ALAN BAXTER PARTNERSHIP LLP

CONSULTING STRUCTURAL ENGINEERS

Convent of Mercy Phase 3,
Hillside Drive,
Gravesend
DA12 1NY

Flood Risk Assessment and Drainage Strategy Report

C1477 / November 2024

Document Status and Signatures

Document Status		
Document Reference: B2240-FRA & Drainage Strategy		
Issue Date	**Version / Revision Notes**	**Rev**
29/01/2025	First Issue	0

Signed on behalf of ABP	
Originator:	**Anthony Saunter**

Contents

1.0 Introduction....1
2.0 Proposed Development....2
3.0 Existing Site....2
3.1 Site Location and Use....2
3.2 Topography....3
3.3 Hydrology....3
3.4 Geology....3
3.5 Existing Site Drainage....3
4.0 Flood Risk....4
4.1 Sources of Flooding....4
4.2 Flooding from Rivers and Seas....5
4.3 Flooding from Surface Water....5
4.4 Flooding from Water Infrastructure....6
4.5 Flooding from Ground Water....6
4.6 Flooding from Sewers and Drainage....6
4.7 Flooding from Development Drainage....6
4.8 Summary of Flood Risk....6
4.9 Flood Risk Conclusion....7
5.0 Surface Water Drainage Strategy....7
6.0 Foul Water Drainage Strategy....7
7.0 Maintenance of Drainage Systems....7
8.0 Conclusions....8

Appendices

Appendix A: Architectural Layout
Appendix B: Topographic Survey
Appendix C: CCTV Survey & Sewer Records
Appendix D: Site Investigation
Appendix E: Outline MicroDrainage Calculations
Appendix F: Schematic Drainage Design

1.0 Introduction

Alan Baxter Partnership LLP (ABP) have been engaged by the St Joseph's Convent of Mercy to prepare a site-specific Flood Risk Assessment (FRA) and Drainage Strategy for the proposed development works at the St Joseph's Convent of Mercy site, on Hillside Drive, Gravesend DA12 1NY.

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The flood risk assessment has been prepared in accordance with guidance given in the National Planning Policy Framework (NPPF) and the relevant local Strategic Flood Risk Assessment and supporting documents, plus Environment Agency (EA) standing advice on flood risk plus modelled flood data.

The assessment covers the identification of all sources of flooding, their impact on the development, and their residual risk and mitigation.

A preliminary strategy for surface and foul water drainage has also been included and is subject to further detailed design.

2.0 Proposed Development

The development proposal involves the construction of 4No. large residential properties within the surplus garden area of the convent, within the northeast portion of the overall site.

Each property will have its own driveway providing off road parking facilities, with a new road running along in front of the properties to provide access. A turning head will be provided at the eastern end of the site, adjacent to the boundary.

A copy of the Architectural design is provided in **Appendix A**.

3.0 Existing Site

3.1 Site Location and Use

The proposed development covers an area of approximately 0.35ha. The area of the development is essentially greenfield land, save for a small area of (undrained) tarmac currently utilised for vehicle parking and a memorial structure.

The Convent and the development area (plus a number of existing privately owned dwellings) are accessed from the main highway (B261, Old Road East) via a private road within the ownership of the Convent, known as Hillside Drive. Given this road already has a drainage system associated with it, and there are no amendments proposed to be made to this part of the site, it has essential been discounted from the remainder of this report.

The location of the development area is shown below in **Figure 1**.

Figure 1: Site Location (approximate site boundary shown in Blue, approximate development boundary in Red)

3.2 Topography

The site falls roughly from the south to north, with the high point in the southwest corner at 38.1m A.O.D. with the low point in the northwest corner at around 34.4, A.O.D.

A copy of the topographic survey of the development site is provided within **Appendix B**.

3.3 Hydrology

There are no major water ways / rivers within the vicinity of the development works.

3.4 Geology

The British Geological Survey (BGS) records for this area indicate the site is underlain by Thanet Formation - Sand. See **Figure 2** below.

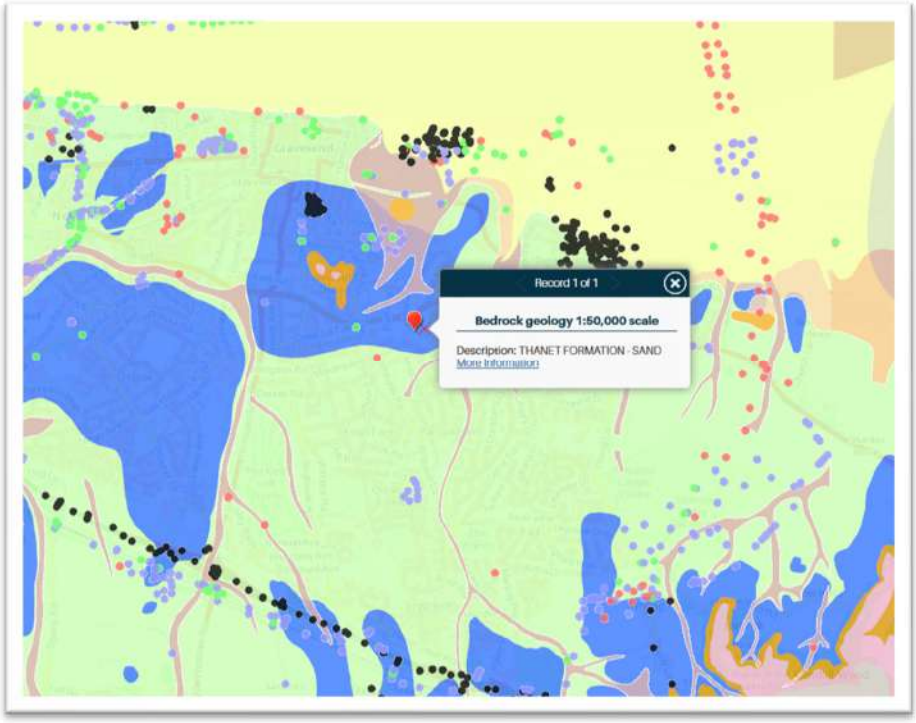


Figure 2: British Geology Survey Map Extract

The development site is located within a Source Protection zone (Zone II – Outer Protection Zone).

3.5 Existing Site Drainage

Whilst the area of development itself is greenfield (and has no drainage), there is drainage associated with the existing convent building. A CCTV Survey of the existing below ground drainage serving the convent is provided in **Appendix C**, along with a copy of the Public Sewer records.

The survey indicates that foul waste is conveyed by a series of gravity pipes before discharging into the foul Public Sewers within Hillside Drive.

There is relatively little in the way of formal surface water drainage, however what there is runs under gravity into what appear to be traditional soakaways.

The survey also highlights that whilst the drainage for the Convent building itself is in relatively poor condition, the Public Sewer is actually in a good stat of repair.

4.0 Flood Risk

The Environment Agency uses Flood Zones to determine the vulnerability of every new development. These Flood Zones refer to the probability of river or sea flooding affecting the proposals, ignoring the presence of defences. An interactive flood zone map is accessible on the Environment Agency website.

With reference to the Environment Agency's Risk of Flooding from Rivers and Sea Map (**Figure 4**) the entirety of the site is located within Flood Zone 1 (Low Probability).

Figure 3: Extract from E.A. Flood Mapping for Planning (approximate site boundary shown in red)

Given the site is located within Flood Zone 1 and covers an area less than 1ha, the NPPF does not require that risk of flooding from all possible sources are investigated. However, for completeness, we have investigated the potential impact of various sources below.

4.1 Sources of Flooding

The NPPF lists the key sources of flooding (see below), which could potentially affect the development site. An assessment of how these forms of flooding may affect the site and details on how they will be managed safely within the development are considered in the following sections.

Flooding from Rivers and the Sea
Flood from Surface Water Flows
Flooding from Water Infrastructure
Flooding from Sewers and Drainage
Flooding from Development Drainage

4.2 Flooding from Rivers and Seas

The Environment Agency Flood Risk Map indicates that the entirety of the proposed development site has no risk of flooding from rivers or the sea – see **Figure 4** below:

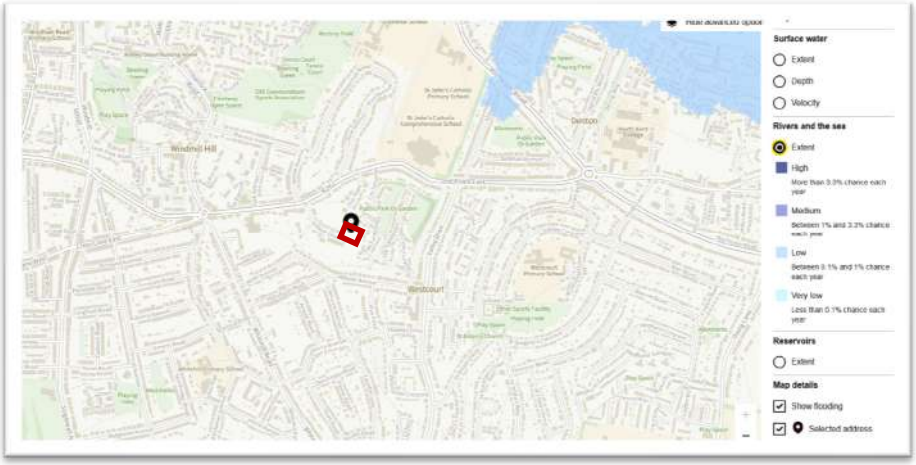


Figure 4: Extract from E.A. Flood Mapping from Rivers and Seas (approximate site boundary shown in red)

4.3 Flooding from Surface Water

The Environment Agency Flood Risk Map indicates that the proposed development area has a 'Very Low' risk of flooding from rivers or the sea, as indicated on **Figure 5** below:

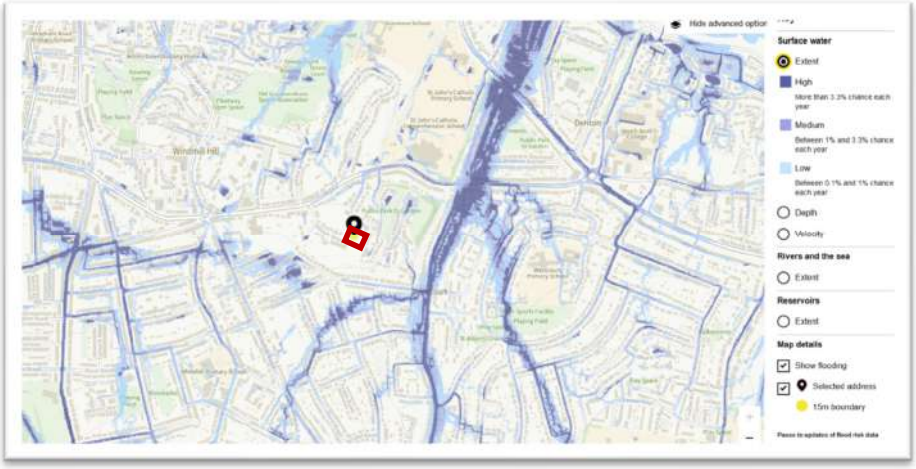


Figure 5: Extract from E.A. Flood Mapping from Surface Water (approximate site boundary shown in red)

There are areas within the overall sports grounds boundaries which do have a potential 'Low' risk of flooding from this source, however the proposed developments are outside of this location and will not be affected by or have an impact on this risk.

4.4 Flooding from Water Infrastructure

An interactive map is available on the Environment Agency website which indicates the maximum extent of flooding in the event of failure of a large reservoir. This map indicates that the site would not be flooded in the event of such a failure – See **Figure 6**.

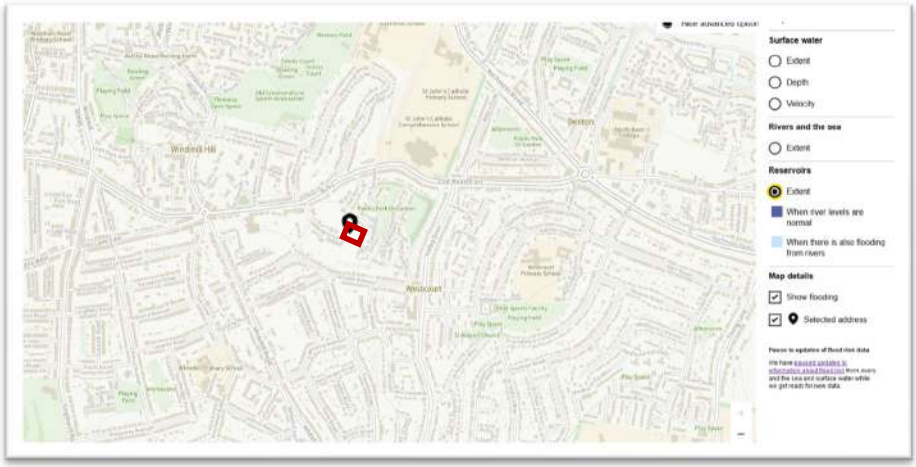


Figure 6: Extract from E.A. Flood Mapping from Surface Water (approximate site boundary shown in red)

4.5 Flooding from Ground Water

Groundwater flooding occurs when water originally in aquifers reaches the surface, typically as a result of high ground water levels caused by prolonged rainfall, obstructions to ground water flows, or rebound of previously depressed ground levels.

There are no records of groundwater flooding occurring on the site, and the relatively elevated location of the site (nearly 40m above sea level) leads us to anticipate that there is a low risk of flooding from this source.

4.6 Flooding from Sewers and Drainage

There are no records of historic sewer flood incidents on or within the vicinity of the site.

4.7 Flooding from Development Drainage

As is demonstrated in the Drainage Strategy section of this report (see **Section 4**), the proposals will incorporate a robust drainage strategy, which will be designed to accommodate the most severe of storm events and will ensure any minor flooding which may occur will be retained within the boundary of the development. As such, it is considered that the risk from flooding from this source is very low.

4.8 Summary of Flood Risk

An assessment of key sources of flooding has been carried out and is summarised below:

- Flooding from Rivers and the Sea — Very Low / No Risk
- Flooding from Surface Water Flows — Low Risk / Very Low Risk
- Flooding from Water Infrastructure — Very Low Risk
- Flooding from Groundwater — Very Low Risk

- Flooding from Sewers and Drainage Very Low Risk
- Flooding from Development Very Low Risk

4.9 Flood Risk Conclusion

Based on this desktop investigation, it can be concluded that the proposed development is located in an area with essentially no risk of flooding from all possible sources, and that the proposals would have (at worst) a negligible impact on the flood risk of the site and the surrounding areas.

5.0 Surface Water Drainage Strategy

It is proposed to discharge all surface water generated by the development into the ground using soakaways.

Each proposed property will have its own private surface water drainage network. Each system will utilise rainwater pipes and a gravity network (for the building roofs), along with subbase storage within the private driveways. All surface water system each building will discharge to individual soakaways located at the rear of each property.

The new access road and turning head for the development will utilise gullies and a channel drain before discharging to a separate, dedicated soakaway, via catchpit chambers.

Infiltration testing was undertaken on site, the results of which are provided in **Appendix D**. Whilst the rates calculated was towards the lower end of what is considered useable, because of the relatively small size of the development, initial modelling has determined that soakaways are viable.

Preliminary soakaway designs have been modelled and are provided in **Appendix E**, and a schematic drainage design is shown in **Appendix F**.

6.0 Foul Water Drainage Strategy

It is proposed to discharge the foul water from all four properties into the Public Sewer located in front of the existing Convent Buildings. However, the depth of the existing sewer and the topography of the development site means that it will not be possible to connect to the Public Sewer using an entirely gravity system.

Therefore, it is proposed to run all foul waste from the proposed properties to a pumping station. The wastewater will then be conveyed through a rising main up to a new chamber nearby to the Public Sewer which will act as a ‘break chamber’ to enable the final connection to be made under gravity.

The final connection will be made using a vitrified clay pipe and will be subject to approval by the relevant authorities.

A schematic layout o provided in **Appendix F**.

7.0 Maintenance of Drainage Systems

The following maintenance regimes would be recommended as a minimum for both surface water and (where appropriate) foul drainage, but actions and frequencies should be adjusted to suit the specific requirements of this development. The schedules below are based on the most preferred drainage solution.

Regular inspection and maintenance of drainage systems is essential to ensure effective long-term performance. Maintenance needs of the system should be monitored, and schedules adjusted to suit the specific requirements of the development. In addition, component specific regimes and any manufacturer's specific recommendations should always be followed.

Main Drainage Network Maintenance - Surface & Foul Water

Item	Required Works/Action	Frequency	Responsibility
Guttering, Gullies & Chambers	Clean out guttering, gullies and chambers (grates and sumps), removing debris & sediment.	Annually	Land Owner or Maintenance Contractor
Pipe network	All pipes (including filter pipes) to be cleaned (jetted) and condition assessed.	Annually	Land Owner or Maintenance Contractor
Permeable Paving	Clear debris & weeds from paving, apply weed killer	Annually	Land Owner or Maintenance Contractor

Attenuation Tanks – Surface Water

Item	Required Works/Action	Frequency	Responsibility
Silt removal	Tanks to be cleaned (jetted) and condition assessed.	Annually	Land Owner or Maintenance Contractor

The foul pumping station will be maintained in accordance with the manufacturer's requirements, and sufficient pipe protection or remediation measures for the existing drain routes to be maintained will be implemented.

8.0 Conclusions

The requirements for Flood Risk Assessment are provided in the National Planning Policy Framework and associated Planning Practice Guidance, together with the Environment Agency's Guidance Notes. This policy and associated guidance have been followed in the preparation of this FRA.

The proposed development covers an area of approximately 0.35ha. The vast majority of this is greenfield land with the remaining area consists of a small area of tarmac used for vehicle parking and memorial structure.

Based on this desktop investigation, it can be concluded that the proposed development is located in an area with essentially no risk of flooding from all possible sources, and that the proposals will have no discernible impact on the flood risk associated with the development site, or those areas adjacent to it.

A robust surface water drainage scheme is proposed, incorporating permeable paving, catchpit gullies and chambers, and soakaways. All surface water drainage will run under gravity and be designed to accommodate a 100 year storm, with a 45% allowance for climate change.

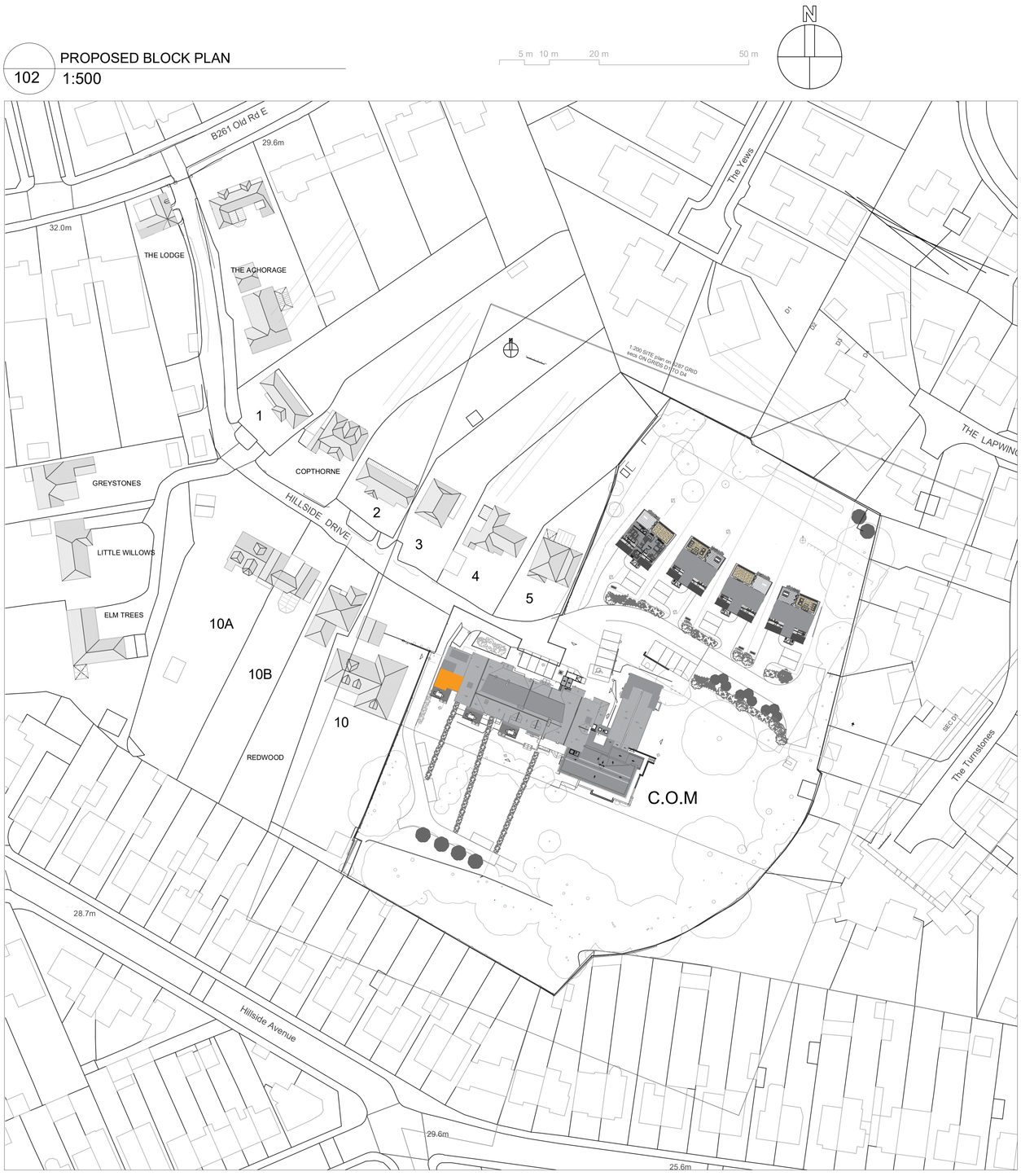
In the event of an exceedance event (if the drainage system gets blocked for example), any waterflows will be routed to the external grassed area around the development, replicating the natural flows of the current site.

Foul wastewater from the development will be conveyed under gravity to a pumping station before being conveyed to the Public Sewer via rising main and break chamber.

It is therefore concluded that the proposed development will not increase flood risk off site, and that all occupants / users will be able to be kept safe in the most extreme of events. On that basis it is considered that the development should be considered acceptable in terms of the planning policy requirements.

Appendix A
Architectural Layout

102 PROPOSED BLOCK PLAN
1:500



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FOR INFORMATION
ISSUE DATE: 21/01/25

NOTES

Rev.	Date	By	Notes
B	11/10/24	KG	Rear driveway extended to serve convent garden to the south
A	8/10/24	KG	Layout revised to enable turning into private driveway

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All dimensions are to be verified by the contractor before commencing works

Project
CONVENT OF MERCY, GRAVESEND
PROPOSAL FOR SURPLUS LAND.

Client
SISTERS OF MERCY

clay architecture
Great Lines Studios, Marlborough Road, Gillingham, Kent ME7 5HB
T: 01634 573 017
www.clayarchitecture.com
E: design@clayarchitects.com

Title
SCHEME DESIGN
PROPOSED BLOCK PLAN

Scale 1:500 @ A1 size
Date 27/09/2024
Drawn GEN
Authorised

Drawing No. 5296/PL/102
Revision B

Appendix B
Topographic Survey

Appendix C

CCTV Survey & Sewer Records

Sewer Inspection,

Cleaning and Repair

Project ref: TV231025

18th October 2023

CCTV Survey Report

CLIENT: SISTER ANNE CAECILIA O'CONNEL,CONVENT OF MERCY

SITE: Convent of Mercy

Hillside Drive

DA12 1NY

www.insewer.co.uk

Tel : 01634 861 768

Insewer Surveys
16a Revenge Road, Chatham
Tel. 01634 861 768

Project Information

Project Name	Project Number	Project Date
TV231025		18/10/2023

Client

Company: Sister Anne Caecilia O'Connell. Convent of Mercy
Description: c/o Clay Architecture
Contact: Camilla Prizeman
Department: Great Lines Studios
Street: Marlborough Road
Town or City: Gillinhgam
County: Kent
Post Code: ME7 5HB
Phone: 01634 573 017

Site

Department: Convent of Mercy
Street: Hillside Drive
Town or City: Gravesend
County: Kent
Post Code: DA12 1NY

Contractor

Company: Insewer Surveys
Contact: Liam Sellar
Street: 16a Revenge Road
Town or City: Chatham
County: Kent
Post Code: ME5 8UD
Phone: 01634 861 768
Fax: 01634 201376
Mobile: 07802 660 752

Insewer Surveys
16a Revenge Road, Chatham
Tel. 01634 861 768

Table of Contents

Project Name	Project Number	Project Date
TV231025		18/10/2023

Project Information P-1
Scoring Summary P-2
Section Item 1: 6802-A > 6802 (6802-AX) 1
Section Item 2: 6802 > 6803 (6802X) 3
Section Item 3: SVP 1 > RUN X (SVP 1X) 5
Section Item 4: SP 1 > RUN X (SP 1X) 7
Section Item 5: 6803-A > 6803 (6803-AX) 8
Section Item 6: 6803 > 6804 (6803X) 9
Section Item 7: IC1-A > IC1 (IC1-AX) 11
Section Item 8: IC1-B > IC1 (IC1-BX) 12
Section Item 9: IC1-C > IC1 (IC1-CX) 14
Section Item 10: IC1 > RUN X (IC1X) 15
Section Item 11: IC2-A > IC2 (IC2-AX) 16
Section Item 12: IC2-B > IC2 (IC2-BX) 17
Section Item 13: IC2-C > IC2 (IC2-CX) 19
Section Item 14: IC2 > IC3 (IC2X) 21
Section Item 15: IC2 > RUN Y (IC2Y) 22
Section Item 16: IC3-A > IC3 (IC3-AX) 23
Section Item 17: IC3 > RUN X (IC3X) 25
Section Item 18: IC4-A > IC4 (IC4-AX) 26
Section Item 19: IC4-B > IC4 (IC4-BX) 28
Section Item 20: IC4 > 6801 (IC4X) 30
Section Item 21: 6801 > 6804 (6801X) 32
Section Item 22: IC6 > IC5 (IC6X) 35
Section Item 23: IC5 > RUN X (IC5X) 36
Section Item 24: IC6-A > IC6 (IC6-AX) 38
Section Item 25: IC6-B > IC6 (IC6-BX) 39
Section Item 26: IC6-C > IC6 (IC6-CX) 40
Section Item 27: IC6-D > IC6 (IC6-DX) 41

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Table of Contents

Project Name	Project Number	Project Date
TV231025		18/10/2023

Section Item 28: RWP+GY6-A > RWP+GY6 (RWP+GY6-AX) 42
Section Item 29: RWP+GY6 > RUN X (RWP+GY6X) 43
Section Item 30: COMB GY5-A > COMB GY5 (COMB GY5-AX) 45
Section Item 31: COMB GY5 > RUN X (COMB GY5X) 46
Section Item 32: 6804 > 5901 (6804X) 48

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Scoring Summary

Project Name	Project Number	Project Date
TV231025		18/10/2023

Structural Defects

Grade 3: Best practice suggests consideration should be given to repairs in the medium term.

Grade 4: Best practice suggests consideration should be given to repairs to avoid a potential collapse.

Grade 5: Best practice suggests that this pipe is at risk of collapse at any time. Urgent consideration should be given to repairs to avoid total failure.

Section	PLR	Grade	Description
1	6802-AX	3	Multiple defects

Service / Operational Condition

Grade 3: Best practice suggests consideration should be given to maintenance activities in the medium term.

Grade 4: Best practice suggests consideration should be given to maintenance activity to avoid potential blockages.

Grade 5: Best practice suggests that this pipe is at a high risk of backing up or causing flooding.

Section	PLR	Grade	Description
1	6802-AX	2	Multiple defects
2	6802X	3	Multiple defects
3	SVP 1X	5	Roots, mass at joint, 25% cross-sectional area loss
6	6803X	3	Roots, mass, 10% cross-sectional area loss
13	IC2-CX	5	Settled deposits, hard or compacted, 90% cross-sectional area loss
16	IC3-AX	3	Attached deposits, encrustation at joint from 03 o'clock to 06 o'clock, 5% cross-sectional area loss
18	IC4-AX	3	Multiple defects
19	IC4-BX	3	Settled deposits, hard or compacted, 5% cross-sectional area loss, finish
20	IC4X	3	Roots, mass at joint, 10% cross-sectional area loss
21	6801X	5	Roots, mass at joint, 30% cross-sectional area loss
29	RWP+GY6X	5	Settled deposits, hard or compacted, 95% cross-sectional area loss
31	COMB GY5X	3	Settled deposits, hard or compacted, 10% cross-sectional area loss, finish
32	6804X	5	Roots, mass at joint, 20% cross-sectional area loss

Abandoned Surveys

Section	PLR	Description
13	IC2-CX	Survey abandoned
29	RWP+GY6X	Survey abandoned
31	COMB GY5X	Survey abandoned
32	6804X	Survey abandoned

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Tel. 01634 861 768

Scoring Summary

Project Name	Project Number	Project Date
TV231025		18/10/2023

Information

These scoring summaries are based on the SRM grading from the WRc.

Sewer Inspection,

Cleaning and Repair

Site Photos

www.insewer.co.uk

Tel : 01634 861 768

IC1

LOCATION OF IC1

IC2

LOCATION OF IC2

IC3

LOCATION OF IC3

IC4

LOCATION OF IC4

IC5

LOCATION OF IC5

IC6

LOCATION OF IC6

IC7. INTERNAL.
UNABLE TO LIFT - COVER SEIZED

LOCATION OF IC7

6801

LOCATION OF 6801

6802

LOCATION OF 6802

6803

LOCATION OF 6803

6804. UNABLE TO LIFT -
BURIED / COVERED OVER

LOCATION OF 6804

COMBINED GULLY 1.
TRAPPED - NO CCTV

LOCATION OF CPMBINED GULLY 1

COMBINED GULLY 2.
TRAPPED - NO CCTV

LOCATION OF COMBINED GULLY 2

COMBINED GULLY 3.
TRAPPED - NO CCTV

LOCATION OF COMBINED GULLY 3

COMBINED GULLY 4.
TRAPPED - NO CCTV

LOCATION OF COMBINED GULLY 4

COMBINED GULLY 5

LOCATION OF COMBINED GULLY 5

FOUL GULLY 1.
TRAPPED - NO CCTV

LOCATION OF FOUL GULLY 1

FOUL GULLY 2.
TRAPPED - NO CCTV

LOCATION OF FOUL GULLY 2

FOUL GULLY 3.
TRAPPED - NO CCTV

LOCATION OF FOUL GULLY 3

FOUL GULLY 4.
TRAPPED - NO CCTV

LOCATION OF FOUL GULLY 4

FOUL GULLY 5.
TRAPPED - NO CCTV

LOCATION OF FOUL GULLY 5

GULLY 1.
TRAPPED - NO CCTV

LOCATION OF GULLY 1

GULLY 2.
TRAPPED - NO CCTV

LOCATION OF GULLY 2

GULLY 3.
TRAPPED - NO CCTV

LOCATION OF GULLY 3

GULLY 4.
TRAPPED - NO CCTV

LOCATION OF GULLY 4

RWP + GULLY 1.
DEBRIS FILLED

LOCATION OF RWP + GULLY 1

RWP + GULLY 2.
TRAPPED - NO CCTV

LOCATION OF RWP + GULLY 2

RWP + GULLY 3.
TRAPPED - NO CCTV

LOCATION OF RWP + GULLY 3

RWP + GULLY 4.
TRAPPED - NO CCTV

LOCATION OF RWP + GULLY 4

RWP + GULLY 5.
TRAPPED - NO CCTV

LOCATION OF RWP + GULLY 5

RWP + GULLY 6

LOCATION OF RWP + GULLY 6

RWP 1.
INTO GROUND

LOCATION OF RWP 1

RWP 2.
ONTO GROUND

LOCATION OF RWP 2

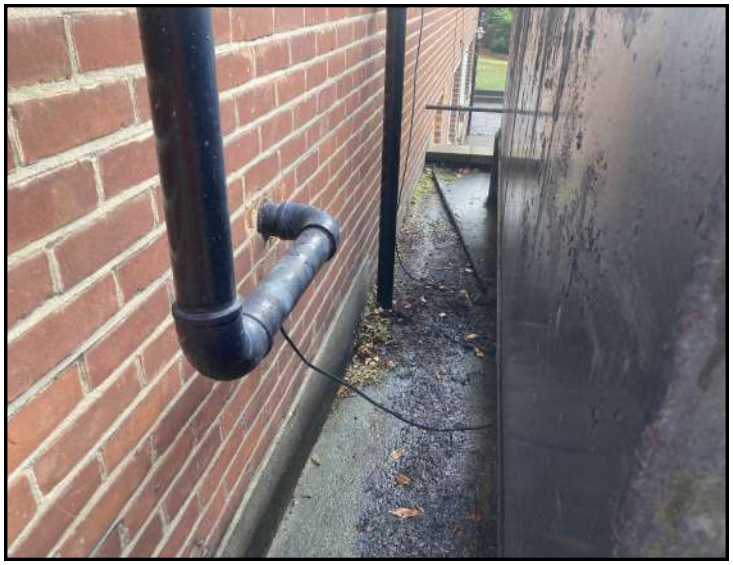
RWP 3.
ONTO GROUND

LOCATION OF RWP 3

RWP 4.
INTO GROUND

LOCATION OF RWP 4

RWP 5.
INTO GROUND



LOCATION OF RWP 5

SOIL PIPE 1

LOCATION OF SOIL PIPE 1

SVP 1

LOCATION OF SVP 1

SVP 2.
UNABLE TO CCTV

LOCATION OF SVP 2

VENT PIPE 1.
UNABLE TO CCTV

LOCATION OF VENT PIPE 1

MH1.
CHAMBER FILLED IN

LOCATION OF MH1

MH2.
SERVICES

LOCATION OF MH2

MH3.
SERVICES

LOCATION OF MH3

5901

LOCATION OF 5901

Sewer Inspection,

Cleaning and Repair

Site Plan

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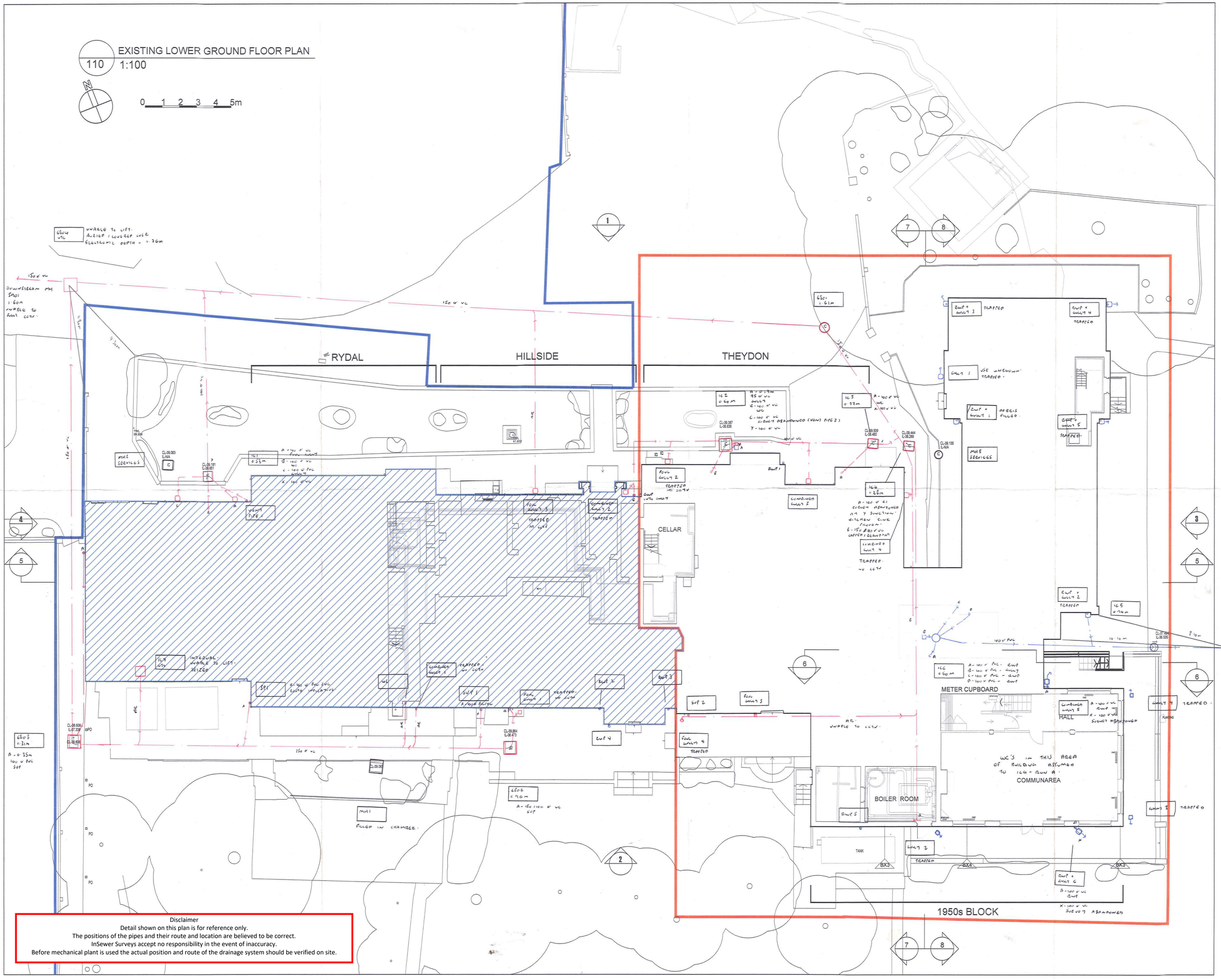

Disclaimer
Detail shown on this plan is for reference only.
The positions of the pipes and their route and location are believed to be correct.
InSewer Surveys accept no responsibility in the event of inaccuracy.
Before mechanical plant is used the actual position and route of the drainage system should be verified on site.

NOTES

EXISTING CONVENT

clay architecture

FOR PLANNING

ISSUE DATE: 01/09/23

Rev.	Date	By	Notes

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All dimensions are to be verified by the contractor before commencing works

Project
CONVENT OF MERCY, GRAVESEND
PROPOSAL FOR DOWNSIZING

Client
SISTERS OF MERCY

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E: design@clayarchitects.com

Title
PLANNING EXISTING
LOWER-GROUND FLOOR PLAN

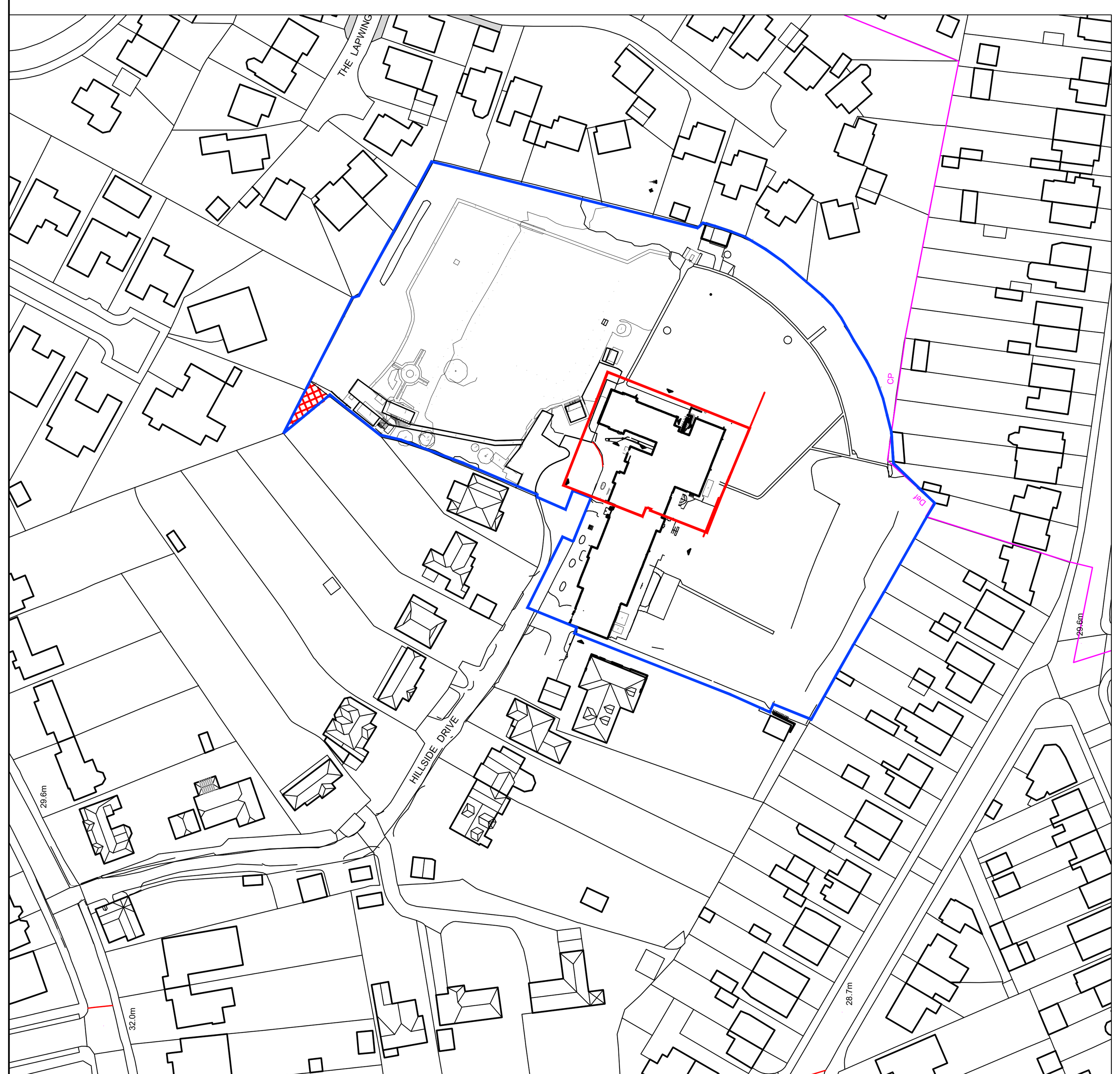
Scale 1:100 @ A1 size
Date 19/07/2023

Drawing No. 5285/PL/110
Revision /
Drawn DA
Authorised

NOTES

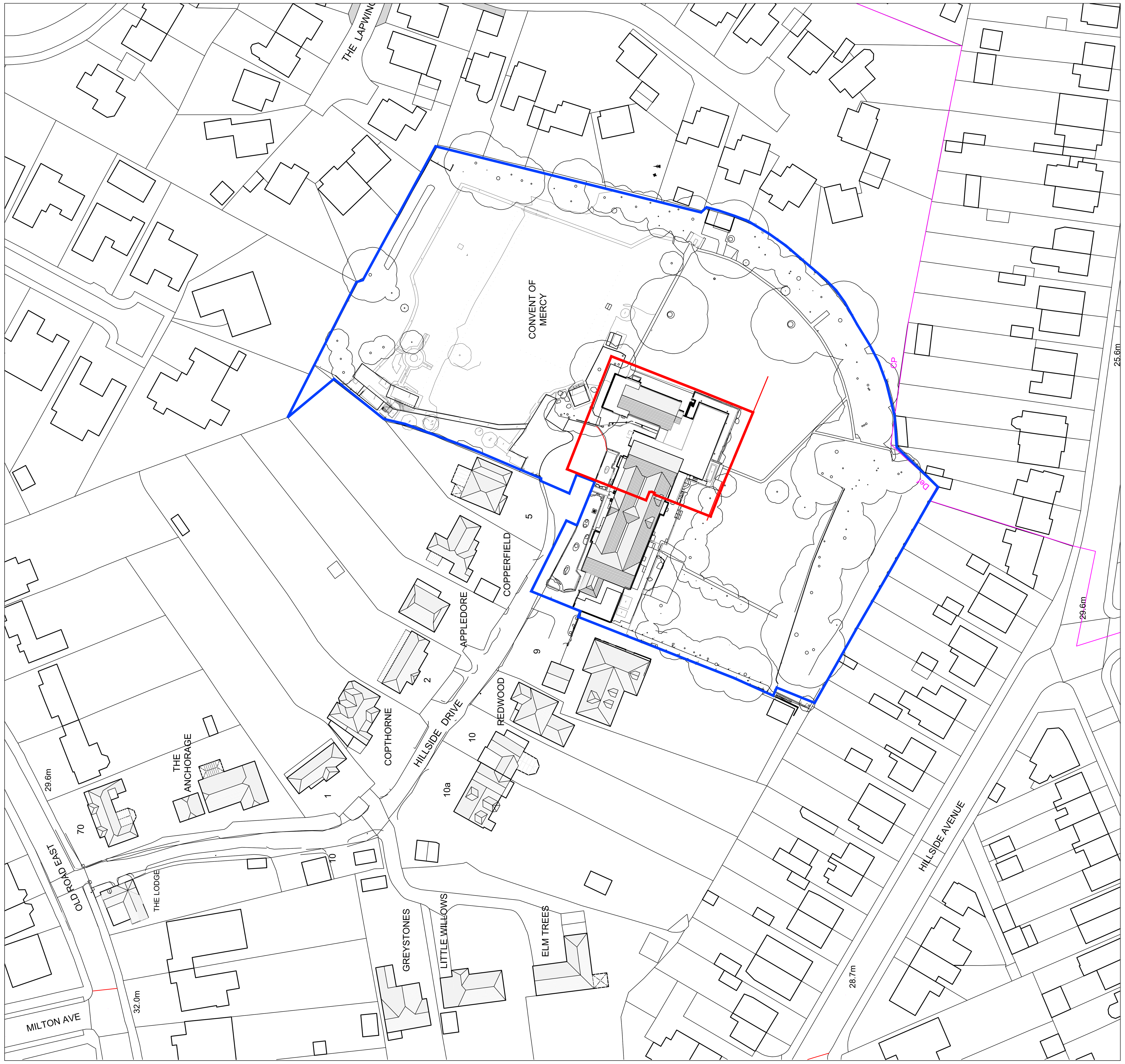
EXISTING LOCATION PLAN
1:1250
1/100

10 m
50 m
100 m



EXISTING BLOCK PLAN
1:500
2/100

5 m
10 m
20 m
50 m



Rev.	Date	By	Notes

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Project
CONVENT OF MERCY, GRAVESEND
PROPOSAL FOR DOWNSIZING

Client
SISTERS OF MERCY

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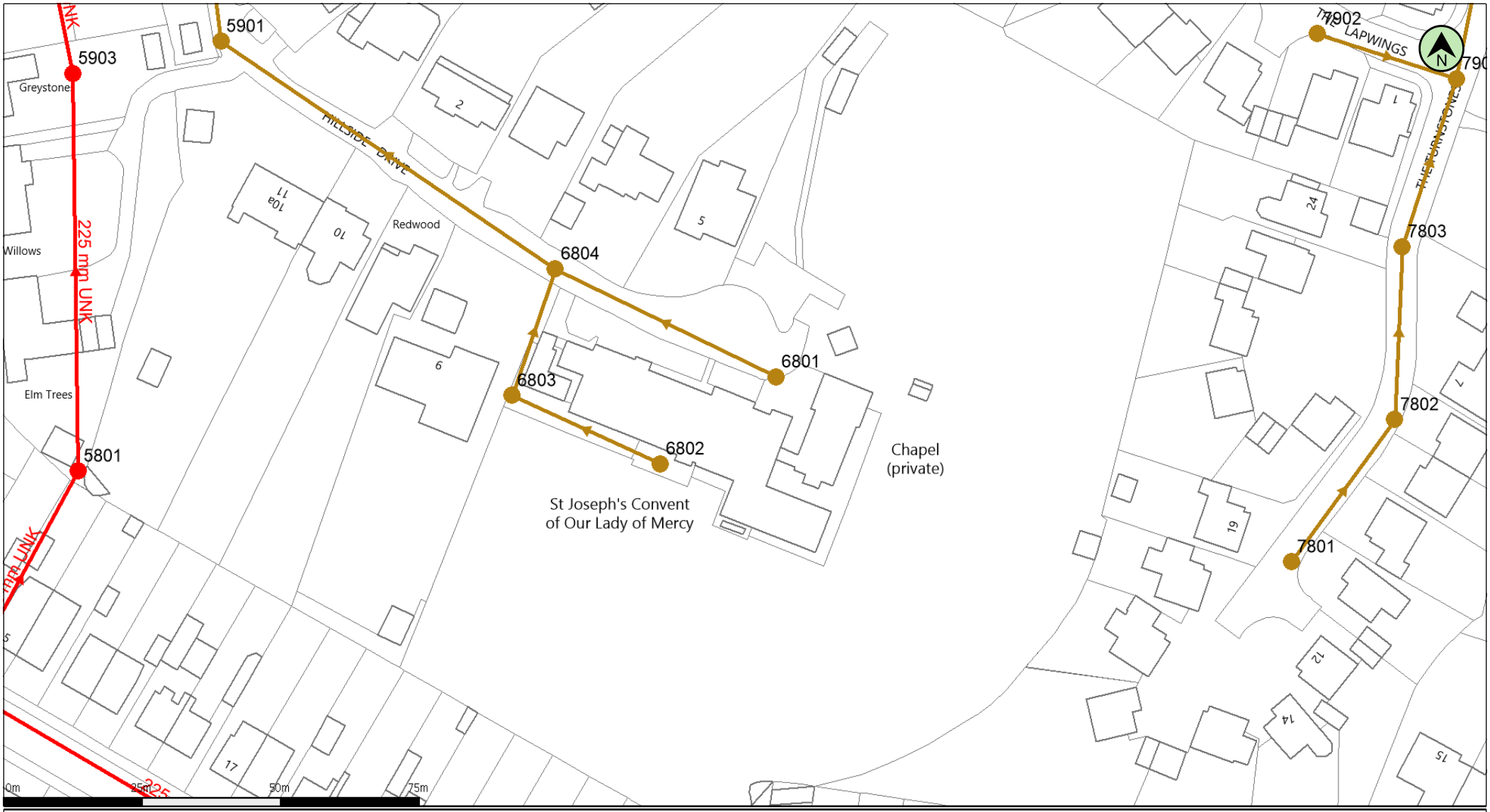
Title
CONCEPT DESIGN
LOCATION & BLOCK PLAN

Scale AS SHOWN @ A1 size
Date 05/06/2023
Drawn GEN
Authorised

Drawing No. 5285/PL/100
Revision /



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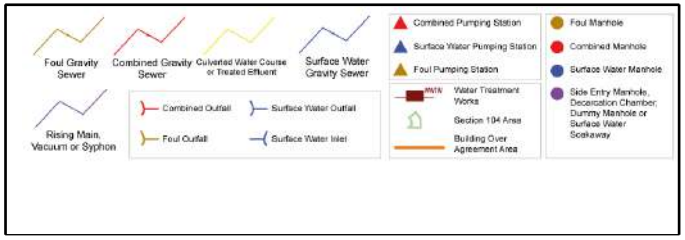
Date: 20/09/23 Scale: 1:967 Map Centre: 565644,172866 Data updated: 21/08/23 Wastewater Plan A4

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2023 Ordnance Survey 100031673 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.



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Section Inspection - 18/10/2023 - 6802-AX

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	18/10/23	9:00	TV231025	No Rain Or Snow	No	6802-AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

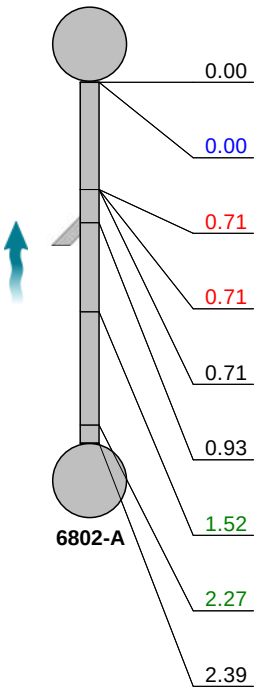
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	6802-A
Road:	Convent Of Mercy	**Inspected Length:**	2.39 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.39 m	**Downstream Node:**	6802
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.900 m

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

Comments:
Recommendations: -

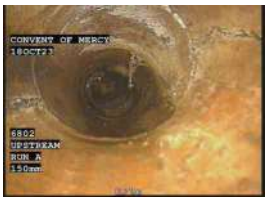
Scale: 1:50

Depth: 0.90 m
6802



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: 6802	
0.00	WL	Water level, 5% of the vertical dimension	
0.71	FLJ	Fracture, longitudinal at joint at 3 o'clock	3 / 2
0.71	FLJ	Fracture, longitudinal at joint at 8 o'clock	3 / 2
0.71	SC	Pipe size changes, new size(s), 100mm high	
0.93	JN	Junction at 1 o'clock, 100mm dia: from foul gully 1	
1.52	LL	Line deviates left	
2.27	LU	Line deviates up	
2.39	OFF	Finish node, outfall, reference: 6802-A: At svp	

FLJ - 0.71



FLJ - 0.71

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
2	80.0	33.5	80.0	3.0	2	2.0	0.8	2.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Upstream	6802-AX	TV231025	

1, 00:00:16, 0.71 m
Fracture, longitudinal at joint at 3 o'clock

2, 00:00:23, 0.71 m
Fracture, longitudinal at joint at 8 o'clock

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Section Inspection - 18/10/2023 - 6802X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	18/10/23	9:05	TV231025	No Rain Or Snow	No	6802X

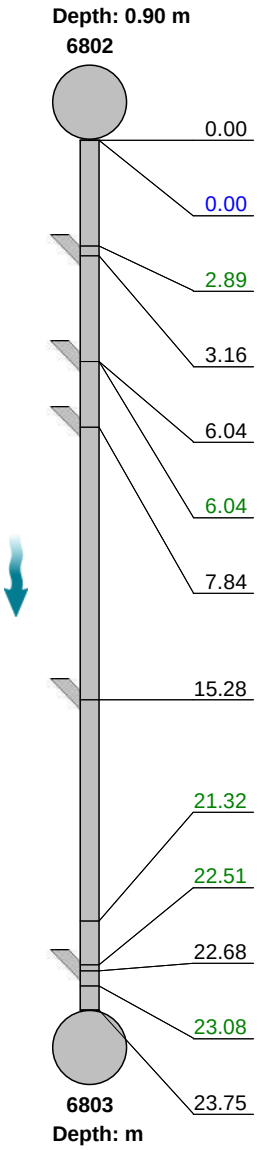
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	6802
Road:	Convent Of Mercy	**Inspected Length:**	23.75 m	**Upstream Pipe Depth:**	0.900 m
Location:		**Total Length:**	23.75 m	**Downstream Node:**	6803
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:206



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: 6802	
0.00	WL	Water level, 5% of the vertical dimension	
2.89	DEE	Attached deposits, encrustation from 05 o'clock to 07 o'clock, 5% cross-sectional area loss	3
3.16	JN	Junction at 2 o'clock, 100mm dia: from svp 1	
6.04	JN	Junction at 1 o'clock, 100mm dia: from combined gully 1	
6.04	RM	Roots, mass, 5% cross-sectional area loss	3
7.84	JN	Junction at 1 o'clock, 100mm dia: from wc	
15.28	JN	Junction at 2 o'clock, 100mm dia: from soil pipe 1	
21.32	RFJ	Roots, fine at joint	2
22.51	DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss	3
22.68	JN	Junction at 2 o'clock, 100mm dia: Assumed from IC7	
23.08	RMJ	Roots, mass at joint, 5% cross-sectional area loss	3
23.75	MHF	Finish node, manhole, reference: 6803	

DEE - 2.89

RM - 6.04

RFJ - 21.32

DEC - 22.51

RMJ - 23.08

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	5	4.0	0.5	13.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Downstream	6802X	TV231025	

1, 00:00:29, 2.89 m
Attached deposits, encrustation from 05 o'clock to 07 o'clock, 5% cross-sectional area loss

2, 00:01:13, 6.04 m
Roots, mass, 5% cross-sectional area loss

3, 00:02:58, 21.32 m
Roots, fine at joint

4, 00:03:27, 22.51 m
Settled deposits, hard or compacted, 5% cross-sectional area loss

5, 00:03:46, 23.08 m
Roots, mass at joint, 5% cross-sectional area loss

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Section Inspection - 18/10/2023 - SVP 1X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	18/10/23	9:20	TV231025	No Rain Or Snow	No	SVP 1X

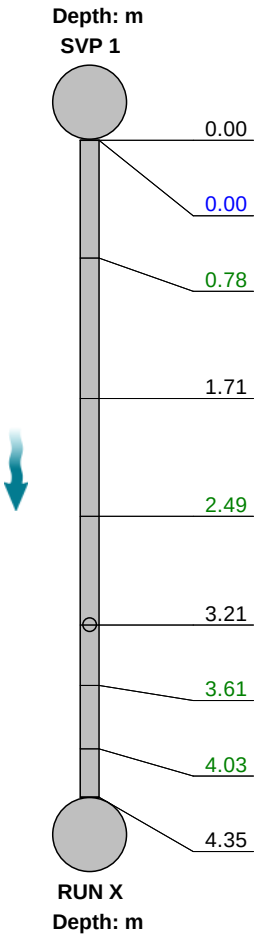
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	SVP 1
Road:	Convent Of Mercy	**Inspected Length:**	4.35 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	4.35 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

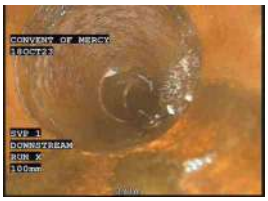
Comments:
Recommendations: -

Scale: 1:50



Position [m]	Code	Observation	Grade
0.00	OF	Start node, outfall, reference: SVP 1	
0.00	WL	Water level, 5% of the vertical dimension	
0.78	LD	Line deviates down	
1.71	MCVC	Pipe material changes to vitrified clay at this point	
2.49	RMJ	Roots, mass at joint, 25% cross-sectional area loss	5
3.21	JN	Junction at 12 o'clock, 100mm dia	
3.61	RMJ	Roots, mass at joint, 5% cross-sectional area loss	3
4.03	LR	Line deviates right	
4.35	BRF	Finish node, major connection without manhole, reference: RUN X: At saddle connection	

RMJ - 2.49



RMJ - 3.61

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	10.0	3.2	14.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	SVP 1X	TV231025	

1, 00:00:54, 2.49 m
Roots, mass at joint, 25% cross-sectional area loss

2, 00:01:28, 3.61 m
Roots, mass at joint, 5% cross-sectional area loss

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Section Inspection - 18/10/2023 - SP 1X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	1	18/10/23	9:23	TV231025	No Rain Or Snow	No	SP 1X

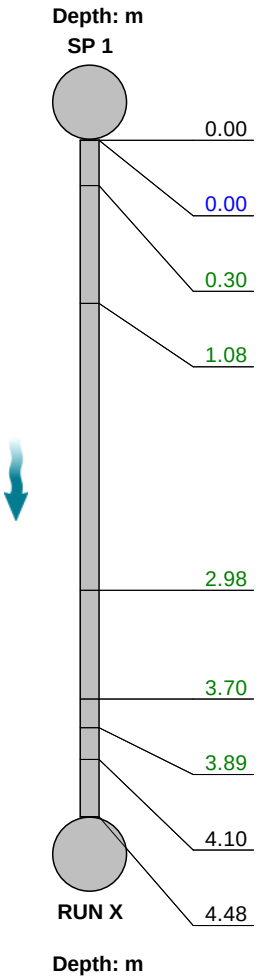
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	SP 1
Road:	Convent Of Mercy	**Inspected Length:**	4.48 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	4.48 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50



Position [m]	Code	Observation	Grade
0.00	OF	Start node, outfall, reference: SP 1	
0.00	WL	Water level, 5% of the vertical dimension	
0.30	LD	Line deviates down	
1.08	LL	Line deviates left	
2.98	LD	Line deviates down	
3.70	LL	Line deviates left	
3.89	LR	Line deviates right	
4.10	MCVC	Pipe material changes to vitrified clay at this point	
4.48	BRF	Finish node, major connection without manhole, reference: RUN X: At saddle connection	

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	0.2	1.0	1.0	1	2.0	0.4	2.0	3.0

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Section Inspection - 18/10/2023 - 6803-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	18/10/23	9:38	TV231025	No Rain Or Snow	No	6803-AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

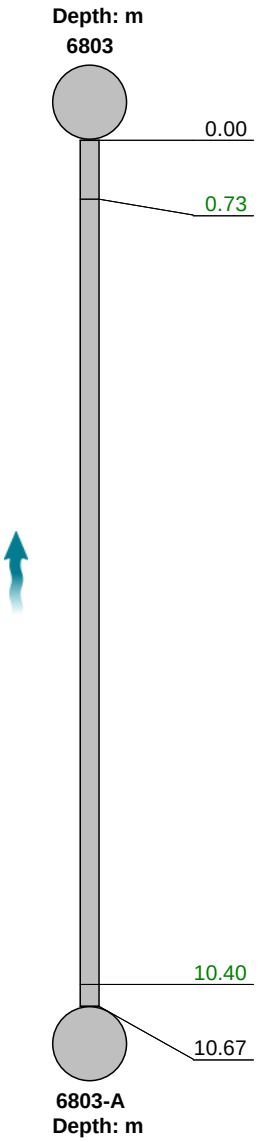
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	6803-A
Road:	Convent Of Mercy	**Inspected Length:**	10.67 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	10.67 m	**Downstream Node:**	6803
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:93

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: 6803	
0.73	LL	Line deviates left	
10.40	LU	Line deviates up	
10.67	OFF	Finish node, outfall, reference: 6803-A: At svp	



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 - 18/10/2023 - 6803X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	18/10/23	9:42	TV231025	No Rain Or Snow	No	6803X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	6803
Road:	Convent Of Mercy	**Inspected Length:**	23.96 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	23.96 m	**Downstream Node:**	6804
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:208

Depth: m
6803

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: 6803	
0.00	WL	Water level, 5% of the vertical dimension	
0.50	RFJ	Roots, fine at joint	2
10.51	RFJ	Roots, fine at joint	2
23.50	RM	Roots, mass, 10% cross-sectional area loss	3
23.96	MHF	Finish node, manhole, reference: 6804: Unable to lift - buried / covered over	

6804
Depth: m

RFJ - 0.50

RFJ - 10.51

RM - 23.50

MHF - 23.96

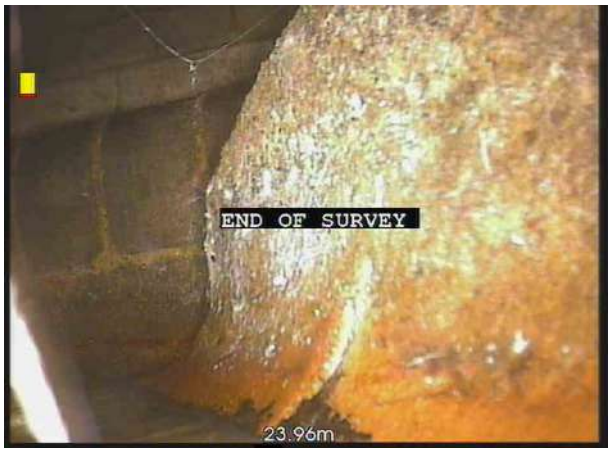
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	3	4.0	0.3	6.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Downstream	6803X	TV231025	

1, 00:00:05, 0.50 m
Roots, fine at joint

2, 00:01:00, 10.51 m
Roots, fine at joint

3, 00:02:20, 23.50 m
Roots, mass, 10% cross-sectional area loss



4, 00:02:37, 23.96 m
Finish node, manhole, reference: 6804, Unable to lift - buried / covered over

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Section Inspection - 18/10/2023 - IC1-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	1	18/10/23	10:12	TV231025	No Rain Or Snow	No	IC1-AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

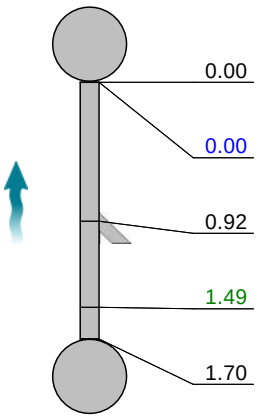
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC1-A
Road:	Convent Of Mercy	**Inspected Length:**	1.70 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.70 m	**Downstream Node:**	IC1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.530 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**

Depth: 0.53 m
IC1



IC1-A
Depth: m

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC1	
0.00	WL	Water level, 5% of the vertical dimension	
0.92	JN	Junction at 9 o'clock, 100mm dia: from vent pipe 1	
1.49	LU	Line deviates up	
1.70	GYF	Finish node, gully, reference: IC1-A: At foul gully	

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 - 18/10/2023 - IC1-BX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	1	18/10/23	10:13	TV231025	No Rain Or Snow	No	IC1-BX

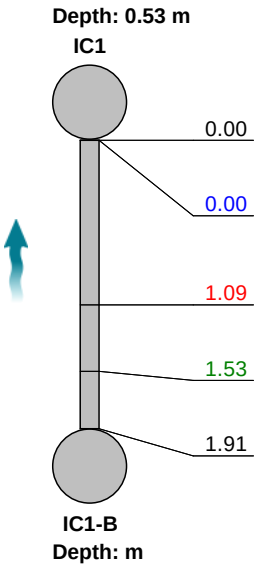
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC1-B
Road:	Convent Of Mercy	**Inspected Length:**	1.91 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.91 m	**Downstream Node:**	IC1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.530 m

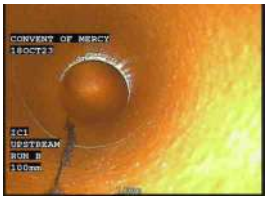
Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50



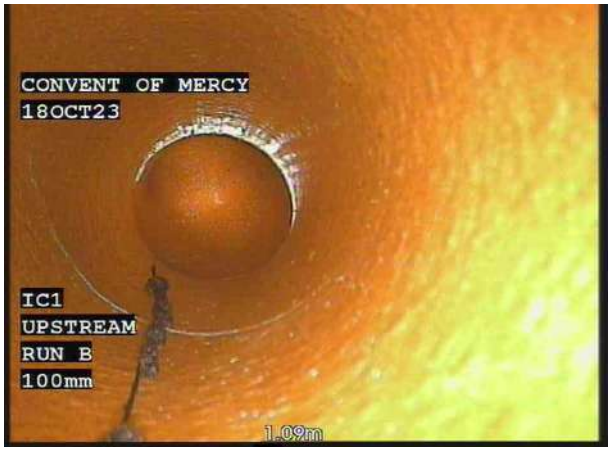
Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC1	
0.00	WL	Water level, 5% of the vertical dimension	
1.09	CC	Crack, circumferential from 04 o'clock to 09 o'clock	2 / 2
1.53	LU	Line deviates up	
1.91	OFF	Finish node, outfall, reference: IC1-B: At wc	



CC - 1.09

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	5.2	10.0	2.0	1	1.0	0.5	1.0	2.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Upstream	IC1-BX	TV231025	



1, 00:00:17, 1.09 m
Crack, circumferential from 04 o'clock to 09 o'clock

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Section Inspection - 18/10/2023 - IC1-CX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	1	18/10/23	10:14	TV231025	No Rain Or Snow	No	IC1-CX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

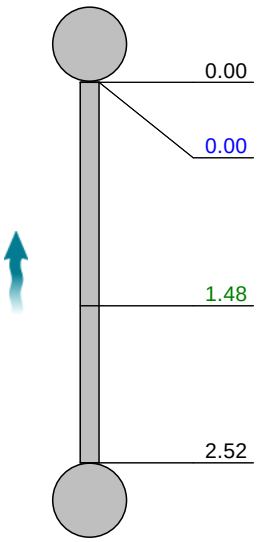
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC1-C
Road:	Convent Of Mercy	**Inspected Length:**	2.52 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.52 m	**Downstream Node:**	IC1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.530 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50

Depth: 0.53 m
IC1



IC1-C
Depth: m

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC1	
0.00	WL	Water level, 5% of the vertical dimension	
1.48	LL	Line deviates left	
2.52	GYF	Finish node, gully, reference: IC1-C: At gully	

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 - 18/10/2023 - IC1X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	1	18/10/23	10:16	TV231025	No Rain Or Snow	No	IC1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

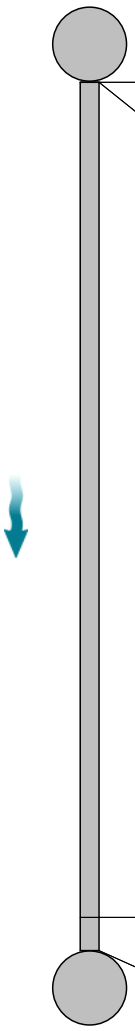
Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC1
Road:	Convent Of Mercy	**Inspected Length:**	9.20 m	**Upstream Pipe Depth:**	0.530 m
Location:		**Total Length:**	9.20 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:80**

Depth: 0.53 m
IC1



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC1	
0.00	WL	Water level, 5% of the vertical dimension	
8.85	LL	Line deviates left	
9.20	BRF	Finish node, major connection without manhole, reference: RUN X: At saddle connection	

RUN X
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 - 18/10/2023 - IC2-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	1	18/10/23	10:38	TV231025	No Rain Or Snow	No	IC2-AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

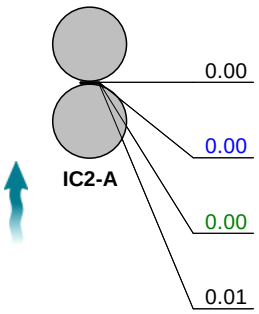
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC2-A
Road:	Convent Of Mercy	**Inspected Length:**	0.01 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.01 m	**Downstream Node:**	IC2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	75 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50

Depth: 0.60 m
IC2



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC2	
0.00	WL	Water level, 5% of the vertical dimension	
0.00	LD	Line deviates down	
0.01	GYF	Finish node, gully, reference: IC2-A: At gully	

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 - 18/10/2023 - IC2-BX

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	1	18/10/23	10:39	TV231025	No Rain Or Snow	No	IC2-BX

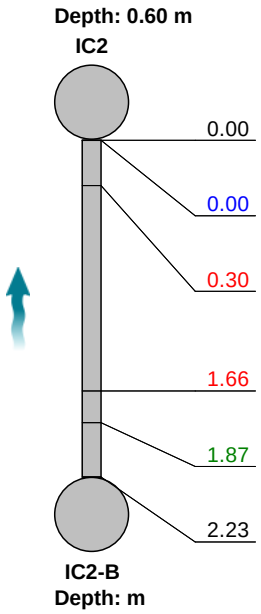
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC2-B
Road:	Convent Of Mercy	**Inspected Length:**	2.23 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.23 m	**Downstream Node:**	IC2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

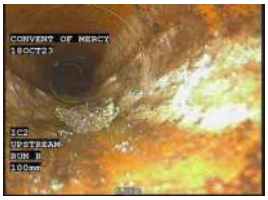
Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC2	
0.00	WL	Water level, 5% of the vertical dimension	
0.30	CC	Crack, circumferential from 10 o'clock to 02 o'clock	2 / 2
1.66	CCJ	Crack, circumferential at joint from 02 o'clock to 07 o'clock	2 / 2
1.87	LU	Line deviates up	
2.23	OFF	Finish node, outfall, reference: IC2-B: At wc	



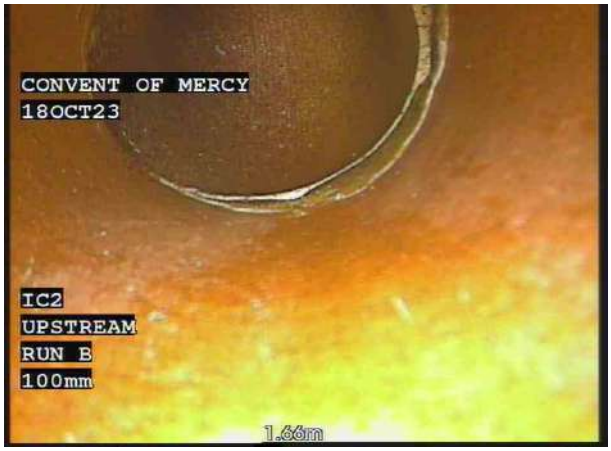
CC - 0.30

CCJ - 1.66

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	10.0	9.0	20.0	2.0	2	1.0	0.9	2.0	2.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
12	Upstream	IC2-BX	TV231025	

1, 00:00:08, 0.30 m
Crack, circumferential from 10 o'clock to 02 o'clock



2, 00:00:38, 1.66 m
Crack, circumferential at joint from 02 o'clock to 07 o'clock

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Section Inspection - 18/10/2023 - IC2-CX

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	1	18/10/23	10:42	TV231025	No Rain Or Snow	No	IC2-CX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

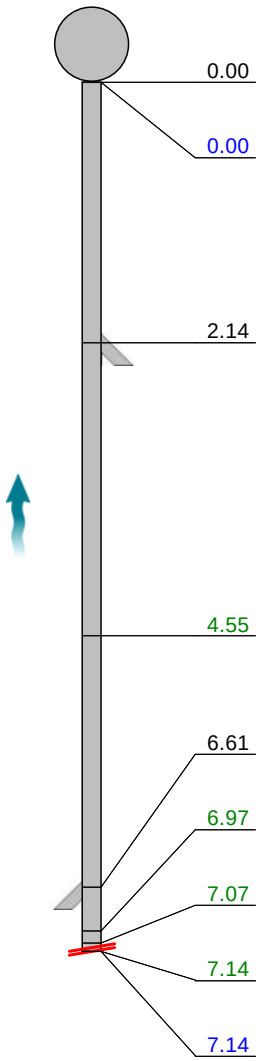
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC2-C
Road:	Convent Of Mercy	**Inspected Length:**	7.14 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	7.14 m	**Downstream Node:**	IC2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:62

Depth: 0.60 m
IC2



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC2	
0.00	WL	Water level, 5% of the vertical dimension	
2.14	JN	Junction at 09 o'clock, 100mm dia	
4.55	LL	Line deviates left	
6.61	JN	Junction at 03 o'clock, 100mm dia	
6.97	DEC	Settled deposits, hard or compacted, 20% cross-sectional area loss	4
7.07	LR	Line deviates right	
7.14	DEC	Settled deposits, hard or compacted, 90% cross-sectional area loss	5
7.14	SA	Survey abandoned: Unable to continue	

DEC - 6.97

DEC - 7.14

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	10.0	2.1	15.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
13	Upstream	IC2-CX	TV231025	

1, 00:01:20, 6.97 m
Settled deposits, hard or compacted, 20% cross-sectional area loss

2, 00:01:44, 7.14 m
Settled deposits, hard or compacted, 90% cross-sectional area loss

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Section Inspection - 18/10/2023 - IC2X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	1	18/10/23	10:51	TV231025	No Rain Or Snow	No	IC2X

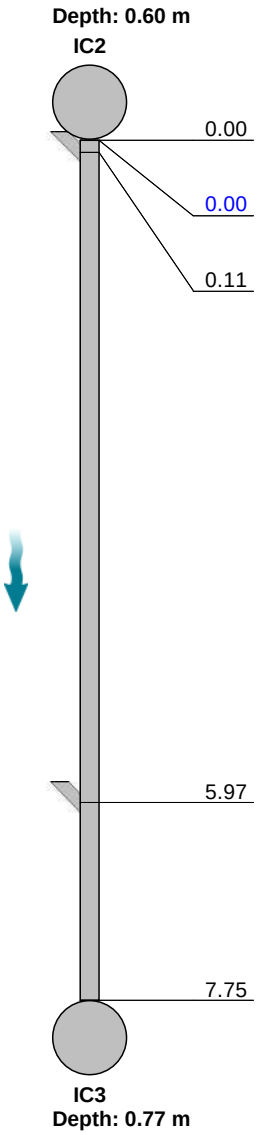
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC2
Road:	Convent Of Mercy	**Inspected Length:**	7.75 m	**Upstream Pipe Depth:**	0.600 m
Location:		**Total Length:**	7.75 m	**Downstream Node:**	IC3
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.770 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:68



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC2	
0.00	WL	Water level, 5% of the vertical dimension	
0.11	JN	Junction at 3 o'clock, 100mm dia: from IC2 (Run Y)	
5.97	JN	Junction at 03 o'clock, 100mm dia	
7.75	MHF	Finish node, manhole, reference: IC3	

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 - 18/10/2023 - IC2Y

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
15	1	18/10/23	10:55	TV231025	No Rain Or Snow	No	IC2Y

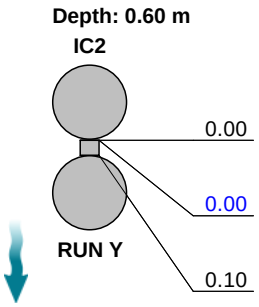
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC2
Road:	Convent Of Mercy	**Inspected Length:**	0.10 m	**Upstream Pipe Depth:**	0.600 m
Location:		**Total Length:**	0.10 m	**Downstream Node:**	RUN Y
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC2	
0.00	WL	Water level, 5% of the vertical dimension	
0.10	BRF	Finish node, major connection without manhole, reference: RUN Y: At saddle connection	

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 - 18/10/2023 - IC3-AX

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
16	1	18/10/23	11:12	TV231025	No Rain Or Snow	No	IC3-AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

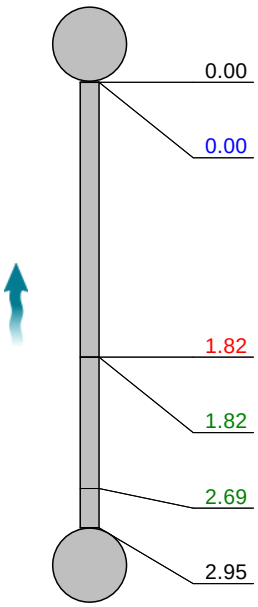
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC3-A
Road:	Convent Of Mercy	**Inspected Length:**	2.95 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.95 m	**Downstream Node:**	IC3
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.770 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50

Depth: 0.77 m
IC3



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC3	
0.00	WL	Water level, 5% of the vertical dimension	
1.82	CCJ	Crack, circumferential at joint from 09 o'clock to 02 o'clock	2 / 2
1.82	DEEJ	Attached deposits, encrustation at joint from 03 o'clock to 06 o'clock, 5% cross-sectional area loss	3
2.69	LU	Line deviates up	
2.95	OFF	Finish node, outfall, reference: IC3-A: At wc	

IC3-A
Depth: m

CCJ - 1.82

DEEJ - 1.82

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	3.4	10.0	2.0	2	3.0	1.0	3.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
16	Upstream	IC3-AX	TV231025	

1, 00:00:20, 1.82 m
Crack, circumferential at joint from 09 o'clock to 02 o'clock

2, 00:00:28, 1.82 m
Attached deposits, encrustation at joint from 03 o'clock to 06 o'clock, 5% cross-sectional area loss

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Section Inspection - 18/10/2023 - IC3X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
17	1	18/10/23	11:14	TV231025	No Rain Or Snow	No	IC3X

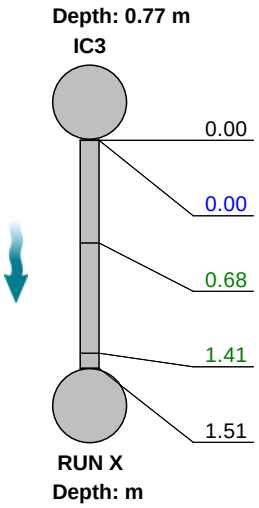
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC3
Road:	Convent Of Mercy	**Inspected Length:**	1.51 m	**Upstream Pipe Depth:**	0.770 m
Location:		**Total Length:**	1.51 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC3	
0.00	WL	Water level, 5% of the vertical dimension	
0.68	LL	Line deviates left	
1.41	LL	Line deviates left	
1.51	BRF	Finish node, major connection without manhole, reference: RUN X: At saddle connection	

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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Tel. 01634 861 768

Section Inspection - 18/10/2023 - IC4-AX

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	1	18/10/23	11:39	TV231025	No Rain Or Snow	No	IC4-AX

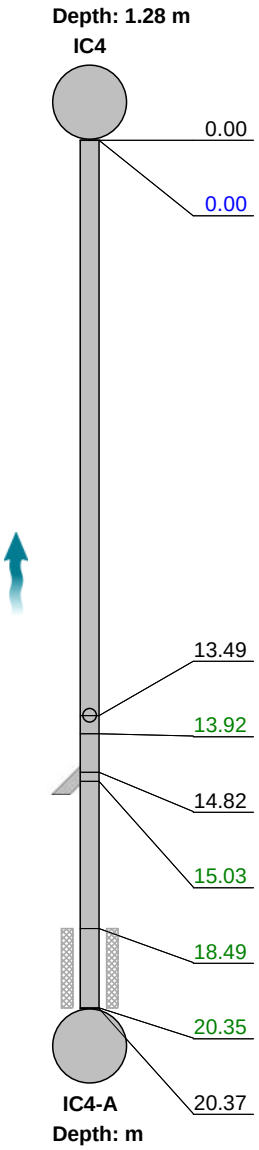
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC4-A
Road:	Convent Of Mercy	**Inspected Length:**	20.37 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	20.37 m	**Downstream Node:**	IC4
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.280 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Cast iron
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

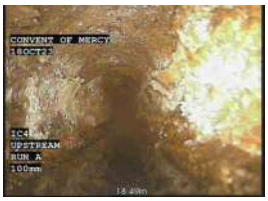
Scale: 1:177



Position [m]		Code	Observation	Grade
0.00		MH	Start node, manhole, reference: IC4	
0.00		WL	Water level, 5% of the vertical dimension	
13.49		JN	Junction at 12 o'clock, 100mm dia	
13.92		DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss	3
14.82		JN	Junction at 03 o'clock, 100mm dia	
15.03		DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss	3
18.49	S01	DEE	Attached deposits, encrustation from 07 o'clock to 05 o'clock, 5% cross-sectional area loss, start	
20.35	F01	DEE	Attached deposits, encrustation from 7 o'clock to 5 o'clock, 5% cross-sectional area loss, finish	3
20.37		OFF	Finish node, outfall, reference: IC4-A: At Y junction - unable to continue	

DEC - 13.92

DEC - 15.03


DEE - 18.49

OFF - 20.37

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	2.0	0.4	8.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
18	Upstream	IC4-AX	TV231025	

1, 00:01:49, 13.92 m
Settled deposits, hard or compacted, 5% cross-sectional area loss

2, 00:02:12, 15.03 m
Settled deposits, hard or compacted, 10% cross-sectional area loss

3, 00:02:47, 18.49 m
Attached deposits, encrustation from 07 o'clock to 05 o'clock, 5% cross-sectional area loss, start

4, 00:03:36, 20.37 m
Finish node, outfall, reference: IC4-A, At Y junction - unable to continue

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Section Inspection - 18/10/2023 - IC4-BX

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Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
19	1	18/10/23	11:57	TV231025	No Rain Or Snow	No	IC4-BX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

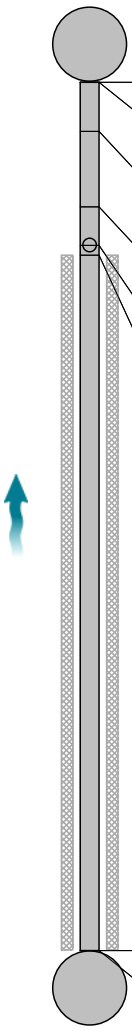
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC4-B
Road:	Convent Of Mercy	**Inspected Length:**	16.56 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	16.56 m	**Downstream Node:**	IC4
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.280 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:144

Depth: 1.28 m
IC4



Position [m]		Code	Observation	Grade
0.00		MH	Start node, manhole, reference: IC4	
0.00		WL	Water level, 5% of the vertical dimension	
0.94		SC	Pipe size changes, new size(s), 100mm high	
2.38		LR	Line deviates right	
3.12		CN	Connection other than junction at 12 o'clock, 100mm dia: from combined gully 4	
3.31	S01	DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss, start	
16.56	F01	DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss, finish	3
16.56		OFF	Finish node, outfall, reference: IC4-B: At capped / redundant end	

DEC - 3.31

OFF - 16.56

IC4-B
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	1.7	28.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
19	Upstream	IC4-BX	TV231025	

1, 00:00:42, 3.31 m
Settled deposits, hard or compacted, 5% cross-sectional area loss, start

2, 00:02:30, 16.56 m
Finish node, outfall, reference: IC4-B, At capped / redundant end

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Section Inspection - 18/10/2023 - IC4X

WEB PROJECT
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Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
20	1	18/10/23	12:04	TV231025	No Rain Or Snow	No	IC4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC4
Road:	Convent Of Mercy	**Inspected Length:**	7.24 m	**Upstream Pipe Depth:**	1.280 m
Location:		**Total Length:**	7.24 m	**Downstream Node:**	6801
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.610 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:63

Depth: 1.28 m
IC4

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC4	
0.00	WL	Water level, 5% of the vertical dimension	
0.21	JN	Junction at 10 o'clock, 100mm dia: from IC3	
5.84	RMJ	Roots, mass at joint, 10% cross-sectional area loss	3
7.24	MHF	Finish node, manhole, reference: 6801	

RMJ - 5.84

6801
Depth: 1.61 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	0.6	4.0	3.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
20	Downstream	IC4X	TV231025	

1, 00:00:53, 5.84 m
Roots, mass at joint, 10% cross-sectional area loss

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Section Inspection - 18/10/2023 - 6801X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	18/10/23	12:14	TV231025	No Rain Or Snow	No	6801X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

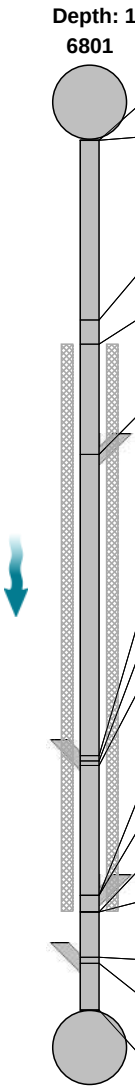
Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	6801
Road:	Convent Of Mercy	**Inspected Length:**	40.23 m	**Upstream Pipe Depth:**	1.610 m
Location:		**Total Length:**	40.23 m	**Downstream Node:**	6804
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:349

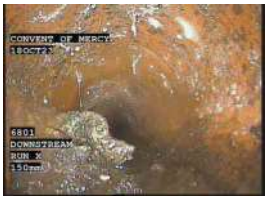
Depth: 1.61 m



Position [m]		Code	Observation	Grade
0.00		MH	Start node, manhole, reference: 6801	
0.00		WL	Water level, 5% of the vertical dimension	
8.31		DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss	3
9.45	S01	DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss, start	
14.53		JN	Junction at 9 o'clock, 100mm dia	
28.47		WL	Water level, 10% of the vertical dimension	
28.71		JN	Junction at 02 o'clock, 100mm dia	
28.93		DEC	Settled deposits, hard or compacted, 20% cross-sectional area loss	4
34.91		JN	Junction at 09 o'clock, 100mm dia	
34.91		RF	Roots, fine	2
35.69		WL	Water level, 5% of the vertical dimension	
35.69	F01	DEC	Settled deposits, hard or compacted, 5% cross-sectional area loss, finish	3
37.78		RMJ	Roots, mass at joint, 30% cross-sectional area loss	5
38.07		JN	Junction at 03 o'clock, 150mm dia	
40.23		MHF	Finish node, manhole, reference: 6804: Unable to lift - buried / covered over	

6801

6804
Depth: m


DEC - 8.31

DEC - 9.45

DEC - 28.93

RF - 34.91

RMJ - 37.78

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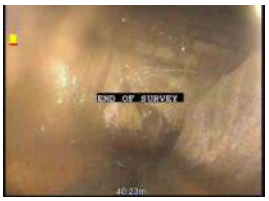
Section Inspection - 18/10/2023 - 6801X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	1	18/10/23	12:14	TV231025	No Rain Or Snow	No	6801X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-



MHF - 40.23

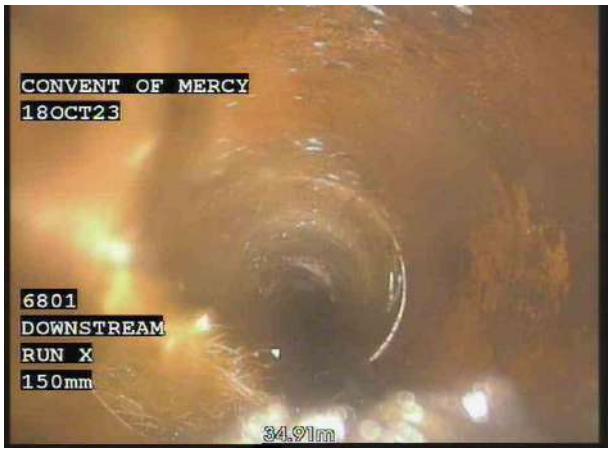
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	5	10.0	1.8	72.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Downstream	6801X	TV231025	

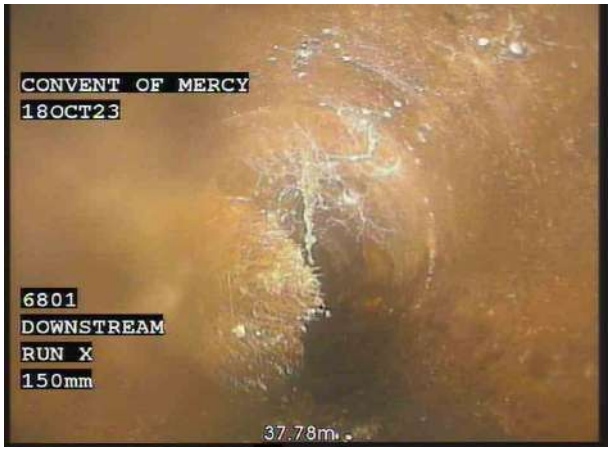
1, 00:00:46, 8.31 m
Settled deposits, hard or compacted, 10% cross-sectional area loss

2, 00:01:07, 9.45 m
Settled deposits, hard or compacted, 5% cross-sectional area loss, start

3, 00:03:59, 28.93 m
Settled deposits, hard or compacted, 20% cross-sectional area loss



4, 00:05:06, 34.91 m
Roots, fine



5, 00:05:36, 37.78 m
Roots, mass at joint, 30% cross-sectional area loss

6, 00:06:09, 40.23 m
Finish node, manhole, reference: 6804, Unable to lift - buried / covered over

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Section Inspection - 18/10/2023 - IC6X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
22	1	18/10/23	13:02	TV231025	No Rain Or Snow	No	IC6X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

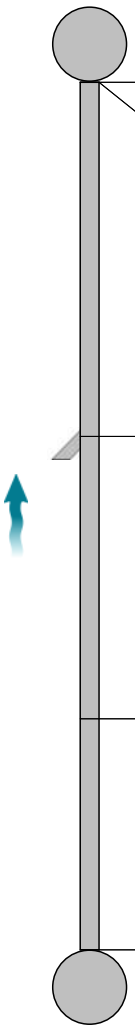
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC6
Road:	Convent Of Mercy	**Inspected Length:**	10.92 m	**Upstream Pipe Depth:**	0.600 m
Location:		**Total Length:**	10.92 m	**Downstream Node:**	IC5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.940 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:95

Depth: 0.94 m
IC5



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC5	
0.00	WL	Water level, 5% of the vertical dimension	
4.46	JN	Junction at 3 o'clock, 100mm dia: from rwp + gully 2	
8.01	LR	Line deviates right	
10.92	MHF	Finish node, manhole, reference: IC6	

IC6
Depth: 0.60 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 - 18/10/2023 - IC5X

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	1	18/10/23	13:05	TV231025	No Rain Or Snow	No	IC5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

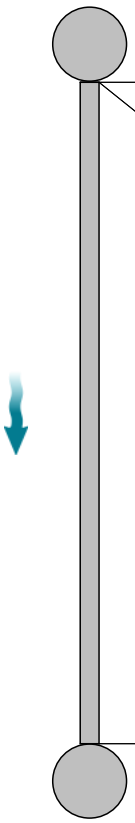
Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	IC5
Road:	Convent Of Mercy	**Inspected Length:**	4.38 m	**Upstream Pipe Depth:**	0.940 m
Location:		**Total Length:**	4.38 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**

Depth: 0.94 m
IC5



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC5	
0.00	WL	Water level, 5% of the vertical dimension	
4.38	SKF	Finish node, soakaway, reference: RUN X: At buried rubble filled soakaway	

SKF - 4.38

RUN X
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

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
23	Downstream	IC5X	TV231025	

1, 00:00:43, 4.38 m
Finish node, soakaway, reference: RUN X, At buried rubble filled soakaway

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Section Inspection - 18/10/2023 - IC6-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
24	1	18/10/23	13:22	TV231025	No Rain Or Snow	No	IC6-AX

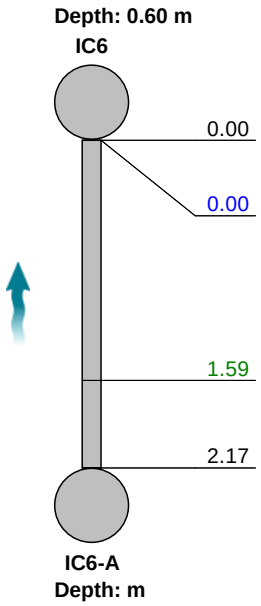
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC6-A
Road:	Convent Of Mercy	**Inspected Length:**	2.17 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.17 m	**Downstream Node:**	IC6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC6	
0.00	WL	Water level, 5% of the vertical dimension	
1.59	LR	Line deviates right	
2.17	OFF	Finish node, outfall, reference: IC6-A: At rwp	

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 - 18/10/2023 - IC6-BX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
25	1	18/10/23	13:23	TV231025	No Rain Or Snow	No	IC6-BX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

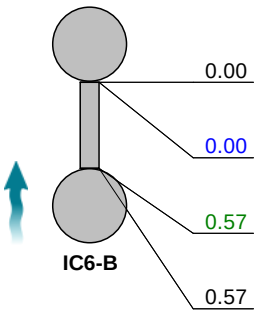
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC6-B
Road:	Convent Of Mercy	**Inspected Length:**	0.57 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.57 m	**Downstream Node:**	IC6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**

Depth: 0.60 m
IC6



IC6-B

Depth: m

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC6	
0.00	WL	Water level, 5% of the vertical dimension	
0.57	LD	Line deviates down	
0.57	GYF	Finish node, gully, reference: IC6-B: At gully	

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 - 18/10/2023 - IC6-CX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
26	1	18/10/23	13:24	TV231025	No Rain Or Snow	No	IC6-CX

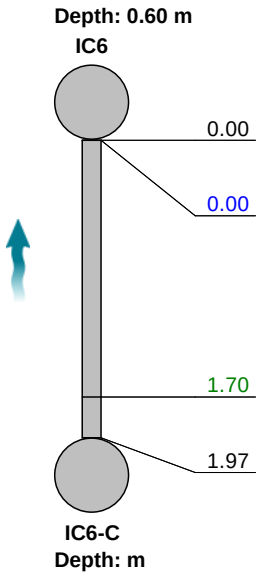
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC6-C
Road:	Convent Of Mercy	**Inspected Length:**	1.97 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.97 m	**Downstream Node:**	IC6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: **1:50**



Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC6	
0.00	WL	Water level, 5% of the vertical dimension	
1.70	LU	Line deviates up	
1.97	OFF	Finish node, outfall, reference: IC6-C: At rwp	

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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16a Revenge Road, Chatham
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Section Inspection - 18/10/2023 - IC6-DX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
27	1	18/10/23	13:24	TV231025	No Rain Or Snow	No	IC6-DX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

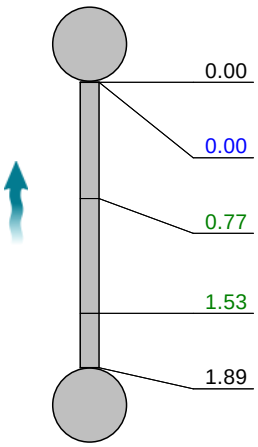
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	IC6-D
Road:	Convent Of Mercy	**Inspected Length:**	1.89 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.89 m	**Downstream Node:**	IC6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	0.600 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50

Depth: 0.60 m
IC6



IC6-D
Depth: m

Position [m]	Code	Observation	Grade
0.00	MH	Start node, manhole, reference: IC6	
0.00	WL	Water level, 5% of the vertical dimension	
0.77	LR	Line deviates right	
1.53	LU	Line deviates up	
1.89	OFF	Finish node, outfall, reference: IC6-D: At rwp	

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 - 19/10/2023 - RWP+GY6-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
28	1	19/10/23	8:33	TV231025	No Rain Or Snow	No	RWP+GY6-AX

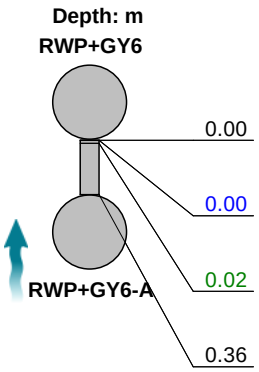
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	RWP+GY6-A
Road:	Convent Of Mercy	**Inspected Length:**	0.36 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.36 m	**Downstream Node:**	RWP+GY6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

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

Comments:
Recommendations: -

Scale: 1:50



Position [m]	Code	Observation	Grade
0.00	GY	Start node, gully, reference: RWP+GY6	
0.00	WL	Water level, 5% of the vertical dimension	
0.02	LU	Line deviates up	
0.36	OFF	Finish node, outfall, reference: RWP+GY6-A: At rwp	

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 - 19/10/2023 - RWP+GY6X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
29	1	19/10/23	8:34	TV231025	No Rain Or Snow	No	RWP+GY6X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

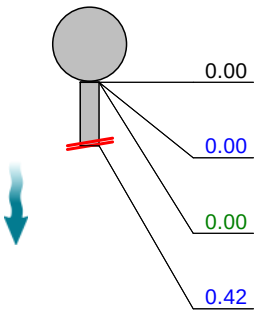
Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	RWP+GY6
Road:	Convent Of Mercy	**Inspected Length:**	0.42 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.42 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

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

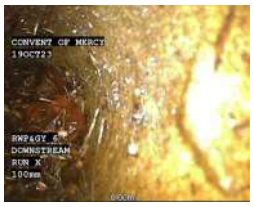
Comments:
Recommendations: -

Scale: 1:50

Depth: m
RWP+GY6



Position [m]	Code	Observation	Grade
0.00	GY	Start node, gully, reference: RWP+GY6	
0.00	WL	Water level, 5% of the vertical dimension	
0.00	DEC	Settled deposits, hard or compacted, 95% cross-sectional area loss	5
0.42	SA	Survey abandoned: Loss of vision	



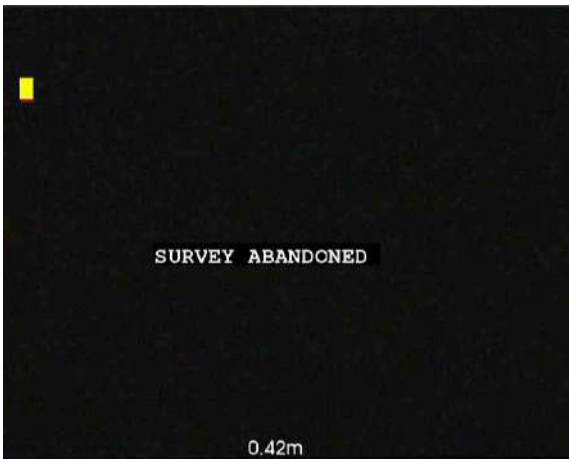
DEC - 0.00

SA - 0.42

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	10.0	23.8	10.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
29	Downstream	RWP+GY6X	TV231025	

1, 00:00:02, 0.00 m
Settled deposits, hard or compacted, 95% cross-sectional area loss



2, 00:00:15, 0.42 m
Survey abandoned, Loss of vision

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Section Inspection - 19/10/2023 - COMB GY5-AX

WEB PROJECT CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
30	1	19/10/23	8:35	TV231025	No Rain Or Snow	No	COMB GY5-AX

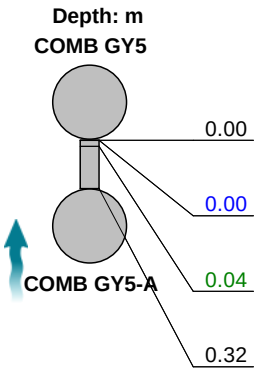
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	COMB GY5-A
Road:	Convent Of Mercy	**Inspected Length:**	0.32 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.32 m	**Downstream Node:**	COMB GY5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50



Position [m]	Code	Observation	Grade
0.00	GY	Start node, gully, reference: COMB GY5	
0.00	WL	Water level, 5% of the vertical dimension	
0.04	LU	Line deviates up	
0.32	OFF	Finish node, outfall, reference: COMB GY5-A: At rwp	

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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Tel. 01634 861 768

Section Inspection - 19/10/2023 - COMB GY5X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
31	1	19/10/23	8:36	TV231025	No Rain Or Snow	No	COMB GY5X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

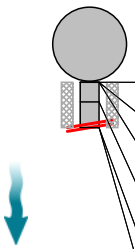
Town or Village:	Gravesend	**Inspection Direction:**	Downstream	**Upstream Node:**	COMB GY5
Road:	Convent Of Mercy	**Inspected Length:**	0.30 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.30 m	**Downstream Node:**	RUN X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	100 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:50

Depth: m
COMB GY5



Position [m]		Code	Observation	Grade
0.00		GY	Start node, gully, reference: COMB GY5	
0.00		WL	Water level, 5% of the vertical dimension	
0.00	S01	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, start	
0.13		LR	Line deviates right	
0.30	F01	DEC	Settled deposits, hard or compacted, 10% cross-sectional area loss, finish	3
0.30		SA	Survey abandoned: Unable to continue	

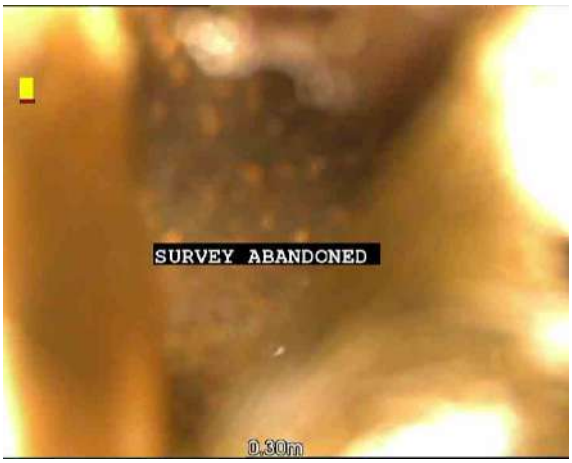
DEC - 0.00

SA - 0.30

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	6.7	2.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
31	Downstream	COMB GY5X	TV231025	

1, 00:00:00, 0.00 m
Settled deposits, hard or compacted, 10% cross-sectional area loss, start



2, 00:00:12, 0.30 m
Survey abandoned, Unable to continue

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Section Inspection - 19/10/2023 - 6804X

WEB PROJECT
CLICK TO OPEN THIS SECTION

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
32	1	19/10/23	10:14	TV231025	No Rain Or Snow	No	6804X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
InSewer MO	-	Not Specified	Not Specified	-	-

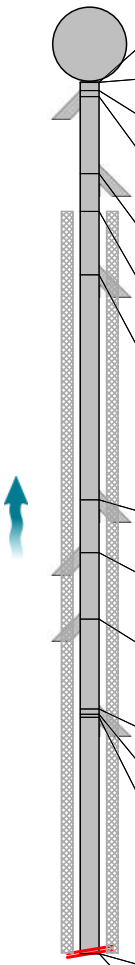
Town or Village:	Gravesend	**Inspection Direction:**	Upstream	**Upstream Node:**	6804
Road:	Convent Of Mercy	**Inspected Length:**	70.43 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	70.43 m	**Downstream Node:**	5901
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	1.600 m

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:		**Dia/Height:**	150 mm
Flow Control:	-	**Material:**	Vitrified clay
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection	**Lining Material:**	No Lining

Comments:
Recommendations: -

Scale: 1:610

Depth: 1.60 m



Position [m]		Code	Observation	Grade
0.00		MH	Start node, manhole, reference: 5901	
0.00		WL	Water level, 5% of the vertical dimension	
0.70		RMJ	Roots, mass at joint, 5% cross-sectional area loss	3
1.18		JN	Junction at 02 o'clock, 100mm dia	
7.42		JN	Junction at 09 o'clock, 100mm dia	
10.49	S01	DEE	Attached deposits, encrustation from 05 o'clock to 07 o'clock, 5% cross-sectional area loss, start	
15.56		CN	Connection other than junction at 09 o'clock, 100mm dia	
33.77		JN	Junction at 09 o'clock, 100mm dia	
38.03		JN	Junction at 03 o'clock, 100mm dia	
43.38		CN	Connection other than junction at 02 o'clock, 100mm dia	
50.67		RMJ	Roots, mass at joint, 20% cross-sectional area loss	5
51.11		CN	Connection other than junction at 10 o'clock, 100mm dia	
51.33		RMJ	Roots, mass at joint, 5% cross-sectional area loss	3
70.43	F01	DEE	Attached deposits, encrustation from 5 o'clock to 7 o'clock, 5% cross-sectional area loss, finish	3
70.43		SA	Survey abandoned: Loss of vision	

RMJ - 0.70

DEE - 10.49

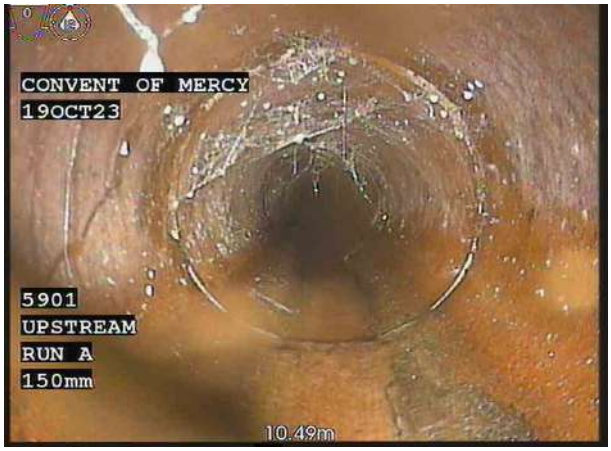
RMJ - 51.33

SA - 70.43

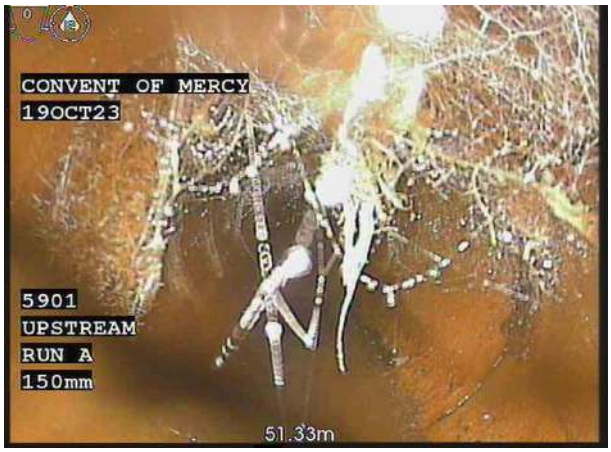
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	4	12.0	2.0	138.0	5.0

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
32	Upstream	6804X	TV231025	

1, 00:00:26, 0.70 m
Roots, mass at joint, 5% cross-sectional area loss



2, 00:01:45, 10.49 m
Attached deposits, encrustation from 05 o'clock to 07 o'clock, 5% cross-sectional area loss, start



3, 00:07:16, 51.33 m
Roots, mass at joint, 5% cross-sectional area loss

4, 00:10:11, 70.43 m
Survey abandoned, Loss of vision

Sewer Inspection,

Cleaning and Repair

Recommendations

www.insewer.co.uk

Tel : 01634 861 768

Section number	Upstream manhole	Flow direction	Downstream manhole	Recommendations / Notes
1	6802-A	Upstream	6802	Repair defect(s) by lining
2	6802	Downstream	6803	Public Sewer
3	SVP 1	Downstream	RUN X	Clean by specialist root cutting and repair by lining
4	SP 1	Downstream	RUN X	
5	6803-A	Upstream	6803	
6	6803	Downstream	6804	Public Sewer
7	IC1-A	Upstream	IC1	
8	IC1-B	Upstream	IC1	Repair defect(s) by lining
9	IC1-C	Upstream	IC1	
10	IC1	Downstream	RUN X	
11	IC2-A	Upstream	IC2	
12	IC2-B	Upstream	IC2	Repair defect(s) by lining
13	IC2-C	Upstream	IC2	Clean by van pack jetting unit and resurvey
14	IC2	Downstream	IC3	
15	IC2	Downstream	RUN Y	
16	IC3-A	Upstream	IC3	Repair defect(s) by lining
17	IC3	Downstream	RUN X	
18	IC4-A	Upstream	IC4	Clean by specialist high pressure descaling and resurvey
19	IC4-B	Upstream	IC4	
20	IC4	Downstream	6801	Clean by specialist root cutting and repair by lining
21	6801	Downstream	6804	Public Sewer
22	IC6	Upstream	IC5	
23	IC5	Downstream	RUN X	
24	IC6-A	Upstream	IC6	
25	IC6-B	Upstream	IC6	
26	IC6-C	Upstream	IC6	
27	IC6-D	Upstream	IC6	
28	RWP+GY6-A	Upstream	RWP+GY6	
29	RWP+GY6	Downstream	RUN X	Attempt to clean by van pack jetting unit and resurvey
30	COMB GY5-A	Upstream	COMB GY5	
31	COMB GY5	Downstream	RUN X	Attempt to clean by van pack jetting unit and resurvey
32	6804	Upstream	5901	Public Sewer

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- *Sewer and Utility Location*
- *Topographical Surveys*
- *Tanker Jetting*
- *High Pressure Jetting*
- *Cesspool Emptying*
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- *Root and Scale Cutting*
- *Pipe Lining*
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Chatham, Kent ME5 8UD
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VAT No. 573 7537 09

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WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

Foul Gravity Sewer
Combined Gravity Sewer
Culverted Water Course or Treated Effluent
Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon
Combined Outfall
Surface Water Outfall
Foul Outfall
Surface Water Inlet
Combined Pumping Station
Surface Water Pumping Station
Foul Pumping Station
Water Treatment Works
Section 104 Area
Building Over Agreement Area
Foul Manhole
Combined Manhole
Surface Water Manhole
Side Entry Manhole, Decantation Chamber, Dummy Manhole or Surface Water Soakaway

mail@pcsconsult.co.uk

Convent of Mercy

WATER for LIFE from Southern Water.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
5701	C	29.47	25.82	
5702	C	29.47	25.66	
5801	C	0.00	0.00	
5802	C	28.50	0.00	
5903	C	0.00	0.00	
5904	C	0.00	0.00	
5905	C	0.00	0.00	
3701	F	0.00	0.00	
3703	F	0.00	0.00	
3705	F	0.00	0.00	
3706	F	0.00	0.00	
3803	F	27.84	27.43	
4701	F	0.00	0.00	
4702	F	0.00	0.00	
4703	F	0.00	0.00	
4801	F	0.00	0.00	
4802	F	0.00	0.00	
4803	F	0.00	0.00	
4804	F	0.00	0.00	
4805	F	0.00	0.00	
4806	F	0.00	0.00	
4807	F	0.00	0.00	
4808	F	0.00	0.00	
4901	F	0.00	0.00	
4902	F	0.00	0.00	
5703	F	29.49	27.98	
5901	F	33.53	31.97	
5902	F	32.16	30.56	
6701	F	28.80	25.18	
6702	F	25.78	21.68	
6801	F	39.23	37.65	
6802	F	39.29	0.00	
6803	F	0.00	0.00	
6804	F	0.00	0.00	
7701	F	23.15	19.17	
7801	F	0.00	33.13	
7802	F	0.00	32.60	
7803	F	0.00	32.17	
7901	F	0.00	31.75	
7902	F	0.00	32.18	
7903	F	0.00	30.60	
8701	F	0.00	0.00	
8801	F	0.00	0.00	
8802	F	0.00	0.00	
8803	F	0.00	0.00	
8804	F	0.00	0.00	
8901	F	0.00	0.00	
8902	F	0.00	0.00	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix D
Site Investigation

Soiltec
Laboratories Limited
Geotechnical Site Investigations

Soiltec Laboratories Limited
Soiltec House, Langley Park
Sutton Road, Langley,
Maidstone, Kent ME17 3NQ

Telephone: (01622) 862138
Fax: (01622) 862904
E-mail: info@soiltec.net
Web: www.soiltec.net

BRE 365 SOAKAGE TEST REPORT

Date : 25th October 2024 Report No : 10577/30

Client :
Sister Anne O'Connell

Site :
Convent of Mercy
Hillside Drive
Gravesend
DA12 1NY

Approx Grid Ref: 569632 155285
Approx. Elevation: 36m

Soiltec have been commissioned to carry out a BRE 365 Soakaway Design Test at the above site. To this end a single trial pit was excavated by on site contractors prior to our arrival at a location deemed suitable and shown on the included site plan.

Anticipated geological deposit - From an examination of the online BGS geological map for the area the solid geological deposit appears as Thanet Formation. No Superficial deposits are recorded.

Thanet Formation

Typically composed of homogeneous, bioturbated, glauconitic silty fine-grained sand, with sandy silt, silt or sandy, silty clay especially in the lower part, forming a coarsening-upwards sequence. The deposits are generally pale yellow-brown in colour, typically with 'peppering' of dark-coloured glauconite grains. Spare white mica occurs throughout. Rare coarse gravel is present in places in London.

Soiltec
Laboratories Limited
Geotechnical Site Investigations

Soiltec Laboratories Limited
Soiltec House, Langley Park
Sutton Road, Langley,
Maidstone, Kent ME17 3NQ

Telephone: (01622) 862138
Fax: (01622) 862904
E-mail: info@soiltec.net
Web: www.soiltec.net

Soakage Test Results – The trial pit was filled with water from a bowser to anticipated invert level of proposed drainage.

During the test period the water levels are recorded and a graph of depth to water against time is plotted. From this plot, utilising the times for the water level to drop from 25% empty to 75% empty, the infiltration rate is calculated.

The result of the soakage test indicated a soakage potential for the site with a soil infiltration rate (*f*) of 5.20 $x10^{-6}$ m/s.

Traditional soakaways could effectively dispose of surface water from the proposed development provided that they are installed at least 5.00m from any foundations.

For and on behalf of
Soiltec Laboratories Limited

Andrew Hayward
Director

BRE Digest 365 Soakage Test (Trial Pit)

Client :	Sister Anne O'Connell	Date of Test :	23/10/24
Site :	Convent of mercy Phase 3, Hillside Drive	Report No:	10577/30
Trial Pit :	**1**		

Trial Pit

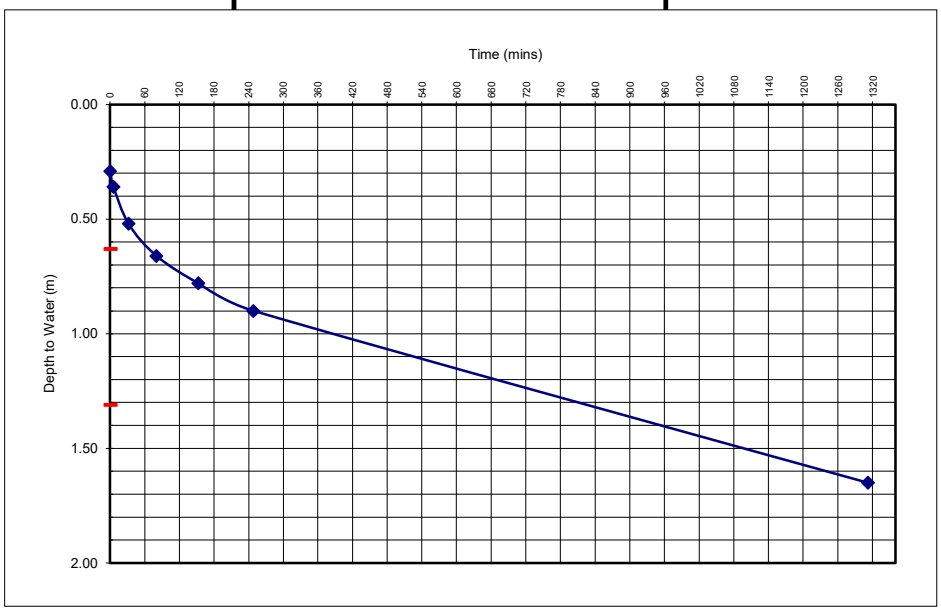
Length	**1.50**	m
Width	**0.90**	m
Depth	**1.65**	m
Assumed invert level*	**0.29**	m
Ground conditions	**Sandy, silty CLAY**	

Results

Effective storage depth		1.36	m
75% effective storage depth		1.02	m
depth below GL		1.31	m
25% effective storage depth		0.34	m
depth below GL		0.63	m
Effective volume of outflowing between 75% - 25%		0.92	m^3
Effective storage depth 75%-25%		0.68	m
Mean surface area	(a_{p50})	4.61	m^2
Out flow time to 75% effective depth	(tp75)	**69.7**	mins
Out flow time to 25% effective depth	(tp 25)	**707.2**	mins
Outflow time	(Tp75%-Tp25%)	637.5	mins

Soil Infiltation Rate *(f)* = 5.20E-06 m/s

Time mins	Depth to water
0	0.29
6	0.36
32	0.52
80	0.66
153	0.78
248	0.90
1312	1.65



*or water level at start of test

Tested by	AH/RF
Approved	AH/RF

	Scale: nts
	Drawn : AJH
Location : Convent of Mercy, Hillside Drive	Report: 10577/30
Title : Site Location Plan	Fig. No.: 2

Appendix E

Outline MicroDrainage Calculations

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1391 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	33.826	0.226	0.1	6.4	O K
30 min Summer	33.894	0.294	0.1	8.4	O K
60 min Summer	33.963	0.363	0.1	10.3	O K
120 min Summer	34.038	0.438	0.1	12.5	O K
180 min Summer	34.084	0.484	0.1	13.8	O K
240 min Summer	34.116	0.516	0.1	14.7	O K
360 min Summer	34.154	0.554	0.1	15.8	O K
480 min Summer	34.171	0.571	0.1	16.3	O K
600 min Summer	34.178	0.578	0.1	16.5	O K
720 min Summer	34.179	0.579	0.1	16.5	O K
960 min Summer	34.168	0.568	0.1	16.2	O K
1440 min Summer	34.137	0.537	0.1	15.3	O K
2160 min Summer	34.097	0.497	0.1	14.2	O K
2880 min Summer	34.062	0.462	0.1	13.2	O K
4320 min Summer	34.004	0.404	0.1	11.5	O K
5760 min Summer	33.957	0.357	0.1	10.2	O K
7200 min Summer	33.918	0.318	0.1	9.1	O K
8640 min Summer	33.885	0.285	0.1	8.1	O K
10080 min Summer	33.857	0.257	0.1	7.3	O K
15 min Winter	33.853	0.253	0.1	7.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	166.246	0.0	27
30 min Summer	108.697	0.0	41
60 min Summer	67.702	0.0	70
120 min Summer	41.667	0.0	130
180 min Summer	31.264	0.0	188
240 min Summer	25.407	0.0	248
360 min Summer	18.809	0.0	366
480 min Summer	15.045	0.0	486
600 min Summer	12.589	0.0	604
720 min Summer	10.851	0.0	722
960 min Summer	8.538	0.0	960
1440 min Summer	6.054	0.0	1176
2160 min Summer	4.286	0.0	1548
2880 min Summer	3.357	0.0	1960
4320 min Summer	2.383	0.0	2772
5760 min Summer	1.878	0.0	3576
7200 min Summer	1.571	0.0	4392
8640 min Summer	1.364	0.0	5120
10080 min Summer	1.215	0.0	5944
15 min Winter	166.246	0.0	26

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	33.930	0.330	0.1	9.4	O K
60 min Winter	34.007	0.407	0.1	11.6	O K
120 min Winter	34.093	0.493	0.1	14.0	O K
180 min Winter	34.146	0.546	0.1	15.6	O K
240 min Winter	34.183	0.583	0.1	16.6	O K
360 min Winter	34.228	0.628	0.1	17.9	O K
480 min Winter	34.250	0.650	0.1	18.5	O K
600 min Winter	34.260	0.660	0.1	18.8	O K
720 min Winter	34.263	0.663	0.1	18.9	O K
960 min Winter	34.257	0.657	0.1	18.7	O K
1440 min Winter	34.223	0.623	0.1	17.7	O K
2160 min Winter	34.173	0.573	0.1	16.3	O K
2880 min Winter	34.128	0.528	0.1	15.1	O K
4320 min Winter	34.047	0.447	0.1	12.7	O K
5760 min Winter	33.978	0.378	0.1	10.8	O K
7200 min Winter	33.921	0.321	0.1	9.1	O K
8640 min Winter	33.872	0.272	0.1	7.7	O K
10080 min Winter	33.830	0.230	0.1	6.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	108.697	0.0	41
60 min Winter	67.702	0.0	70
120 min Winter	41.667	0.0	128
180 min Winter	31.264	0.0	186
240 min Winter	25.407	0.0	244
360 min Winter	18.809	0.0	360
480 min Winter	15.045	0.0	476
600 min Winter	12.589	0.0	592
720 min Winter	10.851	0.0	706
960 min Winter	8.538	0.0	928
1440 min Winter	6.054	0.0	1340
2160 min Winter	4.286	0.0	1656
2880 min Winter	3.357	0.0	2112
4320 min Winter	2.383	0.0	2996
5760 min Winter	1.878	0.0	3864
7200 min Winter	1.571	0.0	4688
8640 min Winter	1.364	0.0	5456
10080 min Winter	1.215	0.0	6256

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Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 565706 172866 TQ 65706 72866	Cv (Summer)	0.750	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.021

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.007	4	8	0.007	8	12	0.007

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Model Details

Storage is Online Cover Level (m) 35.000

Cellular Storage Structure

Invert Level (m) 33.600 Infiltration Coefficient Side (m/hr) 0.02016 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.02016 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	30.0	30.0	0.800	30.0	47.6	0.900	0.0	47.6

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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1290 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	33.808	0.208	0.1	5.9	O K
30 min Summer	33.870	0.270	0.1	7.7	O K
60 min Summer	33.933	0.333	0.1	9.5	O K
120 min Summer	34.002	0.402	0.1	11.5	O K
180 min Summer	34.044	0.444	0.1	12.6	O K
240 min Summer	34.072	0.472	0.1	13.5	O K
360 min Summer	34.106	0.506	0.1	14.4	O K
480 min Summer	34.121	0.521	0.1	14.8	O K
600 min Summer	34.126	0.526	0.1	15.0	O K
720 min Summer	34.125	0.525	0.1	15.0	O K
960 min Summer	34.113	0.513	0.1	14.6	O K
1440 min Summer	34.084	0.484	0.1	13.8	O K
2160 min Summer	34.046	0.446	0.1	12.7	O K
2880 min Summer	34.013	0.413	0.1	11.8	O K
4320 min Summer	33.958	0.358	0.1	10.2	O K
5760 min Summer	33.913	0.313	0.1	8.9	O K
7200 min Summer	33.876	0.276	0.1	7.9	O K
8640 min Summer	33.844	0.244	0.1	7.0	O K
10080 min Summer	33.817	0.217	0.1	6.2	O K
15 min Winter	33.833	0.233	0.1	6.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	166.246	0.0	26
30 min Summer	108.697	0.0	41
60 min Summer	67.702	0.0	70
120 min Summer	41.667	0.0	130
180 min Summer	31.264	0.0	188
240 min Summer	25.407	0.0	248
360 min Summer	18.809	0.0	366
480 min Summer	15.045	0.0	484
600 min Summer	12.589	0.0	604
720 min Summer	10.851	0.0	722
960 min Summer	8.538	0.0	936
1440 min Summer	6.054	0.0	1146
2160 min Summer	4.286	0.0	1524
2880 min Summer	3.357	0.0	1936
4320 min Summer	2.383	0.0	2736
5760 min Summer	1.878	0.0	3536
7200 min Summer	1.571	0.0	4328
8640 min Summer	1.364	0.0	5104
10080 min Summer	1.215	0.0	5856
15 min Winter	166.246	0.0	26

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	33.903	0.303	0.1	8.6	O K
60 min Winter	33.974	0.374	0.1	10.7	O K
120 min Winter	34.052	0.452	0.1	12.9	O K
180 min Winter	34.101	0.501	0.1	14.3	O K
240 min Winter	34.134	0.534	0.1	15.2	O K
360 min Winter	34.174	0.574	0.1	16.4	O K
480 min Winter	34.193	0.593	0.1	16.9	O K
600 min Winter	34.202	0.602	0.1	17.1	O K
720 min Winter	34.203	0.603	0.1	17.2	O K
960 min Winter	34.195	0.595	0.1	17.0	O K
1440 min Winter	34.160	0.560	0.1	16.0	O K
2160 min Winter	34.114	0.514	0.1	14.6	O K
2880 min Winter	34.070	0.470	0.1	13.4	O K
4320 min Winter	33.991	0.391	0.1	11.1	O K
5760 min Winter	33.925	0.325	0.1	9.3	O K
7200 min Winter	33.870	0.270	0.1	7.7	O K
8640 min Winter	33.824	0.224	0.1	6.4	O K
10080 min Winter	33.785	0.185	0.1	5.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	108.697	0.0	41
60 min Winter	67.702	0.0	70
120 min Winter	41.667	0.0	128
180 min Winter	31.264	0.0	186
240 min Winter	25.407	0.0	244
360 min Winter	18.809	0.0	360
480 min Winter	15.045	0.0	476
600 min Winter	12.589	0.0	590
720 min Winter	10.851	0.0	704
960 min Winter	8.538	0.0	924
1440 min Winter	6.054	0.0	1316
2160 min Winter	4.286	0.0	1644
2880 min Winter	3.357	0.0	2104
4320 min Winter	2.383	0.0	2984
5760 min Winter	1.878	0.0	3808
7200 min Winter	1.571	0.0	4616
8640 min Winter	1.364	0.0	5376
10080 min Winter	1.215	0.0	6152

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Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 565706 172866 TQ 65706 72866	Cv (Summer)	0.750	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.019

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.007	4	8	0.006	8	12	0.006

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Model Details

Storage is Online Cover Level (m) 35.000

Cellular Storage Structure

Invert Level (m) 33.600 Infiltration Coefficient Side (m/hr) 0.02016 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.02016 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	30.0	30.0	0.800	30.0	47.6	0.900	0.0	47.6

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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1290 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	33.808	0.208	0.1	5.9	O K
30 min Summer	33.870	0.270	0.1	7.7	O K
60 min Summer	33.933	0.333	0.1	9.5	O K
120 min Summer	34.002	0.402	0.1	11.5	O K
180 min Summer	34.044	0.444	0.1	12.6	O K
240 min Summer	34.072	0.472	0.1	13.5	O K
360 min Summer	34.106	0.506	0.1	14.4	O K
480 min Summer	34.121	0.521	0.1	14.8	O K
600 min Summer	34.126	0.526	0.1	15.0	O K
720 min Summer	34.125	0.525	0.1	15.0	O K
960 min Summer	34.113	0.513	0.1	14.6	O K
1440 min Summer	34.084	0.484	0.1	13.8	O K
2160 min Summer	34.046	0.446	0.1	12.7	O K
2880 min Summer	34.013	0.413	0.1	11.8	O K
4320 min Summer	33.958	0.358	0.1	10.2	O K
5760 min Summer	33.913	0.313	0.1	8.9	O K
7200 min Summer	33.876	0.276	0.1	7.9	O K
8640 min Summer	33.844	0.244	0.1	7.0	O K
10080 min Summer	33.817	0.217	0.1	6.2	O K
15 min Winter	33.833	0.233	0.1	6.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	166.246	0.0	26
30 min Summer	108.697	0.0	41
60 min Summer	67.702	0.0	70
120 min Summer	41.667	0.0	130
180 min Summer	31.264	0.0	188
240 min Summer	25.407	0.0	248
360 min Summer	18.809	0.0	366
480 min Summer	15.045	0.0	484
600 min Summer	12.589	0.0	604
720 min Summer	10.851	0.0	722
960 min Summer	8.538	0.0	936
1440 min Summer	6.054	0.0	1146
2160 min Summer	4.286	0.0	1524
2880 min Summer	3.357	0.0	1936
4320 min Summer	2.383	0.0	2736
5760 min Summer	1.878	0.0	3536
7200 min Summer	1.571	0.0	4328
8640 min Summer	1.364	0.0	5104
10080 min Summer	1.215	0.0	5856
15 min Winter	166.246	0.0	26

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	33.903	0.303	0.1	8.6	O K
60 min Winter	33.974	0.374	0.1	10.7	O K
120 min Winter	34.052	0.452	0.1	12.9	O K
180 min Winter	34.101	0.501	0.1	14.3	O K
240 min Winter	34.134	0.534	0.1	15.2	O K
360 min Winter	34.174	0.574	0.1	16.4	O K
480 min Winter	34.193	0.593	0.1	16.9	O K
600 min Winter	34.202	0.602	0.1	17.1	O K
720 min Winter	34.203	0.603	0.1	17.2	O K
960 min Winter	34.195	0.595	0.1	17.0	O K
1440 min Winter	34.160	0.560	0.1	16.0	O K
2160 min Winter	34.114	0.514	0.1	14.6	O K
2880 min Winter	34.070	0.470	0.1	13.4	O K
4320 min Winter	33.991	0.391	0.1	11.1	O K
5760 min Winter	33.925	0.325	0.1	9.3	O K
7200 min Winter	33.870	0.270	0.1	7.7	O K
8640 min Winter	33.824	0.224	0.1	6.4	O K
10080 min Winter	33.785	0.185	0.1	5.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	108.697	0.0	41
60 min Winter	67.702	0.0	70
120 min Winter	41.667	0.0	128
180 min Winter	31.264	0.0	186
240 min Winter	25.407	0.0	244
360 min Winter	18.809	0.0	360
480 min Winter	15.045	0.0	476
600 min Winter	12.589	0.0	590
720 min Winter	10.851	0.0	704
960 min Winter	8.538	0.0	924
1440 min Winter	6.054	0.0	1316
2160 min Winter	4.286	0.0	1644
2880 min Winter	3.357	0.0	2104
4320 min Winter	2.383	0.0	2984
5760 min Winter	1.878	0.0	3808
7200 min Winter	1.571	0.0	4616
8640 min Winter	1.364	0.0	5376
10080 min Winter	1.215	0.0	6152

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Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 565706 172866 TQ 65706 72866	Cv (Summer)	0.750	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.019

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.007	4	8	0.006	8	12	0.006

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Model Details

Storage is Online Cover Level (m) 35.000

Cellular Storage Structure

Invert Level (m) 33.600 Infiltration Coefficient Side (m/hr) 0.02016 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.02016 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	30.0	30.0	0.800	30.0	47.6	0.900	0.0	47.6

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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1290 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	33.808	0.208	0.1	5.9	O K
30 min Summer	33.870	0.270	0.1	7.7	O K
60 min Summer	33.933	0.333	0.1	9.5	O K
120 min Summer	34.002	0.402	0.1	11.5	O K
180 min Summer	34.044	0.444	0.1	12.6	O K
240 min Summer	34.072	0.472	0.1	13.5	O K
360 min Summer	34.106	0.506	0.1	14.4	O K
480 min Summer	34.121	0.521	0.1	14.8	O K
600 min Summer	34.126	0.526	0.1	15.0	O K
720 min Summer	34.125	0.525	0.1	15.0	O K
960 min Summer	34.113	0.513	0.1	14.6	O K
1440 min Summer	34.084	0.484	0.1	13.8	O K
2160 min Summer	34.046	0.446	0.1	12.7	O K
2880 min Summer	34.013	0.413	0.1	11.8	O K
4320 min Summer	33.958	0.358	0.1	10.2	O K
5760 min Summer	33.913	0.313	0.1	8.9	O K
7200 min Summer	33.876	0.276	0.1	7.9	O K
8640 min Summer	33.844	0.244	0.1	7.0	O K
10080 min Summer	33.817	0.217	0.1	6.2	O K
15 min Winter	33.833	0.233	0.1	6.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	166.246	0.0	26
30 min Summer	108.697	0.0	41
60 min Summer	67.702	0.0	70
120 min Summer	41.667	0.0	130
180 min Summer	31.264	0.0	188
240 min Summer	25.407	0.0	248
360 min Summer	18.809	0.0	366
480 min Summer	15.045	0.0	484
600 min Summer	12.589	0.0	604
720 min Summer	10.851	0.0	722
960 min Summer	8.538	0.0	936
1440 min Summer	6.054	0.0	1146
2160 min Summer	4.286	0.0	1524
2880 min Summer	3.357	0.0	1936
4320 min Summer	2.383	0.0	2736
5760 min Summer	1.878	0.0	3536
7200 min Summer	1.571	0.0	4328
8640 min Summer	1.364	0.0	5104
10080 min Summer	1.215	0.0	5856
15 min Winter	166.246	0.0	26

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	33.903	0.303	0.1	8.6	O K
60 min Winter	33.974	0.374	0.1	10.7	O K
120 min Winter	34.052	0.452	0.1	12.9	O K
180 min Winter	34.101	0.501	0.1	14.3	O K
240 min Winter	34.134	0.534	0.1	15.2	O K
360 min Winter	34.174	0.574	0.1	16.4	O K
480 min Winter	34.193	0.593	0.1	16.9	O K
600 min Winter	34.202	0.602	0.1	17.1	O K
720 min Winter	34.203	0.603	0.1	17.2	O K
960 min Winter	34.195	0.595	0.1	17.0	O K
1440 min Winter	34.160	0.560	0.1	16.0	O K
2160 min Winter	34.114	0.514	0.1	14.6	O K
2880 min Winter	34.070	0.470	0.1	13.4	O K
4320 min Winter	33.991	0.391	0.1	11.1	O K
5760 min Winter	33.925	0.325	0.1	9.3	O K
7200 min Winter	33.870	0.270	0.1	7.7	O K
8640 min Winter	33.824	0.224	0.1	6.4	O K
10080 min Winter	33.785	0.185	0.1	5.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	108.697	0.0	41
60 min Winter	67.702	0.0	70
120 min Winter	41.667	0.0	128
180 min Winter	31.264	0.0	186
240 min Winter	25.407	0.0	244
360 min Winter	18.809	0.0	360
480 min Winter	15.045	0.0	476
600 min Winter	12.589	0.0	590
720 min Winter	10.851	0.0	704
960 min Winter	8.538	0.0	924
1440 min Winter	6.054	0.0	1316
2160 min Winter	4.286	0.0	1644
2880 min Winter	3.357	0.0	2104
4320 min Winter	2.383	0.0	2984
5760 min Winter	1.878	0.0	3808
7200 min Winter	1.571	0.0	4616
8640 min Winter	1.364	0.0	5376
10080 min Winter	1.215	0.0	6152

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Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 565706 172866 TQ 65706 72866	Cv (Summer)	0.750	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.019

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.007	4	8	0.006	8	12	0.006

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Model Details

Storage is Online Cover Level (m) 35.000

Cellular Storage Structure

Invert Level (m) 33.600 Infiltration Coefficient Side (m/hr) 0.02016 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.02016 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	30.0	30.0	0.800	30.0	47.6	0.900	0.0	47.6

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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 1396 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	33.812	0.212	0.2	12.6	O K
30 min Summer	33.876	0.276	0.2	16.4	O K
60 min Summer	33.940	0.340	0.2	20.2	O K
120 min Summer	34.010	0.410	0.2	24.4	O K
180 min Summer	34.053	0.453	0.2	26.9	O K
240 min Summer	34.083	0.483	0.2	28.7	O K
360 min Summer	34.119	0.519	0.2	30.8	O K
480 min Summer	34.135	0.535	0.2	31.8	O K
600 min Summer	34.142	0.542	0.2	32.2	O K
720 min Summer	34.142	0.542	0.2	32.2	O K
960 min Summer	34.132	0.532	0.2	31.6	O K
1440 min Summer	34.102	0.502	0.2	29.8	O K
2160 min Summer	34.064	0.464	0.2	27.5	O K
2880 min Summer	34.031	0.431	0.2	25.6	O K
4320 min Summer	33.975	0.375	0.2	22.3	O K
5760 min Summer	33.930	0.330	0.2	19.6	O K
7200 min Summer	33.892	0.292	0.2	17.3	O K
8640 min Summer	33.860	0.260	0.2	15.4	O K
10080 min Summer	33.832	0.232	0.2	13.8	O K
15 min Winter	33.837	0.237	0.2	14.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	166.246	0.0	27
30 min Summer	108.697	0.0	41
60 min Summer	67.702	0.0	70
120 min Summer	41.667	0.0	130
180 min Summer	31.264	0.0	188
240 min Summer	25.407	0.0	248
360 min Summer	18.809	0.0	366
480 min Summer	15.045	0.0	486
600 min Summer	12.589	0.0	604
720 min Summer	10.851	0.0	722
960 min Summer	8.538	0.0	960
1440 min Summer	6.054	0.0	1188
2160 min Summer	4.286	0.0	1560
2880 min Summer	3.357	0.0	1964
4320 min Summer	2.383	0.0	2772
5760 min Summer	1.878	0.0	3576
7200 min Summer	1.571	0.0	4392
8640 min Summer	1.364	0.0	5112
10080 min Summer	1.215	0.0	5864
15 min Winter	166.246	0.0	26

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	33.909	0.309	0.2	18.4	O K
60 min Winter	33.982	0.382	0.2	22.7	O K
120 min Winter	34.062	0.462	0.2	27.4	O K
180 min Winter	34.112	0.512	0.2	30.4	O K
240 min Winter	34.146	0.546	0.2	32.4	O K
360 min Winter	34.188	0.588	0.2	34.9	O K
480 min Winter	34.210	0.610	0.2	36.2	O K
600 min Winter	34.219	0.619	0.2	36.8	O K
720 min Winter	34.222	0.622	0.2	36.9	O K
960 min Winter	34.216	0.616	0.2	36.6	O K
1440 min Winter	34.184	0.584	0.2	34.7	O K
2160 min Winter	34.136	0.536	0.2	31.8	O K
2880 min Winter	34.093	0.493	0.2	29.3	O K
4320 min Winter	34.014	0.414	0.2	24.6	O K
5760 min Winter	33.947	0.347	0.2	20.6	O K
7200 min Winter	33.891	0.291	0.2	17.3	O K
8640 min Winter	33.843	0.243	0.2	14.4	O K
10080 min Winter	33.802	0.202	0.2	12.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	108.697	0.0	41
60 min Winter	67.702	0.0	70
120 min Winter	41.667	0.0	128
180 min Winter	31.264	0.0	186
240 min Winter	25.407	0.0	244
360 min Winter	18.809	0.0	360
480 min Winter	15.045	0.0	476
600 min Winter	12.589	0.0	592
720 min Winter	10.851	0.0	706
960 min Winter	8.538	0.0	930
1440 min Winter	6.054	0.0	1346
2160 min Winter	4.286	0.0	1668
2880 min Winter	3.357	0.0	2132
4320 min Winter	2.383	0.0	3024
5760 min Winter	1.878	0.0	3864
7200 min Winter	1.571	0.0	4688
8640 min Winter	1.364	0.0	5448
10080 min Winter	1.215	0.0	6248

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Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 565706 172866 TQ 65706 72866	Cv (Summer)	0.750	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.041

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.014	4	8	0.014	8	12	0.014

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Model Details

Storage is Online Cover Level (m) 35.000

Cellular Storage Structure

Invert Level (m) 33.600 Infiltration Coefficient Side (m/hr) 0.02016 Porosity 0.95
Infiltration Coefficient Base (m/hr) 0.02016 Safety Factor 2.0

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	62.5	62.5	0.800	62.5	90.5	0.900	0.0	90.5

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Appendix F
Schematic Drainage Design

FOR APPROVAL

Notes

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Do not scale off this drawing

1. To be read in conjunction with all Architects and Engineers drawings
2. Level design is based on information from a topographical survey provided by others. Alan Baxter Partnership LLP takes no responsibility for the accuracy of the original topographical survey. All existing levels are to be confirmed by the contractor prior to the commencement of the works.
3. All discrepancies to be notified immediately to contract administrator and engineers.
4. Only 'Construction' drawings shall be used for construction or the ordering of materials. Any other drawings (tender / billing / work in progress etc.) drawings shall not be used for this purpose.
5. All proposals to be in accordance with Design and Construction Guidance (Sewerage Sector Guidance).
6. All rainwater pipe (RWP), soil vent pipe (SVP) and stub stack (SS) locations are approximate. Refer to Architects drawings for exact locations.
7. All special DPC detailing (required due to levels) to be in accordance with Architect details.
8. Stub stack's (SS) are to incorporate air admittance valves.
9. The invert level of the bottom bends for all SVP's and SS's are to be 600mm below F.F.L.
10. Pipes to be laid soffit-to-soffit unless otherwise noted.
11. 100mmØ Foul Drains to be laid at a minimum gradient of 1:80. 150mmØ Foul Drains to be laid at a minimum gradient of 1:150.
12. Diffuser units to be laid on top of impermeable liner at road formation level within subbase storage areas.
13. All above ground drainage to be in accordance with Architect drawings.
14. Contractor to avoid clashes with any existing services or infrastructure (any infrastructure to be retained/diverted/abandoned to be done by others and in accordance with Engineering drawings).
15. All critical existing levels to be determined on site by Contractor prior to construction.
16. If any drainage connections from adjacent sites are discovered, the engineer is to be notified immediately.
17. For Channel Drain details refer to channel drain run schedule / calculations). Channel access and outlet boxes to have silt traps. Grating Finish to Architects Specification.
18. Foul Water Pump and Rising Main to specialists design with suitable emergency storage capacity to be provided.
19. All below ground drainage materials and installation to be in accordance with the most up to date Sewerage Sector Guidance Design & Construction Guide.

Key

Existing

Foul Water (Retained)

- Carrier pipe
- (RET) Chamber

Proposed

Surface Water (Private)

- RWP Rainwater Pipe (refer to note)
- Carrier Pipe (100mm UPVC unless stated otherwise)
- Rising Main (refer to note)
- Inspection Chamber (with ref. no.)
- 1200 CP Catchpit Chamber (with ref. no.)
- RG Road Gully
- CH Channel Drain (refer to note)
- AP Channel Drain Access Point with Sump
- Permeable Paving (Sub-Base Storage) (formation to fall towards filter pipe)
- Diffuser Unit (Refer to note 13 - 710 wide x 710 long x 150mm (deep units)
- Soakaway (install to manufacturers detail)
- Soakaway Access Turret

Foul Water (Private)

- SVP / SS Soil Vent Pipe / Stub Stack (refer to notes)
- Carrier Pipe (100mm UPVC unless stated otherwise)
- Rising Main (refer to note)
- Inspection chamber (with ref. no.)
- Pump Station (refer to note)

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-				
0	FIRST ISSUE	ARWS	-	29/01/2025

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Project Title:

Convent of Mercy Phase 3,
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Gravesend
DA12 1NY

Drawing Title:

Below Ground Drainage Schematic

Scale: 1:200 @A1

Do not scale from drawing

Drawing Number: C1477-SK-001

Rev: 0