damage, corresion products from 12 o'clock to 12 00:00:02 FW2AX, 2 7:076:48:3	Type of Pir		Gravit	ty drain/cow	or			Dia/Height:		100 mm			
Non-solution Description Var Constructed: Not Solution Inspection Purpose: Sample survey to determine asset condition Lining Type: No Lining Comments: Recommendations: Scale: 1:104 Position [m] Construction: 0:00 Portion: 0:00 Provide: 0:00 Not Lining 0:00 Comments: 0:00 Scale: 1:104 Position [m] Comments: 0:00 Portion: 0:00 Provide: 0:00 IC Start node, inspection chamber, reference: FW2 00:00:01 0:00 Sol Sci SCP Surface damage, corrosion products from 12 o'clock to 12 0:00:06 0:00 Sol Sci DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 0:00:00:06 0:00 0:00 FW2AX, 2 O'clock, finish: rust 0:00:00:07 FW2AX, 2 0:00 0:00 SCP Surface damage, corrosion products from 12 o'clock to 12 0:00:00:01 FW2AX, 2 0:00:01:03 0:00 SCP	Flow Cont	rol·	No flo	w control				Pine Material		Grev cast iron			
Inspection Purpose: Sample survey to determine asset condition Lining Material: No Lining Comments: Recommendations: Scale: 1:104 Postion [m] Code Observation MPEG Photo Grade Depth: 0.00 IC Stat node, inspection chamber, reference: FW2 00:00:01 Grade Operation WPEG Photo Grade 0.00 IC Stat node, inspection chamber, reference: FW2 00:00:01 00:00:01 00:00:05 FW2AX, 7 3306fd4-1 3306fd4-1 3306fd4-1 3306fd4-1 370-4e96- 00:00:06 FW2AX, 7 3306fd4-1 370-4e96- 00:00:06 44334-ab 44334-ab 44334-ab 44334-ab 44334-ab 3205f7-465 44334-ab 44334-ab 3205f7-465 3205f7-465 3205f7-465 3205f7-465 44334-ab 3205f7-465 3205f7-465 3205f7-465 3205f7-465 3205f7-465 3205f7-465 <td< th=""><th>Year Cons</th><th>tructed:</th><th>Not S</th><th>necified</th><th></th><th></th><th></th><th>l ining Type</th><th></th><th>No Lining</th><th></th><th></th><th></th></td<>	Year Cons	tructed:	Not S	necified				l ining Type		No Lining			
Commenta: Recommendations: Code Observation MPEG Photo Grade Scale: 1:104 Position [m] Code Observation MPEG Photo Grade Public: 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 0.00 WL Water level, 5% of the vertical dimension 00:00:01 0.00 S01 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:05 FW2AX, 7 0.04 LL Line deviates left 00:00:06 WZAX, 31 D278-496- 0.38 S02 DEZ Attached deposits, other from 12 o'clock, 10% 00:00:08 FW2AX, 31 0.41 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:014 FW2AX, 2 376-4886- 0.141 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:014 FW2AX, 2 376-4886- 0.141 F02 DEZ Attached deposits, coarse, 5% cross-sectional area loss 00:00:02 FW2AX, 2 376-4886- 0.141 FW2AX C FW2AX C 2 00:00	Inspection	Purpose:	Samp	ble survev to	deter	mine asse	t condition	Lining Mater	ial:	No Lining			
Brecommendations: Scale 1:104 Position [m] Code Observation MPEG Photo Grade Depth: 0:00 n 0:00 1 0.00 IC Start node, inspection chamber, reference: FW2 00:00:01 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00 0:00:00:01 0:00:01:01 0:00:00:01 0:00:01:01 0:00:00:01 0:00:01:01 0:00:00:01 0:00:01:01 0:00:01:01 0:00:01:01 0:00:01:01 0:00:01:01 0:00:01:01 0:00:01:01 0:00:01:01	Comments	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	Camp					g					
Scale: 1:104 Position [m] Code Observation MPEG Photo Grade Depth: 0.00 m FW2 0.00 IC Start node, inspection chamber, reference: FW2 00.00.01 0.00.01 0.00 WL Water level, 5% of the vertical dimension 00.00.01 0.00.01 0.00.05 FW2X, 7 390614-1 a7b-4696- ocidok, start: rust 00.00.05 SU/2AX, 7 390614-1 a7b-4696- ocidok, start: rust 00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.01.01 a7b-4696- a7b-4696- a7b-4696- docodox, start: rust 00.00.01.07 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 0.00.00.06 DEVZAX, 3f DEVEX 3f DEVZAX, 2f 3 7d-4886- 9d-44334-ab 7d-4886- 9d-44334-ab 7d-4886- 9d-44334-ab 3 7d-4886- 9d-44886 7d-4886- 9d-44886 7d-4886- 9d-0d-46886- 9d-0d-46886- 9d-0d-46886- 9d-0d-46886- 9d-0d-46886- 0d-7d-4886- 9d-0d-46886- 9d-0d-	Recommen	ndations:											
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O'clock, start: rust 3306fd4-1 a7b-4e96- 00:00:06 0.04 LL Line deviates left 00:00:06 0.38 S02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, start: rust 00:00:08 FW2AX_3 f b2/957-fe5 4-4334-ab 1.41 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, finish: rust 00:00:14 FW2AX_c 3 7d75daa-1 97d+48a6 3.19 F01 SCP Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish: rust 00:00:21 FW2AX_0 2 bcee839-7 aea-4334- 2 deee839-7 aea-4334- 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 ae88d00-d 077-4593- 2 deee39-7 aea-4334- 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 ae88d00-d 077-4593- 2 deee39-7 aea-4334- FW2A Depth: 0.00 m ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 FW2A Depth: 0.00 m 20 20 24 24 20			0.00	S01 S	SCP	Surface	e damage, cor	rosion products	from 12 c	clock to 12	00:00:05	FW2AX	_7
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3 2 Line Environment Distribution Distribution 0.38 S02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:08 FW2AX_3f 1.41 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:01 FW2AX_c 3 3.19 F01 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:21 FW2AX_0 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:01:03 077-4593- FW2A FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade </th <th></th> <th></th> <th>0.04</th> <th></th> <th>LL</th> <th>Line de</th> <th>viates left</th> <th></th> <th></th> <th></th> <th>00:00:06</th> <th>a10-400</th> <th><i>/</i>0-</th>			0.04		LL	Line de	viates left				00:00:06	a10-400	<i>/</i> 0-
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1.41 F02 DE2 Attached deposits, other from 12 0 clock to 12 0 clock, 10% 00:00:05 FW2AX_SI 44334-ab 1.41 F02 DEZ Attached deposits, other from 12 0 clock to 12 0 clock, 10% 00:00:14 FW2AX_C 3 7d75daa-1 97d-48a8- 00:00:02 3 7d75daa-1 97d-48a8- 00:00:02 3 7d75daa-1 97d-48a8- 00:00:02 3 7d75daa-1 97d-48a8- 00:00:02 2 8eee839.7 aea-4334- 9.08 DER Sutface damage, corrosion products from 12 0 clock to 12 0 clock, finish: rust 00:00:02 FW2AX_4 2 ae88d00-d 077-4593- 2 8ee830-d 077-4593- 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:043 FW2AX_4 2 ae88d00-d 077-4593- 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: UNABLE TO LOCATE CHAMBER 00:01:03 FW2A Depth: 0.00 m STR Peak STR Mean STR Total STR Grade SER Mean SER Total SER Grade		$ \rangle \rangle \rangle$	0.20	S00 F		Attocho	d donacita . at	har from 12 ala	look to 12		00.00.00		2f
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1.41 F02 DEZ Attached deposits, other from 12 o'clock to 12 o'clock, 10% 00:00:14 FW2AX_c 3 cross-sectional area loss, finish: rust 97d-48a8- 97d-48a8- 00:00:21 00:00:21 FW2AX_c 0 2 3.19 F01 SCP Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish: rust 00:00:21 FW2AX_c 0 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 00:01:03 FW2A Depth: 0.00 m STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 20.0 67. 90.0 20.2 20.0 04. 50.0 30.0		$ \rangle \rangle$										4-4334-	ab
3.19 F01 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:21 FW2AX_0 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 077-4593- FW2A Depth: 0.00 m STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade			1.41	F02 [DEZ	Attache	d deposits, ot	her from 12 o'c	lock to 12	o'clock, 10%	00:00:14	FW2AX	_c 3
3.19 F01 SCP Surface damage, corrosion products from 12 o'clock to 12 00:00:21 FW2AX_0 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 077-4593- FW2A Depth: 0.00 m ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 20.0 6.7 80.0 20 2.0 0.4 5.0 3.0						01035-5		1035, 1111511. 1031	L			97d-48a	18-
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade 1 200 57 800 20 20 20 20 20 20 20 20 20 20 20 20 2			3.19	F01 S	SCP	Surface	damage, cor	rosion products	from 12 c	clock to 12	00:00:21	FW2AX	_0 2
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade						o'clock,	finish: rust					8eee839	9-7 M-
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade												aca-400	
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 FW2A Depth: 0.00 m STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade													
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2AX_4 2 ae88d00-d 077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade													
9.08 DER Settled deposits, coarse, 5% cross-sectional area loss 00:00:43 FW2A_4 2 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 00:01:03 FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 300 20 20 20 20 04 50 30													
12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 20.0 6.7 80.0 2.0 2.0 2.0 0.4 5.0 3.0			9.08	0	DER	Settled	deposits, coa	rse, 5% cross-s	sectional a	irea loss	00:00:43	FW2AX	4 2
077-4593- 12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 20 0.4 5.0 3.0												ae88d00	D-d
12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER UNABLE TO LOCATE CHAMBER FW2A Depth: 0.00 m STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade												077-455	13-
12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER UNABLE TO LOCATE CHAMBER 00:01:03 FW2A Depth: 0.00 m 00:01:03 STR No. Def STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 20.0 6.7 80.0 2.0 2.0 2.0 0.4 5.0 3.0													
12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 UNABLE TO LOCATE CHAMBER UNABLE TO LOCATE CHAMBER 00:01:03 FW2A Depth: 0.00 m 00:01:03 STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 200 6.7 80.0 2.0 2.0 0.4 5.0 3.0													
12.01 ICF Finish node, inspection chamber, reference: FW2A: 00:01:03 FW2A Depth: 0.00 m 000 m 000 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Mean SER Total SER Grade 1 200 67 800 20 20 20 0.4 50 30													
FW2A Depth: 0.00 m			10.04		<u>с</u> г	Finish	ada inanastis	an abambar rai	faranaa. F	14/2 4 -	00.01.02		
FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade			12.01	I	CF	UNABL	E TO LOCATI	E CHAMBER	rerence: F	WZA:	00:01:03		
FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade						-		-					
FW2A Depth: 0.00 m STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade													
STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade 1 20.0 6.7 80.0 2.0 2 2.0 0.4 5.0 3.0	FW	/2A											
STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade 1 20.0 6.7 80.0 2.0 2 2.0 0.4 5.0 3.0	Dep	un: 0.00 m											
STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade													
STR No. Def STR Peak STR Mean STR Total STR Grade SER No. Def SER Peak SER Mean SER Total SER Grade							-		-				
	STR No. D	ef STR Pe	eak	STR Mean	ST	R Total	STR Grade	SER No. Def	SER Pe	eak SER Me	an SEF	Total	SER Grade

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FW2AX_73906fd4-1a7b-4e96-89f6-7d1fb7850fde_20240314_ 132706_402.jpg, 00:00:05, 0.00 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, start, rust



FW2AX_3fb2f957-fe54-4334-ab2d-8aaf3fe52ab6_20240314_ 132941_966.jpg, 00:00:08, 0.38 m Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, start, rust



FW2AX_c7d75daa-197d-48a8-ae77-da34bc505241_2024031 4_133042_900.jpg, 00:00:14, 1.41 m Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, finish, rust



FW2AX_08eee839-7aea-4334-bfbf-1d07fd118a9a_20240314 _132751_519.jpg, 00:00:21, 3.19 m Surface damage, corrosion products from 12 o'clock to 12 o'clock, finish, rust



A1 Total Drain Solutions Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk

Section Pictures -	11/03/2024 - FW2AX
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Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor`s Job Ref
18	Upstream	FW2AX	01	



FW2AX_4ae88d00-d077-4593-9070-d29bf6cff742_20240314 _132850_958.jpg, 00:00:43, 9.08 m Settled deposits, coarse, 5% cross-sectional area loss

			:	Sectio	n Inspection	- 11/03/2024	- G16X			
Item N	o. I	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Cleane	d	PLR	
19 0)nera	21 tor	11/03/24 Vehi	3:24	01 Camera	No Rain Or Snow	No Legal Statu	s	G16X	ve ID
	Lori	n	Not Sp	ecified	Scanprobe	Not Specified	Private Drai	n	Not Spec	ified
Town o	r Villa	ade:	London		Inspection Direction:	Upstream	Upstream Node	:	G16	
Road:			Charterhous	se Street	Inspected Length:	1.79 m	Upstream Pipe	Depth:	0.000 m	
Locatio	n:		Under a perma	anent building	Total Length:	1.79 m	Downstream No	de:	FW2A	
Surface	е Тур	e:			Joint Length:		Downstream Pip	be Depth:	0.000 m	
Use:			Foul			Pipe Shape:	Circular			
Type of	Pipe):	Gravity drain	n/sewer		Dia/Height:	100 mm			
Flow Co	ontro	1:	No flow con	trol		Pipe Material:	Grey cast iron			
Year Co	onstr	ucted:	Not Specifie	ed		Lining Type:	No Lining			
Inspect	ion P	urpose:	Sample surv	vey to deter	mine asset condition	Lining Material:	No Lining			
Comme Recomi	ents: mend	lations:								
Scale:	1:	50 Po	sition [m]	Code	Observation			MPEG	Photo	Grade
г (Depth FW2	n: 0.00 m A	0.00	IC	Start node, inspection	chamber reference. F	W/2A 0	0.00.02		
	F		0.00					0.00.02		
			0.00	WL	Water level, 5% of the	e vertical dimension	0	0:00:02		
ł			0.15	LR	Line deviates right		0	0:00:07		
(1.79	GYF	Finish node, gully, ref	erence: G16	0	0:00:19		
) 1	G16 Dept	5 5 5								
•	bepu	. 0.00 m								

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

			So	octio	n Inci	oction	- 12/03/2	0024	G17X			
Itom No.	Incn No.	Det					- IZ/UJ/Z	.024 -		ad	Р	I D
20	22	12/03	ke 1 k/24 1	6:11	Client	01	No Rain Or	er Snow	No	iea	G´	LR 17X
Ope	rator		Vehicle		C	amera	Preset Le	ngth	Legal Sta	tus	Altern	ative ID
Lo	prin	N	lot Specifi	ed	Sca	anprobe	Not Spec	ified	Private Dr	ain	Not Sp	pecified
Town or V	illage:	Londo	n		Inspection	on Direction:	Upstream		Upstream Noc	le:	G17	
Road:		Charte	erhouse S	treet	Inspecte	d Length:	10.03 m		Upstream Pipe	e Depth:	0.000 r	n
Location:		Under a	a permanen	t building	Total Lei	ngth:	10.03 m		Downstream N	lode:	FW2	
Surface Ty	/pe:				Joint Le	ngth:	1		Downstream F	Pipe Dept	h: 0.000 r	n
Use:		Foul					Pipe Shape:		Circular			
Type of Pi	pe:	Gravit	y drain/se	wer			Dia/Height:		100 mm			
Flow Control: No flow control					Pipe Material	:	Grey cast iron					
Year Constructed: Not Specified					Lining Type:		No Lining					
Inspection	Purpose:	Samp	le survey	to deter	mine asse	t condition	Lining Materi	al:	No Lining			
Comments Recomme	s: ndations:											
Scale:	1:87 Pc	osition	[m]	Code	Observ	ation				MPEG	Photo	Grade
Dep	oth: 0.00 m											
F\	N2											
		0.00		IC	Start no	de inspection	chamber refe	rence: FV	/2	00.00.00		
		0.00		.0	otart ne					00.00.00		
		0.00		WL	Water I	evel, 5% of the	e vertical dimen	sion		00:00:01		
•	∋/_ / _	0.08		LL	Line de	viates left				00:00:06		
		0.15	S01	DEZ	Attache	d deposits, oth	ner from 12 o'cl	ock to 12	o'clock, 5%	00:00:07	G17X_32	27
					cross-s	ectional area l	oss, start: rust				645fe-7b	d 4
		1.48	F01	DEZ	Attache	d deposits, oth	ner from 12 o'cl	ock to 12	o'clock, 5%	00:00:14	G17X d9	-+)c 2
					cross-s	ectional area l	oss, finish: rust		,		adae8-3f	8
		1 63		INI	lunctio	n at 12 o'clock	diameter: 100	mm		00.00.16	1-41ed-8	6
		1.05		JIN	Junction		, diameter. 100			00.00.10		
101	100	5.74	S02	D	Deform	ed drain or sev	wer, 15%, start			00:00:34	G17X_65	5c
											a1d92-20	
											5 4000 0	10
				_								_
		8.70	F02	D	Deform	ed drain or sev	wer, 15%, finish	1		00:00:48	G17X_01 36cf5-79	C 5
											7-4e58-9	0
		0.04		MCCI	Motorio	l abanana ta a	aat iron			00.00.52		
		9.84		MCCI	Materia	I changes to c	ast Iron			00:00:53		
	\mathcal{N}											
		10.03		GYF	Finish r	ode, gully, ref	erence: G17			00:00:59		
G	17											
Dep	oth: 0.00 m											
STR No. D	ef STR Pe	eak	STR Mea	n ST	R Total	STR Grade	SER No. Def	SER Pe	ak SER Mea	an SER	Total	SER Grade
1	165.0	0	49.3	4	495.0	5.0	1	1.0	0.2		2.0	2.0

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G17X_327645fe-7bd0-45c8-94bf-8f2375d4ff41_20240314_13 4043_615.jpg, 00:00:07, 0.15 m Attached deposits, other from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, start, rust



G17X_d9cadae8-3f81-41ed-867d-e246e5e47963_20240314_ 134120_228.jpg, 00:00:14, 1.48 m Attached deposits, other from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, finish, rust



G17X_65ca1d92-2dcb-4d60-ac8e-b786008c2b4d_20240314_ 134850_883.jpg, 00:00:34, 5.74 m Deformed drain or sewer, 15%, start



G17X_01c36cf5-79e7-4e58-90ac-06e73b206184_20240314_ 134914_611.jpg, 00:00:48, 8.70 m Deformed drain or sewer, 15%, finish

			Sectio	n Inspection	- 12/03/2	024 - 6	518X			
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weathe	er C	Pre Cleaned	t l	PL	R
21	23	12/03/24	16:11	01	No Rain Or	Snow	No		G18	3X
Oper	ator	Veł	nicle	Camera	Preset Le	ngth	Legal Status	S	Alterna	tive ID
Loi	rin	Not Sp	pecified	Scanprobe	Not Speci	fied	Private Drain	า	Not Spe	ecified
Town or Vi	llage:	London		Inspection Direction:	Upstream	Up	stream Node:		G18	
Road:		Charterhou	ise Street	Inspected Length:	5.05 m	Up	stream Pipe D	Depth:	0.000 m	
Location:		Under a perm	nanent building	Total Length:	5.05 m	Do	wnstream No	de:	FW2	
Surface Tv	pe:		J	Joint Length:		Do	wnstream Pip	e Depth	0.000 m	
Use:		Foul		3	Pipe Shape:	Cir	cular			
Type of Pir	ю·	Gravity dra	in/sewer		Dia/Height:	15	0 mm			
Flow Contr	ol.	No flow co	ntrol		Pine Material	· Gr	ev cast iron			
Vear Const	ructed.	Not Specifi	ed			. On No				
Inspection	Purnoso:	Sample su	cu rvev to deter	mine asset condition	Lining Materi	al· No				
Commonte		Sample su			Lining Wateria		Lining			
Recommer	ndations:									
Scale:	1:50 Po	osition [m]	Code	Observation			Ν	MPEG	Photo	Grade
Dep FV	th: 0.00 m V2									
	\bigwedge	0.00	IC	Start node, inspectio	n chamber, refer	rence: FW2	00	0:00:00		
		0.00	WL	Water level, 5% of th	ne vertical dimen	sion	00	0:00:02		
		<u>0.46</u> S01	DEZ	Attached deposits, o cross-sectional area	ther from 12 o'cle loss, start: rust	ock to 12 o'cl	lock, 10% 00):00:07	G18X_1e4 720c3-80c 9-4bd2-a2	1 ; f
†		<u>2.20</u> F01	DEZ	Attached deposits, o cross-sectional area	ther from 12 o'cl loss, finish: rust	ock to 12 o'cl	lock, 10%		G18X_989 63609-9c0 d-4d10-ab) 3
G1 Dep	18 th: 0.00 m	5.05	GYF	Finish node, gully, re	ference: G18		oc):00:34		
STR No. De	ef STR P	eak STR	Mean ST	R Total STR Grade	SER No. Def	SER Peak	SER Mean	SER	Total S	ER Grade
0	0.0	0	.0	0.0 1.0	1	2.0	0.8	4.	0	3.0

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A1 Total Drain UTIONS





G18X_1e4720c3-80c9-4bd2-a2fe-ad7183785ebe_20240314_ 135259_222.jpg, 00:00:07, 0.46 m Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, start, rust
 FW2 <<< G18 150 mm Circular (C)</th>
 2.20m

 G18X_98963609-9c0d-4d10-ab16-9f3fd4a8c161_20240321_1
 40106_885.jpg, 2.20 m

 Attached deposits, other from 12 o'clock to 12 o'clock, 10% cross-sectional area loss, finish, rust

re Cleaned No PLR G19X egal Status ivate Drain Alternative ID Not Specified am Node: G19
No G19X egal Status Alternative ID rivate Drain Not Specified am Node: G19
Alternative ID ivate Drain Not Specified am Node: G19
am Node: G19
am Node: G19
am Pipe Depth: 0.000 m
stream Node: FW2
stream Pipe Depth: 0.000 m
Ir
n oot iron
ing
ing
MPEG Photo Grade

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

A1 Total Drain SOLUTIONS

A1 Total Drain Solutions

Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk



Total Drain



A1 Total Drain Solutions Hartspring Lane, Aldenham Tel. 020 8424 7999

andrei.apopei@a1tds.co.uk														
			Late	era	l Insp	ection -	- 11/03/	2024 -	FV	V2Y				
	nen Ne	Data					1 17 UU7							
	Insp. No. Date Lime		7 Time		Client's Job Ref		Weather			Pre Cleaned				
Operat	Operator Vehicle		,	С	amera	Preset	Lenath		Legal Status		Alternative IC		e ID	
Lorin Not Specified			Scanprobe Not Specified Priva			Private Drain	te Drain Not Sper			fied				
				Increation	n Direction	Downotroor	~	Line	troom Nodo		E\//2			
Town or Villa	ige:	Chartarha	una Ctra		Inspectio	d longth:	10 52 m	n	Ups	tream Node:				
Road:	Road: Charterhouse Street			Inspected Length: 10.53 m Upstream				tream Pipe De	m Pipe Depth: 0.000 m					
Location: Under a permanent building			liaing	Total Length:10.53 mDownst					vnstream Node	ream Node: OUTFALL				
Surface Type):				Joint Lei	ngth:			Dow	vnstream Pipe	Depti	h: 0.000	m	
	Us	e:			Foul			Pipe Shap	be:	Circula	ır			
	Ту	pe of Pipe:			Gravity drain/sewer Dia/Height:					150 mi	m			
	Flo	w Control:			No flow control Pipe Material:					Cast in	on			
\bigcirc	Ye	ar Constru	cted:		Not Specified Lining Type:					No Lin	ing			
OUTFALL	Ins	pection Pu	irpose:		Sample su	rvey to determine	e asset conditio	Lining Ma	terial	: No Lin	ing			
Comments:														
Recommend	ations:													
Scale: 1:92	2 Po	sition [m]	Co	de	Observ	vation				м	PEG	Photo	,	Grade
Depth	: 0.00 m													
EW/2	,													
		0.00	10	С	Start no	de, inspectior	n chamber, re	eference: F	W2	00:	00:01	FW2Y_	a4	
												3e8016-	1a of	
		0.04	M	4	Water l	evel. 5% of the	e vertical dim	ension		00.	00:01	00-4406	-01	
	~	0.0.1		-	i i ator i									
		3.42	L	R	Line de	viates right				00:	00:25			
	6.92 MCVC					I changes to v	itrified clay			00:	00:38			
	7.00 FC				Fractur	e, circumferen	tial from 12 c	clock to 1	2 o'clo	ock 00:	00:39	FW2Y_	17	3
												e08ea7-	23	
		7 00	\٨/	т	Turbid	vater level 10	% of the vert	ical dimon	sion	00.0	00.46	54-4020	-0	
		1.30	vv		Turbiu	water level, 10			51011	00.0	50.40			
		8.40	W	LT	Turbid	water level, 25	% of the vert	ical dimens	sion	00:	00:48			
		8.89	L	R	Line de	viates right				00:	00:51			
	、					0								
	\sim	0.04	0		0						00 54		~~	
	/ $>$	9.31	0.	JIVI	Open jo	bint, medium				00:	J0:54	FVV2Y_2 28569f-	28 6d	1
												c2-48e8	-b	
<u>9.54</u> LL				Line de	viates left				00:	00:58				
OUTFA														
		10.53	0	CF	Finish r	node, other sp	ecial chambe	er, referenc	e: OU	TFALL: 00:	01:20	FW2Y	71	
Depth: 0.00 m			51	MAIN LINE						51.20	913086-	aff		
c-48b6-91														
2 SIK NO. Def		eak STR	iviean	ST	K I Otal	SIR Grade	SER NO. D				SER		SER	1 0
	-TU.U					0.0		1 0.0		1 0.0	, ,			

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