RIDGE

ST MARY'S UNIVERSITY R BUILDING

SUSTAINABLE DRAINAGE STRATEGY

OCTOBER 2024

SUSTAINABLE DRAINAGE STRATEGY REPORT

STMA-RDG-XX-XX-T-C-300001

Prepared for

St Mary's University Twickenham
Strawberry Hill Campus
Waldegrave Road
Strawberry Hill
TW1 4SX

Prepared by

Ridge and Partners LLP
3 Valentine Place
London
SE1 8QH

Tel: +44 (0) 207 593 3400

Contact

Tom Wong MEng
Civil Engineer
Email: tomwong@ridge.co.uk
Mob: +44 (0) 7825 905 089

Paul Chance CEng MICE
Senior Associate (Civil Engineering)
Email: paulchance@ridge.co.uk
Mob: +44 (0) 7425 411 592

VERSION CONTROL

VERSION	DATE	DESCRIPTION	CREATED BY	REVIEWED BY
P01	30/10/2024	Issued for Planning	TW	PCh

CONTENTS

1. INTRODUCTION

Ridge and Partners LLP have been commissioned by St Mary's University to prepare a Sustainable Drainage Strategy Report in support of a planning application for the redevelopment of the Centenary R Block Building.

The scope of this report is to review data in relation to the existing drainage regime and consider the suitability of sustainable drainage (SuDS) for the disposal of surface water runoff.

This report has been carried out in accordance with the National Planning Policy Framework (NPPF), The London Borough of Richmond SuDS Guidance Document, The London Plan and the DEFRA Non-technical Standards for SuDS.

2. EXISTING SITE

2.1. Site Location and existing development

Site Name: St Mary's University, R Building
Site Address: St Mary's University, Waldegrave Road, Strawberry Hill, Twickenham, TW1 4SX
Site Location: Easting: 515859, Northing: 171946
National Grid Reference: TQ158719
Site Planning Boundary: Approx. 0.146 ha

The site is located to the east of Waldegrave Road, to the north of Waldegrave Park towards the southern end of the university campus.

The university campus consists of a numerous teaching blocks and sports pitches with the proposed site of the replacement teaching building as highlighted in red within Figure 1.

Figure 1 - Site Location Plan (Imagery ©2024 Airbus, Maxar Technologies, Map data ©2024

2.2. Existing Development

The existing site consists of an existing two storey teaching block, which is no longer considered fit for purpose or in keeping within the growth aspirations of the university.

The existing teaching block building is shown in Figure 2 and Figure 3.

Figure 2 – GA plan of the Existing teaching block

Figure 3 – Photo of the existing teaching block to be redeveloped

2.3. Land use and Topography

A topographical survey was undertaken by Greenhatch Group on 16/12/2016. The survey shows the site to vary in levels generally between approximately 8.10mAOD and 11.04mAOD

A copy of the topographic survey can be found in **Appendix A**.

2.4. Hydrology

The site is located within the Colne GW Operational Catchment area as shown in Figure 4.

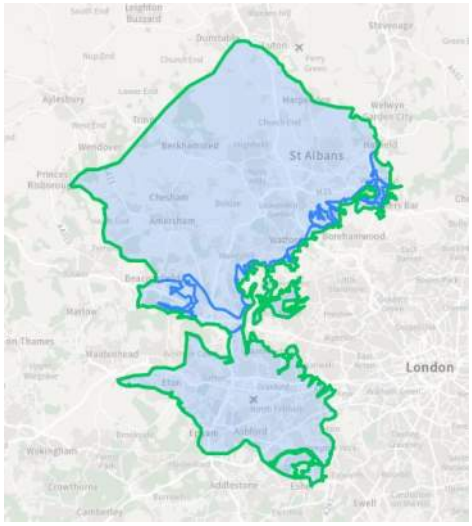


Figure 4 - Water bodies operational catchment plan.

The nearest watercourses are the Lower Duke of Northumberland's and the Crane rivers. Both situated approximately 3 to 4km north-west of the site - their locations are indicated in *Figure 5*.

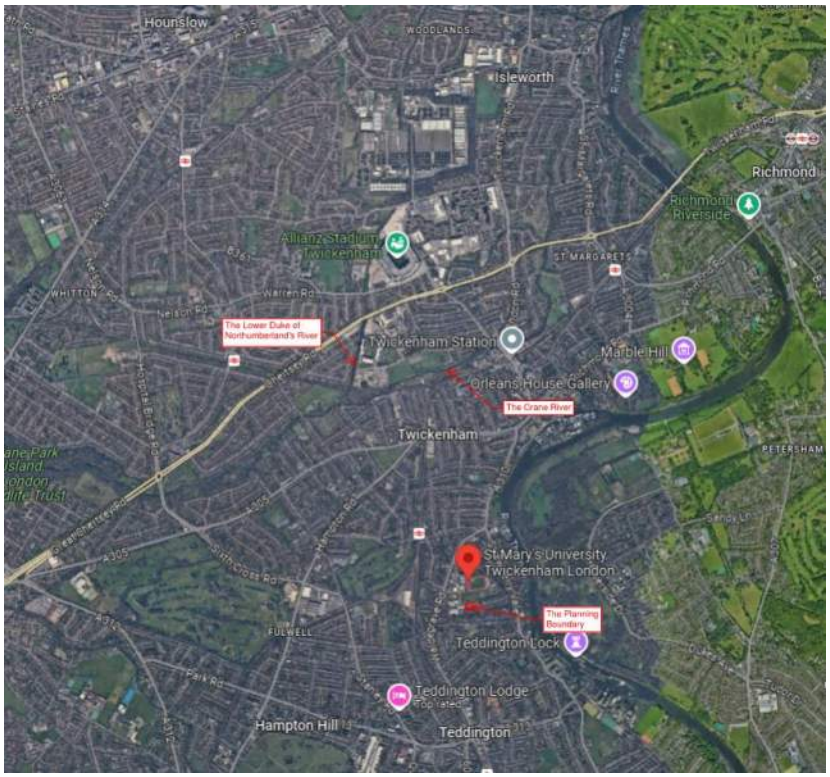


Figure 5 - Watercourses relative to site location

A utility survey was also undertaken by Greenhatch group and a CCTV survey of the existing below ground drainage was undertaken by G.O. Drainage Services Ltd on 16th July 2024 which show surface water for the site drains to private manhole soakaways close to the building.

An extract of the utility survey and CCTV drainage survey can be found in **Appendix A**.

2.5. Geological Records

Reference to the British Geological Survey (BGS) online mapping shows the site is likely to be underlain by a bedrock of London Clay Formation. Superficial geology is comprised of Kempton Park Gravel Member which consists of sand and gravel, locally with lenses of silt, clay or peat. The BGS bedrock and superficial geology records pertaining to the site are illustrated in Figure 6 and Figure 7.

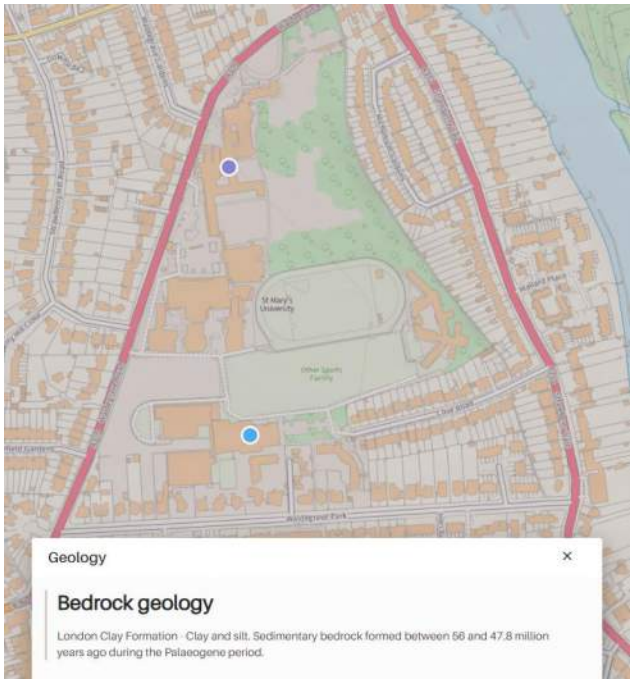


Figure 6 – BGS Bedrock geology Extract

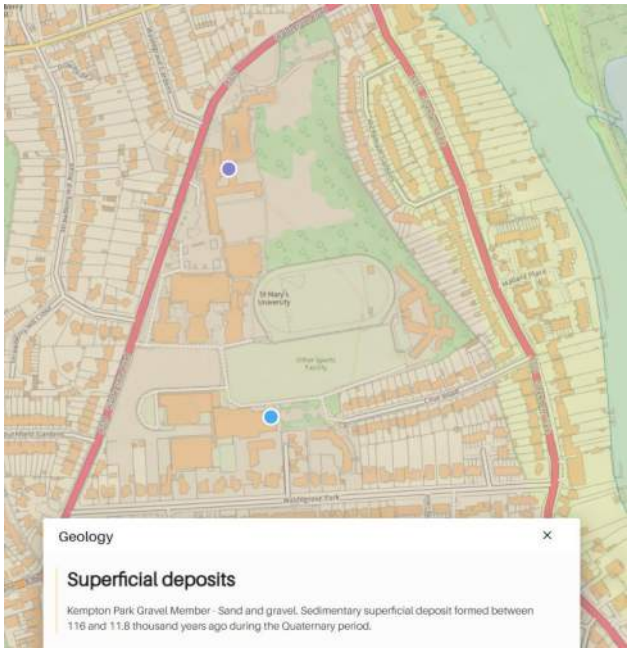


Figure 7 – BGS Superficial deposits extract

There are no historic borehole records available for the site, however the nearest borehole is mapped to be circa 400m east of the site situated along the A310, next to the River Thames. The borehole, referenced TQ17SE129, was drilled to 9m bgl and showed circa 2.8m of made ground overlying clay, overlying Kempton Park gravel to 8m bgl overlying London Clay.

2.6. Ground Investigation

A ground investigation was conducted by Paddock Geo Engineering Limited dated September 2024. The findings are within the ground investigation report P24-234 - Strawberry Hill Campus, St Mary's University, Waldegrave Road, Strawberry Hill, Twickenham, TW1 4SX, which is included in **Appendix B**.

The investigation works showed the ground to be:

- Topsoil: 0.15mbgl to 0.30mbgl
- Made ground: 0.20-0.70mbgl
- Kempton Park Gravel Formation: 0.10-3.00mbgl (the extents of the trial pit samples)
- No tree roots were present in any of the test locations
- No groundwater was encountered in any of the test locations

2.7. Infiltration Testing

Infiltration testing was conducted following the principles of BRE 365 Soakaway Design (2016) in two locations at depths around 1m and 1.75m

The results of the soakage tests gave an estimated infiltration rate of 5.6×10^{-6}m/s, however additional testing will be required to verify the infiltration rate. The ground investigation report confirmed the level of permeability to be adequate and therefore suitable for use of infiltration.

The results of the infiltration tests can be found in **Appendix B**.

2.8. Hydrogeology

The groundwater vulnerability maps for the site and the surrounding areas indicates that the underlying superficial deposits represent a Principal aquifer. These are aquifers that provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands.

The underlying London Clay bedrock strata is designated as an Unproductive Strata. Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

The site is not situated within a Groundwater Source Protection Zone (SPZ), and none are mapped within 1km of the site.

Given the hydrogeological status of the site, the groundwater in the Kempton Park Gravel Member Deposits could be considered to be of moderate sensitivity.

2.9. Flood Risk Review

2.9.1. Flooding from Rivers or the Sea (Fluvial / Tidal)

The Environment Agency (EA) Flood Map for Planning (extract provided below in Figure 8) indicates the site is located within Flood Zone 1 (Very Low risk of fluvial flooding). Very Low fluvial flood risk is a probability of less than 1 in 1000 year, or an annual probability of less than 0.1%. Given the fluvial flood mapping, the site is not considered to be at risk of fluvial flooding

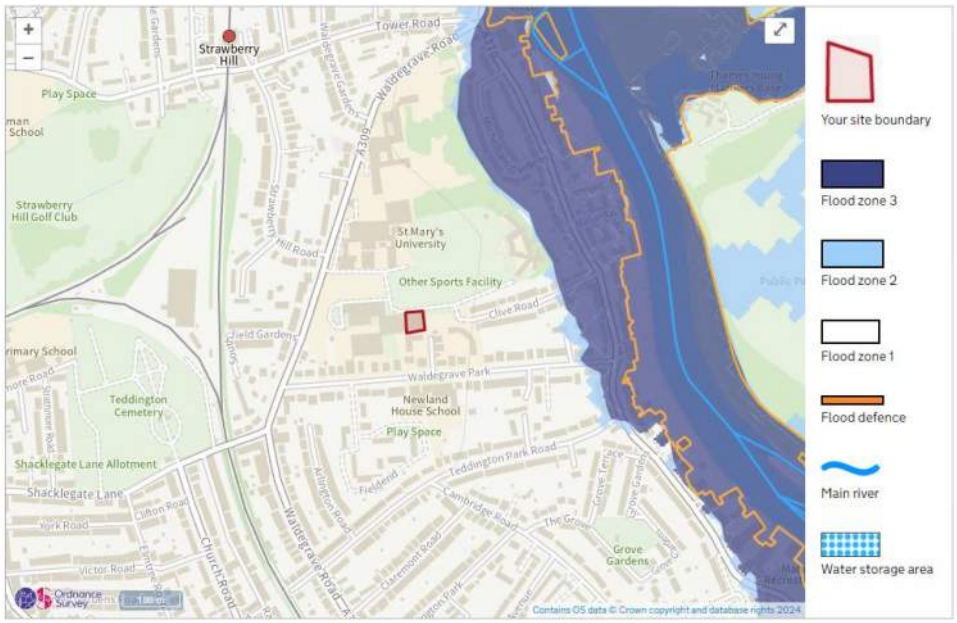


Figure 8 – Extract of Flood Map for Planning

2.9.2. Surface Water (Pluvial) Flood Risk

Surface water flooding may occur during intense or prolonged rainfall events where there is insufficient capacity within the drainage infrastructure, or saturated ground which leads to overland flows. The GOV.UK Surface Water Flood Risk Maps shows the development boundary is low or very low risk of surface water flooding – refer to Figure 9 .

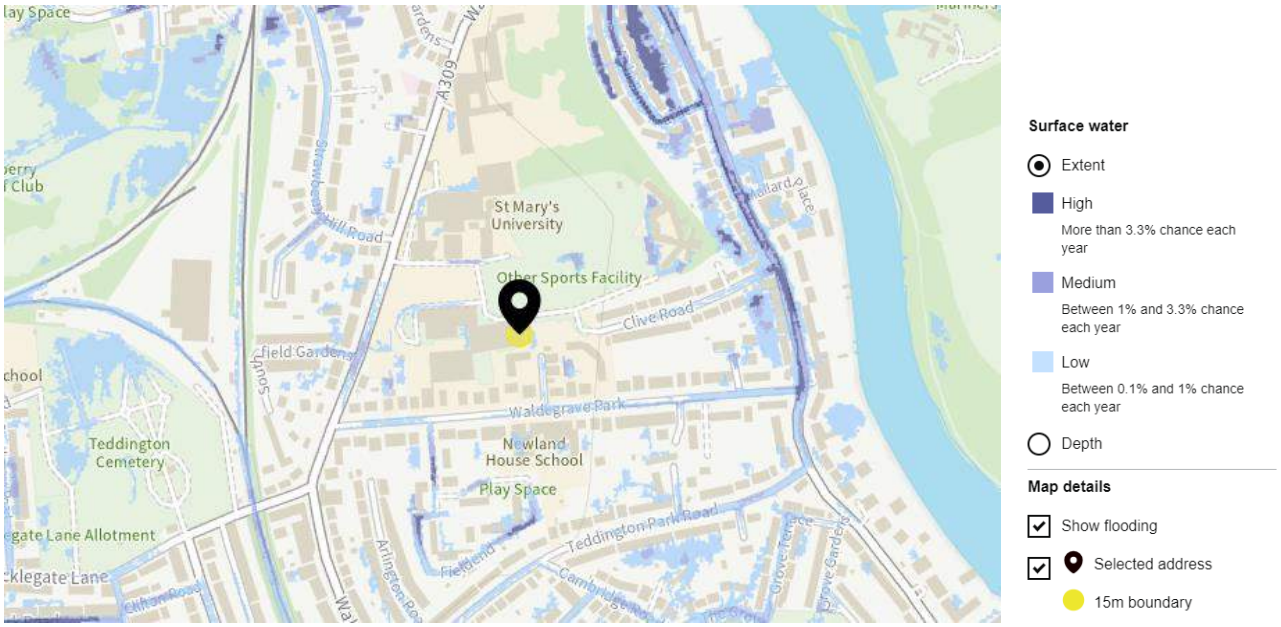


Figure 9 – Extract of Surface Water Flood Map for Planning

2.9.3. Flooding from Artificial Sources

The site is not located within an area which is expected to be affected by reservoir flooding and there are no canals or other blue infrastructure which pose a flood risk in the vicinity of the site.

2.9.4. Flooding from Groundwater

Following review of the UK.gov website for long term flood risk, the site is considered to be in an area which is unlikely to experience flooding from groundwater.

3. DEVELOPMENT PROPOSALS

The proposed development consists of the demolition of existing R Block and the erection of a replacement teaching block (Use Class F1) comprising 1419m^2 of floorspace to provide facilities appropriate for the operation of a new School of Medicine at the Strawberry Hill Campus, with associated landscaping.

The planning boundary for the application is approximately 0.146Ha.

An extract of the proposed site plan is shown in Figure 10, for full drawings refer to the architect and landscape architect drawings submitted with the planning application.

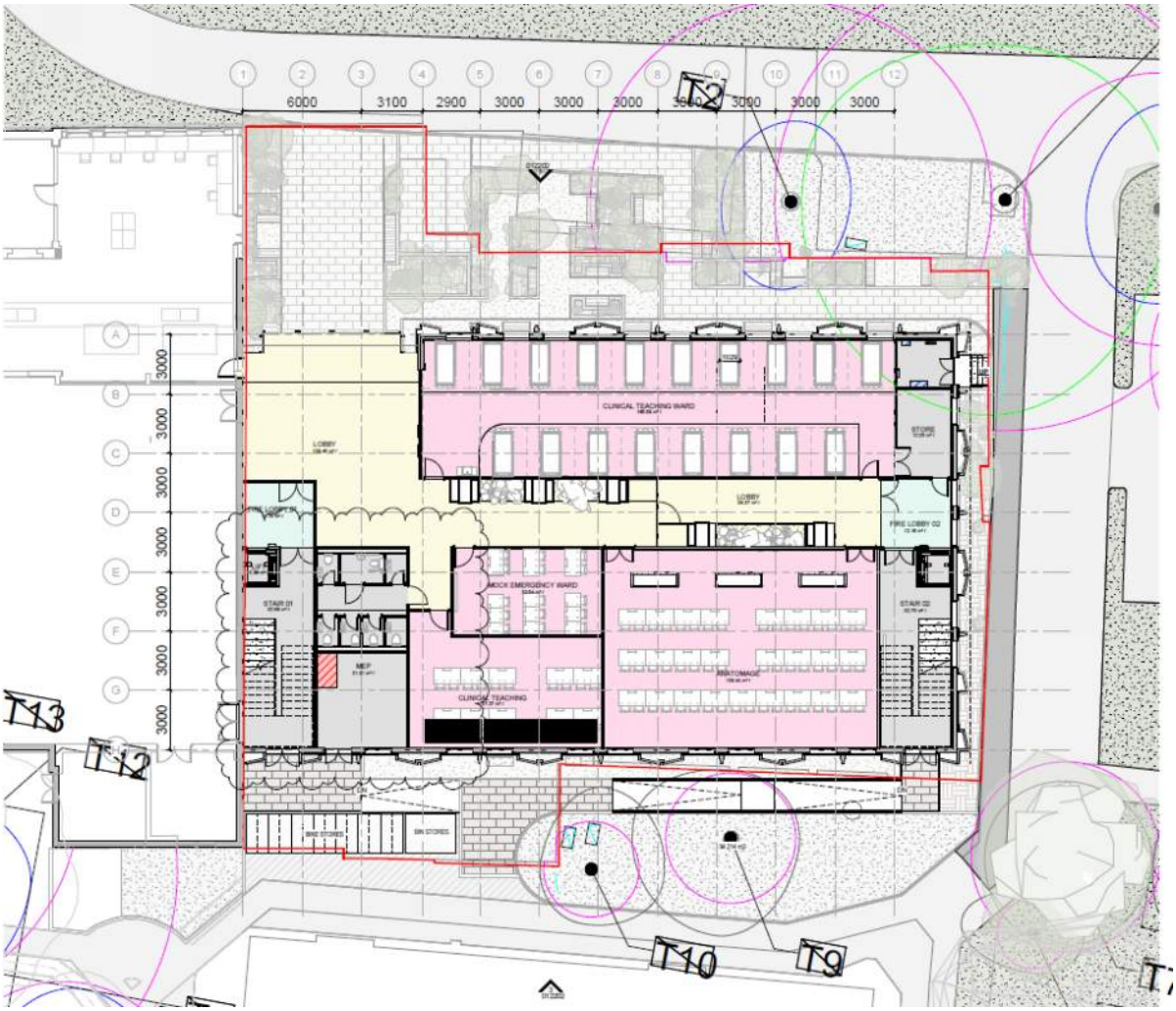


Figure 10 - Extract of Site Plan

4. EXISTING DRAINAGE

4.1. Thames Water Sewers

Thames Water sewer records have been obtained and they show sewers within the local area is separated foul and surface water.

Sewers can be found within the roads to the east, west, south of the site summarised as follows:

- Within Clive Road to the east and Waldegrave Park Road to the south are 225mmø foul and surface water sewers that run from west to east.
- Within Waldegrave Road to the west are 225mmø foul and surface water sewers that run south to north.

An extract of the Thames Water records is presented in Figure 11 and full copy can be found in **Appendix C**.

Figure 11 - Extract of Thames sewer records

4.2. Existing Private Drainage

According to the CCTV drainage survey and utilities plan, there are existing foul and surface water private drains serving the existing teaching block.

The foul water drainage for the existing teaching block drains to the south via 100mmø and 150mmø pipes, which it is understood connects onto the foul sewer in Waldegrave Park. Surface water from the existing building is collected below ground and discharges via a series of soakaways which are located close to the perimeter of the existing building.

Refer to **Appendix A** for a copy of the below ground drainage survey.

4.3. Existing Surface Water Discharge Rate

An assessment of the existing impermeable areas has been undertaken – refer to **Appendix D**.

The existing site drains to via infiltration through a series of soakaways, there is no positive drainage connection from the existing building to the offsite surface water sewers.

Table 1 – Existing Building Area Breakdown

AREA	M^2	HECTARES (H_A)	% OF SITE
Roof Area	1100	0.1100	75
Existing drains to ground	360	0.0036	25
Total	1460	0.1460	100

Greenfield runoff rates have also been calculated in line with the SuDS Manual C753 and the non-statutory standards for SuDS using the IH124 approach. The results are shown in Table 2 with calculations found in **Appendix E.**

Table 2 - Greenfield Runoff Rate HR Wallingford – Greenfield runoff tool) using an area of 1100m^2

STORM RETURN PERIOD	L/S
Qbar	0.20
1yr	0.10
30yr	0.40
100yr	0.50

5. PROPOSED DRAINAGE STRATEGY

5.1. Proposed Drained Areas

An assessment of the proposed areas has been undertaken as shown in Table 3

Table 3 - Proposed Area Breakdown

AREA	M^2	HECTARES	% OF SITE
Proposed Roof (other)	434	0.0434	30
Proposed Green Roof	385	0.0385	26
Proposed Externals (to ground)	641	0.0641	44
Total	1460	0.1460	100

5.2. Surface Water Drainage Strategy

The proposed surface water scheme consists of the inclusion of a green roof which is connected below ground into a geocellular soakaway, located within the sports pitch to the north of the building. New external areas are proposed to be constructed with permeable materials allowing water to locally drain into the ground.

Further details on the proposed SuDS are outlined in the following sections of the report. A copy of the proposed drained area take-off drawing can be found in **Appendix D**. The proposed surface water general arrangement can be found in **Appendix F** and the proposed surface water calculations can be found in **Appendix G**.

5.2.1. Sustainable Drainage Hierarchy

The inclusion of Sustainable Drainage (SuDS) has been considered for the management of surface water for this development, in line with the following:

1. Rainwater harvesting
2. Infiltration techniques and green roofs
3. Rainwater attenuation in open water features for gradual release
4. Rainwater discharge direct to a watercourse (unless not appropriate)
5. Rainwater attenuation above ground (including blue roofs)
6. Rainwater attenuation below ground
7. Rainwater discharge to a surface water sewer or drain.
8. Rainwater discharge to a combined sewer.

Table 4 – SuDS Evaluation

SUDS	VIABLE	COMMENT
Green / blue roof	**Y**	**A green roof is proposed covering as much as possible of the new teaching block – refer to Architects information for details.**
Rainwater reuse	N	It is not proposed to incorporate rainwater harvesting within the building.
Permeable surfaces	**Y**	**Where any new external paving is proposed, this is of permeable construction design to infiltrate into the ground.**
Infiltration Devices	**Y**	**A geocellular soakaway is proposed to infiltrate rainwater from the new roof to ground. A small lower section of roof to the rear of the building is to discharge via an existing soakaway as root protection zones prevent connection to the new soakaway at the front of the building.**
Basins and ponds	N	Due to insufficient space basins and ponds are not proposed.
Filters strips and swales	N	Due to insufficient space and preference given to SuDS, filter strips and swales are not proposed.
Tanked System	N	Below ground attenuation tanks are not proposed as part of the drainage scheme.

5.2.2. Green / Blue Roods

Green roofs consist of a multi-layered system that cover roofs and podiums on buildings. Typically, there is drainage layer below a growing medium. Green roofs intercept and hold rainwater, reducing the volume of runoff and restricting the peak rate of discharge for the short durations and lower intensity rainfall. Blue roofs have similar functionality but do not typically have vegetation and instead consist of a geo-composite system which stores water and restricts flow via restrictor chamber.

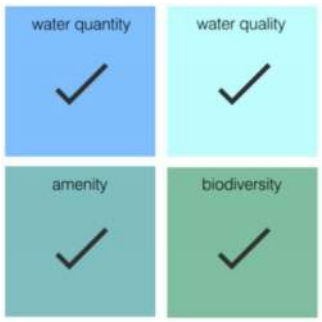


Figure 12 – Green roof four pillar of sustainability assessment

Performance (based on Ciria SuDS Manual)
Peak flow reduction: Medium/Good
Volume reduction: Medium
Water quality treatment: Good
Amenity potential: Good
Ecological potential: Good

It is proposed to incorporate a green roof over as much of the roof area as possible. The green roof is proposed to be a Bauder Biodiverse system with 150mm substrate. (Refer to the architects' drawings for details).

5.2.3. Rainwater Re-use

Rainwater harvesting systems (RWH) have been considered, however are not being proposed for the building. The inclusion of a RWH system would be extremely complex and would offer limited benefits due to the limited water usage within the building.

The treatment systems for a RWH system typically involve filters and possibly UV and these have high embodied energy and can perform poorly in terms of their Life Cycle Analysis. In addition, the quoted lifespan for many rainwater harvesting systems is approximately 10 years after which they may require significant repairs or will result in an inefficient system.

We therefore consider it to be more sustainable to use less water through water efficient appliances.

5.2.4. Permeable Surfaces

New surfaces external to the building are limited, however where they are provided it is proposed that they will be of permeable construction including permeable block pavers or resin bound gravel.

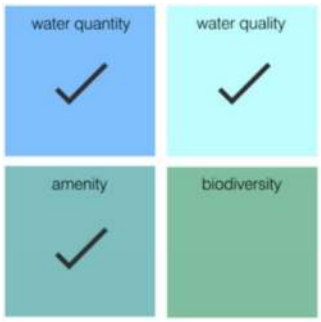


Figure 13 – Permeable surfaces four pillar of sustainability assessment

Performance (based on Ciria SuDS Manual)
Peak flow reduction: Good
Volume reduction: Good
Water quality treatment: Good
Amenity potential: Poor
Ecological potential: Poor

5.2.5. Infiltration Devices

Based on the ground investigation and infiltration testing, infiltration devices are viable. It is proposed to drain surface water for the new building roof to a new geocellular soakaway located beneath the sports pitch to the north of the building. The soakaway has been sized based on the initial infiltration testing result with an infiltration rate of 5.6 x 10^{-6}m/s for all rainfall events up to an including the 100yr +40%cc event.

Infodrainage calculations can be found in **Appendix G.**

There is a lowered section of the proposed roof (circa 56m2) which is to accommodate plant towards the rear of the building. It is not possible to drain this portion of roof to the north (due to tree root protection zones), as such it is proposed to re-use a section of existing surface water drainage which discharges to the southwest via an existing soakaway.

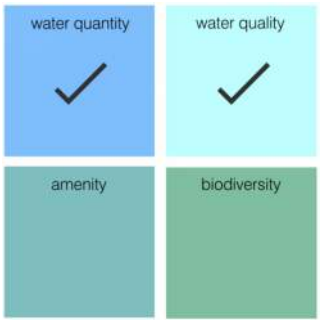


Figure 14 – Infiltration devices four pillar of sustainability assessment

5.2.6. Basins and Ponds

Due to the spatial configuration on site the use of retention/detention basins and/or ponds is not possible and therefore has not been included as part of the drainage strategy.

5.2.7. Filter Strips and Swales

Due to the spatial configuration on site the use of filter strips and swales is not considered suitable and therefore has not been included as part of the drainage strategy.

5.2.8. Tanked Systems

Tanks are not proposed as part of the drainage scheme as other SuDS are being provided.

6. POLLUTION MANAGEMENT

The development has been assessed in line with Table 26.2 of the SuDS Manual for the pollution hazard indices for different land use classifications – refer to Figure 15.

The roof area is considered to have a "low" pollution hazard, generating 0.3 total suspended solids, 0.2 metals and 0.05 hydrocarbons. The existing development currently has a single SuDS feature installed, represented as soakaway manholes.

The external footpaths are non-vehicle accessible, therefore the pollution hazard index is also considered to be low.

Table 26.4 of C753 shown in Figure 16 sets out the mitigation indices provided by SuDS features for discharge to groundwater.

TABLE 26.2 Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
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[1]	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg 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, stored, used or manufactured; industrial sites; trunk roads and motorways[1]	High	0.8[2]	0.8[2]	0.9[2]

Figure 15 - Extract of Table 26.2 from the SuDS Manual

TABLE 26.4 Indicative SuDS mitigation indices for discharges to groundwater

Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates[1]	TSS	Metals	Hydrocarbons
A layer of dense vegetation underlain by a soil with good contaminant attenuation potential[2] of at least 300 mm in depth[3]	0.6[4]	0.5	0.6
A soil with good contaminant attenuation potential[2] of at least 300 mm in depth[3]	0.4[4]	0.3	0.3
Infiltration trench (where a suitable depth of filtration material is included that provides treatment, ie graded gravel with sufficient smaller particles but not single size coarse aggregate such as 20 mm gravel) underlain by a soil with good contaminant attenuation potential[2] of at least 300 mm in depth[3]	0.4[4]	0.4	0.4
Constructed permeable pavement (where a suitable filtration layer is included that provides treatment, and including a geotextile at the base separating the foundation from the subgrade) underlain by a soil with good contaminant attenuation potential[2] of at least 300 mm in depth[3]	0.7	0.6	0.7
Bioretention underlain by a soil with good contaminant attenuation potential[2] of at least 300 mm in depth[3]	0.8[4]	0.8	0.8
Proprietary treatment systems[5,6]	These must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area.		

Figure 16 - SuDs Mitigation Methods

The proposed drainage scheme incorporates a green roof where possible prior to discharge into a soakaway, with the new external areas are proposed to be permeable paving. The proposed solutions provide mitigation indices which exceed the pollution hazard indices, therefore are considered to be suitable.

7. PROTECTION OF DRAINAGE DURING CONSTRUCTION

7.1. General

Appropriate measures will be taken to protect the surface water drainage system during construction and the surface water runoff. These measures will be developed by the contractor, but we would expect to include:

- All foul water and surface water drains downstream of the site works as well as the relevant water authority will be identified;
- Underground services will be investigated and identified to avoid damage to them;
- All containers and tanks will have clear notices of their contents and how to handle them;
- Stockpiled material will be protected to reduce rainwater infiltration.
- In the event of a spillage causing pollution to water (i.e., discharged into drains) or land, the source will be contained, and the Environment Agency will be notified.
- All works should be in constructed in accordance with Best Practice, British Standards and CIRIA documents C753 and C768.

8. MAINTENANCE PLAN

All below ground drainage systems require regular maintenance to ensure they operate correctly. The drainage networks should be regularly inspected for blockages and cleared of unwanted debris/silt which will ensure performance and decrease the likelihood of future repairs.

This schedule details the following:

- Maintenance requirements and a suggested maintenance record.
- Explanation of the consequences of not carrying out the maintenance that is specified.
- Identification of areas where certain activities are prohibited (for example stockpiling materials on pervious surfaces).
- An action plan for dealing with accidental spillages

8.1. Responsibilities

During the construction phase of the development, the contractor is responsible for protecting the drainage system and undertaking any maintenance as needed.

Post construction, St Mary's University has responsibility for ensuring the below ground drainage system is maintained.

Any new drainage associated with the development will remain within private ownership.

8.2. Health and Safety

To comply with the Construction (Design and Management) Regulations (CDM) 2015, designers must assess all foreseeable risks during construction and maintenance and the designer must minimise them by the following (in order of preference):

1. Avoid.
2. Reduce.
3. Identify and mitigate residual risks.

8.3. Operation and Maintenance Plan

8.3.1. Construction Phase

Appropriate measures shall be taken to protect the surface water drainage system during construction and surface water runoff. These measures shall be developed by the contractor, but as a minimum shall include:

- All foul water and surface water drains downstream of the site works as well as the relevant water authority will be identified.
- Underground services will be investigated and identified to avoid damage to them.
- All containers and tanks will have clear notices of their contents and how to handle them.
- Stockpiled material will be protected to reduce rainwater infiltration.
- Materials shall not be stockpiled over permeable paving unless a suitable temporary membrane is provided to ensure materials do not block voids in the paving construction.
- In the event of a spillage, Health and safety consideration are a priority and addressing accidental spillages should only be attempted if the nature of the spillage is known and any potential hazardous properties understood. The source of the spillage should be stopped, with excess surface spillage removed by suction tank or absorption matts. Silt traps and sumps should be emptied by suction tanker. Any areas of affected permeable paving should have the surface and laying course removed with the surfacing blocks cleaned and re-laid on new bedding material. Heavy pollution of the subbase will require removal and replacement of the sub-base.
- Heavy loads shall not be permitted in areas where cellular storage crates are located.
- All works should be in constructed in accordance with Best Practice, British Standards and CIRIA documents C753 and C768.

8.4. Operational Phase

There are four categories for maintenance activities:

1. Regular maintenance.
2. Occasional maintenance.
3. Remedial maintenance.
4. Monitoring

Regular maintenance consists of basic tasks done on a frequent schedule, including vegetation management, litter and debris removal, and inspections.

Occasional maintenance comprises tasks that are likely to be required periodically, but on a less frequent basis than the regular tasks (e.g. sediment removal or filter replacement).

Remedial maintenance describes the intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design, construction and regular maintenance activities. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and so timings are difficult to predict. Remedial maintenance can comprise activities such as:

- inlet/outlet repairs
- erosion repairs
- reinstatement or realignment of edgings, barriers, rip-rap or other erosion control
- infiltration surface rehabilitation
- replacement of blocked filter fabrics

- construction stage sediment removal (although this activity should have been undertaken before the start of the maintenance contract)
- system rehabilitation immediately following a pollution event.

It is important to note that these remedial activities will not be required for all systems, but for the purpose of estimating whole life maintenance costs, a contingency sum of 15-20% should be added to the annual regular and occasional maintenance costs to cover the risk of these activities being required. Table 32.1 of the CIRIA SuDS Manual (C753), indicates typical key SuDS components operation and maintenance activities as shown overleaf.

Monitoring consists of inspection only to assess performance.

TABLE 32.1 Typical key SuDS components operation and maintenance activities (for full specifications, see Chapters 11–23)

Operation and maintenance activity	SuDS component												
	Pond	Wetland	Detention basin	Infiltration basin	Soakaway	Infiltration trench	Filter drain	Modular storage	Pervious pavement	Swale/bioretention/ trees	Filter strip	Green roofs	Proprietary treatment systems
Regular maintenance													
Inspection	■	■	■	■	■	■	■	■	■	■	■	■	■
Litter and debris removal	■	■	■	■	□	■	■	□	■	■	■		□
Grass cutting	■	■	■	■	□	■	■	□	□	■	■		
Weed and invasive plant control	□	□	□	□		□	□		□		□	■	
Shrub management (including pruning)	□	□	□	□					□	□	□		
Shoreline vegetation management	■	■	□										
Aquatic vegetation management	■	■	□										
Occasional maintenance													
Sediment management[1]	■	■	■	■	■	■	■	■	■	■	■		■
Vegetation replacement	□	□	□	□						□	□	■	
Vacuum sweeping and brushing									■				
Remedial maintenance													
Structure rehabilitation /repair	□	□	□	□	□	□	□	□	□	□	□	□	
Infiltration surface reconditioning				□	□	□	□		□	□	□		

Key

■ will be required

□ may be required

Notes

1 Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

Figure 17 - Extract of Table 32.1 from the SuDS Manual

8.4.1. Soakaways

Regular inspection and maintenance are required to ensure the effective long-term operation of soakaways. Maintenance is typically carried out manually and undertaken by a responsible organisation.

The maintenance requirements for soakaways are described in Table 5 - Maintenance requirements for soakaways. Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements.

Table 5 - Maintenance requirements for soakaways

MAINTENANCE SCHEDULE	REQUIRED ACTIONS	FREQUENCY
Regular maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial actions	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year and then annually
	Check soakaway to ensure emptying is occurring	Annually

8.4.2. Permeable Paving

Regular inspection and maintenance are important for the effective operation of pervious pavements. Maintenance responsibility for a pervious pavement and its surrounding area should be placed with an appropriate responsible organisation.

The paving should be inspected regularly, preferably during and after heavy rainfall to check effective operation and to identify any areas of ponding.

Pervious surfaces need to be regularly cleaned of silt and other sediments to preserve their infiltration capability. Experience in the UK is limited, but advice issued with permeable precast concrete paving has suggested a minimum of three surface sweepings per year. Manufacturers' recommendations should always be followed.

A brush and suction cleaner, which can be a lorry-mounted device or a smaller precinct sweeper, should be used and the sweeping regime should be as follows:

- End of winter (April) – to collect winter debris.

- Mid-summer (July/August) – to collect dust, flower and grass-type deposits.
- After autumn leaf fall (November).

Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material. Any lost material should be replaced.

Operation and maintenance requirements for permeable paving are described in Table 6.

Table 6 Maintenance requirements Permeable Paving

MAINTENANCE SCHEDULE	REQUIRED ACTIONS	FREQUENCY
Regular maintenance	Brushing and vacuuming.	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site-specific observations of clogging or manufacturers' recommendations.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds.	As required.
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	As required.
	Rehabilitation of surface and upper sub-structure.	As required (if infiltration performance is reduced as a result of significant clogging).
Monitoring	Initial inspection.	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action.	3-monthly, 48 h after large storms.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor inspection chambers.	Annually.

8.4.3. Green Roofs

Intensive green roofs will require regular maintenance. Grass will require mowing weekly or fortnightly, plant beds may require weeding on a weekly or fortnightly basis during the growing season, and wildflower meadows may require annual mowing with the cuttings removed.

Extensive green roofs should normally only require bi-annual or annual visits to remove litter, check fire breaks and drains and, in some cases, remove unwanted colonising plants.

All maintenance shall be carried out in accordance with the specific green roof manufacturer requirements which shall as a minimum include those described in Table 7.

Table 7 Maintenance requirements for Green Roofs

MAINTENANCE SCHEDULE	REQUIRED ACTIONS	FREQUENCY
Regular Maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth.	Six monthly/ Annually or as required.
	During establishment (i.e. one year), replace dead plants as required.	Monthly (but usually responsibility of manufacturer)
	Post establishment, replace dead plants as required.	Annually (in autumn)
	Remove fallen leaves and debris form deciduous plant foliage.	Six monthly or as required.
	Remove nuisance and invasive vegetation, including weeds.	Six monthly or as required.
	Mow grasses (if appropriate) as required. Clippings must be removed and not allowed to accumulate.	Six monthly or as required.
Remedial Actions	If erosion channels are evident, these should be stabilised with additional soil substrate similar to the original material. Sources of erosion damage must be identified and controlled.	As required.

8.4.4. Silt Traps and Catchpits

Regular inspection and maintenance are required to ensure the effective long-term operation of the below ground silt traps and catchpits systems. Maintenance responsibility for systems should be placed with a responsible organisation.

The maintenance requirements for silt traps and catchpits are described in Table 8. Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements.

Table 8 - Maintenance requirements for Silt Traps and Catchpits

MAINTENANCE SCHEDULE	REQUIRED ACTIONS	FREQUENCY
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Inspection of silt traps and catchpits to assess silt accumulation	Monthly (and after large storms)
	Removal of accumulated silt from silt trap and catchpit sumps	Annually, or as required

Remedial actions	Repair/rehabilitation of inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

8.4.5. Gullies / Linear Drainage Channels

Inspection and removal of debris from silt trap once a year; preferably after leaf fall in the autumn.

8.4.6. Drainage pipes, manholes and silt traps

Inspect manholes and silt traps for build-up of silt and general debris once a year; preferably after leaf fall in the autumn. If silt/debris is building up, then clean with jetting lorry / gully sucker and inspect pipe – repeat cleaning if required. If the pipes to be jetted are plastic, then a high flow, low pressure setting should be used so that the pipes are not damaged.

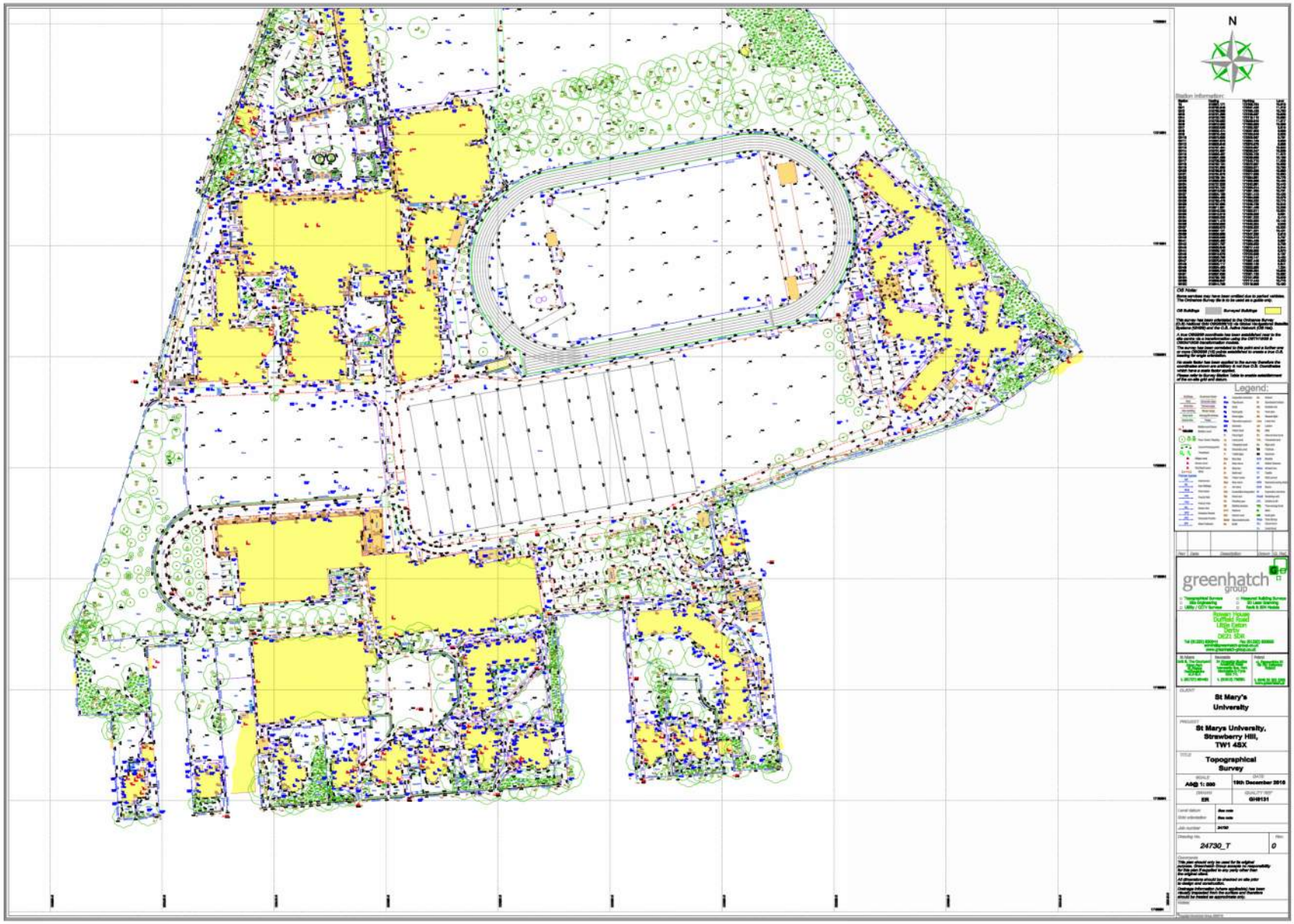
9. EXCEEDANCE ROUTES

If the below ground drainage system experiences a storm greater than 100yr+40%cc surface water would flow on the ground away from the proposed building. An exceedance plan is shown in **Appendix I**.

10. APPENDICES

A. TOPOGRAPHICAL SURVEY, UTILITIES SURVEY AND CCTV DRAINAGE SURVEY

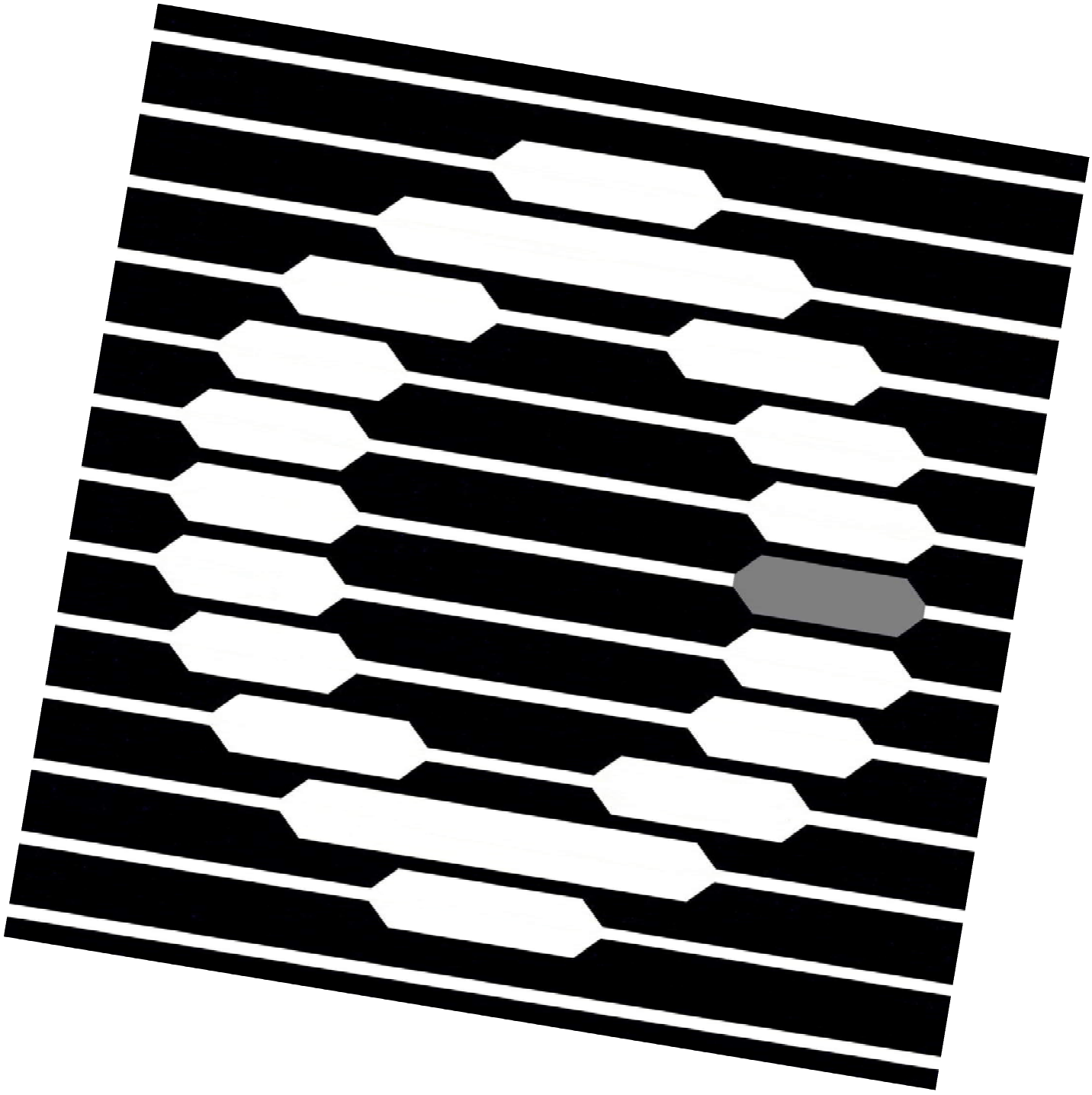
Main campus_24730_T_UG_REV1.dwg



Extract of Utility Survey
PCh
28.06.2024

RIDGE

G.O. DRAINAGE SERVICES LTD



CV.02888 ST MARYS UNIVERSITY R BUILDING

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

CCTV SURVEY HEADER SHEET

CLIENT. RIDGE

LOCATION. ST MARYS UNIVERSITY
R BUILDING
TW1 4SX

JOB NO. CV.02888

SEWER USE. FOUL + SURFACE DRAINAGE

WEATHER. DRY

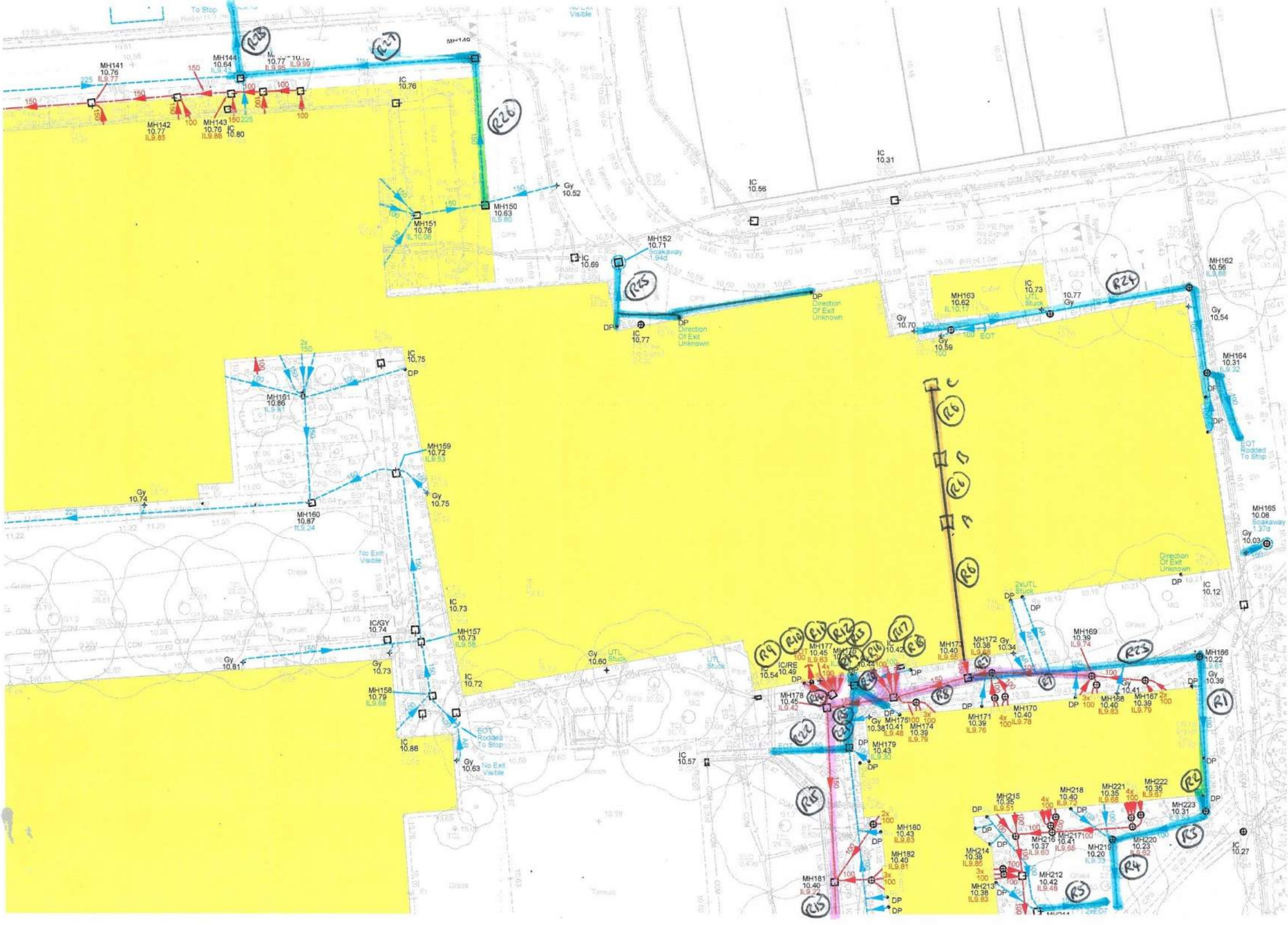
DATE. 16/07/24

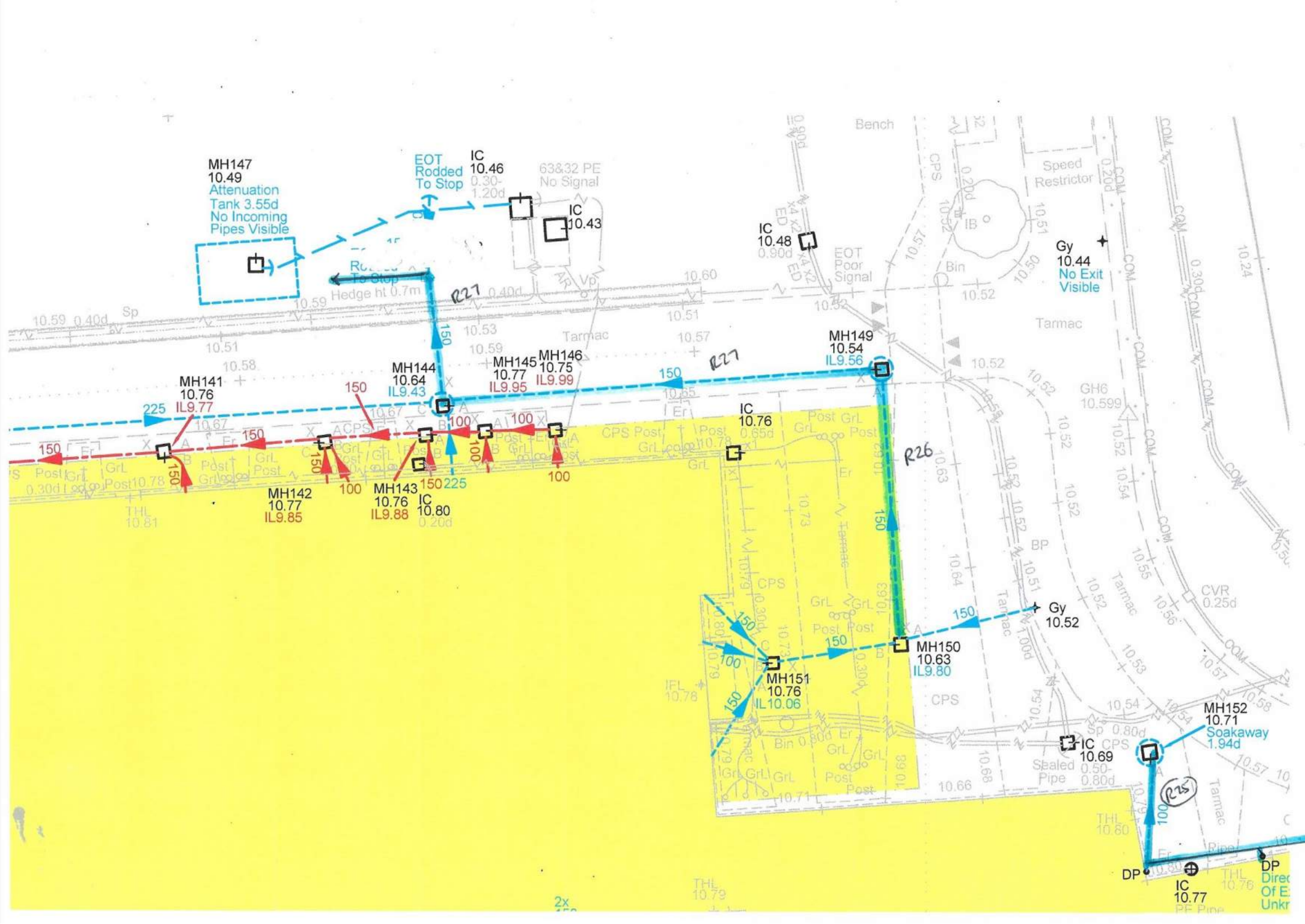
OPERATOR. GO

CLEANED. NO

ORDER NO. E-MAIL PAUL

TOTAL LENGTH SURVEYED. 269.2 metres


MH141 10.76 IL9.77
MH142 10.77 IL9.85
MH143 10.76 IL9.68
MH144 10.64
IC 10.80
IC 10.76
MH150 10.63 IL9.80
MH151 10.76 IL10.06
Gy 10.52
MH152 10.71 Soakaway 1.94d
IC 10.69
IC 10.77
DP Direction Of Exit Unknown
IC 10.31
IC 10.56
IC 10.73 UTL Stuck
MH162 10.56 IL9.88
MH163 10.62 IL10.17
Gy 10.70
Gy 10.59
Gy 10.54
MH164 10.31 IL9.32
EOT Rodded To Stop
MH165 10.08 Soakaway 1.97d
Gy 10.03
IC 10.75
MH161 10.86 IL9.81
MH159 10.72 IL9.53
Gy 10.74
Gy 10.75
MH160 10.87 IL9.24
No Exit Visible
IC 10.73
IC/GY 10.74
MH157 10.73 IL9.58
Gy 10.81
Gy 10.73
IC 10.72
MH158 10.79 IL9.68
IC 10.88
Gy 10.63
No Exit Visible
Gy 10.60 UTL Stuck
IC 10.57
IC 10.54
IC/RE 10.49
MH177 10.45 IL9.63
MH176 10.45 IL9.42
MH178 10.45 IL9.42
IC 10.42
MH173 10.40 IL9.55
MH172 10.36 IL9.62
Gy 10.34
MH169 10.39 IL9.74
MH166 10.22
Gy 10.39
MH168 10.40 IL9.83
MH167 10.39 IL9.79
Gy 10.41
MH171 10.39 IL9.76
MH170 10.40 IL9.78
Gy 10.38
MH175 10.41 IL9.48
MH174 10.39 IL9.79
MH179 10.43 IL9.30
MH180 10.43 IL9.83
MH182 10.40 IL9.81
MH181 10.40 IL9.22
2xUTL Stuck
Direction Of Exit Unknown
IC 10.12
IC 10.27
MH215 10.35 IL9.51
MH218 10.40 IL9.72
MH221 10.35 IL9.68
MH222 10.35 IL9.87
MH223 10.31
MH216 10.37 IL9.60
MH217 10.41 IL9.65
MH219 10.20 IL9.53
MH220 10.23 IL9.82
MH214 10.38 IL9.85
MH212 10.42 IL9.48
MH213 10.38 IL9.83
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26


MH147
10.49
Attenuation
Tank 3.55d
No Incoming
Pipes Visible
EOT
Rodded
To Stop
IC
10.46
0.30-
1.20d
63&32 PE
No Signal
IC
10.43
Hedge ht 0.7m
R27
150
MH144
10.64
IL9.43
MH145
10.77
IL9.95
MH146
10.75
IL9.99
MH141
10.76
IL9.77
225
150
100
MH142
10.77
IL9.85
MH143
10.76
IL9.88
IC
10.80
0.20d
IC
10.48
0.90d
EOT
Poor
Signal
Speed
Restrictor
Bench
Gy
10.44
No Exit
Visible
Tarmac
MH149
10.54
IL9.56
IC
10.76
0.65d
R26
GH6
10.599
BP
CVR
0.25d
Gy
10.52
MH150
10.63
IL9.80
MH151
10.76
IL10.06
CPS
Bin
Sealed
Pipe
IC
10.69
MH152
10.71
Soakaway
1.94d
R25
DP
IC
10.77
DP
Direc
Of E
Unkr
THL
10.81
THL
10.79
THL
10.80
THL
10.76
IFL
10.78
2x

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.0144

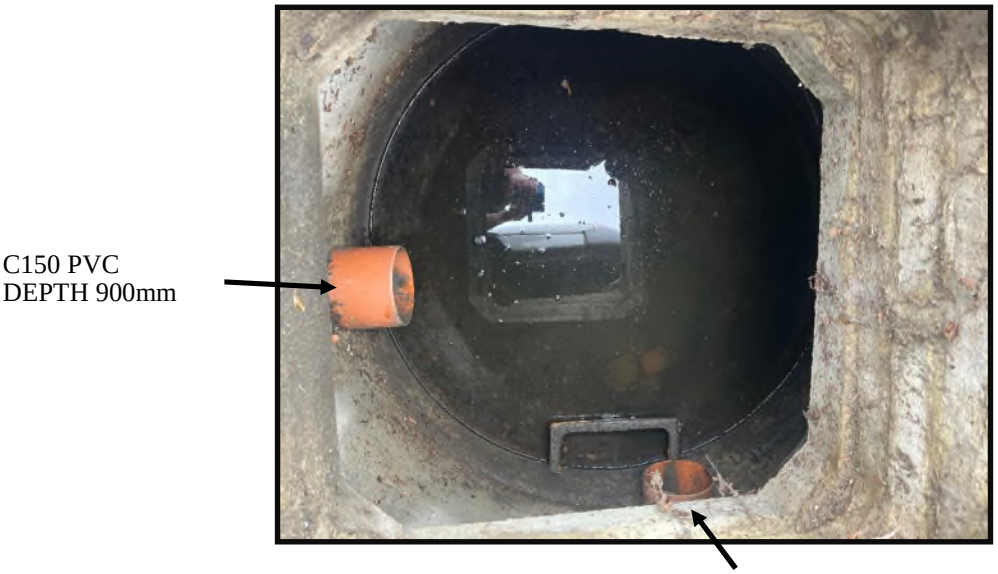
COVER610X610 mm

CHAMBER 1500mm

MANHOLE NO.0149

COVER 610X610mm

CHAMBER 1250mm



G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.0150

COVER 610X610mm

CHAMBER 470mm

C150 PVC
DEPTH 840mm

MANHOLE NO.152

COVER 610X610mm

CHAMBER 1050mm

C100 PVC
DEPTH 840mm

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

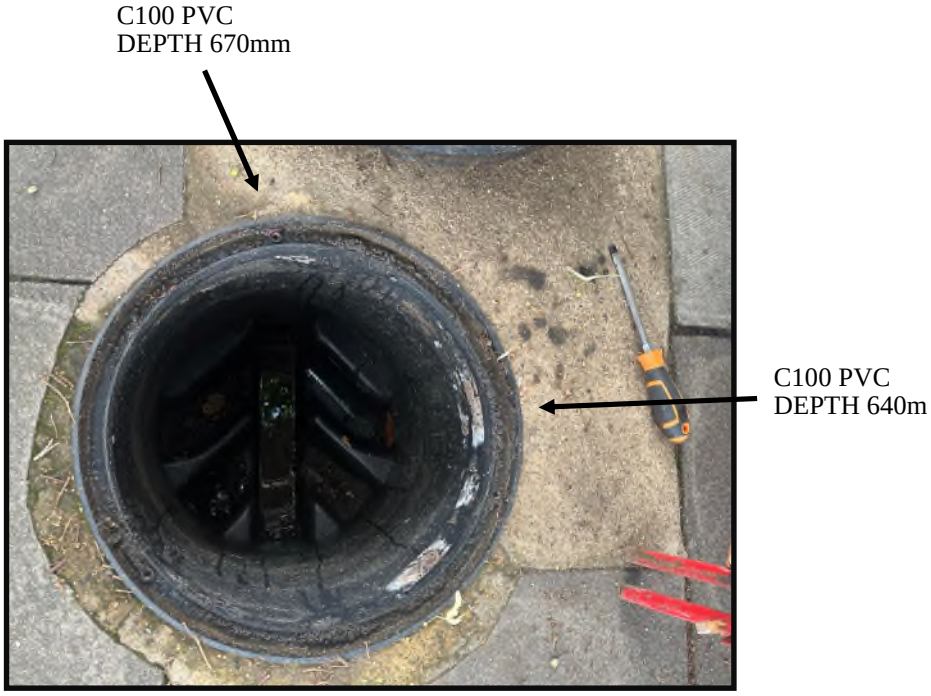
MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.0162

COVER 490mm

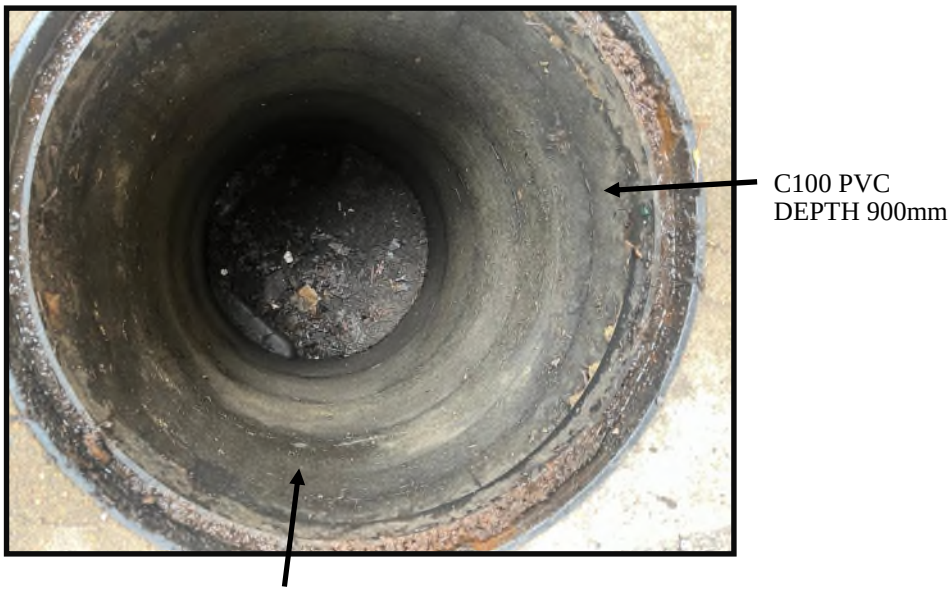
CHAMBER 470mm



MANHOLE NO.0164

COVER 490mm

CHAMBER 470mm



G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.0165

COVER 670mm

CHAMBER 1050mm

C100 PVC
DEPTH 680mm

C100 PVC
DEPTH 280mm

MANHOLE NO.0166

COVER 490mm

CHAMBER 470mm

C100 PVC
DEPTH 560mm

C100 PVC
DEPTH 660mm

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

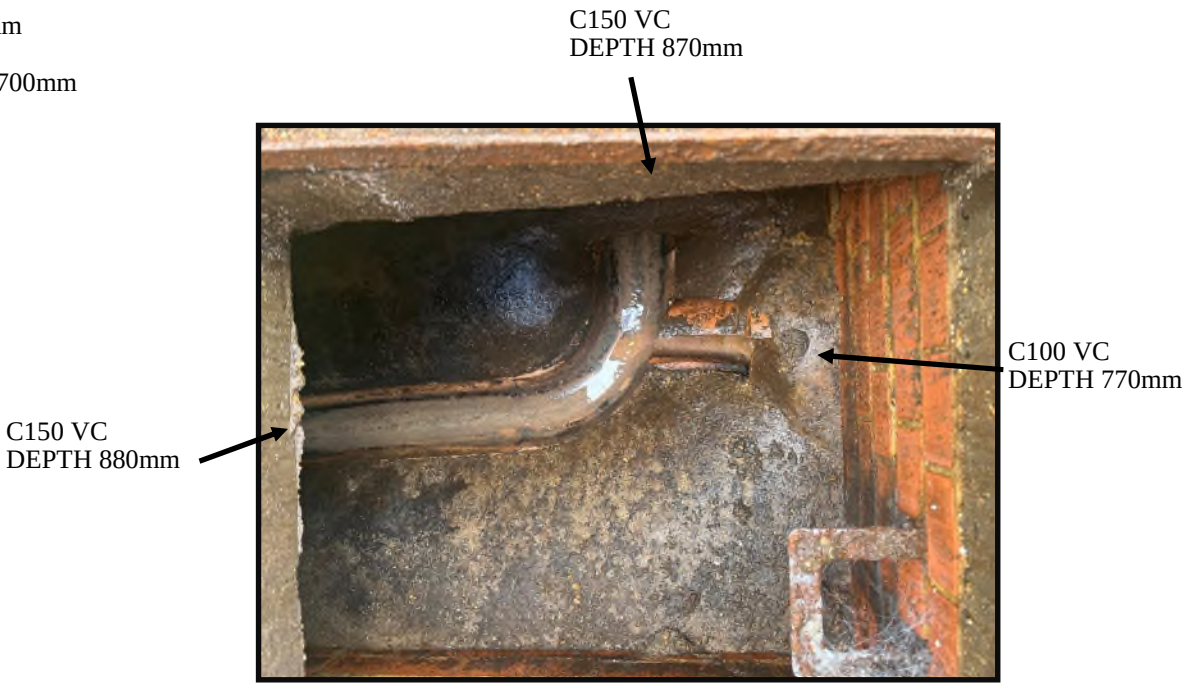
MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.0173

COVER 660X660mm

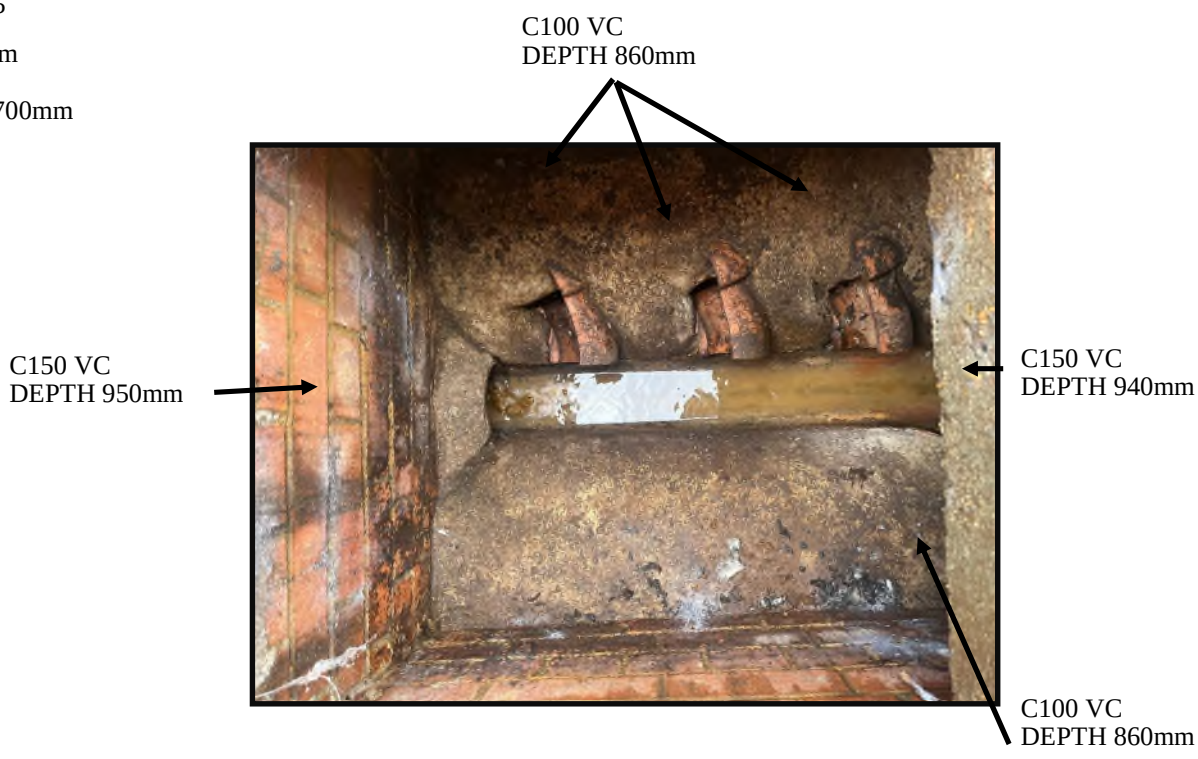
CHAMBER 1000X700mm



MANHOLE NO.175

COVER 660X660mm

CHAMBER 1000X700mm



G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

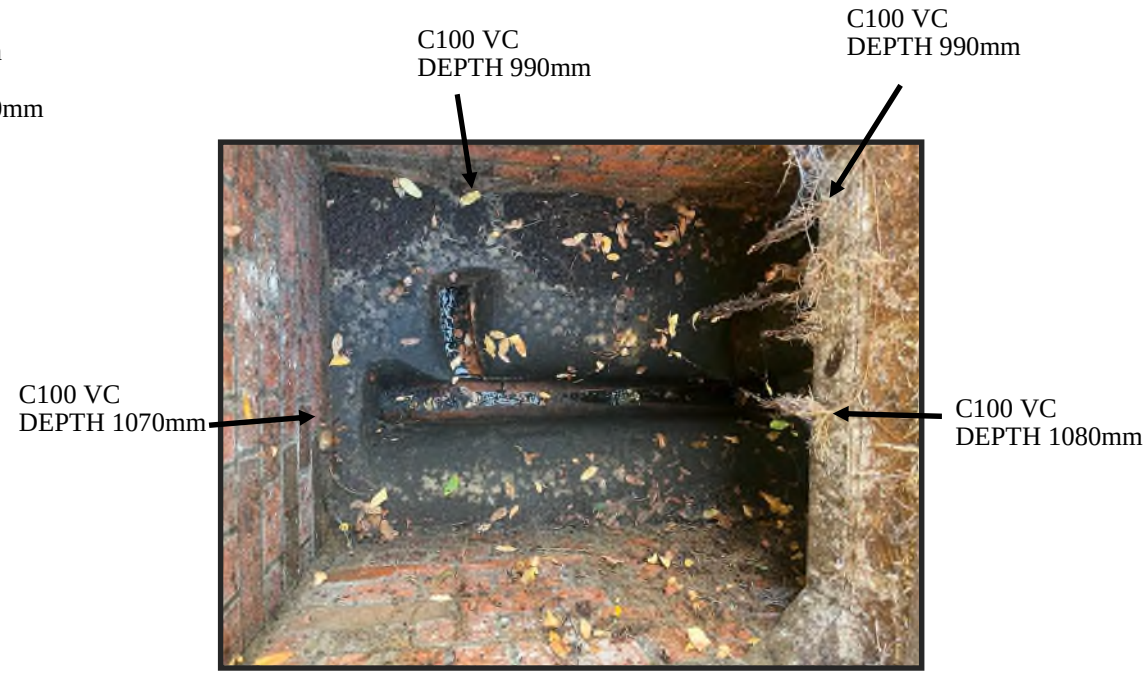
MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.176

COVER 660X660mm

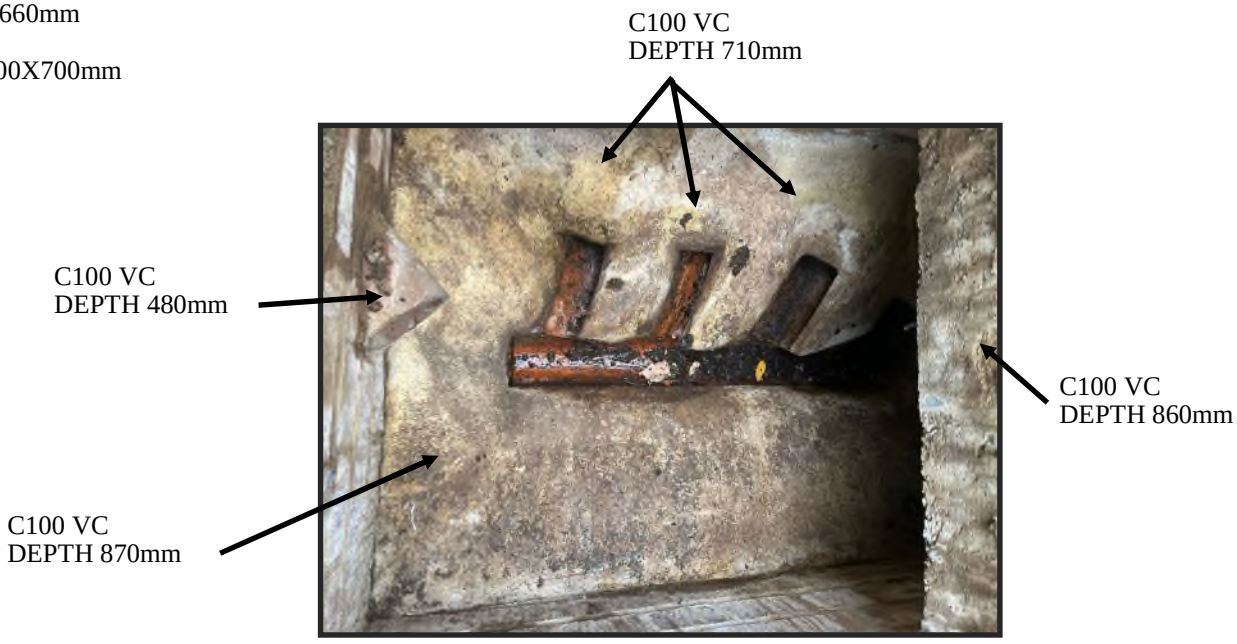
CHAMBER 900X700mm



MANHOLE NO.177

COVER 660X660mm

CHAMBER 900X700mm



G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.178

COVER 660X660mm

CHAMBER 900X700mm

MANHOLE NO.179

COVER 660X660mm

CHAMBER 800X600mm

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

MANHOLE SURVEY

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. **CV.02888**

MANHOLE NO.219

COVER 490mm

CHAMBER 470mm

C100 VC
DEPTH 820mm

C100 VC
DEPTH 810mm

C100 VC
DEPTH 670mm

MANHOLE NO.223

COVER 490mm

CHAMBER 470mm

C100 VC
DEPTH 720mm

C100 VC
DEPTH 770mm

C100 VC
DEPTH 760mm

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

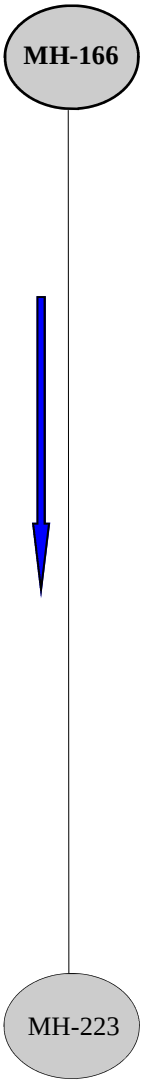
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	01	16/07/24	SURFACE	600mm	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START: ST. MANHOLE No.166 CONNECTION- X

FINISH: FH. MANHOLE NO.223



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3 S1	DES	SETTLED DEPOSITS COARSE 10% START
002.5	JN	JUNCTION AT 03 O'CLOCK,DIAMETER 100mm
002.5 F1	DES	SETTLED DEPOSITS COARSE 10% END
000.3 S2	DES	SETTLED DEPOSITS COARSE 05% START
011.0	JN	JUNCTION AT 03 O'CLOCK,DIAMETER 100mm
012.6	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
012.6 F2	DES	SETTLED DEPOSITS COARSE 10% END
013.5	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
014.8	MH	MANHOLE NO.223
014.8	FH	FINISH OF SURVEY

END OF RUN NO.01

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

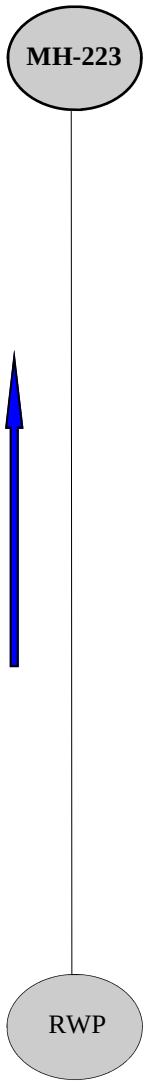
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	02	16/07/24	SURFACE	720mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 223 CONNECTION- 1 FH. RWP



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3	LU	LINE OF DRAIN DEVIATES UP (SLIGHT)
001.4	LU	LINE OF DRAIN DEVIATES UP (SHARP)
001.4	FH	FINISH OF SURVEY RWP

END OF RUN NO.02

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	03	16/07/24	SURFACE	770mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No.223 CONNECTION- X

FINISH

FH. MANHOLE NO.219

MH-223

CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3	DES	SETTLED DEPOSITS FINE 05%
000.3	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
004.4	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
008.3	MH	MANHOLE NO.219
008.3	FH	FINISH OF SURVEY

END OF RUN NO.03

MH-219

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

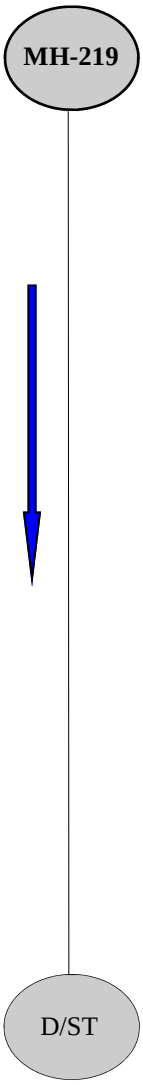
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	04	16/07/24	SURFACE	820mm	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 219 CONNECTION- X

FINISH

FH. DOWNSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
005.2	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
005.8	FH	FINISH OF SURVEY SOAKAWAY

END OF RUN NO.04

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

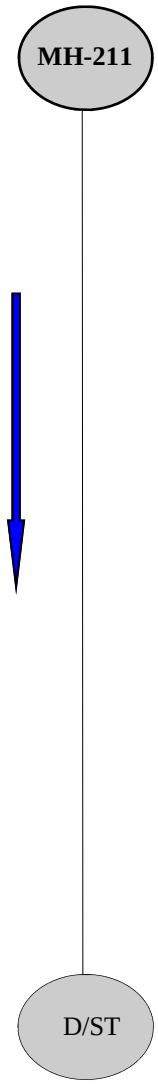
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	05	16/07/24	SURFACE	1250mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 211 CONNECTION- X

FINISH

FH. DOWNSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
006.8	FH	FINISH OF SURVEY SOAKAWAY

END OF RUN NO.05

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

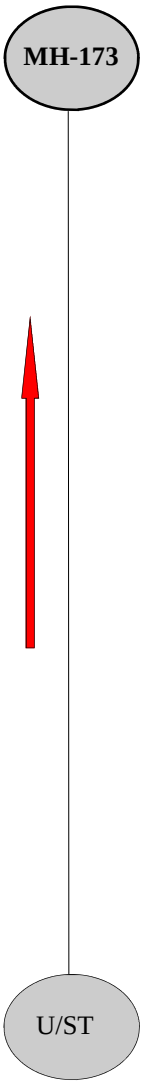
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	06	16/07/24	FOUL	870mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 173 CONNECTION- 1 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.5	SC	DIMENSION OF DRAIN CHANGES TO 100mm
013.6	MH	MANHOLE NO.173A
014.4	REM	GENERAL REMARK (END OF CHAMBER)
016.6	MH	MANHOLE NO.173B
017.8	REM	GENERAL REMARK (END OF CHAMBER)
029.4	MH	MANHOLE NO.173C
029.4	FH	FINISH OF SURVEY

END OF RUN NO.06

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

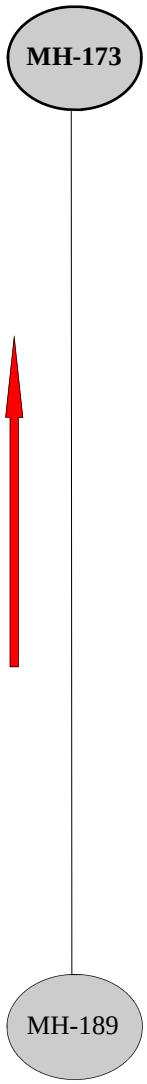
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	07	16/07/24	FOUL	770mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 173 CONNECTION- 2

FINISH

FH. MANHOLE NO.189



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.8	MH	MANHOLE NO.172
002.4	REM	GENERAL REMARK (END OF CHAMBER)
002.4	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
011.8	MH	MANHOLE NO.189
011.8	FH	FINISH OF SURVEY

END OF RUN NO.07

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

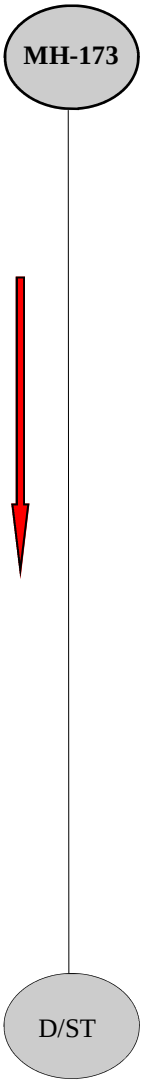
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	08	16/07/24	FOUL	880mm	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 173 CONNECTION- X FH.



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
006.3	MH	MANHOLE NO.175
007.2	REM	GENERAL REMARK (END OF CHAMBER)
013.5	MH	MANHOLE NO.178
013.5	FH	FINISH OF SURVEY

END OF RUN NO.08

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

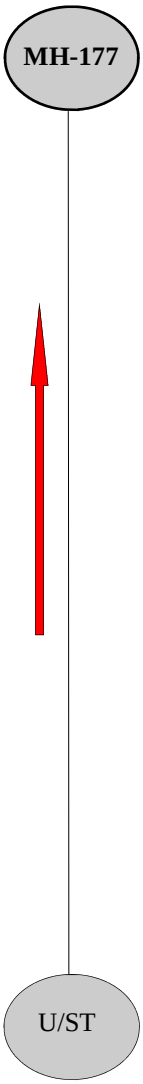
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	09	16/07/24	FOUL	480mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 177 CONNECTION– 1

FINISH

FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.7	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
002.6	LU	LINE OF DRAIN DEVIATES UP (SHARP)
002.6	FH	FINISH OF SURVEY

END OF RUN NO.09

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

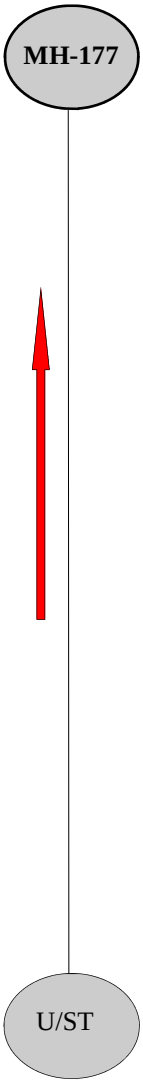
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	10	16/07/24	FOUL	710mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 177 CONNECTION- 2

FINISH

FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.6	DES	SETTLED DEPOSITS FINE %
002.0	DES	SETTLED DEPOSITS FINE %
002.0	LU	LINE OF DRAIN DEVIATES UP (SHARP)
002.0	FH	FINISH OF SURVEY

END OF RUN NO.10

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

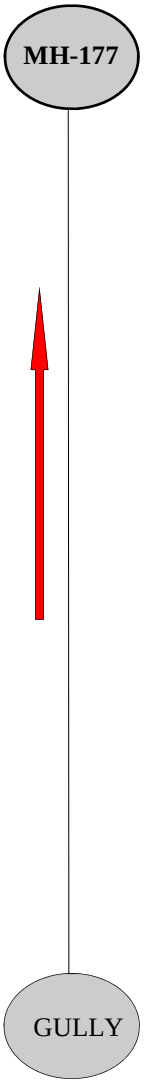
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	11	16/07/24	FOUL	710mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 177 CONNECTION- 3

FINISH

FH. GULLY



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.0	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
001.4	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
001.4	FH	FINISH OF SURVEY (GULLY)

END OF RUN NO.11

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

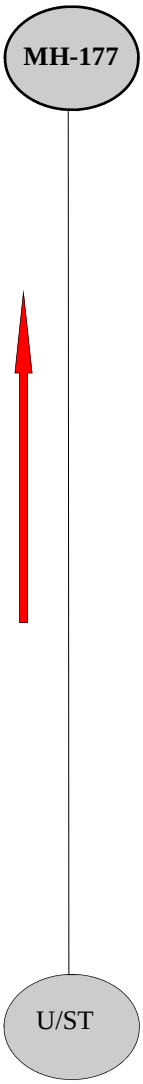
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	12	16/07/24	FOUL	710mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 177 CONNECTION- 4 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3	LU	LINE OF DRAIN DEVIATES UP (SHARP)
001.1	FC	FRACTURE, CIRCUMFERENTIAL FROM 12 TO 12 O'CLOCK
001.1	DES	SETTLED DEPOSITS FINE 30%
001.6	LU	LINE OF DRAIN DEVIATES UP (SHARP)
001.6	FH	FINISH OF SURVEY

END OF RUN NO.12

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

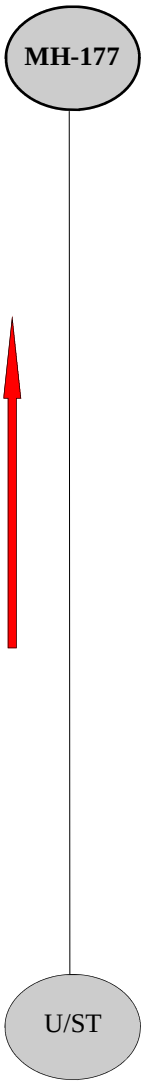
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	13	16/07/24	FOUL	860mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 177 CONNECTION- 5 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.2	DES	SETTLED DEPOSITS FINE 10%
001.7	DES	SETTLED DEPOSITS FINE 20%
001.8	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
001.8	FH	FINISH OF SURVEY (GULLY)

END OF RUN NO.13

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	14	16/07/24	FOUL	870mm	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 177 CONNECTION– X

FINISH

FH. MANHOLE NO.178

CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
001.0	MH	MANHOLE NO.178
001.0	FH	FINISH OF SURVEY

MH-177

END OF RUN NO.14

MH-178

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

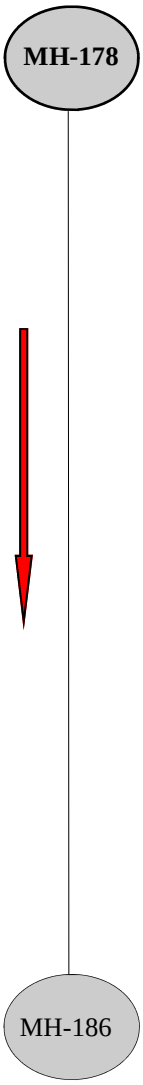
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	15	16/07/24	FOUL	1070mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 178 CONNECTION- X FH. DOWNSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
015.0	DES	SETTLED DEPOSITS COARSE 20%
016.3	MH	MANHOLE NO.181
017.4	REM	GENERAL REMARK (END OF CHAMBER)
024.4	MH	MANHOLE NO.183
025.0	REM	GENERAL REMARK (END OF CHAMBER)
034.0	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
035.0	MH	MANHOLE NO.186
035.0	FH	FINISH OF SURVEY

END OF RUN NO.

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

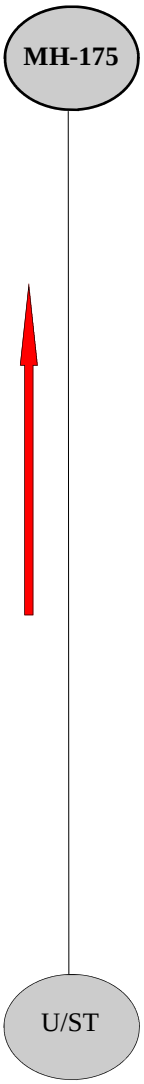
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	16	16/07/24	FOUL	860mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 175 CONNECTION- 1 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.3	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
002.4	CC	CRACK,CIRCUMFERENTIAL FROM 07 TO 05 O'CLOCK
003.0	DES	SETTLED DEPOSITS COARSE 10%
003.6	FH	FINISH OF SURVEY

END OF RUN NO.16

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

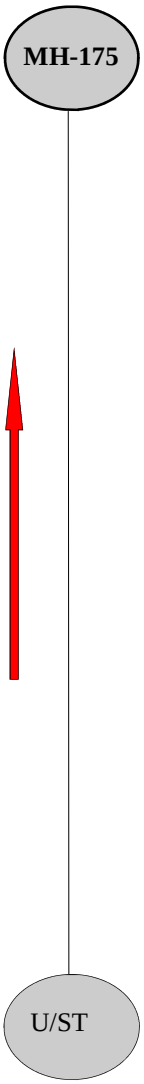
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	17	16/07/24	FOUL	860mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 175 CONNECTION- 2 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.8	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
003.0	DES	SETTLED DEPOSITS FINE %
003.9	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
003.9	FH	FINISH OF SURVEY (GULLY)

END OF RUN NO.17

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

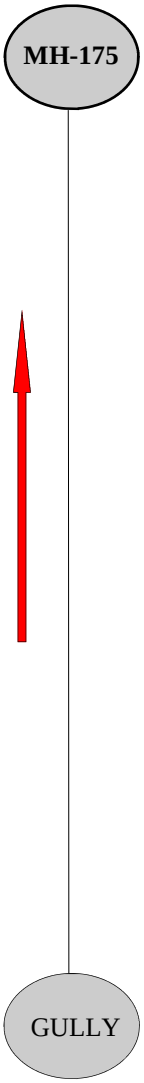
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	18	16/07/24	FOUL	860mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 175 CONNECTION- 3

FINISH

FH. GULLY



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.3	FC	FRACTURE, CIRCUMFERENTIAL FROM 12 TO 12 O'CLOCK
002.7	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
002.7	FH	FINISH OF SURVEY (GULLY)

END OF RUN NO.18

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

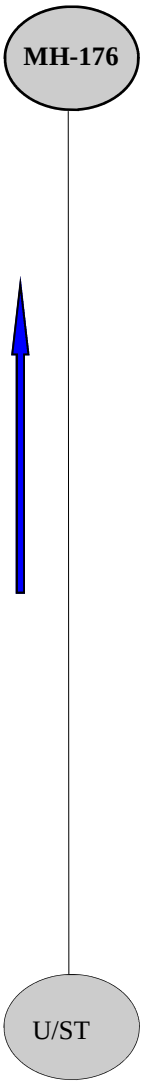
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	19	16/07/24	SURFACE	1070mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 176 CONNECTION- 1 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.4	LU	LINE OF DRAIN DEVIATES UP (SHARP)
000.7	FH	FINISH OF SURVEY

END OF RUN NO.19

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

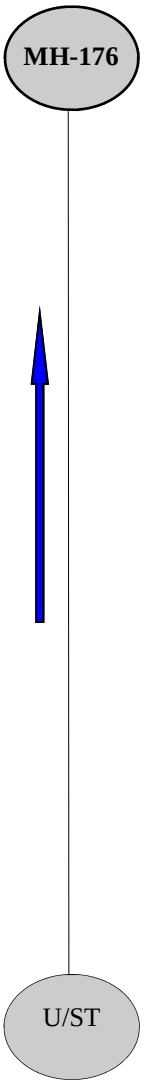
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	20	16/07/24	SURFACE	990mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 176 CONNECTION- 2 FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
001.3	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
003.4	DES	SETTLED DEPOSITS FINE 20%
003.4	FC	FRACTURE, CIRCUMFERENTIAL FROM 12 TO 12 O'CLOCK
004.6	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
004.6	R	ROOTS FINE
004.6	FH	FINISH OF SURVEY

END OF RUN NO.20

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

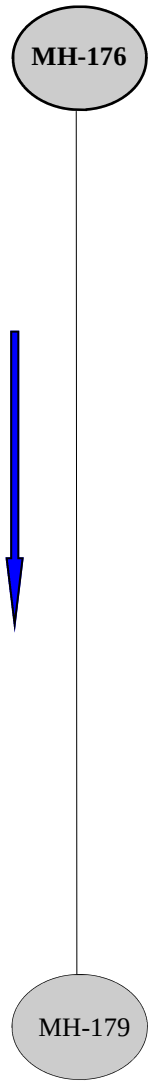
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	21	16/07/24	SURFACE	1080mm	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 176 CONNECTION- X

FINISH

FH. MANHOLE NO.179



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
004.3	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
005.5	MH	MANHOLE NO.179
005.5	FH	FINISH OF SURVEY

END OF RUN NO.21

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

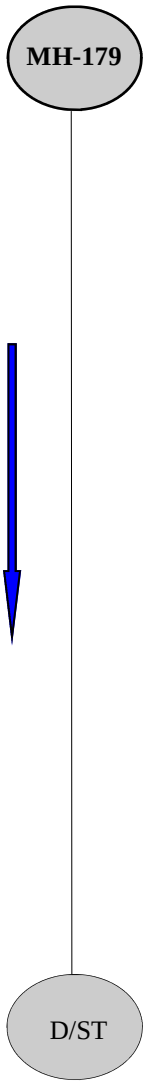
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	22	16/07/24	SURFACE	1150mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 179 CONNECTION- X FH. DOWN STREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.0	WL	WATER LEVEL 30%
001.1	CU	CAMERA UNDER WATER
002.0	SA	SURVEY ABANDONED DUE TO ABOVE

END OF RUN NO.22

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

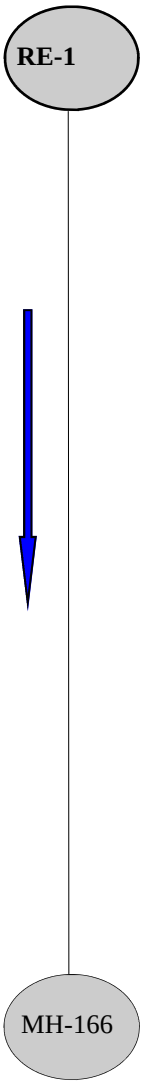
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	23	16/07/24	SURFACE	N/A	DOWNSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. RE No. 1 CONNECTION- X

FINISH

FH. MANHOLE NO.166



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.3	LD	LINE OF DRAIN DEVIATES DOWN (SHARP)
000.6	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
002.5	JN	JUNCTION AT 03 O'CLOCK,DIAMETER 100mm
005.9	JN	JUNCTION AT 09 O'CLOCK,DIAMETER 100mm
010.2	JN	JUNCTION AT 03 O'CLOCK,DIAMETER 100mm
015.0	JN	JUNCTION AT 03 O'CLOCK,DIAMETER 100mm
021.6	MH	MANHOLE NO.166
021.6	FH	FINISH OF SURVEY

END OF RUN NO.23

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

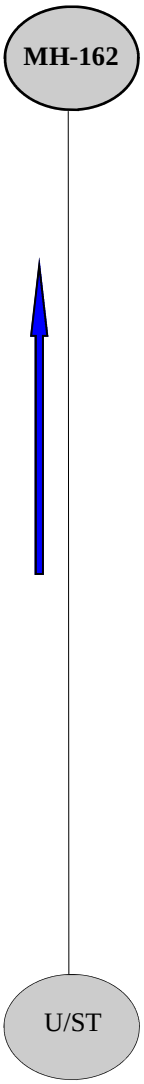
INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	24	16/07/24	SURFACE	640mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START FINISH

ST. MANHOLE No. 162 CONNECTION– 1 FH.



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
002.0	WL	WATER LEVEL 20%
003.1	RFJ	ROOTS FINE AT JOINT
003.2	LU	LINE OF DRAIN DEVIATES UP (SHARP)
011.8	DES	SETTLED DEPOSITS FINE 20%
011.8	WL	WATER LEVEL 20%
012.2	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
012.2	FH	FINISH OF SURVEY

END OF RUN NO.24

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

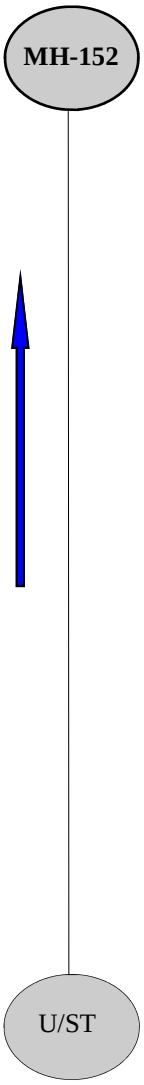
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	25	16/07/24	SURFACE	780mm	UPSTREAM	100mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 152 CONNECTION- 1

FINISH

FH. UPSTREAM



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
004.9	LR	LINE OF DRAIN DEVIATES RIGHT (SLIGHT)
005.5	JN	JUNCTION AT 09 O'CLOCK,DIAMETER 100mm
005.8	LU	LINE OF DRAIN DEVIATES UP (SHARP)
006.3	FH	FINISH OF SURVEY

END OF RUN NO.25

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

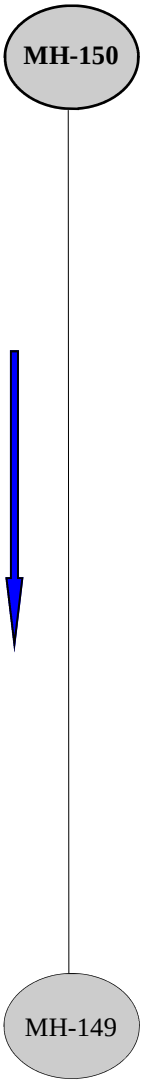
JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	26	16/07/24	SURFACE	840mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 150 CONNECTION- X

FINISH

FH. MANHOLE NO.149



CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
009.9	DES	SETTLED DEPOSITS FINE 10%
013.7	MH	MANHOLE NO.149
013.7	FH	FINISH OF SURVEY

END OF RUN NO.26

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT.	LOCATION.
ST MARYS UNIVERSITY R BUILDING TW1 4SX	ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	27	16/07/24	SURFACE	900mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 149 CONNECTION- X

FINISH

FH. MANHOLE NO.144

MH-149

CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
021.7	MH	MANHOLE NO.144
021.7	FH	FINISH OF SURVEY

END OF RUN NO.27

MH-144

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

INSPECTION REPORT

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX

LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX

JOB NO.	RUN NUMBER	DATE	SEWER USE	DEPTH	DIRECTION	PIPE SIZE	MATERIAL	WEATHER	CLEANED	OPERATOR	PAGE
CV.2888	28	16/07/24	SURFACE	1210mm	DOWNSTREAM	150mm	V/CLAY	DRY	NO	GO	1

START

ST. MANHOLE No. 144 CONNECTION– X

FINISH

FH. DOWNSTREAM

CHAINAGE	CODE	OBSERVATION
000.0	ST	START OF SURVEY
000.0	WL	WATER LEVEL 05%
000.4	R	ROOTS FINE
001.3	R	ROOTS FINE
002.0	WL	WATER LEVEL 05%
007.0	WL	WATER LEVEL 05%
009.5	LL	LINE OF DRAIN DEVIATES LEFT (SLIGHT)
015.0	DES	SETTLED DEPOSITS FINE 20%
016.9	FH	FINISH OF SURVEY

MH-144

D/ST

END OF RUN NO.28

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

SUMMARY AND RECOMMENDATIONS

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. CV.2888

RUN NO.01 NO WORK NEEDED

RUN NO.02 NO WORK NEEDED

RUN NO.03 NO WORK NEEDED

RUN NO.04 NO WORK NEEDED

RUN NO.05 NO WORK NEEDED

RUN NO.06 NO WORK NEEDED

RUN NO.07 NO WORK NEEDED

RUN NO.08 NO WORK NEEDED

RUN NO.09 NO WORK NEEDED

RUN NO.10 NO WORK NEEDED

RUN NO.11 NO WORK NEEDED

RUN NO.12 FRACTURE

RUN NO.13 NO WORK NEEDED

RUN NO.14 NO WORK NEEDED

RUN NO.15 NO WORK NEEDED

RUN NO.16 CRACK

RUN NO.17 NO WORK NEEDED

RUN NO.18 FRACTURE

RUN NO.19 NO WORK NEEDED

RUN NO.20 FRACTURE

G.O. DRAINAGE SERVICES LTD

53 PREMIER AVENUE GRAYS RM16 2SJ TEL:01375 373302 MOB:07792 815977 E-MAIL: godrainage@aol.com

SUMMARY AND RECOMMENDATIONS

CLIENT. ST MARYS UNIVERSITY R BUILDING TW1 4SX	LOCATION. ST MARYS UNIVERSITY R BUILDING TW1 4SX
DATE 16/07/24	JOB. CV.2888

RUN NO.21 NO WORK NEEDED

RUN NO.22 NO WORK NEEDED

RUN NO.23 NO WORK NEEDED

RUN NO.24 ROOTS FINE

RUN NO.25 NO WORK NEEDED

RUN NO.26 NO WORK NEEDED

RUN NO.27 NO WORK NEEDED

RUN NO.28 ROOTS FINE

DRAIN & PIPEWORK CCTV SURVEYS

-

DRAINS

PIPEWORK

CULVERTS

DUCTS

CHUTES

CHIMNEY FLUES

TANKS

HIGH PRESSURE WATER JETTING

-

SEWER & DRAIN BLOCKAGES

DESCALING

SILT REMOVAL

ROOT CUTTING

GREASE REMOVAL

-

G.O. DRAINAGE SERVICES LTD