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Architecture & Civil Engineering

SAB, Flood risk and Drainage Technical Note

Cog Road, Sully

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1.0 Introduction

1.1 This document outlines the overarching surface water drainage strategy for the development and highways within the Phase 2 land at Cog Road, Vale of Glamorgan

1.2 The strategy proposed addresses phase 2 of the site, considering factors such as potential surface water pollution risk, infiltration potential and outfall constraints and spatial limitations.

1.3 This document serves to establish the general principles for surface water drainage across the phase 2 of the development site. It is intended as a reference point for designers working on phase 2 of the development, providing a basis to secure approval from the SuDS Approval Body (SAB).

2.0 Relevant Legislation

2.1 **Policy and Flood Risk Context**

Policy Context

Surface water drainage for the development must comply with **Planning Policy Wales (PPW)**, **TAN15: Development, Flood Risk and Sustainable Drainage (March 2025)**, the **Welsh Government Statutory SuDS Standards (2019)** and all associated local guidance issued by the Vale of Glamorgan Council as the Lead Local Flood Authority (LLFA) and SuDS Approval Body (SAB).

The latest TAN15 update (2025) places increased emphasis on:

early integration of SuDS, minimising flood risk across development layouts, the use of updated **flood zone mapping**, assessment of **surface water, groundwater and sewer flooding**, and ensuring that developments do not increase flood risk on-site or elsewhere.

The drainage strategy has therefore been developed to reflect the current TAN15 policy direction, incorporating the latest risk guidance, surface water mapping and requirements for robust exceedance design and hydraulic control.

2.2 **Assessment of Flood Risk**

A Flood Consequence Assessment (FCA) was undertaken for the wider site in 2016. Under TAN15 mapping, the site lies predominantly within **Zone A** (little or no risk from fluvial or tidal flooding). No part of Phase 2 is affected by river or coastal flood risk.

2.3 Updated **Natural Resources Wales surface water flood maps** identify areas of **localised surface water flooding**, particularly near the **south-west part of the Phase 2 site** and a smaller area centrally within the wider development. These areas correspond to natural low points and existing depressions. Master planning has taken these constraints into account through:
strategic land-use planning,
avoidance of built development in these localised risk zones where possible, and
incorporation of SuDS conveyance and attenuation features to manage overland flow.

The site is underlain by the **Mercia Mudstone Group**, which is characterised by **low permeability** soils. Site investigations (Terrafirma, 2022) confirm **negligible infiltration potential**, no shallow

groundwater, and **limited potential for groundwater flooding**. As such, infiltration-based SuDS are discounted, consistent with TAN15 principles.

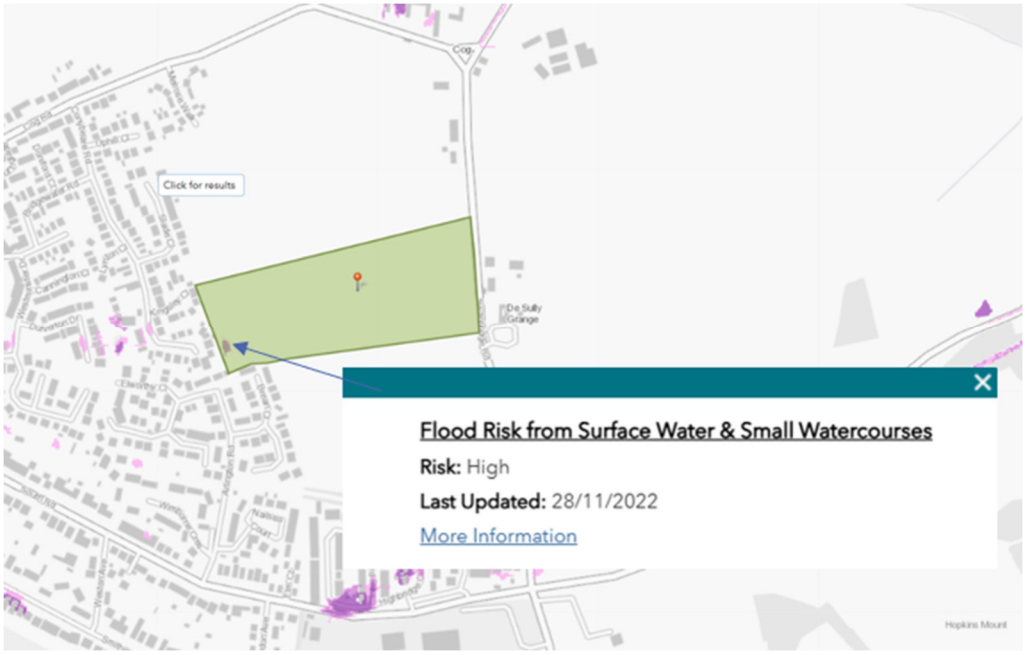
2.4 Flood Risk Management in the Drainage Strategy

2.5 The surface water drainage design has been prepared to ensure the development:
does not increase flood risk elsewhere, manages runoff safely within the site,
incorporates exceedance routing for extreme events,
aligns with TAN15 and SAB standards, and is deliverable within the constraints of ground conditions and site topography.

2.6 The strategy includes attenuation, hydraulic control, and treatment components sized using the latest FEH rainfall data and climate-change guidance. Exceedance flow routes reflect existing overland pathways and direct flows away from buildings and critical infrastructure.

2.7 The approval process for surface water drainage is summarised as follows:

- **Design Standards:** Surface water drainage and flooding measures for on-plot and strategic drainage must be designed in compliance with Planning Policy Wales (PPW) and the relevant supplementary guidance, including Technical Advice Note 15: Development and Flood Risk (TAN15), March 2025.
- **Flood Risk Assessment:** Flood risk was evaluated as part of the Flood Consequence Assessment (FCA) conducted for the site in 2016. The entire site falls within Zone A, indicating little or no risk of fluvial or tidal/coastal flooding.
- **Surface Water Flooding:** According to the Natural Resources Wales Flood Maps, there are localized areas within the site that are currently at risk of surface water flooding, particularly in the central part. These areas have been addressed as part of the preliminary masterplan development, with appropriate land-use zoning. The development plan demonstrates that built development can be located in low-risk areas, outside zones affected by surface water flood risk.



3.0 Source of Surface Water Runoff

3.1 Surface water runoff will be generated by impermeable areas, including roofs, driveways, highways, and footways. For individual residential plots, runoff will be collected and conveyed through roof drainage systems, gullies, and pipes. However, in other areas of the site, Sustainable Drainage Systems (SuDS) will be required, as traditional methods of collecting and conveying runoff will not be suitable.

3.2 The percentage of impermeable area (PIMP) across the site varies between 50% and 60%, depending on the density of the development. Development plot layouts have been used to calculate the impermeable areas.

3.3 It is proposed that all impermeable areas are included using a Cv value of 1.0 for both summer and winter. Green areas, such as gardens and landscaped spaces have not been included in this calculation.

3.4 The potential impact of urban creep on the PIMP (i.e. 10% residential plots) has also been considered in the surface water drainage design. Highways are excluded from this adjustment as their impermeable area cannot increase over time.

3.5 A drone survey has been commissioned for the as-built and the proposed development to give the indication of catchments. This is included in in the T&P survey (Appendix A)

3.6 A detailed geotechnical and geoenvironmental investigation (Terrafirma, 2022) confirms that the site is underlain by the Mercia Mudstone Group (Principal Aquifer) but is not within a groundwater source protection zone. No groundwater was encountered during the investigation, and soakaway/permeability testing demonstrated negligible infiltration rates in the shallow soils.

3.7 The Terrafirma report concludes that the site has "limited potential for groundwater flooding to occur." This is consistent with the absence of groundwater strikes, the nature of the underlying geology, and the lack of recorded groundwater flooding incidents. The proposed drainage

strategy, which does not rely on infiltration, further minimises any risk of groundwater flooding or mobilisation of contaminants.

3.8 In summary, groundwater flood risk at the site is considered to be low, and the drainage design is robust in this context.

4.0 Runoff Destination

4.1 The existing site topography, with its ridgelines and valleys, naturally creates single drainage catchment. This catchment is proposed to be retained as much as possible in the developed site. The overall site straddles a topographical ridge, which runs from east-west. Maximum ground levels within Phase 2 are approximately 46m AOD, to the north east, adjacent to the eastern boundary. Ground levels over a small part of Phase 2 fall northwards (into Phase 1).This was undertaken in agreement with the VoG LLFA at the time as an interim measure to minimise flooding issues generated form this catchment. Therefore, as shown on the as built survey the levels of the this area/catchment were raised and drainage "diverted" to the Phase 1 The majority of the site falls to the south-west (across Phase 2). Ground levels are lowest adjacent to the western and southern boundary – in particular the south-west corner, levels are approximately 34m AOD, falling in a south-west direction towards a drainage ditch that is located on the site boundary.

4.2 The guidance illustrates a hierarchy of destinations to be considered when designing the surface water management scheme. The below list sets out the possible elements in order of priority. Each destination must be exhausted before moving to the next.

- **Priority Level 1:** Surface water runoff is collected for use.
- **Priority Level 2:** Surface water runoff is infiltrated to the ground.
- **Priority Level 3:** Surface water runoff is discharged to a surface water body.
- **Priority Level 4:** Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system.
- **Priority Level 5:** Surface water runoff is discharged to a combined sewer.

Priority Level 1: Surface Water Runoff Collected for Use

4.3 Rainwater harvesting has not been considered at this development site due to the requirement for overflow systems to handle extreme storm events.

Priority Level 2: Surface Water Runoff Infiltrated to Ground

4.4 The British Geological Survey (BGS) 1:50,000 scale bedrock geology mapping indicates that the site is underlain by the Mercia Mudstone Group, comprising brown and red-brown calcareous clays and mudstones, with occasional thin beds of green siltstone and fine-grained sandstone. These geological formations typically exhibit low permeability and are associated with limited infiltration potential. Consequently, the site's superficial and bedrock geology suggest that infiltration techniques are unlikely to be suitable for the surface water drainage strategy. The geological context is illustrated in Figure 1.

4.5 Detailed site investigations have been undertaken between October 2022 and November 2022 The soakaway testing undertaken across the site has found the soils to be of very low

permeability. Therefore, the SuDS proposals have been designed with the assumption that no infiltration will occur. This ensures that adequate space is allocated at the earliest stage of the masterplanning process to accommodate a variety of SuDS features.

4.6 Sustainable Drainage Systems (SuDS) components that are not specifically designed for interception or infiltration to the ground, should be lined to prevent groundwater ingress and ensure functionality.

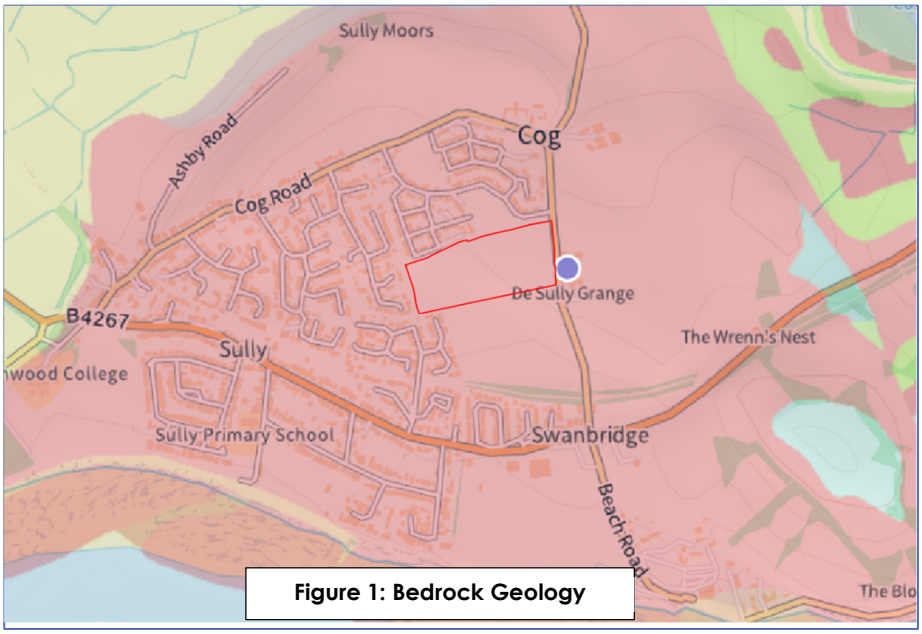


Figure 1: Bedrock Geology

Priority Level 3: Surface water runoff is discharged to a surface water body

4.7 There are no watercourses are present in and around the site, therefore the option of surface water discharging into a watercourse is currently deemed unviable.

4.8 Development plots and highways that propose to discharge into existing sewers should attenuate surface water runoff to the agreed Runoff Rate, which corresponds to the existing drainage catchment.

Priority Level 4: Surface Water Runoff Discharged to a Surface Water Sewer, Highway Drain, or Another Drainage System

4.9 As cited above, it is proposed that surface water runoff will be discharged to the surface water. No provision is proposed for the discharge of surface water runoff to the existing highway drainage system.

4.10 Subsequent to early discussions with the LLFA and SAB, agreement was reached regarding the use of the surface water sewer as the discharge point. This agreement informed further engagement with DCWW, through which a connection point has now been identified and formally agreed.

Priority Level 5: Surface Water Runoff Discharged to a Combined Sewer

4.11 At present, no surface water discharge from the development to a combined sewer is required.

5.0 Hydraulic Control

Drainage modelling parameters

5.1 VoG Council has outlined the following parameters to be incorporated into the drainage modelling for the site. These parameters should be applied to all modelling efforts, including individual plots and infrastructure works:

- **Rainfall Methodology:**
  The most recent FEH (Flood Estimation Handbook) rainfall method to be utilised within the surface water drainage modelling software. Catchment descriptors should remain consistent across all catchments, which will be extracted from the FEH dataset.

- **Cv Values:**
  A Cv value of 1.0 for both summer and winter seasons are required to ensure compliance with SuDS Approval Body (SAB) standards.

- **Urban Creep:**
  Urban creep must be factored into the drainage design, with a 10% increase in impermeable area applied to all residential plots on the site.

Interception

5.2 The Welsh Government's Statutory Standards for Sustainable Drainage Systems requires interception to be considered within drainage strategies. Interception aims to mimic greenfield runoff conditions by preventing runoff from the majority of all small rainfall events.

5.3 Interception of the first 5mm of rainfall should be provided wherever practicable, with a target of capturing 80% of summer storms and 50% of winter storms. Multiple SuDS components can be used in series to achieve the required interception levels.

5.4 Achieving the interception criteria for the site is expected to be challenging due to limited opportunities for infiltration. The appropriate SuDS measures necessary to achieve acceptable interception levels should be confirmed with VoG Council on a plot-by-plot basis.

Greenfield Runoff Rates

5.5 Where runoff outfalls to an existing waterbody, it is crucial that the proposed hydraulic control does not alter the flow rate or runoff volume to the receiving waterbody, either by increasing or decreasing it.

5.6 As per the detailed development layout, the total impermeable area of the site is 3.148ha. However, it has been agreed with LLFA and DCWW to use a discharge rate of 15.83 l/s for the development site.
(see Appendix B-Surface Water Discharge Compliance Correspondance)

5.7 In line with the above, surface water runoff from the development catchment will be controlled to the allowable discharge rate. The design based on this discharge will ensure that there is no

increase of flood risk off site whilst ensuring that any flooding within the site is managed, does not pose risk to properties and is for the extreme events including climatic conditions.

5.8 The proposed development will not increase the rate or volume of surface water runoff leaving the site compared to the existing (greenfield) condition, for all rainfall events up to and including the 1 in 100-year event plus climate change allowance.

5.9 Surface water runoff from all impermeable areas will be managed via a robust, SAB-compliant Sustainable Drainage System (SuDS) strategy.

5.10 Attenuation features are sized to ensure that peak discharge rates and total runoff volumes do not exceed greenfield values.

5.11 Exceedance flow routes are provided to safely manage flows during extreme events, ensuring no uncontrolled discharge to neighbouring land.

5.12 The drainage design has been checked against the latest climate change guidance and local policy requirements.

Summary of Existing Greenfield Runoff Characteristics as described in the Vectos FCA:

5.13 A review of the existing catchment, informed by the topographical and drainage survey undertaken by T&P, indicates that the site currently drains as a single contributing catchment falling generally towards the south-west corner, where an existing drainage ditch forms the natural outfall. The site comprises predominantly permeable soils, resulting in subdued surface gradients and correspondingly low surface water runoff rates during rainfall events.

5.14 Greenfield runoff rates were calculated using the ICP SuDS Method within MicroDrainage, applying parameters based on the surveyed catchment characteristics, including a total effective developable area of 5.0 ha, SAAR of 957 mm, Soil Class 0.15 and zero urbanisation. The resulting greenfield peak discharges are low across all return periods, reflecting the permeable ground conditions and the limited propensity for overland flow identified during the catchment walkover.

5.15 The baseline runoff rates are summarised in below:

5.16 Greenfield Runoff Rates and QSE variables:

5.0 x 0.6 = 3.0ha). This is a conservative assumption considering the relative low density of the illustrative masterplan. These calculations are also enclosed in Appendix F.

5.26 Table 3 presents the variables included in the quick storage estimate.

Table 3: Quick storage estimate variables

Variable	Value	Unit
Return period	100	
Impermeable area	3.0	ha
Max allowable discharge	15.1	l/s
Infiltration	0.0036	m/hr
Climate change	30	%

5.27 The drainage strategy has been based on attenuation of up to and including the 1 in 100-year

5.17 The combination of low gradients, limited existing conveyance features and the permeable soil profile suggests potential for infiltration-led SuDS solutions, subject to confirmation through site-specific infiltration testing. The low magnitude of existing runoff also indicates that controlled discharge from the proposed development—maintained at or below QBAR—would not increase downstream flood risk and may provide betterment relative to the existing catchment. The overall assessed GFROR is 15.1 l/s.

Exceedance Events

5.18 Existing flow paths should be retained and incorporated into the site layout wherever possible.

5.19 Storm events with return periods greater than 1 in 100 years, plus 40% climate change, should be evaluated. The impact of flooding during exceedance events must be reviewed and mitigated to the extent that is reasonably practicable. An exceedance flow path drawing will be submitted as part of the SAB application, clearly identifying the flood flow paths and proposed mitigation measures.

6.0 Design standards

6.1 In addition to the items mentioned above, the following should be incorporated into the designs for VoG Council:

- **Manhole Covers:**
  Manhole covers within the highway carriageway should be antiskid and rated D400.
- **Flow Control (Hydrobrakes or similar):**
  Hydrobrakes (or similar) are the preferred method of flow control within manholes. The design should allow for sufficient clearance to enable the Hydrobrake to be lifted out for maintenance and/or replacement when necessary.
- **Orifice Plates:**
  Orifice plates are acceptable in swales or other features, provided they can be accessed and cleared without entering a confined space.
- **Weir Walls:**
  Internal weir walls may be required in Hydrobrake manholes in areas where flooding could pose a risk to adjacent proposed properties.

Design of attenuation basins

6.2 Where possible, it is recommended that the following parameters be used for the design of attenuation basins, as illustrated in Figure 2:

- **Side Slopes:**
  1 in 3 side slopes, both above and below the maximum waterline, to facilitate ease of maintenance.
- **Cascades:**
  The use of cascades where possible to dissipate incoming water energy into the basins.
- **Maintenance Access:**
  Provide vehicle access of at least 4m width to an appropriate part of the basin. Tracking should be conducted for a 'dropside van' or similar to confirm suitability. The construction should include grass-infilling geogrid to support vehicle access.
- **Access Around Basins:**
  A continuous 1m wide access path around the length of the basins to allow maintenance operatives to access all areas.
- **Amenity Considerations:**
  As previously noted, amenity use should be incorporated into the basin design. Additionally, appropriate signage should be provided to inform users about the feature.
- **Planting:**
  The planting design should be sympathetic to the potential treatment of pollutants.
- **Exceedance Flow Paths:**
  Exceedance flow paths should be considered to ensure that, in the event of a basin flooding, residential properties and critical infrastructure (such as foul pumping stations and electricity substations) are protected.
- **RoSPA Report:**
  A RoSPA (Royal Society for the Prevention of Accidents) report should be provided for the basin to ensure safety standards are met.

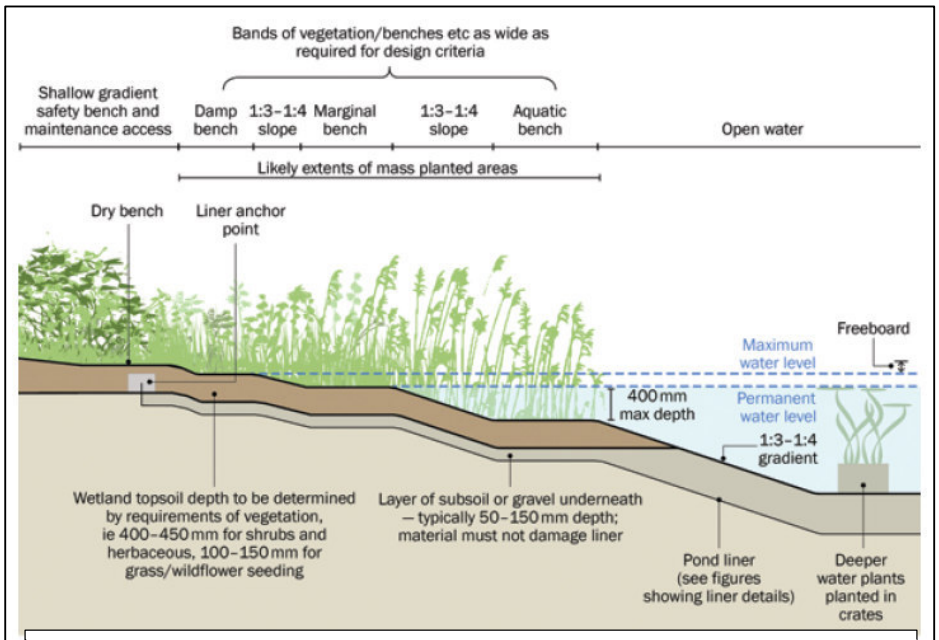


Figure 2: Attenuation Basin Cross-Section sketch *(Ciria 753 SuDS Manual)*

7.0 Water Quality

7.1 The Welsh Government's Statutory Standards for Sustainable Drainage Systems outline the hazard potential for different land uses and the corresponding treatment requirements. Table 2, reproduced from the standards, shows these requirements, with the discharge to groundwater omitted, as this method of discharge is not fully confirmed for the site.

Table 2 - Surface Water Treatment Requirements (Reproduced from Welsh Government's Statutory Standards for Sustainable Drainage Systems).

Land Use	**Pollution Hazard Level**	**Requirements for discharge to surface waters, including coasts and estuaries**
Residential roofs	Very Low	Removal of gross solids and sediments only
Individual property driveways, roofs (excluding residential), residential car parks, low traffic roads (e.g. cul-de-sacs, homezones, general access roads), non-residential car parking with infrequent change (e.g. schools, offices)	Low	Simple Index Approach. Additional measures may be required for discharges to protected resources
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	Simple Index Approach. Additional measures may be required for discharges to protected resources
Trunk roads and motorways	High	Follow the guidance and risk assessment process set out in HD45/09 (Highways Agency, 2014)
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, manufactured, stored, or used, industrial sites	High	Discharges may require an environmental licence or permit. Secure pre-permitting advice first from Natural Resources Wales. Risk assessment is likely to be required.

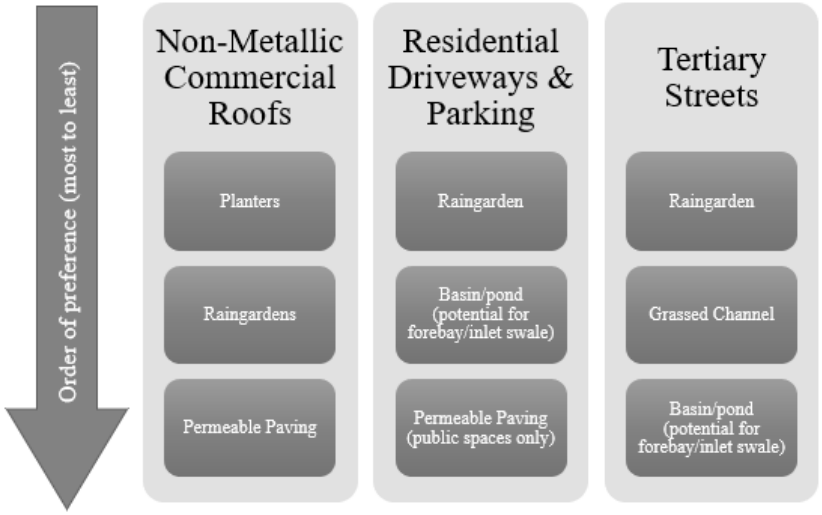


Figure 3: Zone 1 Pollutants and Treatment

7.2 The pollution hazards present on the southwest site have been identified, and the site has been divided into several zones based on the anticipated pollution hazard levels.

7.3 Indicative surface water drainage treatments have been identified for each zone and the detailed drainage design for the development plots, spine roads, and secondary and tertiary streets.

7.4 The Simple Index Approach should be used to demonstrate that appropriate treatment has been provided for the identified pollution hazards. Treatment should be implemented as close to the source of pollutants as practicable. The proposals will be subject to SAB approval.

Zone 0 – Very Low Pollution Hazard

7.5 Runoff with 'very low' pollution is expected from the residential roofs of individual plots. Runoff from these roofs should be treated by removing sediments and solids, as well as by slowing the rate of runoff where possible. This level of treatment will be designed and implemented by the individual plot developers and house builders.

Zone 1 – Low Pollution Hazard

7.6 The areas associated with 'low' pollution hazard and the appropriate methods of treating these hazards are shown in Figure 3.

Driveways and Parking

7.7 Water quality treatment is unlikely to be feasible for all parking areas and driveways; however, treatment should be considered for parking areas designed for multiple vehicles.

7.8 Residential driveways will not be considered for permeable paving due to the lack of control by the SAB to ensure they are not paved over. However, permeable paving is suitable for shared parking areas. The impact of permeable paving on access to drainage and utilities should also be considered.

Tertiary Streets / Quiet Streets

7.9 It is not anticipated to be practical or feasible for every street to include treatment components, and traditional drainage may be more suitable for streets with very low traffic. Permeable paving may be used in shared spaces, but its implementation will need to be coordinated with utilities, drainage, and the recommended maintenance regime.

Zone 2 – Medium Pollution Hazard

7.10 The sources of Zone 2 pollutants, medium pollution hazard, and the proposed means of treatment are shown in Figure 4.

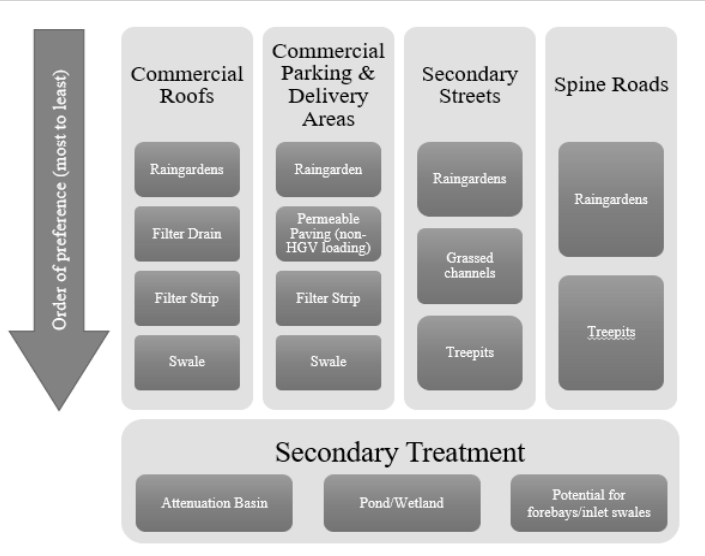


Figure 4: Zone 2 Pollutants and Treatment

7.11 In Zone 2, at least two SuDS treatments should be used in sequence to provide adequate levels of water quality treatment. It is proposed that a combination of components should be used to provide sufficient treatment, for example,

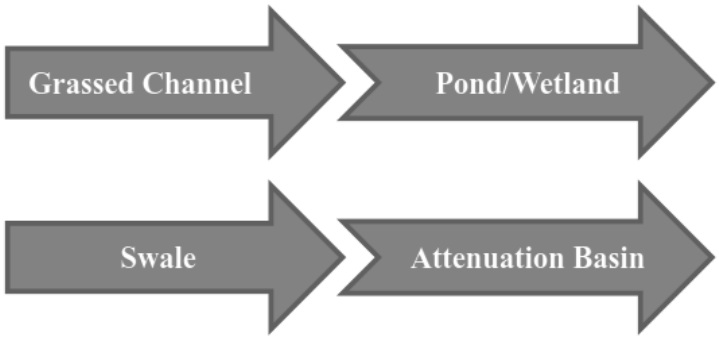


Figure 5: Combination of SuDS components

7.12 The Simple Index Approach should be used to ensure that the proposed treatment train is adequate for the level of anticipated pollution

Secondary Streets

7.13 Highway kerbs may be required to prevent vehicular overrun of the SuDS features. In such cases, spaced kerb inlets will facilitate lateral runoff into the treatment areas. Maintenance requirements and the typical lifespan of planting and trees should be considered as part of the landscaping and maintenance plan.

Spine Roads / Primary Streets

7.14 It is anticipated that surface water from the roads will pass through two stages of treatment before discharging.

Zone 3 – High Pollution Hazard

7.15 The sources of Zone 3 pollutants, which are classified as having a 'high' pollution hazard, and the proposed treatment methods are shown in Figure 6. For Zone 3 pollutants, at least three SuDS treatments should be applied in sequence.

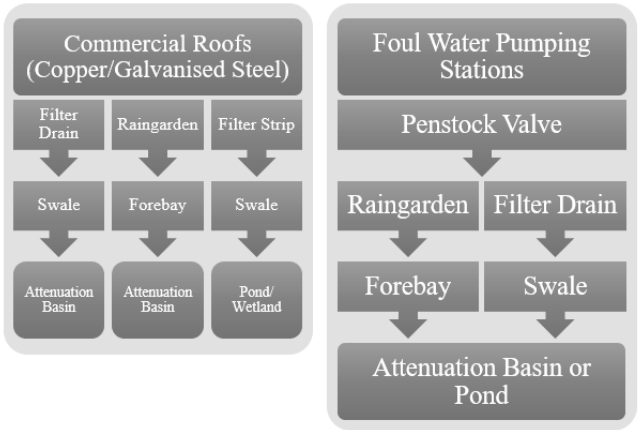


Figure 6: Zone 3 Pollutants and Treatment

7.16 In addition to the appropriate SuDS components, it is recommended that mechanical elements, such as penstock valves, be used in high-risk areas. These valves will allow such areas to be isolated in the event of a spillage, thus protecting the site.

8.0 Amenity and Biodiversity

8.1 The amenity and biodiversity value of SuDS components, both strategic and on-plot, should be maximised, as significant value can be created when these features are designed appropriately. This value should extend across the entire site, ensuring that the amenity and biodiversity benefits are consistently integrated.

8.2 Amenity value can be provided through aesthetic design, creating natural-looking features in otherwise urban environments. These features can also serve as spaces for sports, leisure, or recreation, and contribute to localised climate cooling.

8.3 To enhance ecological benefits and maximise biodiversity, landscape architects, arboriculturists, and horticulturists should be consulted. Their expertise can help replicate existing habitats and promote the ecological advantages of the proposed SuDS features.

8.4 SuDS components that can maximise both amenity and biodiversity include:

- Green roofs
- Grassed channels
- Swales
- Rain gardens, Bioretention systems
- Trees
- Detention basins
- Ponds and wetlands

Planting and Landscaping

8.5 To determine the appropriate planting for different areas of the site, several key parameters should be considered, in consultation with a landscape architect. These parameters include:

- Sun/shade exposure across the site
- Existing and proposed soil types (e.g., clay-rich, sandy, etc.)
- Aesthetic and design considerations for planting (e.g., shape, colour, size)
- Maintenance requirements for plant species and groupings
- Biodiversity value of the plantings
- Adjacent surface types
- Constraints posed by nearby utilities or infrastructure

8.6 The UK Rain Garden Guide outlines typical plant species that are suitable for rain gardens. It is recommended to seek expert advice from a landscape architect for any planting included in SuDS systems.

8.7 As illustrated in Figure 7, rain gardens should be constructed with the following build-up layers (refer to the SuDS Manual for detailed design guidance):

- A minimum of 400mm of filter media (with a minimum hydraulic conductivity of 200mm/hr).
    - Preferably, site-won topsoil should be used, which must be tested to confirm it meets the required hydraulic conductivity, percentage compost, and particle size distribution.
    - Site-won topsoil may need to be mixed with other materials to meet these requirements.
    - The final specification should be provided by the landscape architect and agreed upon with the SAB.
- Geotextile separator membrane.
- Type B filter drainage material with a Twinwall pipe at the base.
- Rain gardens should be lined with an impermeable membrane.

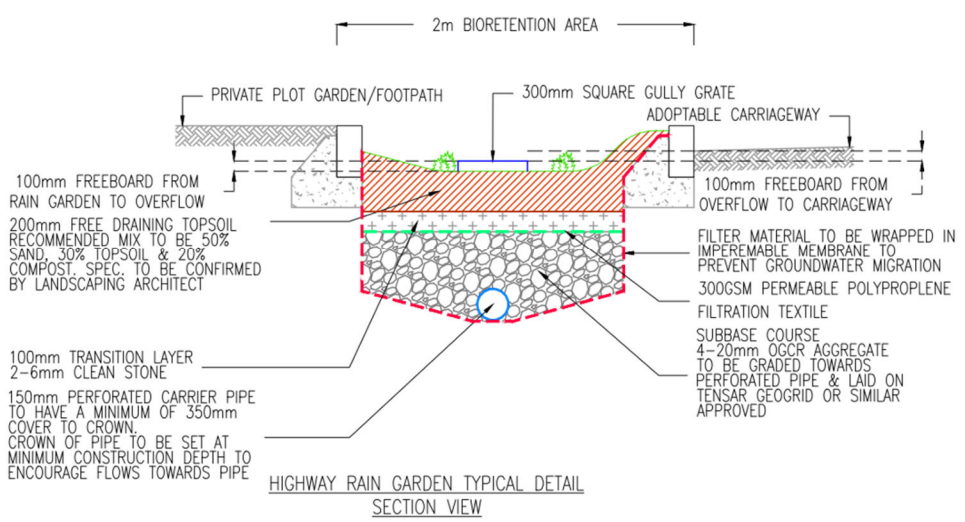


Figure 7: Raingarden (Bioretention) Cross-Section sketch

8.8 Similar build-ups have been agreed upon throughout various SAB regions including the Vale of Glamorgan (VoG) on other projects with SAB approval.

8.9 Where plants and trees are integral to the effectiveness of a SuDS component, the lifespan of the vegetation must be considered. Additionally, appropriate details should be included in the landscaping maintenance plan regarding the replacement of vegetation when necessary.

9.0 Construction, Operation and Maintenance

Adoption and maintenance responsibility

9.1 SuDS will be adopted by VoG Council to ensure their long-term functionality. Maintenance of the SuDS features within site will be managed by either VoG Council or a Maintenance Management Company. The maintenance arrangement of the will be finalised at a later stage.

9.2 For the first five years, the property owners will be directly responsible for the maintenance and management of the SuDS. After this period, maintenance responsibility will be transferred either to VoG Council or to Maintenance Management Company.

9.3 Should Management Company fail to fulfill its responsibilities, VoG Council has step-in rights, enabling them to assume responsibility for maintaining SuDS features and ensuring their continued operation.

Maintenance activities

9.4 All surface water drainage infrastructure must be designed in accordance with relevant legislation and guidance, including the Construction, Design, and Management (CDM)

Regulations 2015 and the SuDS Manual, to minimise health and safety risks associated with construction, operation, maintenance, and demolition.

9.5 To obtain SAB approval, the designer must conduct a risk assessment to demonstrate that any health and safety risks have been minimised as far as reasonably practicable. Additionally, a RoSPA (Royal Society for the Prevention of Accidents) report should be carried out, and any identified risks should be addressed with appropriate mitigation measures.

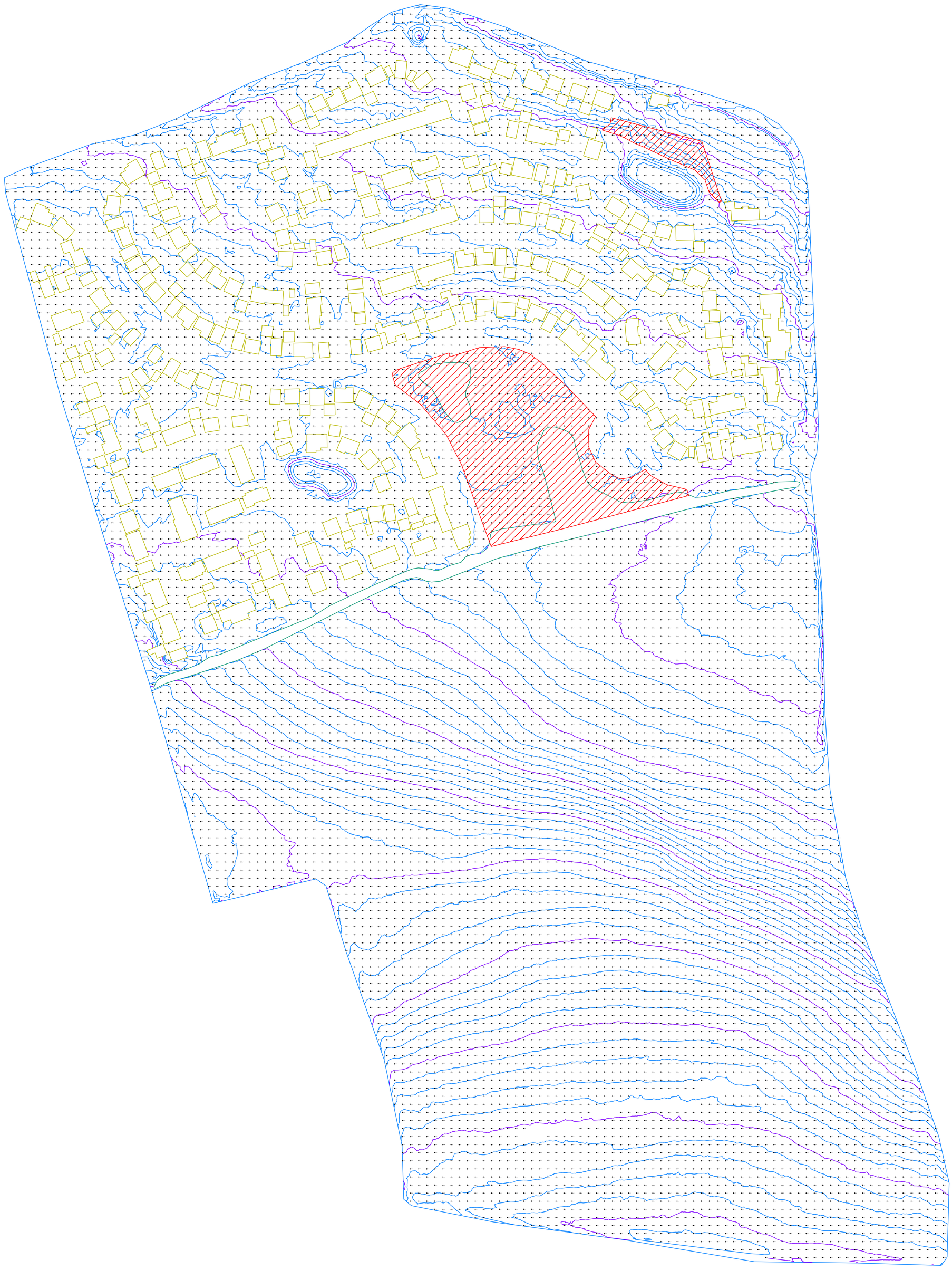
9.6 A detailed and costed maintenance strategy should be prepared, outlining the inspection and maintenance requirements for the proposed drainage infrastructure. This strategy should include the frequency of tasks, the design life of any infrastructure (particularly where the design life is shorter than the project's intended lifespan), and access provisions for maintaining all SuDS components. The strategy should also estimate the costs associated with maintenance activities, including potential repair and replacement costs.

9.7 The design should prioritise the most sustainable, efficient, and cost-effective solutions, aiming to minimise energy use and carbon emissions.

9.8 Due to the maintenance and operational demands, mechanical water quality treatment methods, such as oil separators, have not been included in the development.

9.9 Permeable paving is not proposed for private areas due to the risk of these areas being resurfaced with impermeable materials. However, it can be considered for shared spaces, such as communal car parking areas. While permeable paving offers benefits, it has significant maintenance requirements, making it less preferable compared to other types of SuDS features.

APENDIX A



APENDIX B

Leigh Fotiadis

Subject: Sully Ph2 discharge rate

From: Chris Scourfield <Chris.Scourfield@dwrcymru.com>
Sent: Monday, March 20, 2023 10:10 AM
To: Sebastian Mordey - TW South Wales <Sebastian.Mordey@taylorwimpey.com>; Leigh Fotiadis <leigh.fotiadis@thinkurban.design>; Toni Taylor-Wells - TW South Wales <Toni.TaylorWells@taylorwimpey.com>
Subject: RE: Sully Ph2 discharge rate

Good morning,

Sorry I thought I had responded to this.

Happy with the proposed connection points and discharge rate.

Many thanks

Chris Scourfield
Development Planning Officer – Developer services

Dwr Cymru Welsh Water
Linea | Fortran Road | St Mellons | CF3 0LT

www.dwrcymru.com

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From: Sebastian Mordey - TW South Wales <Sebastian.Mordey@taylorwimpey.com>
Sent: 20 March 2023 10:05
To: Leigh Fotiadis <leigh.fotiadis@thinkurban.design>; Chris Scourfield <Chris.Scourfield@dwrcymru.com>
Cc: Toni Taylor-Wells - TW South Wales <Toni.TaylorWells@taylorwimpey.com>
Subject: RE: Sully Ph2 discharge rate

******** External Mail ********

Good morning,

Hope you both had a good weekend.

Have point of connections now been confirmed, along with the below discharge rates?

Kind Regards,

Sebastian Mordey | Assistant Technical Project Manager |Taylor Wimpey South Wales

Eastern Business Park, Building 2, Wern Fawr Lane, St Mellons, Cardiff, CF3 5EA

T: 029 20534700 | E: Sebastian.Mordey@taylorwimpey.com

Taylor Wimpey South Wales is a division of Taylor Wimpey UK Limited

---

From: Leigh Fotiadis <leigh.fotiadis@thinkurban.design>
Sent: 03 March 2023 14:42
To: Chris Scourfield <Chris.Scourfield@dwrcymru.com>
Cc: Toni Taylor-Wells - TW South Wales <Toni.TaylorWells@taylorwimpey.com>; Sebastian Mordey - TW South Wales <Sebastian.Mordey@taylorwimpey.com>
Subject: Sully Ph2 discharge rate

Warning: This email is from an external sender, please be cautious when opening attachments or links.

Hi Chris,

Thanks for your time earlier today.

Please see calculations from the UK SuDS tool output for Sully 2. The discharge rate is based on FEH catchment descriptors and the total QBAR discharge of 15.83 l/s.

If you can confirm if this is acceptable, we will then progress on this basis.

Kind regards,

Leigh Fotiadis | Director

leigh.fotiadis@thinkurban.design

T: 029 2252 0219

M: 07507 620 601

thinkurban
Architecture & Civil Engineering

www.thinkurban.design

Quest House, St Mellons Business Park

Fortran Road. Cardiff, CF3 0EY

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SSG Training & Consultancy

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Appendix C

Draintech CCTV Survey

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helping to improve the drainage network

Drainage Survey Report

Job Number : 20958

Project Number: 1

Project Name: Sully Phase 2

Company: Taylor Wimpey UK LTD

Site Date: 00-00-0000

Draintech Surveys LTD

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20958 SULLY PHASE 2	20958	08/11/2025

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Project Information

Project Name	Project Number	Project Date
20958 SULLY PHASE 2	20958	08/11/2025

Client

Company: Taylor Wimpey UK LTD
Contact: Callum Duckett

Site

Company: Draintech Surveys Ltd
Contact: Jason Shillito

Contractor

Company: Draintech Surveys LTD

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Section Inspection - 08/11/2025 - MHS2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	08/11/25	8:44	Not Specified	No Rain Or Snow	No	MHS2X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

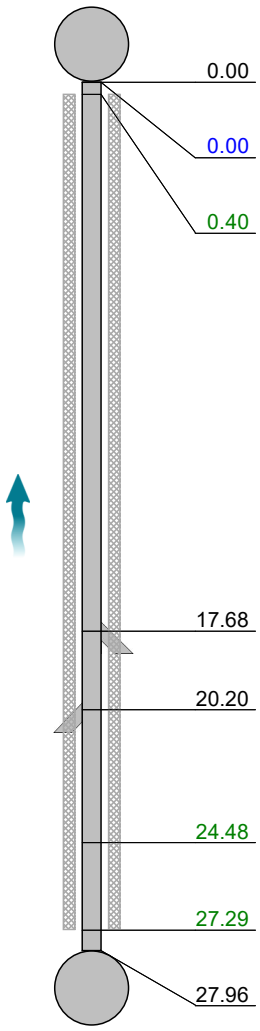
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS2
Road:	Brean Close	**Inspected Length:**	27.96 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	27.96 m	**Downstream Node:**	MHS1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.980 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:243

Depth: 1.98 m
MHS1



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS1	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:09		
0.40	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:14		
17.68		JN	Junction at 10 o'clock, 150mm dia	00:02:20		
20.20		JN	Junction at 2 o'clock, 150mm dia	00:02:44		
24.48		DES	Settled deposits, fine, 5% cross-sectional area loss	00:03:15		3
27.29	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:03:37		3
27.96		MHF	Finish node, manhole, reference: MHS2	00:03:41		

MHS2
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	4.0	2.0	56.0	3.0

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Section Inspection - 08/11/2025 - MHS3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	08/11/25	8:51	Not Specified	No Rain Or Snow	No	MHS3X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

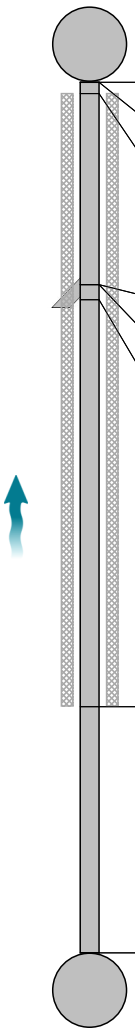
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS3
Road:	Brean Close	**Inspected Length:**	28.96 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	28.96 m	**Downstream Node:**	MHS2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:251

Depth: m
MHS2



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS2	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
6.75		CXI	Connection defective, connecting pipe is intruding at 1 o'clock, 100mm dia, intrusion: 5%	00:01:11	1	3
6.75		CL	Crack, longitudinal at 1 o'clock	00:01:16	2	2 / 2
7.23		DES	Settled deposits, fine, 5% cross-sectional area loss	00:01:29		3
20.76	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:47		3
28.96		MHF	Finish node, manhole, reference: MHS3	00:03:46		

MHS3
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	10.0	0.3	10.0	2.0	4	5.0	1.6	47.0	4.0

Section Pictures - 08/11/2025 - MHS3X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Upstream	MHS3X		20958

1, 00:01:11, 6.75 m
Connection defective, connecting pipe is intruding at 1 o'clock, 100mm dia, intrusion: 5%

2, 00:01:16, 6.75 m
Crack, longitudinal at 1 o'clock

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Section Inspection - 08/11/2025 - MHS1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	08/11/25	9:08	Not Specified	No Rain Or Snow	No	MHS1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

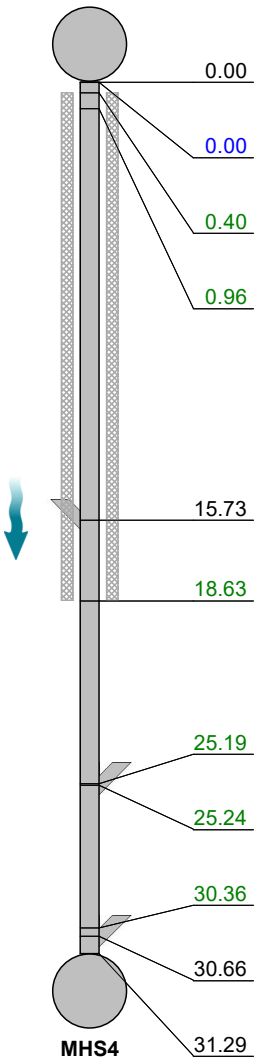
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS1
Road:	Brean Close	**Inspected Length:**	31.29 m	**Upstream Pipe Depth:**	1.980 m
Location:		**Total Length:**	31.29 m	**Downstream Node:**	MHS4
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.530 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:271

Depth: 1.98 m
MHS1



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS1	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:16		
0.96		DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:23		3
15.73		JN	Junction at 2 o'clock, 150mm dia	00:01:49		
18.63	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:06		3
25.19		CXI	Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 10%	00:02:42	1	3
25.24		DEE	Attached deposits, encrustation from 6 o'clock to 10 o'clock, 5% cross-sectional area loss	00:02:53		3
30.36		LR	Line deviates right: SLIGHTLY	00:03:28		
30.66		JN	Junction at 11 o'clock, 150mm dia	00:03:35		
31.29		MHF	Finish node, manhole, reference: MHS4	00:03:42		

MHS4
Depth: 1.53 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	4.0	1.4	44.0	3.0

Section Pictures - 08/11/2025 - MHS1X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	MHS1X		20958

1, 00:02:42, 25.19 m
Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 10%

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Section Inspection - 08/11/2025 - MHS4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	1	08/11/25	9:24	Not Specified	No Rain Or Snow	No	MHS4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

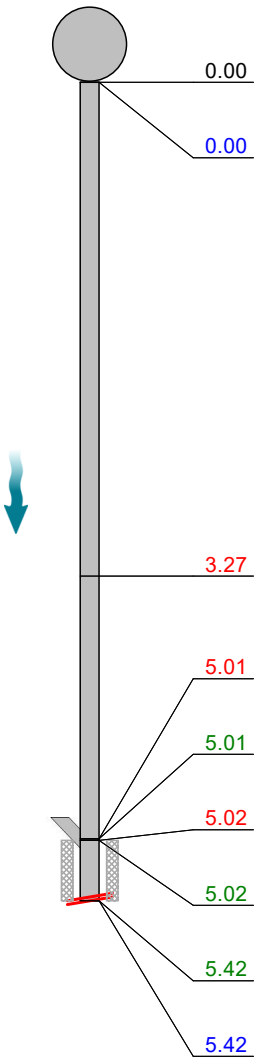
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS4
Road:	Brean Close	**Inspected Length:**	5.42 m	**Upstream Pipe Depth:**	1.530 m
Location:		**Total Length:**	5.42 m	**Downstream Node:**	MHS5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.730 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: 1.53 m
MHS4



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS4	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
3.27		CL	Crack, longitudinal at 12 o'clock	00:00:36	1	2 / 2
5.01		CM	Cracks, multiple from 1 o'clock to 4 o'clock	00:01:04	2	3 / 2
5.01		CXI	Connection defective, connecting pipe is intruding at 2 o'clock, 150mm dia, intrusion: 10%	00:01:12	3	3
5.02		FS	Fracture, spiral from 8 o'clock to 1 o'clock	00:01:18	4	4 / 2
5.02	S01	RT	Roots, tap, start	00:01:23	5	
5.42	F01	RT	Roots, tap, finish	00:01:39		4
5.42		SA	Survey abandoned: UNABLE TO GET PAST ROOT TAP	00:01:40		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	120.0	24.0	130.0	4.0	5	9.0	1.8	10.0	4.0

Section Pictures - 08/11/2025 - MHS4X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	MHS4X		20958

1, 00:00:36, 3.27 m
Crack, longitudinal at 12 o'clock

2, 00:01:04, 5.01 m
Cracks, multiple from 1 o'clock to 4 o'clock

3, 00:01:12, 5.01 m
Connection defective, connecting pipe is intruding at 2 o'clock, 150mm dia, intrusion: 10%

4, 00:01:18, 5.02 m
Fracture, spiral from 8 o'clock to 1 o'clock

5, 00:01:23, 5.02 m
Roots, tap, start

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Section Inspection - 08/11/2025 - MHS4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	08/11/25	9:40	Not Specified	No Rain Or Snow	No	MHS4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

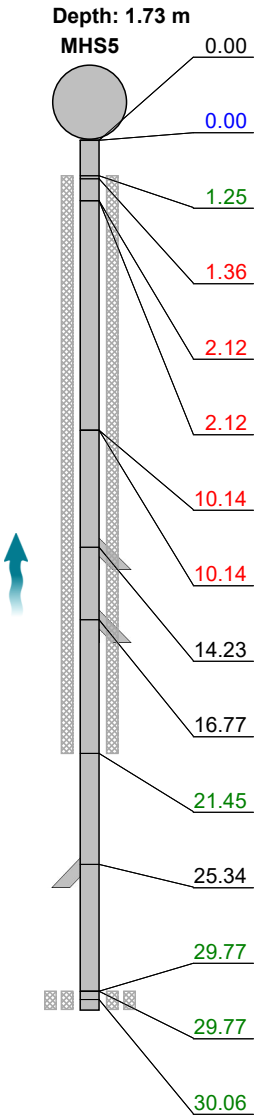
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS4
Road:	Brean Close	**Inspected Length:**	30.98 m	**Upstream Pipe Depth:**	1.530 m
Location:		**Total Length:**	30.98 m	**Downstream Node:**	MHS5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.730 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:264

Depth: 1.73 m



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS5	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:09		
1.25	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:24		
1.36		FSJ	Fracture, spiral at joint from 11 o'clock to 1 o'clock	00:00:42	1	4 / 2
2.12		FSJ	Fracture, spiral at joint from 8 o'clock to 3 o'clock	00:00:55	2	4 / 2
2.12		FLJ	Fracture, longitudinal at joint at 12 o'clock	00:00:57	3	3 / 2
10.14		FSJ	Fracture, spiral at joint from 3 o'clock to 7 o'clock	00:01:57	4	4 / 2
10.14		CLJ	Crack, longitudinal at joint at 5 o'clock	00:02:00	5	2 / 2
14.23		JN	Junction at 10 o'clock, 150mm dia	00:02:30		
16.77		JN	Junction at 10 o'clock, 150mm dia	00:02:50		
21.45	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:03:20		3
25.34		JN	Junction at 3 o'clock, 150mm dia	00:03:54		
29.77	S02	DES	Settled deposits, fine, 5% cross-sectional area loss, start	00:04:22		
29.77	S03	RF	Roots, fine, start	00:04:23		
30.06	C02	DES	Settled deposits, fine, 10% cross-sectional area loss, change	00:04:29		

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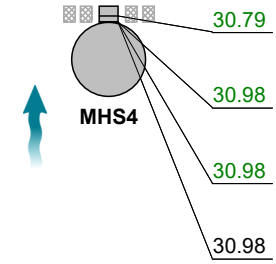
Section Inspection - 08/11/2025 - MHS4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	08/11/25	9:40	Not Specified	No Rain Or Snow	No	MHS4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:264



Position [m]		Code	Observation	MPEG	Photo	Grade
30.79	C02	DES	Settled deposits, fine, 20% cross-sectional area loss, change	00:04:35		
30.98	F02	DES	Settled deposits, fine, 20% cross-sectional area loss, finish	00:04:46		3
30.98	F03	RF	Roots, fine, finish	00:04:48		2
30.98		OCF	Finish node, other special chamber, reference: MHS4: SURVEY OVERLAP	00:04:49		

Depth: 1.53 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	120.0	9.4	290.0	4.0	8	4.0	1.7	53.0	3.0

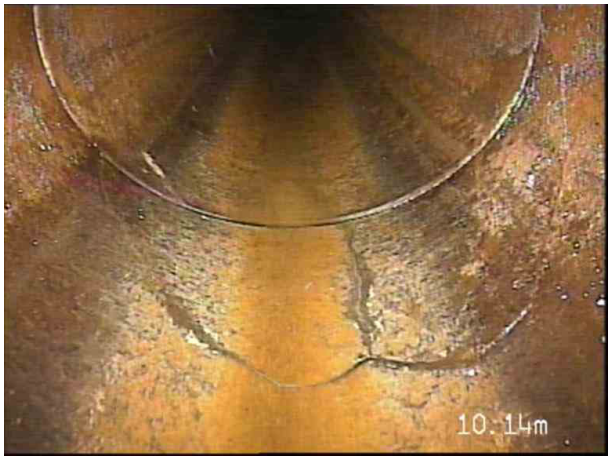
Section Pictures - 08/11/2025 - MHS4X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
5	Upstream	MHS4X		20958

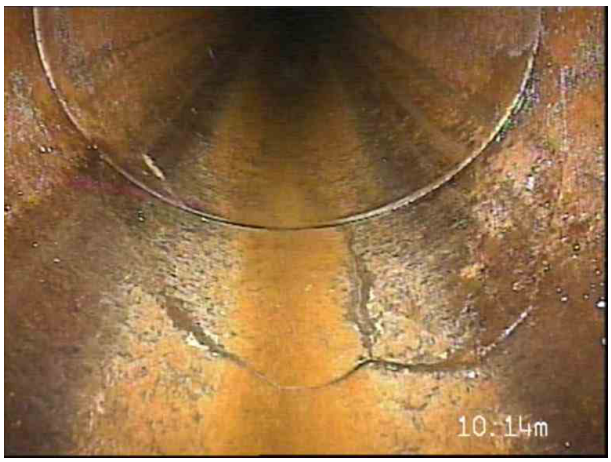
1, 00:00:42, 1.36 m
Fracture, spiral at joint from 11 o'clock to 1 o'clock

2, 00:00:55, 2.12 m
Fracture, spiral at joint from 8 o'clock to 3 o'clock

3, 00:00:57, 2.12 m
Fracture, longitudinal at joint at 12 o'clock



4, 00:01:57, 10.14 m
Fracture, spiral at joint from 3 o'clock to 7 o'clock



5, 00:02:00, 10.14 m
Crack, longitudinal at joint at 5 o'clock

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Section Inspection - 08/11/2025 - MHS5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	08/11/25	9:51	Not Specified	No Rain Or Snow	No	MHS5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

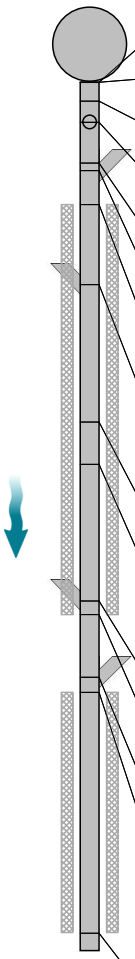
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS5
Road:	Brean Close	**Inspected Length:**	50.80 m	**Upstream Pipe Depth:**	1.730 m
Location:		**Total Length:**	50.80 m	**Downstream Node:**	MHS6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.050 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:258

Depth: 1.73 m



Position [m]		Code	Observation	MPEG	Photo	Grade
MHS5 0.00		MH	Start node, manhole, reference: MHS5	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.67		CCJ	Crack, circumferential at joint from 10 o'clock to 3 o'clock	00:00:17	1	2 / 2
1.37		CN	Connection other than junction at 12 o'clock, 150mm dia	00:00:26		
2.78		CLJ	Crack, longitudinal at joint at 11 o'clock	00:00:38	2	2 / 2
3.03		CXI	Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 20%	00:00:47	3	4
4.18	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:01:01		
6.94		JN	Junction at 2 o'clock, 150mm dia	00:01:20		
11.62		CLJ	Crack, longitudinal at joint at 1 o'clock	00:01:52	4	2 / 2
13.08		CCJ	Crack, circumferential at joint from 9 o'clock to 3 o'clock	00:02:07	5	2 / 2
17.74		JN	Junction at 3 o'clock, 150mm dia	00:02:36		
18.19	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:41		3
20.34		CN	Connection other than junction at 10 o'clock, 150mm dia	00:02:59		
20.85	S02	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:03:05		
29.08	F02	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:04:24		3

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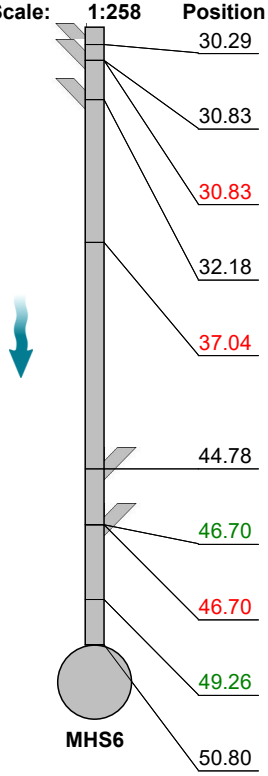
Section Inspection - 08/11/2025 - MHS5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	08/11/25	9:51	Not Specified	No Rain Or Snow	No	MHS5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:258



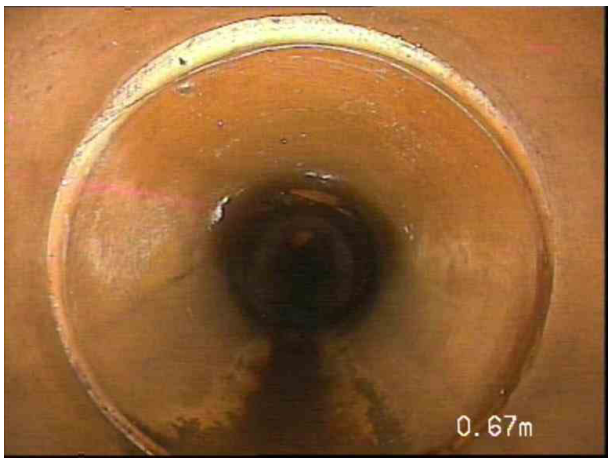
Position [m]	Code	Observation	MPEG	Photo	Grade
30.29	JN	Junction at 2 o'clock, 150mm dia	00:04:33		
30.83	CN	Connection other than junction at 1 o'clock, 150mm dia	00:04:40		
30.83	FM	Fractures, multiple from 2 o'clock to 12 o'clock	00:04:46	6	4 / 2
32.18	JN	Junction at 2 o'clock, 150mm dia	00:04:59		
37.04	CL	Crack, longitudinal at 12 o'clock	00:05:28	7	2 / 2
44.78	JN	Junction at 10 o'clock, 150mm dia	00:06:15		
46.70	CXI	Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 5%	00:06:28	8	3
46.70	CLJ	Crack, longitudinal at joint at 12 o'clock	00:06:33	9	2 / 2
49.26	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:06:52		3
50.80	MHF	Finish node, manhole, reference: MHS6	00:07:08		

Depth: 2.05 m

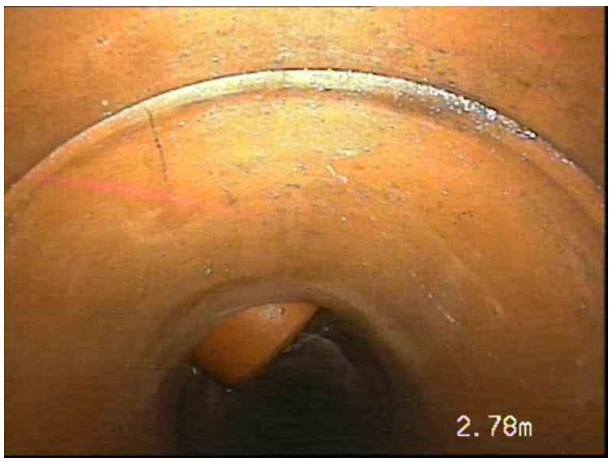
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
7	80.0	2.8	140.0	4.0	12	6.0	1.3	64.0	4.0

Section Pictures - 08/11/2025 - MHS5X

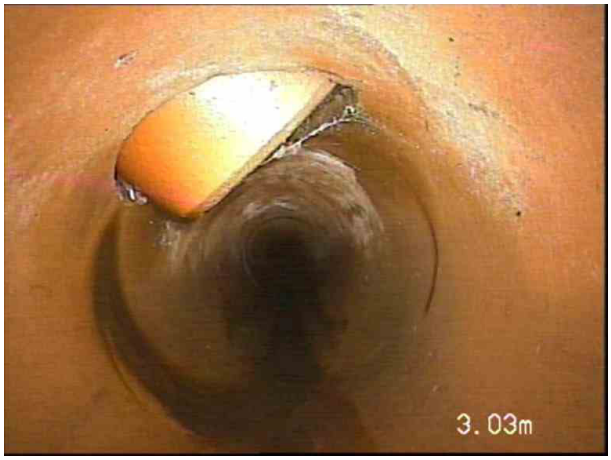
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Downstream	MHS5X		20958



1, 00:00:17, 0.67 m
Crack, circumferential at joint from 10 o'clock to 3 o'clock



2, 00:00:38, 2.78 m
Crack, longitudinal at joint at 11 o'clock



3, 00:00:47, 3.03 m
Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 20%

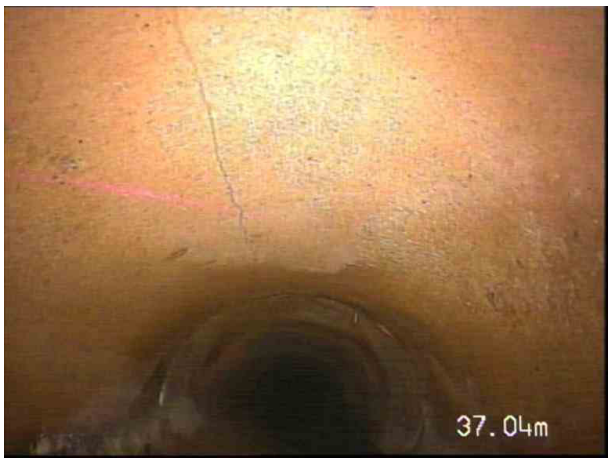
4, 00:01:52, 11.62 m
Crack, longitudinal at joint at 1 o'clock

5, 00:02:07, 13.08 m
Crack, circumferential at joint from 9 o'clock to 3 o'clock

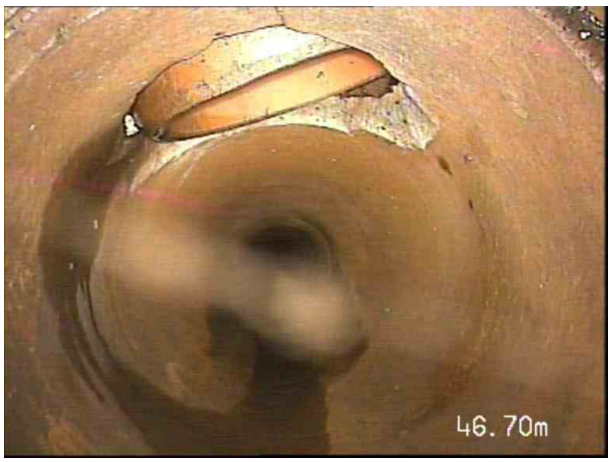
6, 00:04:46, 30.83 m
Fractures, multiple from 2 o'clock to 12 o'clock

Section Pictures - 08/11/2025 - MHS5X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Downstream	MHS5X		20958



7, 00:05:28, 37.04 m
Crack, longitudinal at 12 o'clock



8, 00:06:28, 46.70 m
Connection defective, connecting pipe is intruding at 11 o'clock, 150mm dia, intrusion: 5%

9, 00:06:33, 46.70 m
Crack, longitudinal at joint at 12 o'clock

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Section Inspection - 08/11/2025 - MHF1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	1	08/11/25	10:16	Not Specified	No Rain Or Snow	No	MHF1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

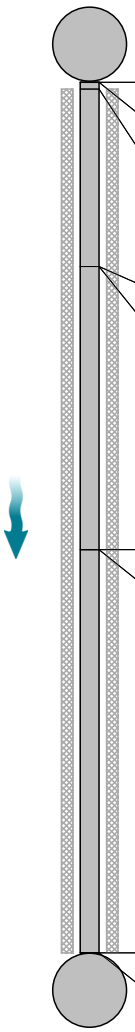
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF1
Road:	Brean Close	**Inspected Length:**	51.09 m	**Upstream Pipe Depth:**	2.020 m
Location:		**Total Length:**	51.09 m	**Downstream Node:**	MHF2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.440 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:443

Depth: 2.02 m
MHF1



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF1	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
10.81		FSJ	Fracture, spiral at joint from 3 o'clock to 9 o'clock	00:01:17	1	4 / 2
10.81		FLJ	Fracture, longitudinal at joint at 6 o'clock	00:01:19	2	3 / 2
27.45		OJM	Open joint, medium	00:03:07	3	1
27.45		DEF	Attached deposits, fouling at 5 o'clock, 5% cross-sectional area loss	00:03:12		3
51.09	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:05:57		3
51.09		MHF	Finish node, manhole, reference: MHF2	00:05:58		

MHF2
Depth: 2.44 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
3	120.0	2.4	121.0	4.0	4	6.0	4.1	208.0	4.0

Section Pictures - 08/11/2025 - MHF1X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
7	Downstream	MHF1X		20958

1, 00:01:17, 10.81 m
Fracture, spiral at joint from 3 o'clock to 9 o'clock

2, 00:01:19, 10.81 m
Fracture, longitudinal at joint at 6 o'clock

3, 00:03:07, 27.45 m
Open joint, medium

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Section Inspection - 08/11/2025 - MHF3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	1	08/11/25	10:38	Not Specified	No Rain Or Snow	No	MHF3X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

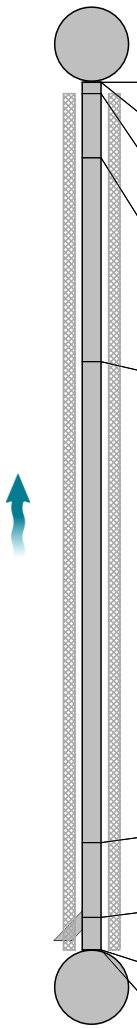
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF3
Road:	Brean Close	**Inspected Length:**	15.17 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	15.17 m	**Downstream Node:**	MHF1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.020 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:132

Depth: 2.02 m
MHF1



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF1	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:09		
0.20	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
1.33		JDL	Joint displaced, large	00:00:29	1	1 / 4
4.89		LL	Line deviates left: SLIGHTLY	00:01:03		
13.30		DEF	Attached deposits, fouling from 5 o'clock to 7 o'clock, 10% cross-sectional area loss: LIVE LINE	00:02:00	2	3
14.61		JN	Junction at 3 o'clock, 100mm dia	00:02:27		
15.17	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:34		3
15.17		MHF	Finish node, manhole, reference: MHF3	00:02:35		

MHF3
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	0.1	2.0	1.0	3	9.0	4.4	67.0	4.0

Section Pictures - 08/11/2025 - MHF3X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Upstream	MHF3X		20958

1, 00:00:29, 1.33 m
Joint displaced, large

2, 00:02:00, 13.30 m
Attached deposits, fouling from 5 o'clock to 7 o'clock, 10% cross-sectional area loss, LIVE LINE

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Section Inspection - 08/11/2025 - MHS7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	1	08/11/25	10:50	Not Specified	No Rain Or Snow	No	MHS7X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

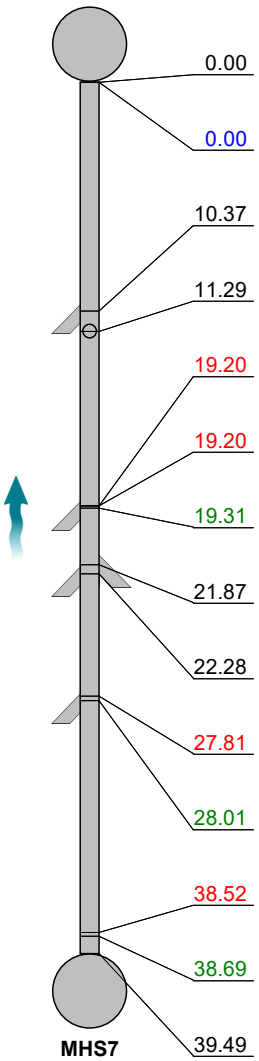
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS7
Road:	Brean Close	**Inspected Length:**	39.49 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	39.49 m	**Downstream Node:**	MHS6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.050 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:342

Depth: 2.05 m
MHS6



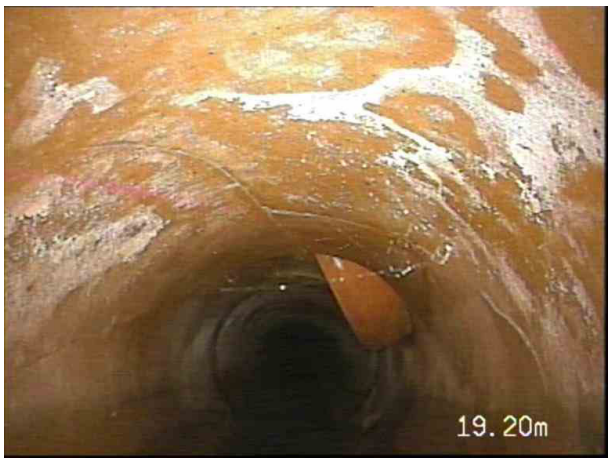
Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS6	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:09		
10.37	CN	Connection other than junction at 2 o'clock, 150mm dia	00:01:37		
11.29	CN	Connection other than junction at 12 o'clock, 150mm dia	00:01:50		
19.20	CS	Cracks, spiral from 10 o'clock to 3 o'clock	00:02:40	1	3 / 2
19.20	FL	Fracture, longitudinal at 9 o'clock	00:02:46	2	3 / 2
19.31	CXI	Connection defective, connecting pipe is intruding at 1 o'clock, 150mm dia, intrusion: 15%	00:02:53	3	3
21.87	JN	Junction at 10 o'clock, 150mm dia	00:03:09		
22.28	JN	Junction at 2 o'clock, 150mm dia	00:03:15		
27.81	FS	Fracture, spiral from 8 o'clock to 2 o'clock	00:03:49	4	4 / 2
28.01	CXI	Connection defective, connecting pipe is intruding at 2 o'clock, 150mm dia, intrusion: 20%	00:03:54	5	4
38.52	FSJ	Fracture, spiral at joint from 5 o'clock to 6 o'clock	00:05:03	6	4 / 2
38.69	DEEJ	Attached deposits, encrustation at joint at 6 o'clock, 5% cross-sectional area loss	00:05:09		3
39.49	MHF	Finish node, manhole, reference: MHS7	00:05:18		

MHS7
Depth: m

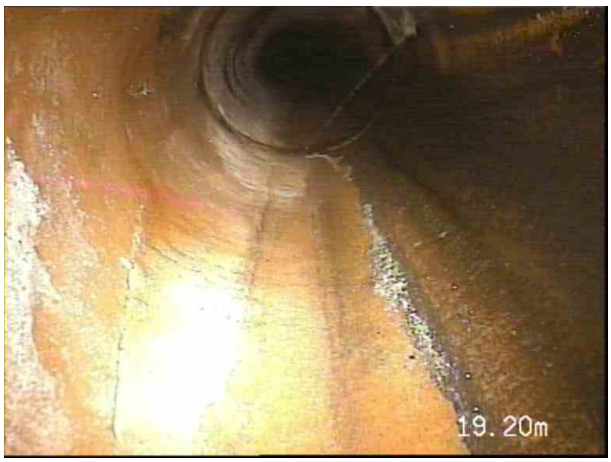
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
4	80.0	6.1	240.0	4.0	7	6.0	0.3	13.0	4.0

Section Pictures - 08/11/2025 - MHS7X

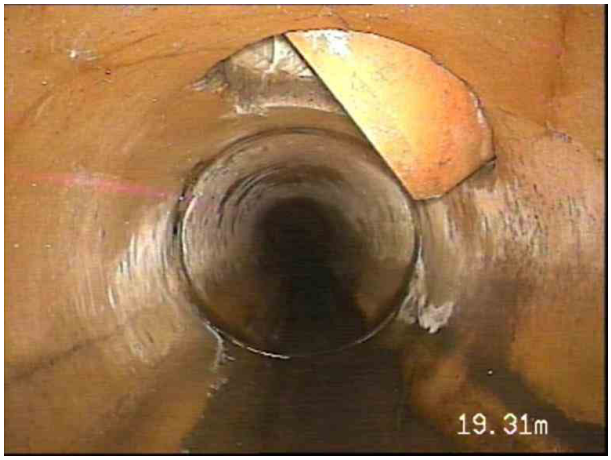
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
9	Upstream	MHS7X		20958



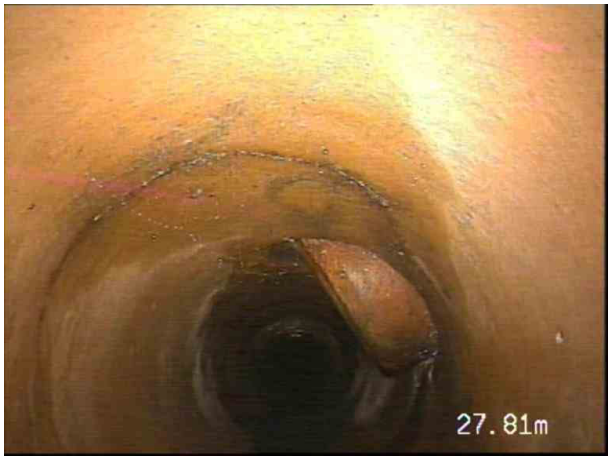
1, 00:02:40, 19.20 m
Cracks, spiral from 10 o'clock to 3 o'clock



2, 00:02:46, 19.20 m
Fracture, longitudinal at 9 o'clock

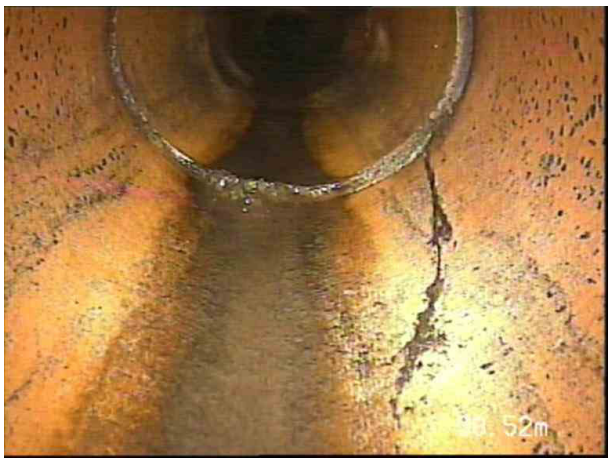


3, 00:02:53, 19.31 m
Connection defective, connecting pipe is intruding at 1 o'clock, 150mm dia, intrusion: 15%



4, 00:03:49, 27.81 m
Fracture, spiral from 8 o'clock to 2 o'clock

5, 00:03:54, 28.01 m
Connection defective, connecting pipe is intruding at 2 o'clock, 150mm dia, intrusion: 20%



6, 00:05:03, 38.52 m
Fracture, spiral at joint from 5 o'clock to 6 o'clock

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Section Inspection - 08/11/2025 - MHF4X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	1	08/11/25	11:10	Not Specified	No Rain Or Snow	No	MHF4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

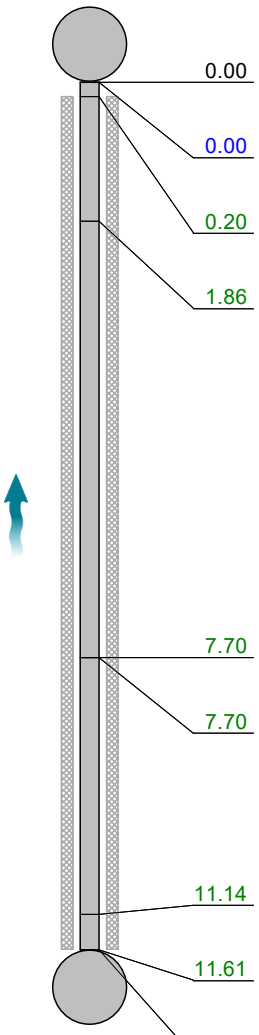
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF4
Road:	Brean Close	**Inspected Length:**	11.61 m	**Upstream Pipe Depth:**	1.580 m
Location:		**Total Length:**	11.61 m	**Downstream Node:**	MHF2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	2.440 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:101

Depth: 2.44 m
MHF2



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF2	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:11		
1.86		LU	Line deviates up	00:00:30		
7.70		RFJ	Roots, fine at joint	00:01:14		2
7.70		LL	Line deviates left: SLIGHTLY	00:01:14		
11.14		RM	Roots, mass, 15% cross-sectional area loss	00:01:41	1	3
11.61	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:01:47		3
11.61		MHF	Finish node, manhole, reference: MHF4	00:01:48		

MHF4
Depth: 1.58 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	8.0	4.6	53.0	4.0

Section Pictures - 08/11/2025 - MHF4X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
10	Upstream	MHF4X		20958

1, 00:01:41, 11.14 m
Roots, mass, 15% cross-sectional area loss

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Section Inspection - 08/11/2025 - MHF5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	1	08/11/25	11:33	Not Specified	No Rain Or Snow	No	MHF5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

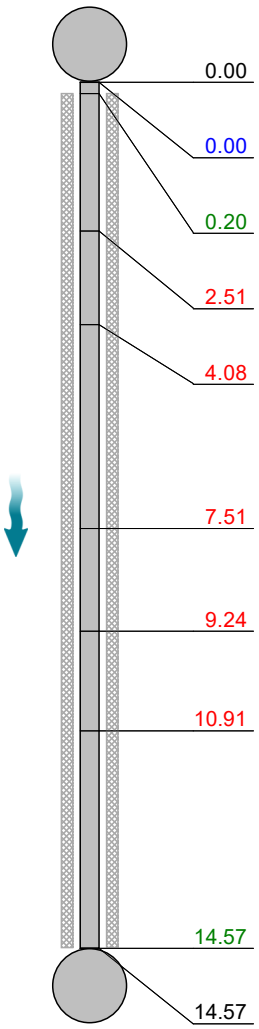
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF5
Road:	Brean Close	**Inspected Length:**	14.57 m	**Upstream Pipe Depth:**	1.360 m
Location:		**Total Length:**	14.57 m	**Downstream Node:**	MHF6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.470 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:127

Depth: 1.36 m
MHF5



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF5	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
2.51		JDL	Joint displaced, large	00:00:33	1	1 / 4
4.08		JDL	Joint displaced, large	00:00:50	2	1 / 4
7.51		JDM	Joint displaced, medium	00:01:15	3	1 / 3
9.24		JDM	Joint displaced, medium	00:01:31	4	1 / 3
10.91		JDM	Joint displaced, medium	00:01:44	5	1 / 3
14.57	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:09		3
14.57		MHF	Finish node, manhole, reference: MHF6	00:02:10		

MHF6
Depth: 1.47 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
5	2.0	0.5	7.0	1.0	6	9.0	5.2	76.0	5.0

Section Pictures - 08/11/2025 - MHF5X

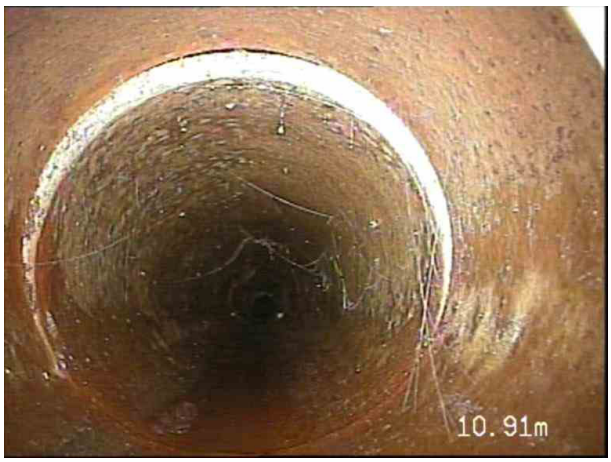
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
11	Downstream	MHF5X		20958

1, 00:00:33, 2.51 m
Joint displaced, large

2, 00:00:50, 4.08 m
Joint displaced, large

3, 00:01:15, 7.51 m
Joint displaced, medium

4, 00:01:31, 9.24 m
Joint displaced, medium



5, 00:01:44, 10.91 m
Joint displaced, medium

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Section Inspection - 08/11/2025 - MHF6X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	1	08/11/25	11:39	Not Specified	No Rain Or Snow	No	MHF6X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

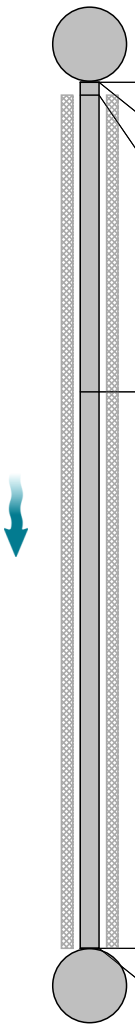
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF6
Road:	Brean Close	**Inspected Length:**	13.20 m	**Upstream Pipe Depth:**	1.470 m
Location:		**Total Length:**	13.20 m	**Downstream Node:**	MHF7
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.290 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:115

Depth: 1.47 m
MHF6



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF6	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:11		
4.72		JDM	Joint displaced, medium	00:00:41	1	1 / 3
13.20	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:01:36		3
13.20		MHF	Finish node, manhole, reference: MHF7	00:01:37		

MHF7
Depth: 1.29 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	1.0	0.1	1.0	1.0	2	6.0	4.1	54.0	4.0

Section Pictures - 08/11/2025 - MHF6X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
12	Downstream	MHF6X		20958

1, 00:00:41, 4.72 m
Joint displaced, medium

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Section Inspection - 08/11/2025 - MHF7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	1	08/11/25	11:44	Not Specified	No Rain Or Snow	No	MHF7X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

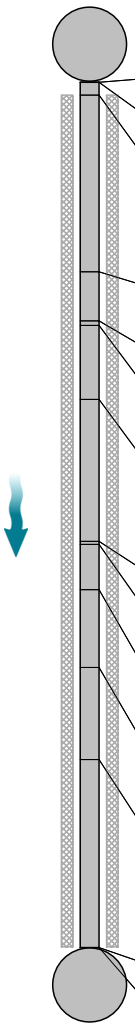
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF7
Road:	Brean Close	**Inspected Length:**	13.18 m	**Upstream Pipe Depth:**	1.290 m
Location:		**Total Length:**	13.18 m	**Downstream Node:**	MHF8
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:115

Depth: 1.29 m
MHF7



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF7	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:11		
2.89		WL	Water level, 10% of the vertical dimension	00:00:28		
3.64		DEF	Attached deposits, fouling from 5 o'clock to 6 o'clock, 20% cross-sectional area loss: LIVE LINE	00:00:36		3
3.71		RMJ	Roots, mass at joint, 20% cross-sectional area loss	00:00:47	1	5
4.84		REM	General remark: PUSHING FOUL DOWN LINE	00:00:57		
7.00		RMJ	Roots, mass at joint, 10% cross-sectional area loss	00:01:16	2	3
7.04		WL	Water level, 5% of the vertical dimension	00:01:19		
7.73		WL	Water level, 10% of the vertical dimension	00:01:28		
8.92		WL	Water level, 5% of the vertical dimension	00:01:39		
10.32		JDL	Joint displaced, large	00:01:52	3	1 / 4
13.18	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:10		3
13.18		MHF	Finish node, manhole, reference: MHF8	00:02:11		

MHF8
Depth: m

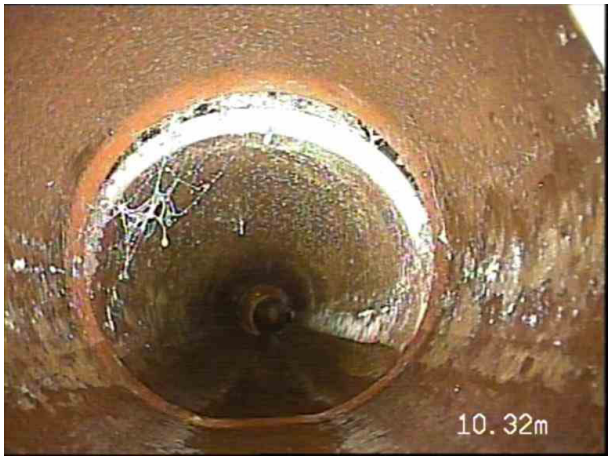
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	0.2	2.0	1.0	5	14.0	5.5	73.0	5.0

Section Pictures - 08/11/2025 - MHF7X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
13	Downstream	MHF7X		20958

1, 00:00:47, 3.71 m
Roots, mass at joint, 20% cross-sectional area loss

2, 00:01:16, 7.00 m
Roots, mass at joint, 10% cross-sectional area loss



3, 00:01:52, 10.32 m
Joint displaced, large

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Section Inspection - 08/11/2025 - MHF8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	1	08/11/25	11:50	Not Specified	No Rain Or Snow	No	MHF8X

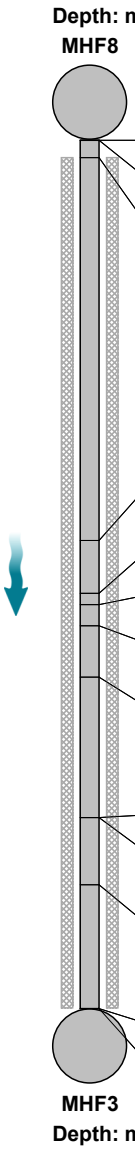
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF8
Road:	Brean Close	**Inspected Length:**	19.67 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	19.67 m	**Downstream Node:**	MHF3
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:171



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF8	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
9.08		WL	Water level, 10% of the vertical dimension	00:00:59		
10.27		WL	Water level, 20% of the vertical dimension	00:01:07		
10.53		DEF	Attached deposits, fouling from 5 o'clock to 7 o'clock, 20% cross-sectional area loss: LIVE LINE	00:01:12		3
11.01		WL	Water level, 5% of the vertical dimension	00:01:29		
12.17		OJL	Open joint, large	00:01:39	1	1
15.34		WL	Water level, 10% of the vertical dimension	00:01:59		
15.34		OJL	Open joint, large	00:02:01	2	1
16.87		DEF	Attached deposits, fouling at 6 o'clock, 20% cross-sectional area loss: LIVE LINE	00:02:14		3
19.67	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:02:56		3
19.67		MHF	Finish node, manhole, reference: MHF3	00:02:57		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	2.0	0.2	4.0	1.0	3	6.0	4.3	84.0	4.0

Section Pictures - 08/11/2025 - MHF8X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
14	Downstream	MHF8X		20958

1, 00:01:39, 12.17 m
Open joint, large

2, 00:02:01, 15.34 m
Open joint, large

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Section Inspection - 08/11/2025 - MHS8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
15	1	08/11/25	12:22	Not Specified	No Rain Or Snow	No	MHS8X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

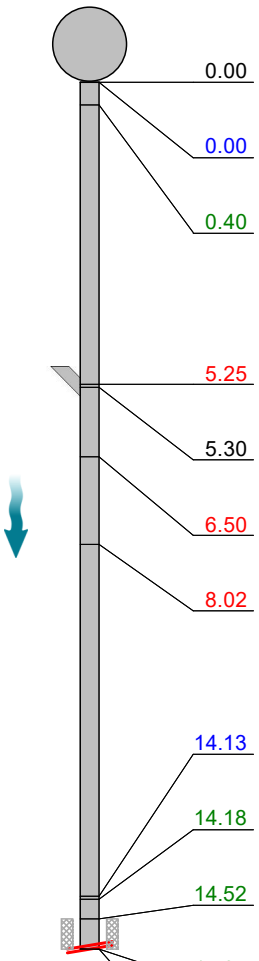
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS8
Road:	Brean Close	**Inspected Length:**	15.05 m	**Upstream Pipe Depth:**	1.090 m
Location:		**Total Length:**	15.05 m	**Downstream Node:**	MHS9
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:131

Depth: 1.09 m
MHS8



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS8	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40		DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:12		3
5.25		JDM	Joint displaced, medium	00:00:47	1	1 / 3
5.30		JN	Junction at 3 o'clock, 100mm dia	00:00:55		
6.50		CLJ	Crack, longitudinal at joint at 12 o'clock	00:01:07	2	2 / 2
8.02		OJL	Open joint, large	00:01:22	3	1
14.13		WL	Water level, 10% of the vertical dimension	00:02:08		
14.18		DES	Settled deposits, fine, 5% cross-sectional area loss	00:02:10		3
14.52	S01	DES	Settled deposits, fine, 20% cross-sectional area loss, start	00:02:14		
15.05	F01	DES	Settled deposits, fine, 20% cross-sectional area loss, finish	00:02:33		4
15.05		SA	Survey abandoned: UNABLE TO GET PAST SILT	00:02:34	4	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	10.0	0.9	13.0	2.0	5	7.0	0.8	12.0	4.0

Section Pictures - 08/11/2025 - MHS8X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
15	Downstream	MHS8X		20958

1, 00:00:47, 5.25 m
Joint displaced, medium

2, 00:01:07, 6.50 m
Crack, longitudinal at joint at 12 o'clock

3, 00:01:22, 8.02 m
Open joint, large

4, 00:02:34, 15.05 m
Survey abandoned, UNABLE TO GET PAST SILT

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Section Inspection - 08/11/2025 - MHF9X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
16	1	08/11/25	12:31	Not Specified	No Rain Or Snow	No	MHF9X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

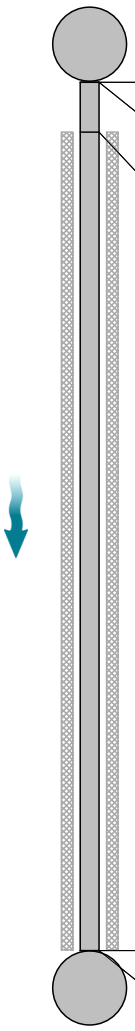
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF9
Road:	Brean Close	**Inspected Length:**	6.90 m	**Upstream Pipe Depth:**	1.210 m
Location:		**Total Length:**	6.90 m	**Downstream Node:**	MHF10
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:60

Depth: 1.21 m
MHF9



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF9	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:13		
6.90	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:01:06		3
6.90		MHF	Finish node, manhole, reference: MHF10	00:01:08		

MHF10
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4.0	4.1	28.0	4.0

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Section Inspection - 08/11/2025 - MHF10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
17	1	08/11/25	12:34	Not Specified	No Rain Or Snow	No	MHF10X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

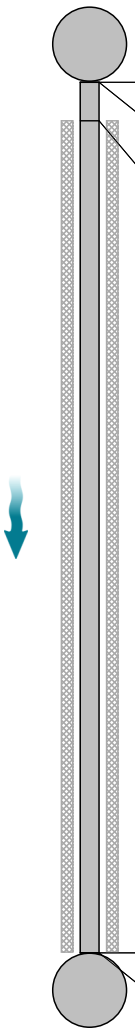
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF10
Road:	Brean Close	**Inspected Length:**	8.88 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	8.88 m	**Downstream Node:**	MHF11
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:77

Depth: m
MHF10



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF10	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:11		
8.88	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:01:17		3
8.88		MHF	Finish node, manhole, reference: MHF11	00:01:18		

MHF11
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4.0	4.1	36.0	4.0

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Section Inspection - 08/11/2025 - MHF11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	1	08/11/25	12:38	Not Specified	No Rain Or Snow	No	MHF11X

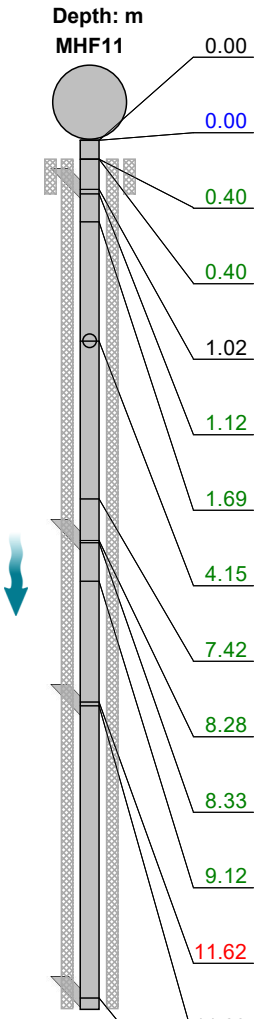
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF11
Road:	Brean Close	**Inspected Length:**	18.19 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	18.19 m	**Downstream Node:**	MHF12
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:156



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF11	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:10		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:15		
0.40	S02	DES	Settled deposits, fine, 5% cross-sectional area loss, start	00:00:17		
1.02		JN	Junction at 2 o'clock, 100mm dia	00:00:25		
1.12	F02	DES	Settled deposits, fine, 5% cross-sectional area loss, finish	00:00:29		3
1.69		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:00:39		3
4.15		CXI	Connection defective, connecting pipe is intruding at 12 o'clock, 100mm dia, intrusion: 5%	00:01:09	1	3
7.42		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:01:47		3
8.28		CXI	Connection defective, connecting pipe is intruding at 1 o'clock, 100mm dia, intrusion: 10%	00:02:00	2	3
8.33		RF	Roots, fine	00:02:05		2
9.12		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:02:21		3
11.62		JDM	Joint displaced, medium	00:02:57	3	1 / 3
11.69		JN	Junction at 2 o'clock, 100mm dia	00:03:04		
17.73		CXI	Connection defective, connecting pipe is intruding at 3 o'clock, 100mm dia, intrusion: 10%	00:04:06	4	3

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Section Inspection - 08/11/2025 - MHF11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	1	08/11/25	12:38	Not Specified	No Rain Or Snow	No	MHF11X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

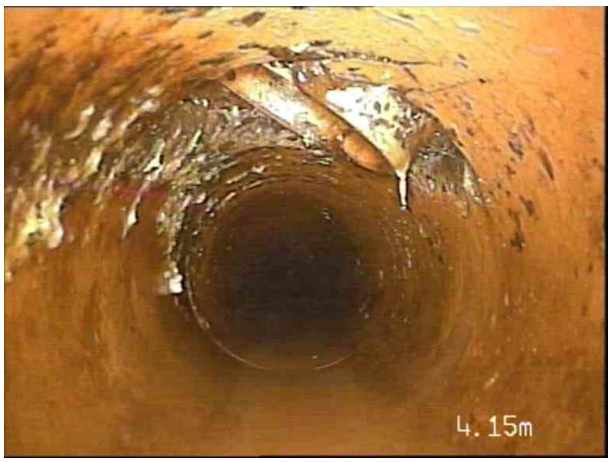
Scale: 1:156

Position [m]		Code	Observation	MPEG	Photo	Grade
18.19	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:04:32		3
18.19		SA	Survey abandoned: UNABLE TO GET PAST INTRUDING CONNECTION	00:04:33		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	1.0	0.1	1.0	1.0	10	7.0	4.9	89.0	4.0

Section Pictures - 08/11/2025 - MHF11X

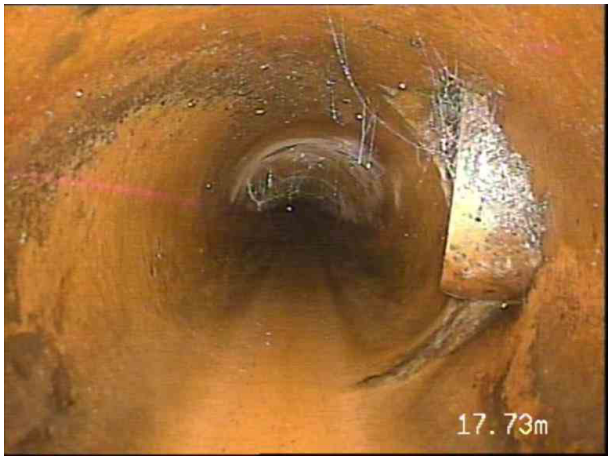
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
18	Downstream	MHF11X		20958



1, 00:01:09, 4.15 m
Connection defective, connecting pipe is intruding at 12 o'clock, 100mm dia, intrusion: 5%

2, 00:02:00, 8.28 m
Connection defective, connecting pipe is intruding at 1 o'clock, 100mm dia, intrusion: 10%

3, 00:02:57, 11.62 m
Joint displaced, medium



4, 00:04:06, 17.73 m
Connection defective, connecting pipe is intruding at 3 o'clock, 100mm dia, intrusion: 10%

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Section Inspection - 08/11/2025 - MHF14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
19	1	08/11/25	13:29	Not Specified	No Rain Or Snow	No	MHF14X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

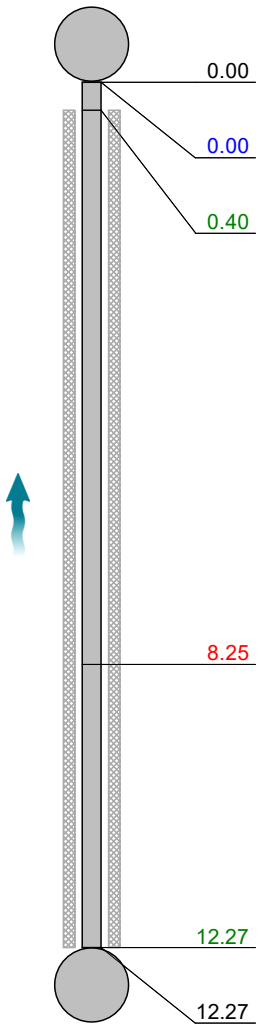
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHF14
Road:	Brean Close	**Inspected Length:**	12.27 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	12.27 m	**Downstream Node:**	MHF13
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.080 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:107

Depth: 1.08 m
MHF13



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF13	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
8.25		JDM	Joint displaced, medium	00:01:12	1	1 / 3
12.27	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:01:49		3
12.27		MHF	Finish node, manhole, reference: MHF14	00:01:50		

MHF14
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	1.0	0.1	1.0	1.0	2	6.0	4.1	50.0	4.0

Section Pictures - 08/11/2025 - MHF14X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
19	Upstream	MHF14X		20958

1, 00:01:12, 8.25 m
Joint displaced, medium

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Section Inspection - 08/11/2025 - MHF13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
20	1	08/11/25	13:36	Not Specified	No Rain Or Snow	No	MHF13X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

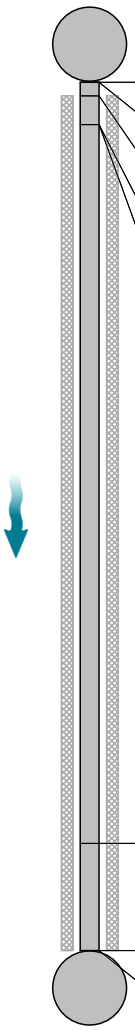
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF13
Road:	Brean Close	**Inspected Length:**	25.55 m	**Upstream Pipe Depth:**	1.080 m
Location:		**Total Length:**	25.55 m	**Downstream Node:**	MHF4
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.580 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:222

Depth: 1.08 m
MHF13



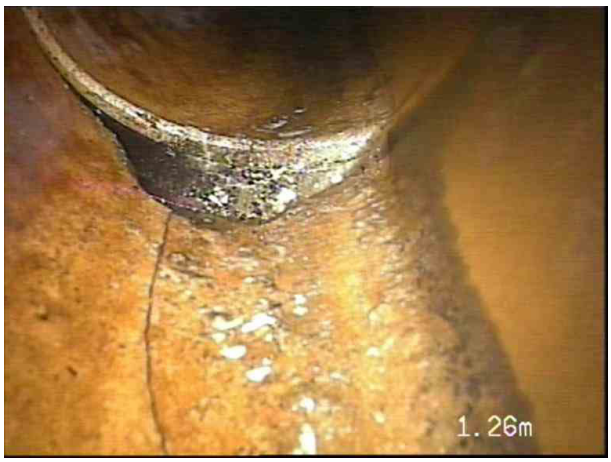
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF13	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:09		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
1.26		FLJ	Fracture, longitudinal at joint at 8 o'clock	00:00:28	1	3 / 2
1.26		H	Hole in drain or sewer from 7 o'clock to 8 o'clock	00:00:31	2	4
22.39		RF	Roots, fine	00:03:01		2
25.55	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:03:26		3
25.55		MHF	Finish node, manhole, reference: MHF4	00:03:27		

MHF4
Depth: 1.58 m

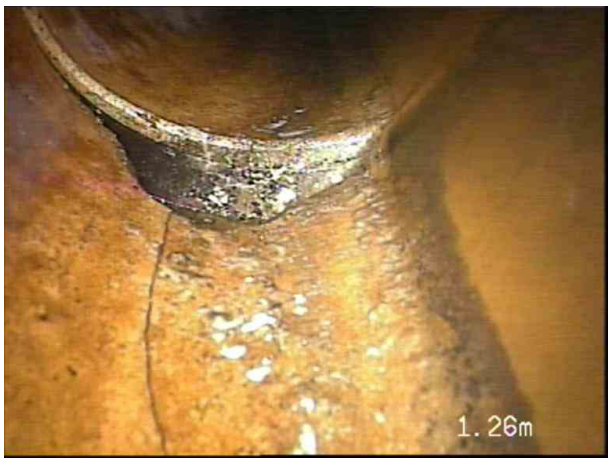
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	120.0	4.7	120.0	4.0	3	5.0	4.1	106.0	4.0

Section Pictures - 08/11/2025 - MHF13X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
20	Downstream	MHF13X		20958



1, 00:00:28, 1.26 m
Fracture, longitudinal at joint at 8 o'clock



2, 00:00:31, 1.26 m
Hole in drain or sewer from 7 o'clock to 8 o'clock

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Section Inspection - 09/11/2025 - MHS10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	09/11/25	8:43	Not Specified	No Rain Or Snow	No	MHS10X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS10
Road:	Brean Close	**Inspected Length:**	42.27 m	**Upstream Pipe Depth:**	1.460 m
Location:		**Total Length:**	42.27 m	**Downstream Node:**	MHS11
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.450 m

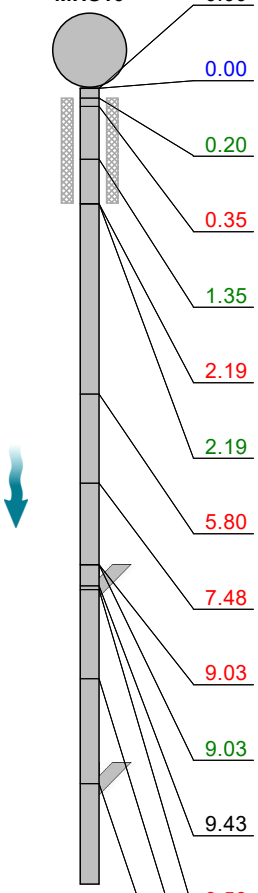
Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:143

Depth: 1.46 m

MHS10



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS10	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension: 3	00:00:08		
0.20	S01	DES	Settled deposits, fine, 5% cross-sectional area loss, start	00:00:12		
0.35		OJL	Open joint, large	00:00:19	1	1
1.35	C01	DES	Settled deposits, fine, 10% cross-sectional area loss, change	00:00:30		
2.19		OJL	Open joint, large	00:00:44	2	1
2.19	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, finish	00:00:48		3
5.80		OJL	Open joint, large	00:01:18	3	1
7.48		JDM	Joint displaced, medium	00:01:33	4	1 / 3
9.03		JDL	Joint displaced, large	00:01:47	5	1 / 4
9.03		DER	Settled deposits, coarse, 5% cross-sectional area loss	00:01:50		3
9.43		JN	Junction at 10 o'clock, 100mm dia	00:01:54		
9.50		OJL	Open joint, large	00:02:03	6	1
11.19		JDM	Joint displaced, medium	00:02:22	7	1 / 3
13.18		JN	Junction at 10 o'clock, 100mm dia	00:02:41		

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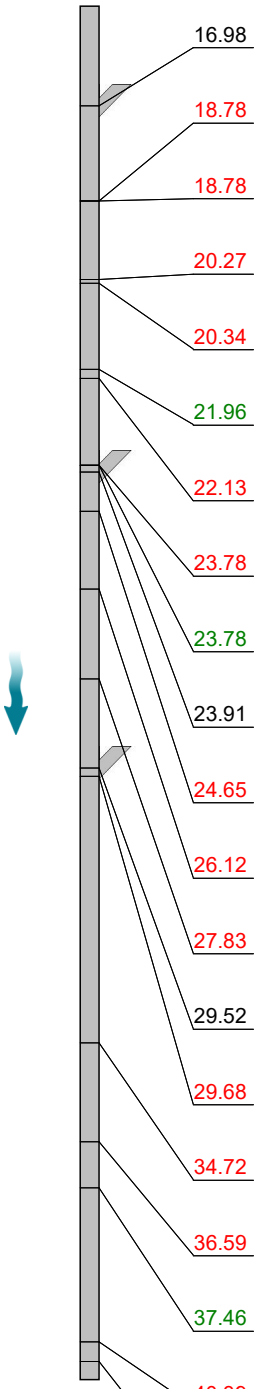
Section Inspection - 09/11/2025 - MHS10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	09/11/25	8:43	Not Specified	No Rain Or Snow	No	MHS10X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:143



Position [m]	Code	Observation	MPEG	Photo	Grade
16.98	JN	Junction at 10 o'clock, 100mm dia	00:03:08		
18.78	JDL	Joint displaced, large	00:03:23	8	1 / 4
18.78	CLJ	Crack, longitudinal at joint at 1 o'clock	00:03:26	9	2 / 2
20.27	CLJ	Crack, longitudinal at joint at 5 o'clock	00:03:46	10	2 / 2
20.34	CLJ	Crack, longitudinal at joint at 11 o'clock	00:03:39	11	2 / 2
21.96	DES	Settled deposits, fine, 5% cross-sectional area loss	00:04:01		3
22.13	JDM	Joint displaced, medium	00:04:06	12	1 / 3
23.78	JDM	Joint displaced, medium	00:04:23	13	1 / 3
23.78	RT	Roots, tap: OUT OF JUNCTION	00:04:26	14	4
23.91	JN	Junction at 10 o'clock, 100mm dia	00:04:32		
24.65	OJM	Open joint, medium	00:04:40	15	1
26.12	JDM	Joint displaced, medium	00:04:52	16	1 / 3
27.83	JDM	Joint displaced, medium	00:05:05	17	1 / 3
29.52	JN	Junction at 10 o'clock, 100mm dia	00:05:18		
29.68	OJL	Open joint, large	00:05:26	18	1
34.72	OJL	Open joint, large	00:05:57	19	1
36.59	OJM	Open joint, medium	00:06:12	20	1
37.46	RF	Roots, fine	00:06:22		2
40.39	JDL	Joint displaced, large	00:06:50	21	1 / 4
40.75	WL	Water level, 10% of the vertical dimension	00:06:58		

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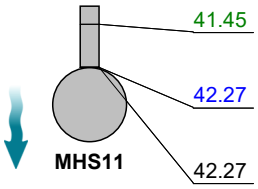
Section Inspection - 09/11/2025 - MHS10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	09/11/25	8:43	Not Specified	No Rain Or Snow	No	MHS10X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:143



Position [m]	Code	Observation	MPEG	Photo	Grade
41.45	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss: CONCRETE	00:07:04	22	3
42.27	WL	Water level, 5% of the vertical dimension	00:07:20		
42.27	MHF	Finish node, manhole, reference: MHS11	00:07:21		

Depth: 1.45 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
20	20.0	1.3	56.0	2.0	18	7.0	1.1	46.0	4.0

Section Pictures - 09/11/2025 - MHS10X

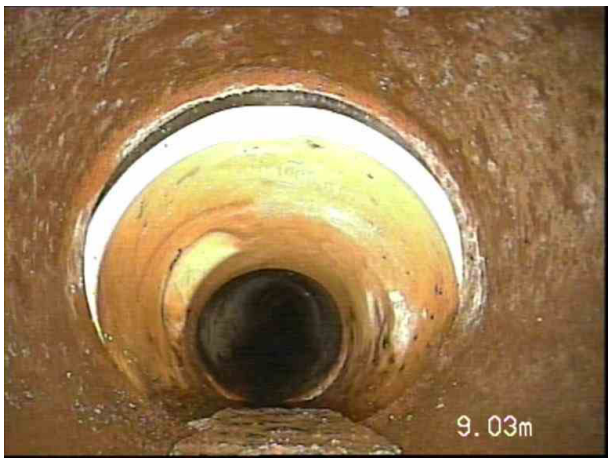
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Downstream	MHS10X		20958

1, 00:00:19, 0.35 m
Open joint, large

2, 00:00:44, 2.19 m
Open joint, large

3, 00:01:18, 5.80 m
Open joint, large

4, 00:01:33, 7.48 m
Joint displaced, medium



5, 00:01:47, 9.03 m
Joint displaced, large

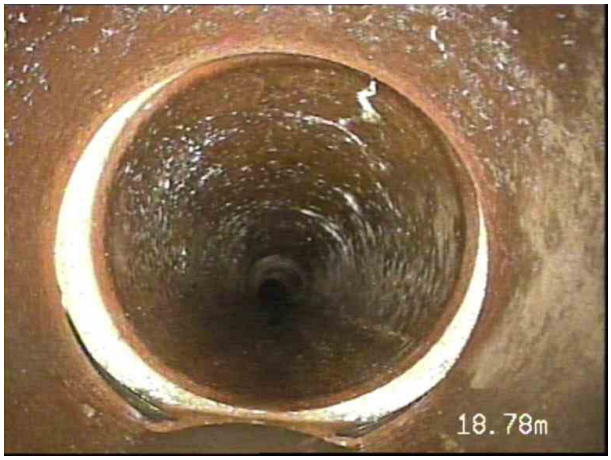
6, 00:02:03, 9.50 m
Open joint, large

Section Pictures - 09/11/2025 - MHS10X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Downstream	MHS10X		20958

7, 00:02:22, 11.19 m
Joint displaced, medium

8, 00:03:23, 18.78 m
Joint displaced, large



9, 00:03:26, 18.78 m
Crack, longitudinal at joint at 1 o'clock

10, 00:03:46, 20.27 m
Crack, longitudinal at joint at 5 o'clock

11, 00:03:39, 20.34 m
Crack, longitudinal at joint at 11 o'clock

12, 00:04:06, 22.13 m
Joint displaced, medium

Section Pictures - 09/11/2025 - MHS10X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Downstream	MHS10X		20958

13, 00:04:23, 23.78 m
Joint displaced, medium

14, 00:04:26, 23.78 m
Roots, tap, OUT OF JUNCTION

15, 00:04:40, 24.65 m
Open joint, medium

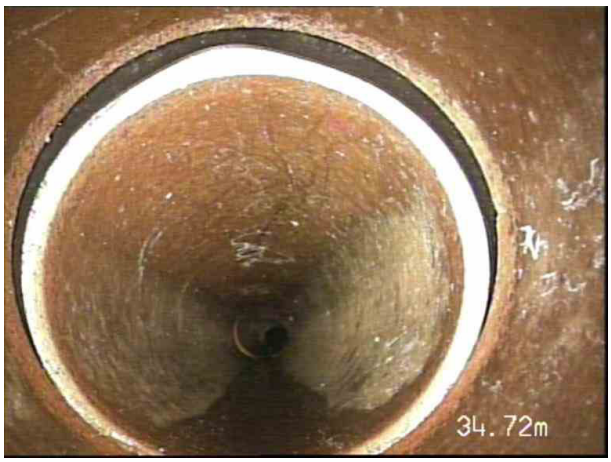
16, 00:04:52, 26.12 m
Joint displaced, medium

17, 00:05:05, 27.83 m
Joint displaced, medium

18, 00:05:26, 29.68 m
Open joint, large

Section Pictures - 09/11/2025 - MHS10X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Downstream	MHS10X		20958



19, 00:05:57, 34.72 m
Open joint, large

20, 00:06:12, 36.59 m
Open joint, medium

21, 00:06:50, 40.39 m
Joint displaced, large

22, 00:07:04, 41.45 m
Settled deposits, hard or compacted, 10% cross-sectional area loss, CONCRETE

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Section Inspection - 09/11/2025 - MHS11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
22	1	09/11/25	8:54	Not Specified	No Rain Or Snow	No	MHS11X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

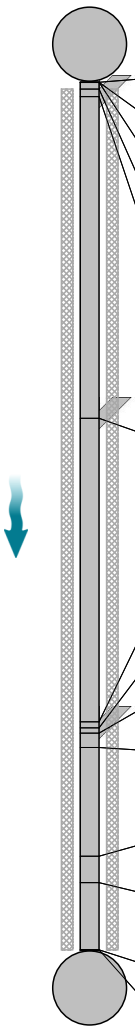
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS11
Road:	Brean Close	**Inspected Length:**	22.41 m	**Upstream Pipe Depth:**	1.450 m
Location:		**Total Length:**	22.44 m	**Downstream Node:**	MHS12
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:195

Depth: 1.45 m
MHS11



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS11	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.00		REM	General remark: USE REPORT FOR REFERENCES	00:00:13		
0.18	S01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:18		
0.38		JN	Junction at 9 o'clock, 100mm dia	00:00:28		
8.68		JN	Junction at 10 o'clock, 100mm dia	00:01:14		
16.53		JDL	Joint displaced, large	00:02:37	1	1 / 4
16.69		JN	Junction at 11 o'clock, 100mm dia	00:02:45		
16.81		WL	Water level, 10% of the vertical dimension	00:02:50		
17.19		LR	Line deviates right: SLIGHTLY	00:03:03		
19.99		WL	Water level, 5% of the vertical dimension	00:04:06		
20.67		LR	Line deviates right: SLIGHTLY	00:04:20		
22.41	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:04:50		3
22.41		MHF	Finish node, manhole, reference: MHS12	00:04:51		

MHS12
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	0.1	2.0	1.0	2	7.0	2.3	51.0	4.0

Section Pictures - 09/11/2025 - MHS11X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
22	Downstream	MHS11X		20958

1, 00:02:37, 16.53 m
Joint displaced, large

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Section Inspection - 09/11/2025 - MHS13X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	1	09/11/25	9:11	Not Specified	No Rain Or Snow	No	MHS13X

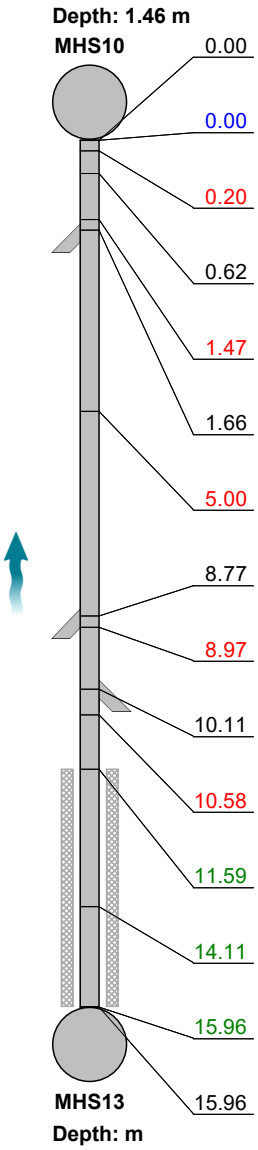
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS13
Road:	Brean Close	**Inspected Length:**	15.96 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	15.96 m	**Downstream Node:**	MHS10
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.460 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:139



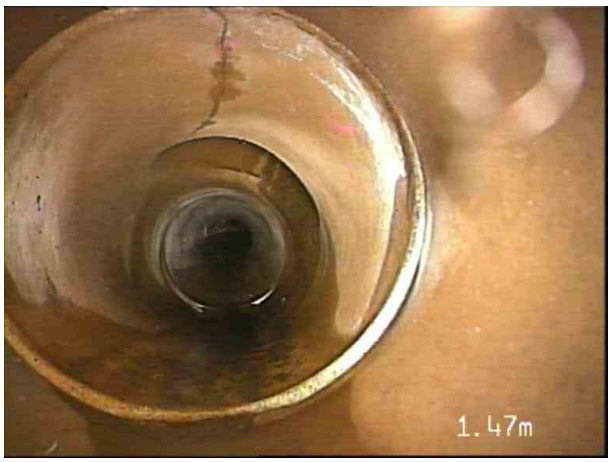
Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS10	00:00:00		
0.00		WL	Water level, 0% of the vertical dimension	00:00:09		
0.20		JDL	Joint displaced, large	00:00:13	1	1 / 4
0.62		SC	Pipe size changes, new size(s), 100mm high	00:00:20		
1.47		CLJ	Crack, longitudinal at joint at 12 o'clock	00:00:27	2	2 / 2
1.66		JN	Junction at 1 o'clock, 100mm dia	00:00:33		
5.00		JDL	Joint displaced, large	00:00:55	3	1 / 4
8.77		JN	Junction at 2 o'clock, 100mm dia	00:01:19		
8.97		OJM	Open joint, medium	00:01:34	4	1
10.11		JN	Junction at 11 o'clock, 100mm dia	00:01:49		
10.58		JDL	Joint displaced, large	00:01:55	5	1 / 4
11.59	S01	DES	Settled deposits, fine, 10% cross-sectional area loss, start	00:02:06		
14.11		LL	Line deviates left: SLIGHTLY	00:02:26		
15.96	F01	DES	Settled deposits, fine, 10% cross-sectional area loss, finish	00:02:43		3
15.96		MHF	Finish node, manhole, reference: MHS13	00:02:44		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	10.0	1.1	17.0	2.0	5	5.0	1.6	26.0	4.0

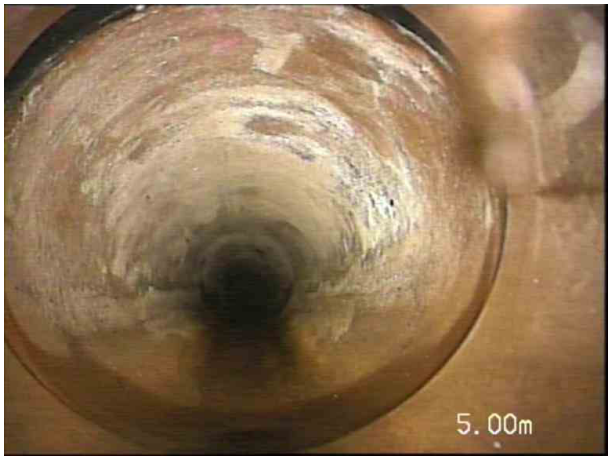
Section Pictures - 09/11/2025 - MHS13X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
23	Upstream	MHS13X		20958

1, 00:00:13, 0.20 m
Joint displaced, large

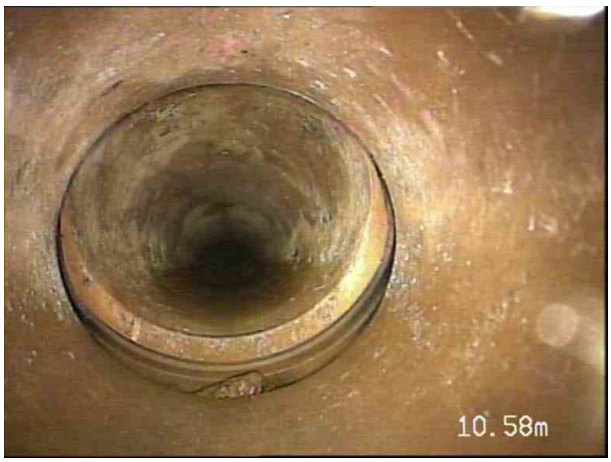


2, 00:00:27, 1.47 m
Crack, longitudinal at joint at 12 o'clock



3, 00:00:55, 5.00 m
Joint displaced, large

4, 00:01:34, 8.97 m
Open joint, medium



5, 00:01:55, 10.58 m
Joint displaced, large

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Section Inspection - 09/11/2025 - MHS14X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
24	1	09/11/25	9:51	Not Specified	No Rain Or Snow	No	MHS14X

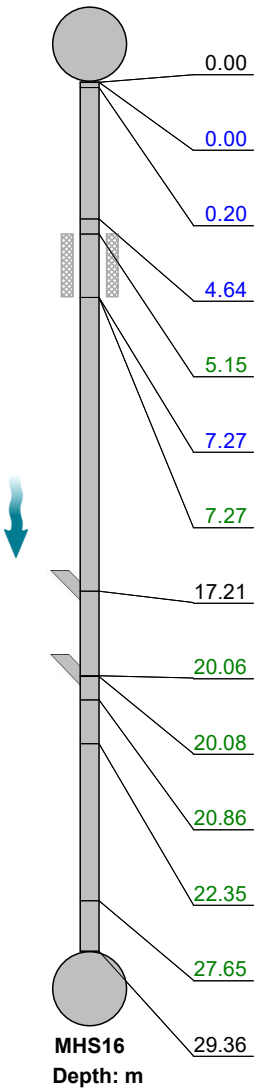
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS14
Road:	Brean Close	**Inspected Length:**	29.36 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	29.36 m	**Downstream Node:**	MHS16
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:255



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS14	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.20		REM	General remark: EVIDENCE OF FOUL	00:00:12		
4.64		WL	Water level, 10% of the vertical dimension	00:01:03		
5.15	S01	DER	Settled deposits, coarse, 10% cross-sectional area loss, start	00:01:10		
7.27		WL	Water level, 5% of the vertical dimension	00:01:32		
7.27	F01	DER	Settled deposits, coarse, 10% cross-sectional area loss, finish	00:01:34		3
17.21		JN	Junction at 2 o'clock, 100mm dia	00:02:46		
20.06		CXI	Connection defective, connecting pipe is intruding at 2 o'clock, 100mm dia, intrusion: 15%	00:03:09	1	3
20.08		RF	Roots, fine	00:03:12		2
20.86		RFJ	Roots, fine at joint	00:03:20		2
22.35		RFJ	Roots, fine at joint	00:03:36		2
27.65		RF	Roots, fine	00:04:20		2
29.36		MHF	Finish node, manhole, reference: MHS16	00:04:35		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	6	3.0	0.4	12.0	3.0

Section Pictures - 09/11/2025 - MHS14X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
24	Downstream	MHS14X		20958

1, 00:03:09, 20.06 m
Connection defective, connecting pipe is intruding at 2 o'clock, 100mm dia, intrusion: 15%

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Section Inspection - 09/11/2025 - MHS16X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
25	1	09/11/25	9:57	Not Specified	No Rain Or Snow	No	MHS16X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

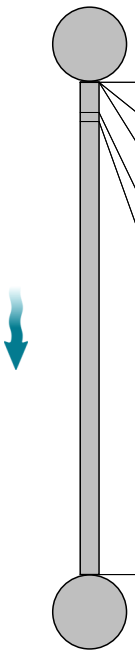
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS16
Road:	Brean Close	**Inspected Length:**	3.26 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	3.26 m	**Downstream Node:**	MAINLINE
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: m
MHS16



MAINLINE
Depth: m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS16	00:00:00		
0.00	REM	General remark: USE REPORT FOR REFERENCES	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
0.20	RF	Roots, fine	00:00:12		2
0.26	RTJ	Roots, tap at joint	00:00:18	1	4
3.26	OCF	Finish node, other special chamber, reference: MHS6: REACHED LINE BLIND	00:00:46		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2	5.0	1.8	6.0	4.0

Section Pictures - 09/11/2025 - MHS16X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
25	Downstream	MHS16X		20958

1, 00:00:18, 0.26 m
Roots, tap at joint

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Section Inspection - 09/11/2025 - MHS15X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
26	1	09/11/25	10:01	Not Specified	No Rain Or Snow	No	MHS15X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

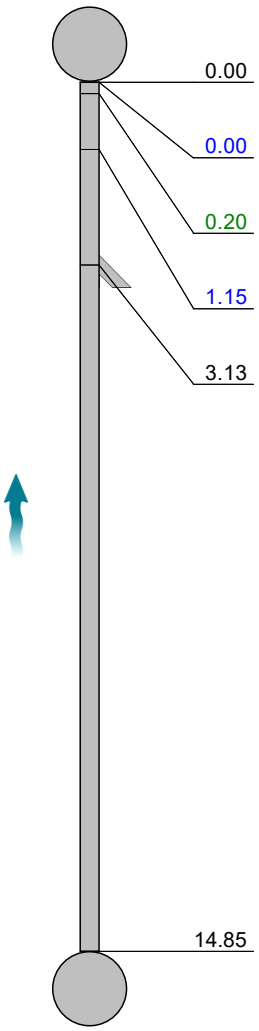
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS15
Road:	Brean Close	**Inspected Length:**	14.85 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	14.85 m	**Downstream Node:**	MHS14
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:129

Depth: m
MHS14



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS14	00:00:00		
0.00	WL	Water level, 10% of the vertical dimension	00:00:10		
0.20	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:00:14		3
1.15	WL	Water level, 5% of the vertical dimension	00:00:25		
3.13	JN	Junction at 10 o'clock, 100mm dia	00:00:39		
14.85	MHF	Finish node, manhole, reference: MHS15	00:01:52		

MHS15
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	2.0	0.1	2.0	3.0

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Section Inspection - 09/11/2025 - MHS17X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
27	1	09/11/25	10:04	Not Specified	No Rain Or Snow	No	MHS17X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

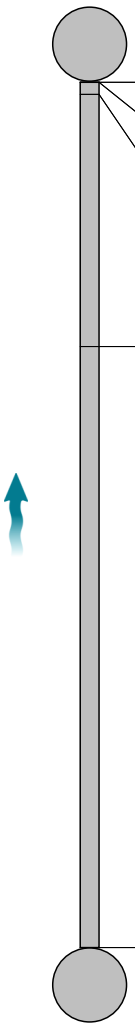
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS17
Road:	Brean Close	**Inspected Length:**	13.76 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	13.76 m	**Downstream Node:**	MHS15
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:120

Depth: m
MHS15



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS15	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:09		
0.20	REM	General remark: EVIDENCE OF FOUL IN LINE	00:00:14		
4.20	JDM	Joint displaced, medium	00:00:52	1	1 / 3
13.76	MHF	Finish node, manhole, reference: MHS17	00:01:47		

MHS17
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	1.0	0.1	1.0	1.0	1	2.0	0.1	2.0	3.0

Section Pictures - 09/11/2025 - MHS17X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
27	Upstream	MHS17X		20958

1, 00:00:52, 4.20 m
Joint displaced, medium

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Section Inspection - 09/11/2025 - MHS19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
28	1	09/11/25	10:34	Not Specified	No Rain Or Snow	No	MHS19X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

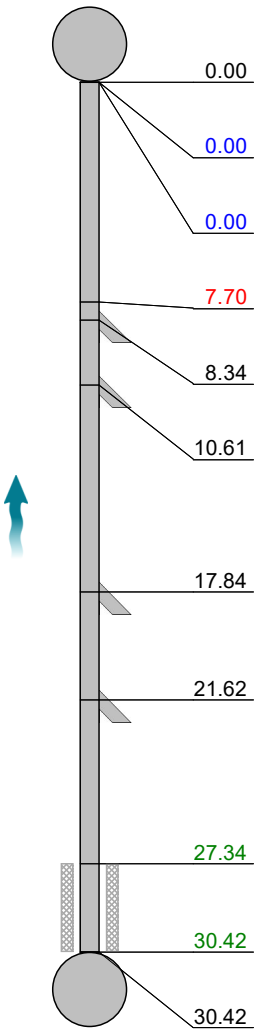
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS19
Road:	Brean Close	**Inspected Length:**	30.42 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	30.42 m	**Downstream Node:**	MHS18
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.300 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:264

Depth: 1.30 m
MHS18



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS18	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.00		REM	General remark: USE REPORT FOR REFERENCES	00:00:09		
7.70		CC	Crack, circumferential from 8 o'clock to 4 o'clock	00:01:18	1	2 / 2
8.34		JN	Junction at 9 o'clock, 100mm dia	00:01:31		
10.61		JN	Junction at 9 o'clock, 100mm dia	00:01:48		
17.84		JN	Junction at 9 o'clock, 100mm dia	00:02:26		
21.62		JN	Junction at 10 o'clock, 100mm dia	00:02:47		
27.34	S01	DER	Settled deposits, coarse, 10% cross-sectional area loss, start	00:03:22		
30.42	F01	DER	Settled deposits, coarse, 10% cross-sectional area loss, finish	00:03:47		3
30.42		MHF	Finish node, manhole, reference: NODE	00:03:48		

MHS19
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	10.0	0.3	10.0	2.0	2	2.0	0.3	9.0	3.0

Section Pictures - 09/11/2025 - MHS19X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
28	Upstream	MHS19X		20958

1, 00:01:18, 7.70 m
Crack, circumferential from 8 o'clock to 4 o'clock

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Section Inspection - 09/11/2025 - MHS18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
29	1	09/11/25	10:45	Not Specified	No Rain Or Snow	No	MHS18X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS18
Road:	Brean Close	**Inspected Length:**	6.41 m	**Upstream Pipe Depth:**	1.300 m
Location:		**Total Length:**	6.41 m	**Downstream Node:**	MHS20
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:56

Depth: 1.30 m
MHS18

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS18	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
6.09	RF	Roots, fine	00:00:43		2
6.41	MHF	Finish node, manhole, reference: MHS20	00:00:50		

MHS20
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	1.0	0.2	1.0	2.0

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Section Inspection - 09/11/2025 - MHS22X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
30	1	09/11/25	11:13	Not Specified	No Rain Or Snow	No	MHS22X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

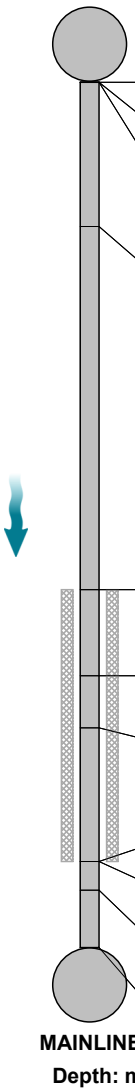
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS22
Road:	Brean Close	**Inspected Length:**	9.17 m	**Upstream Pipe Depth:**	1.000 m
Location:		**Total Length:**	9.17 m	**Downstream Node:**	MAINLINE
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:80

Depth: 1.00 m
MHS22



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHS22	00:00:00		
0.00		REM	General remark: USE REPORT FOR REFERENCES	00:00:00		
0.00		WL	Water level, 0% of the vertical dimension	00:00:09		
1.53		JDM	Joint displaced, medium	00:00:26	1	1 / 3
5.38	S01	DES	Settled deposits, fine, 5% cross-sectional area loss, start	00:00:54		
6.29		WL	Water level, 5% of the vertical dimension	00:01:02		
6.84		LL	Line deviates left: SLIGHTLY	00:01:08		
8.26		SR	Sealing ring intruding from 12 o'clock to 4 o'clock	00:01:19	2	1 / 1
8.26	F01	DES	Settled deposits, fine, 5% cross-sectional area loss, finish	00:01:21		3
8.56		LD	Line deviates down	00:01:26		
9.17		OCF	Finish node, other special chamber, reference: MAINLINE: REACHED LINE BLIND	00:01:31		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	5.0	0.7	6.0	1.0	3	2.0	0.9	8.0	3.0

Section Pictures - 09/11/2025 - MHS22X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
30	Downstream	MHS22X		20958

1, 00:00:26, 1.53 m
Joint displaced, medium

2, 00:01:19, 8.26 m
Sealing ring intruding from 12 o'clock to 4 o'clock

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Section Inspection - 09/11/2025 - MHS12X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
31	1	09/11/25	11:32	Not Specified	No Rain Or Snow	No	MHS12X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

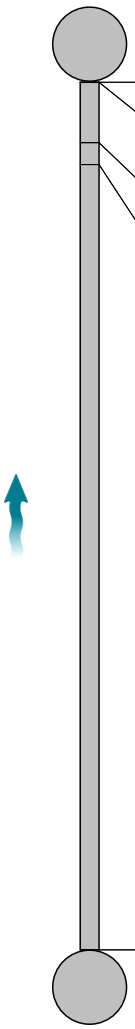
Town or Village:	Sully	**Inspection Direction:**	Upstream	**Upstream Node:**	MHS12
Road:	Brean Close	**Inspected Length:**	14.14 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	14.14 m	**Downstream Node:**	MHS5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.730 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:123

Depth: 1.73 m
MHS5



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS5	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
0.99	WL	Water level, 10% of the vertical dimension	00:00:23		
1.35	WL	Water level, 5% of the vertical dimension	00:00:27		
14.14	MHF	Finish node, manhole, reference: MHS12	00:01:23		

MHS12
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

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Section Inspection - 12/11/2025 - MHS23X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
32	1	12/11/25	9:42	Not Specified	No Rain Or Snow	No	MHS23X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

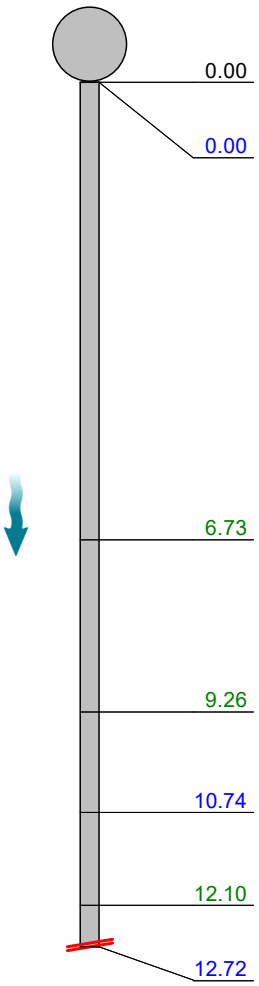
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS23
Road:	Brean Close	**Inspected Length:**	12.72 m	**Upstream Pipe Depth:**	3.860 m
Location:		**Total Length:**	12.72 m	**Downstream Node:**	MHS24
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	300 mm
Flow Control:	No flow control	**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:111

Depth: 3.86 m
MHS23



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS23	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
6.73	DER	Settled deposits, coarse, 5% cross-sectional area loss	00:00:43		3
9.26	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:00:56		4
10.74	WL	Water level, 10% of the vertical dimension	00:01:04		
12.10	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:01:35		4
12.72	SA	Survey abandoned: UNABLE TO GET PAST LARGE STONES	00:02:16		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3	5.0	0.9	12.0	4.0

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Section Inspection - 12/11/2025 - MHF18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
33	1	12/11/25	9:54	Not Specified	No Rain Or Snow	No	MHF18X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

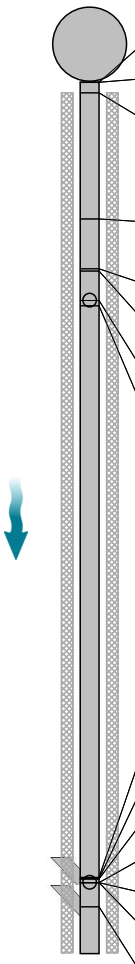
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF18
Road:	Brean Close	**Inspected Length:**	47.22 m	**Upstream Pipe Depth:**	4.240 m
Location:		**Total Length:**	47.22 m	**Downstream Node:**	MHF19
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:267

Depth: 4.24 m



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF18	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:14		
4.85		WL	Water level, 10% of the vertical dimension	00:00:55		
6.61		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:01:10		3
6.70		WL	Water level, 5% of the vertical dimension	00:01:14		
7.74		CN	Connection other than junction at 12 o'clock, 100mm dia	00:01:28		
7.91		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:01:34		3
28.12		FLJ	Fracture, longitudinal at joint at 12 o'clock	00:03:28	1	3 / 2
28.17		CN	Connection other than junction at 3 o'clock, 100mm dia	00:03:39		
28.17		B	Broken pipe from 11 o'clock to 1 o'clock	00:03:41	2	4
28.32		CN	Connection other than junction at 12 o'clock, 100mm dia	00:03:50		
28.32		SR	Sealing ring intruding from 1 o'clock to 5 o'clock	00:03:51	3	1 / 1
28.32		RMJ	Roots, mass at joint, 10% cross-sectional area loss	00:03:55		3
29.18		CN	Connection other than junction at 1 o'clock, 100mm dia	00:04:05		

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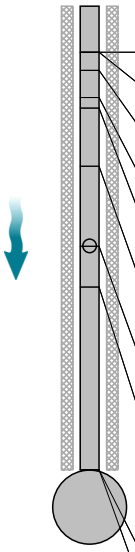
Section Inspection - 12/11/2025 - MHF18X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
33	1	12/11/25	9:54	Not Specified	No Rain Or Snow	No	MHF18X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:267



Position [m]		Code	Observation	MPEG	Photo	Grade
32.47		RFJ	Roots, fine at joint	00:04:45		2
32.47		RMJ	Roots, mass at joint, 5% cross-sectional area loss	00:04:46		3
33.11		RMJ	Roots, mass at joint, 10% cross-sectional area loss	00:04:58	4	3
34.07		DEF	Attached deposits, fouling at 5 o'clock, 10% cross-sectional area loss: LIVE LINE	00:05:25		3
34.44		RFJ	Roots, fine at joint	00:05:31		2
36.49		WL	Water level, 10% of the vertical dimension	00:05:50		
39.32		CN	Connection other than junction at 12 o'clock, 100mm dia	00:06:17		
40.77		WL	Water level, 5% of the vertical dimension	00:06:32		
47.22	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:07:32		3
47.22		MHF	Finish node, manhole, reference: MHF19	00:07:33		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	120.0	2.6	125.0	4.0	11	9.0	4.4	209.0	4.0

Section Pictures - 12/11/2025 - MHF18X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
33	Downstream	MHF18X		20958

1, 00:03:28, 28.12 m
Fracture, longitudinal at joint at 12 o'clock

2, 00:03:41, 28.17 m
Broken pipe from 11 o'clock to 1 o'clock

3, 00:03:51, 28.32 m
Sealing ring intruding from 1 o'clock to 5 o'clock

4, 00:04:58, 33.11 m
Roots, mass at joint, 10% cross-sectional area loss

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Section Inspection - 12/11/2025 - MHF19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
34	1	12/11/25	10:17	Not Specified	No Rain Or Snow	No	MHF19X

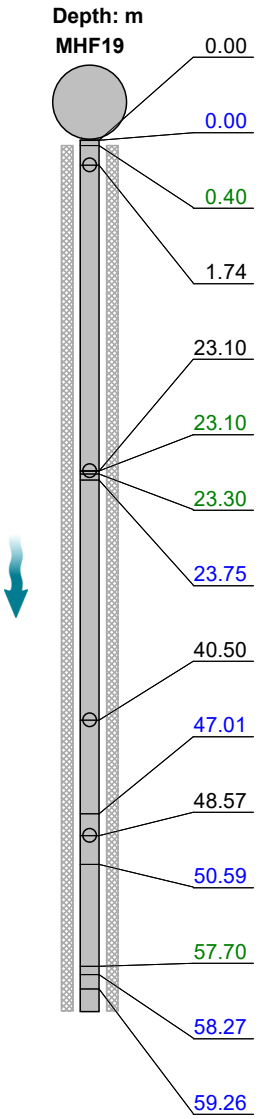
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF19
Road:	Brean Close	**Inspected Length:**	64.06 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	64.06 m	**Downstream Node:**	MHF20
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:527



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		MH	Start node, manhole, reference: MHF19	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:11		
1.74		CN	Connection other than junction at 12 o'clock, 100mm dia	00:00:25		
23.10		CN	Connection other than junction at 12 o'clock, 100mm dia	00:03:57		
23.10		RF	Roots, fine	00:04:01		2
23.30		RMJ	Roots, mass at joint, 20% cross-sectional area loss	00:04:16	1	5
23.75		REM	General remark: POOR VISABLITY DUE TO WATER ON LENSE	00:04:36		
40.50		CN	Connection other than junction at 12 o'clock, 100mm dia	00:07:01		
47.01		WL	Water level, 10% of the vertical dimension	00:08:45		
48.57		CN	Connection other than junction at 12 o'clock, 100mm dia	00:09:02		
50.59		WL	Water level, 20% of the vertical dimension	00:09:33		
57.70		DEF	Attached deposits, fouling from 5 o'clock to 7 o'clock, 25% cross-sectional area loss	00:11:01	2	4
58.27		WL	Water level, 5% of the vertical dimension	00:11:10		
59.26		WL	Water level, 10% of the vertical dimension	00:11:20		

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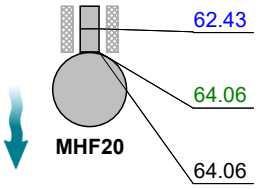
Section Inspection - 12/11/2025 - MHF19X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
34	1	12/11/25	10:17	Not Specified	No Rain Or Snow	No	MHF19X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:527



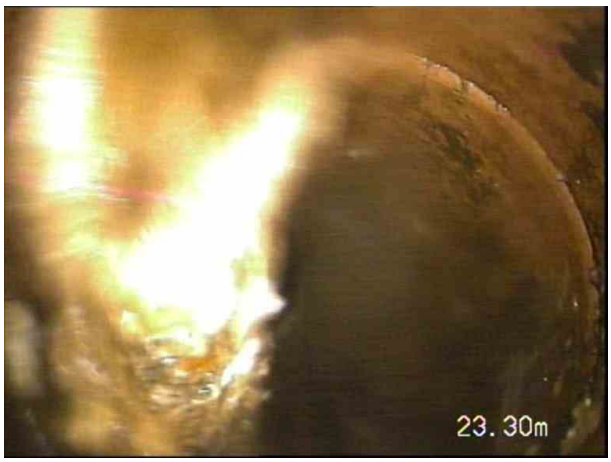
Position [m]		Code	Observation	MPEG	Photo	Grade
62.43		WL	Water level, 5% of the vertical dimension	00:11:42		
64.06	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:11:59		3
64.06		MHF	Finish node, manhole, reference: MHF20	00:12:00		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	4	14.0	4.2	272.0	5.0

Section Pictures - 12/11/2025 - MHF19X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
34	Downstream	MHF19X		20958



1, 00:04:16, 23.30 m
Roots, mass at joint, 20% cross-sectional area loss

2, 00:11:01, 57.70 m
Attached deposits, fouling from 5 o'clock to 7 o'clock, 25% cross-sectional area loss

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Section Inspection - 12/11/2025 - MHS6X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
35	1	12/11/25	10:55	Not Specified	No Rain Or Snow	No	MHS6X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

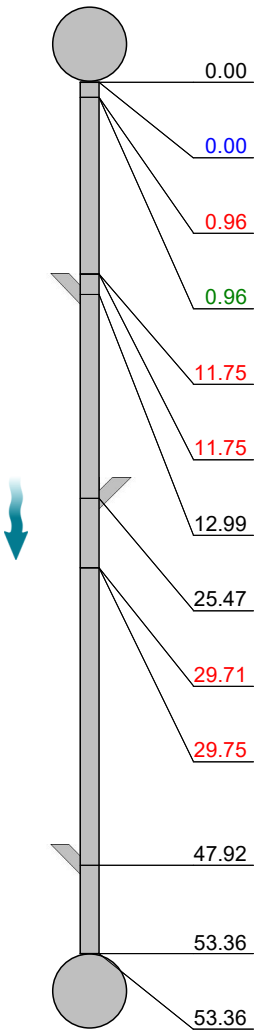
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHS6
Road:	Brean Close	**Inspected Length:**	53.36 m	**Upstream Pipe Depth:**	2.050 m
Location:		**Total Length:**	53.36 m	**Downstream Node:**	MHS23
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	3.860 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:462

Depth: 2.05 m
MHS6



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MHS6	00:00:00		
0.00	WL	Water level, 5% of the vertical dimension	00:00:08		
0.96	OJL	Open joint, large	00:00:21	1	1
0.96	LL	Line deviates left	00:00:25		
11.75	FL	Fracture, longitudinal at 1 o'clock	00:02:19	2	3 / 2
11.75	CS	Cracks, spiral from 3 o'clock to 6 o'clock	00:02:32	3	3 / 2
12.99	JN	Junction at 2 o'clock, 150mm dia	00:02:44		
25.47	JN	Junction at 10 o'clock, 150mm dia	00:04:10		
29.71	CLJ	Crack, longitudinal at joint at 12 o'clock	00:04:41	4	2 / 2
29.75	FSJ	Fracture, spiral at joint from 7 o'clock to 6 o'clock	00:04:48	5	4 / 2
47.92	JN	Junction at 2 o'clock, 150mm dia	00:07:10		
53.36	JN	Junction at 6 o'clock, 225mm dia: BACK DROP	00:07:41		
53.36	MHF	Finish node, manhole, reference: MHS23: REACHED BACK DROP	00:07:42		

MHS23
Depth: 3.86 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	90.0	3.2	172.0	4.0	4	2.0	0.1	4.0	3.0

Section Pictures - 12/11/2025 - MHS6X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
35	Downstream	MHS6X		20958

1, 00:00:21, 0.96 m
Open joint, large

2, 00:02:19, 11.75 m
Fracture, longitudinal at 1 o'clock

3, 00:02:32, 11.75 m
Cracks, spiral from 3 o'clock to 6 o'clock

4, 00:04:41, 29.71 m
Crack, longitudinal at joint at 12 o'clock

5, 00:04:48, 29.75 m
Fracture, spiral at joint from 7 o'clock to 6 o'clock

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Section Inspection - 12/11/2025 - MHF2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
36	1	12/11/25	11:30	Not Specified	No Rain Or Snow	No	MHF2X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

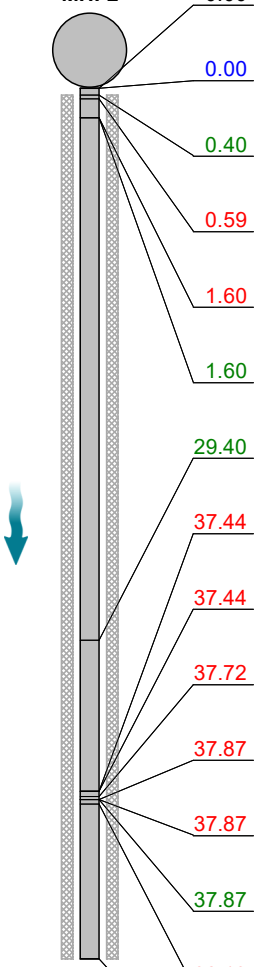
Town or Village:	Sully	**Inspection Direction:**	Downstream	**Upstream Node:**	MHF2
Road:	Brean Close	**Inspected Length:**	52.62 m	**Upstream Pipe Depth:**	2.440 m
Location:		**Total Length:**	52.62 m	**Downstream Node:**	MHF18
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	4.240 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	225 mm
Flow Control:	No flow control	**Pipe Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:402

Depth: 2.44 m



Position [m]		Code	Observation	MPEG	Photo	Grade
MHF2 0.00		MH	Start node, manhole, reference: MHF2	00:00:00		
0.00		WL	Water level, 5% of the vertical dimension	00:00:08		
0.40	S01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, start: PATCHY	00:00:12		
0.59		OJM	Open joint, medium	00:00:23	1	1
1.60		OJL	Open joint, large	00:00:35	2	1
1.60		LL	Line deviates left: SLIGHTLY	00:00:41		
29.40		DEF	Attached deposits, fouling at 6 o'clock, 5% cross-sectional area loss: LIVE LINE	00:03:03		3
37.44		FSJ	Fracture, spiral at joint from 3 o'clock to 7 o'clock	00:03:57	3	4 / 2
37.44		FLJ	Fracture, longitudinal at joint at 10 o'clock	00:04:04	4	3 / 2
37.72		CLJ	Crack, longitudinal at joint at 11 o'clock	00:04:18	5	2 / 2
37.87		FLJ	Fracture, longitudinal at joint at 5 o'clock	00:04:31	6	3 / 2
37.87		FLJ	Fracture, longitudinal at joint at 6 o'clock	00:04:33	7	3 / 2
37.87		DEF	Attached deposits, fouling from 5 o'clock to 7 o'clock, 5% cross-sectional area loss	00:04:36		3
38.13		FS	Fracture, spiral from 11 o'clock to 5 o'clock	00:04:48	8	4 / 2
46.38		FSJ	Fracture, spiral at joint from 5 o'clock to 6 o'clock	00:05:40	9	4 / 2

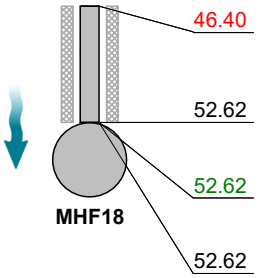
Draintech Surveys LTD

Section Inspection - 12/11/2025 - MHF2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
36	1	12/11/25	11:30	Not Specified	No Rain Or Snow	No	MHF2X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JS	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Scale: 1:402



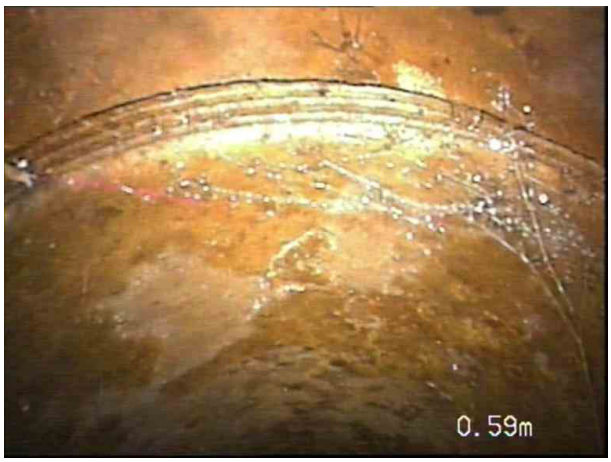
Depth: 4.24 m

Position [m]		Code	Observation	MPEG	Photo	Grade
46.40		FSJ	Fracture, spiral at joint from 7 o'clock to 8 o'clock	00:05:47	10	4 / 2
52.62		JN	Junction at 6 o'clock, 225mm dia: BACK DROP	00:06:44		
52.62	F01	DEG	Attached deposits, grease from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish: PATCHY	00:06:45		3
52.62		MHF	Finish node, manhole, reference: MHF18: REACHED BACK DROP	00:06:46		

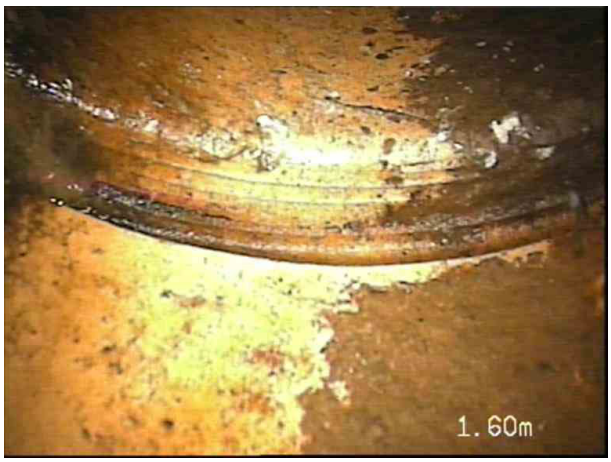
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
10	210.0	8.6	453.0	4.0	11	11.0	4.3	224.0	5.0

Section Pictures - 12/11/2025 - MHF2X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
36	Downstream	MHF2X		20958



1, 00:00:23, 0.59 m
Open joint, medium



2, 00:00:35, 1.60 m
Open joint, large

3, 00:03:57, 37.44 m
Fracture, spiral at joint from 3 o'clock to 7 o'clock

4, 00:04:04, 37.44 m
Fracture, longitudinal at joint at 10 o'clock

5, 00:04:18, 37.72 m
Crack, longitudinal at joint at 11 o'clock

6, 00:04:31, 37.87 m
Fracture, longitudinal at joint at 5 o'clock

Section Pictures - 12/11/2025 - MHF2X

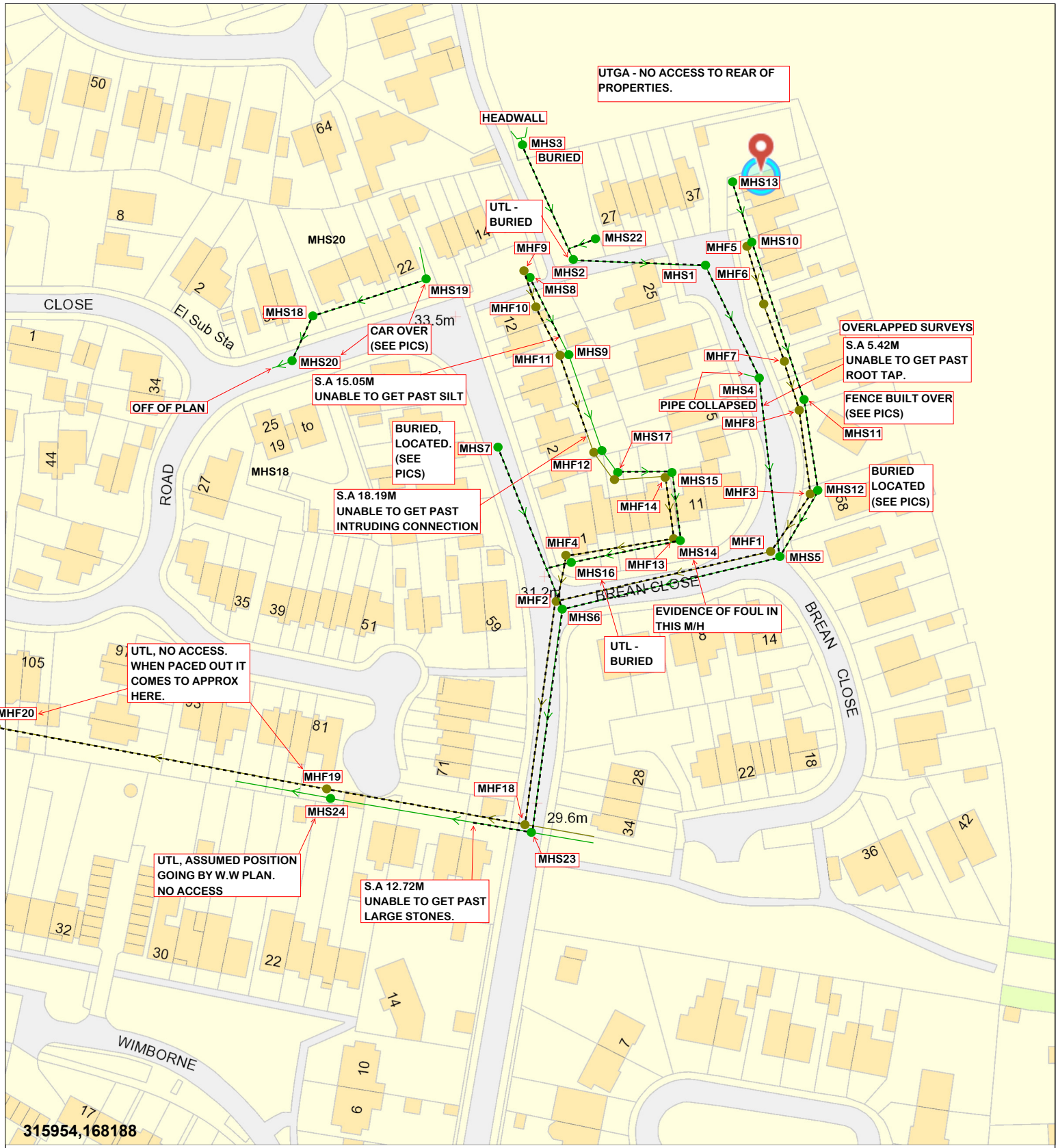
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
36	Downstream	MHF2X		20958

7, 00:04:33, 37.87 m
Fracture, longitudinal at joint at 6 o'clock

8, 00:04:48, 38.13 m
Fracture, spiral from 11 o'clock to 5 o'clock

9, 00:05:40, 46.38 m
Fracture, spiral at joint from 5 o'clock to 6 o'clock

10, 00:05:47, 46.40 m
Fracture, spiral at joint from 7 o'clock to 8 o'clock



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Job - 20958 - 01 - 001

KEY
SA - Survey Abandoned
UTL - Unable to Locate
UTGA - Unable to Gain Access

Scale: 1:1250

07/11/2025

Dwr Cymru Welsh Water

LEGEND

- Sluice Valve
- Air Valve SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- Bulk Meter
- Fire Hydrant
- Cap
- Non Dwr Cymru
- Existing Distribution Main
- Inspection Chamber
- Gravity Sewer
- Rising Main
- Outfall
- Pumping Station
- Lamphole
- Combined Sewer Overflow
- Special Purpose Chamber
- Treatment Works
- Private Sewer Transfer
- Lateral Drain

NB: Sewer symbol colour indicates the sewer type.
RED - Combined
GREEN - Surface Water
BROWN - Foul

N W E S

EXACT LOCATION OF ALL APPARATUS TO BE DETERMINED ON SITE

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Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dwr Cymru Cyfyngedig ('the Company') gives this infirmation as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby by the company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 based particular, but without prejudice to be generality of that foregoing, it should be noted that the records that are available to the company may not disclose the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of thisinformation is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damageto its apparatus.