Spen Lane, Gomersal

Drainage Statement

March 2025

AMA Project Number: 23271

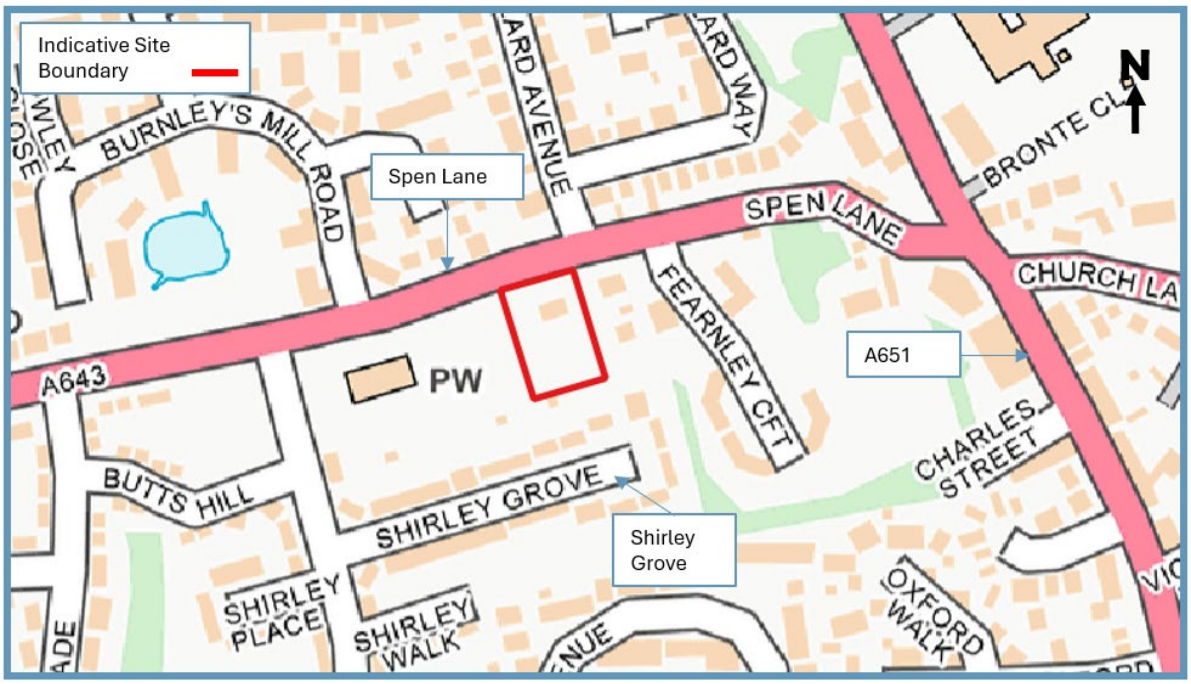
INTRODUCTION

The purpose of this report is to provide a Drainage Statement to support a planning application for a residential development located at Former Vicarage Site, Spen Lane, Gomersal, Cleckheaton, BD19 4LS at NGR: SE 20723 25948, as shown in **Figure 1**. The proposed site plan can be found in **Appendix A**.

The EA Flood Map for Planning shows that the site is located within Flood Zone 1, and not at risk of either fluvial or coastal flooding.

The EA Surface Water Maps for the yearly chance of flooding between 2040 and 2060 shows that most of the site is at very low risk of surface water flooding, with the south of the site being at low to high risk of surface water flooding.

Figure 1 Site Location Plan



FOUL WATER DRAINAGE STRATEGY

AMA attained Yorkshire Water sewer maps, which can be seen in **Appendix B**. This shows that there is a combined sewer to the north of the site.

The estimated Dry Weather Flow (DWF) generated by the proposed development, based on a gravity system, has been calculated as 0.46 litres per second. This figure is based on 10 dwellings at 4,000 litres per dwelling as prescribed in Sewers for Adoption.

The foul water from the development is proposed to discharge into the combined public combined sewer to the north of the site.

No depth/level information is available for these sewers and therefore further survey work in the form of a drainage CCTV and tracing survey will be required to confirm whether a gravity connection will be feasible.

SURFACE WATER DRAINAGE STRATEGY

Infiltration

A desktop review of ground conditions at the site shows the soils to consist of slowly permeable seasonally wet acid loamy and clayey soils, and as such it is presumed that infiltration techniques will not be supported in this location. Percolation testing has not yet been carried out on this site. It is recommended that infiltration testing to BRE 365 digest is undertaken as part of any future site investigations works at the site so that this can be used as satisfactory evidence for the LLFA or Yorkshire Water as necessary. The results of a percolation test will also be required to produce infiltration/soakaway designs.

Watercourses

The nearest watercourse is an unnamed watercourse located approximately 325m to the northeast of the site.

It is not considered viable to discharge surface water from the site into the unnamed watercourse due to the distance and third-party land separating the site from the watercourse.

Public Sewers

As a last resort and following the hierarchy of surface water disposal, discharge to the public sewer system must be considered.

In the Yorkshire Water sewer maps in **Appendix B**, they state that there is a combined sewer to the north of the site. There is a surface water sewer located approximately 90m to the northwest of the site. Further information regarding levels will be required to confirm if a gravity connection is viable.

As the site is brownfield, a CCTV survey will be required to confirm an existing connection in the site.

Therefore, it would be possible to discharge surface water from the site into the existing public sewer system.

Proposed Discharge Rates and Attenuation Requirements

As surface water disposal is proposed to be through a connection into the public sewer system, it is necessary to restrict discharge from the development.

The discharge rate will be restricted to the 11.7 l/s, based on a restricted 30% reduction in the brownfield run-off rate.

Causeway Flow drainage design software has been used to estimate the maximum storage volume required on-site for the 100-year storm event plus 40% climate change and 10% urban creep. The calculations can be found in **Appendix C**.

The results below are based on the proposed developments impermeable area of 43.3 m^2, discharging surface water at a rate of 11.7 l/s into the existing public sewer system.

Table 1 Attenuation Volume

Gross area (ha)	Max Discharge (l/s)	Imp. Area (ha)	Q100+50% Volume (m^3)
0.2	11.7	0.12	43.3

APPENDICES

Appendix A Site Plan

Appendix B Yorkshire Water Sewer Maps

Appendix C Causeway Flow Calculations

Appendix A
Proposed Layout Plan

existing wall rebuilt shown shaded

part of existing vehicular entrance to be used as pedestrian access.

2.4x43m vision splays

SPEN LANE

existing bus stop

existing bus stop

5mph speed bump

stone wall to be removed shown dotted and rebuilt on vision splays (path widened)

BT box relocated onto new position of dry stone wall to be determined by BT

2.4x43m vision splays

existing vicarage to be demolished shown dashed

existing wall removed

8 of 10No cycle shelters 5ftx7ft

existing pedestrian access from church grounds retained

security fencing and lockable access gates for residents only

all gardens to be grassed

existing trees to west boundary to be retained

ST1 150.221

ST2 150.384

ST3 150.045

ST10 150.071 △150.071

12486

6000

5000

3000

14434

4000

6535

158.05 RL

EL 155.86

RL 158.03

EL 155.85

RL 157.88

all access to building to compliant with part M

security fencing and lockable access gates for residents only

2 of 10No cycle shelters 5ftx7ft

new 1.8m high concrete gravel board and posts with close board timber fence panels

light pipes shown in flat roof

bird boxes to be incorporated into the building walls

new 1.8m high concrete gravel board and posts with close board timber fence panels

27m to nearest dwelling

29.5m to nearest dwelling

KEY

- bus stop
- bollard light
- bollard

N

1:100 SITE PLAN

0 1 : 100 10m

At 1:1 this bar should be 10cm long

THIS DRAWING HAS BEEN CREATED BY USING A TOPOGRAPHICAL SURVEY CREATED BY OTHERS

rev	date	description
c	30/21/25	further prep for planning
d	02/02/25	front wall amended for visability splays and timber bin store added,
e	07/02/25	minor alterations including bollard addition etc
f	16/02/25	notes added to site plan for clarity

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Drawing Title: SITE PLAN

Client: CORAL PROJECTS

Project Title: PROPOSED RESIDENTIAL DEVELOPMENT FORMER VICARAGE SITE GOMERSAL

Drawing No.: 2929-02

Revision: F

Created On: 30/10/24

Scale: as noted

Page size: AO

Appendix B
Yorkshire Water Sewer Maps

YORKSHIRE WATER
PROTECTION OF MAINS AND SERVICES

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the ***general*** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline on 0845 124 24 24 for both water and sewerage.

2. The public sewer and water network is lawfully retained in its existing position and the sewerage and water undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful. The provisions contained in Section 185 of the Water Industry Act 1991 state that where it is reasonable to do so, a person may require the water supply undertaker to alter or remove a pipe where it is necessary to enable that person to carry out a proposed change of use of the land. The provisions contained in Section 185 also require the person making the request to pay the full cost of carrying out the necessary works.

3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will ***generally*** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense. Water mains and services will ***generally*** be laid with a minimum of 750mm depth of cover however some mains and services usually those installed over 50 years ago may have less ground cover.

4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.

5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45o and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter *(see illustration below)*. Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.

6. All excavation works near to YW apparatus should be by hand digging only.

7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.

8. Adequate support must be provided where any works pass under YW apparatus.

9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.

10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 24.

11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.

12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.

13. ***Under no circumstances*** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.

14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works).

15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.

16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.

17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available*" should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.

18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011.

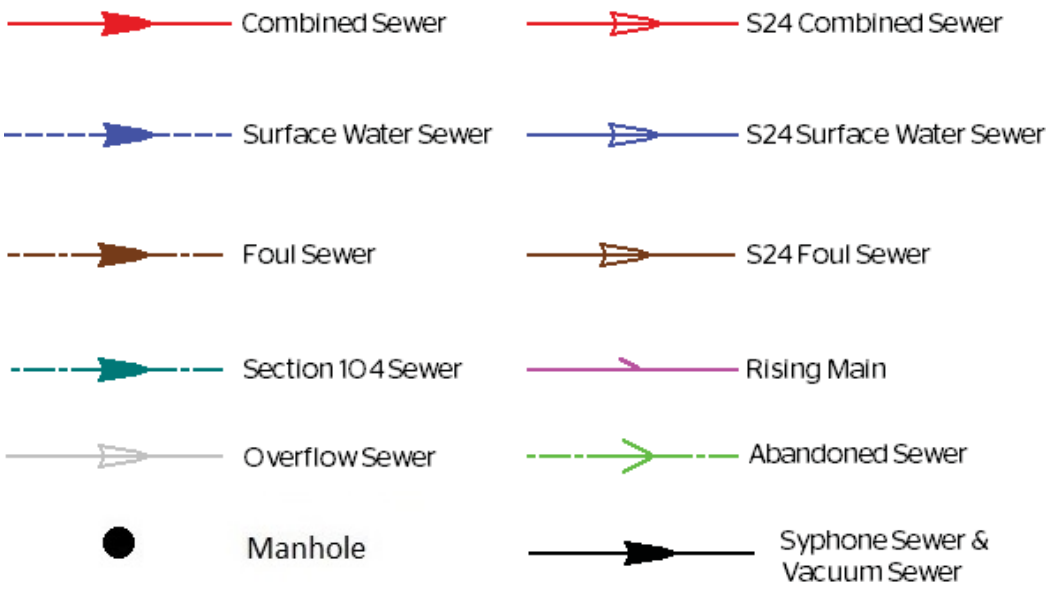
Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).

19. Please note that the information supplied on the enclosed plans is reproduced from Ordnance Survey material with the permission of the Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence Number AC0000857457.

20. This information is for guidance only and the position and depth of any YW apparatus is approximate only. Likewise, the nature and condition of any YW apparatus cannot be guaranteed. YW has no responsibility for recording the locations of privately owned apparatus. As of 1 October 2011, there may be some lateral drains and/or public sewers which are not documented on YW records but may still be present. For the avoidance of doubt, this information is not a substitute for appropriate professional and/or legal advice. YW accepts no responsibility for any inaccuracy or omissions in this information. The actual position of YW apparatus must be determined on site by excavating trail holes by hand. YW requires a minimum of two working days' written notice of the intention to excavate any trial holes before any excavation can be undertaken. If there are any queries in this respect please contact Yorkshire Water on 0845 124 24 24.

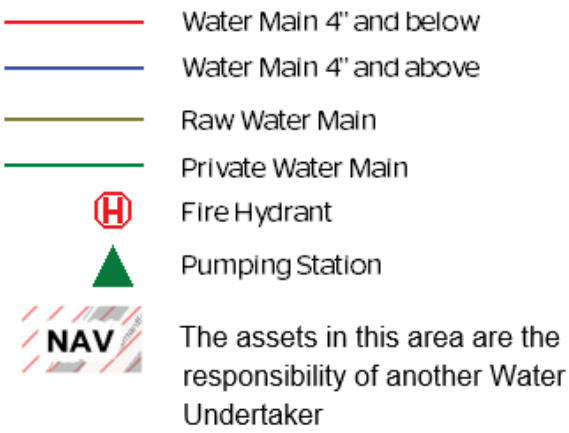
Property Identfier

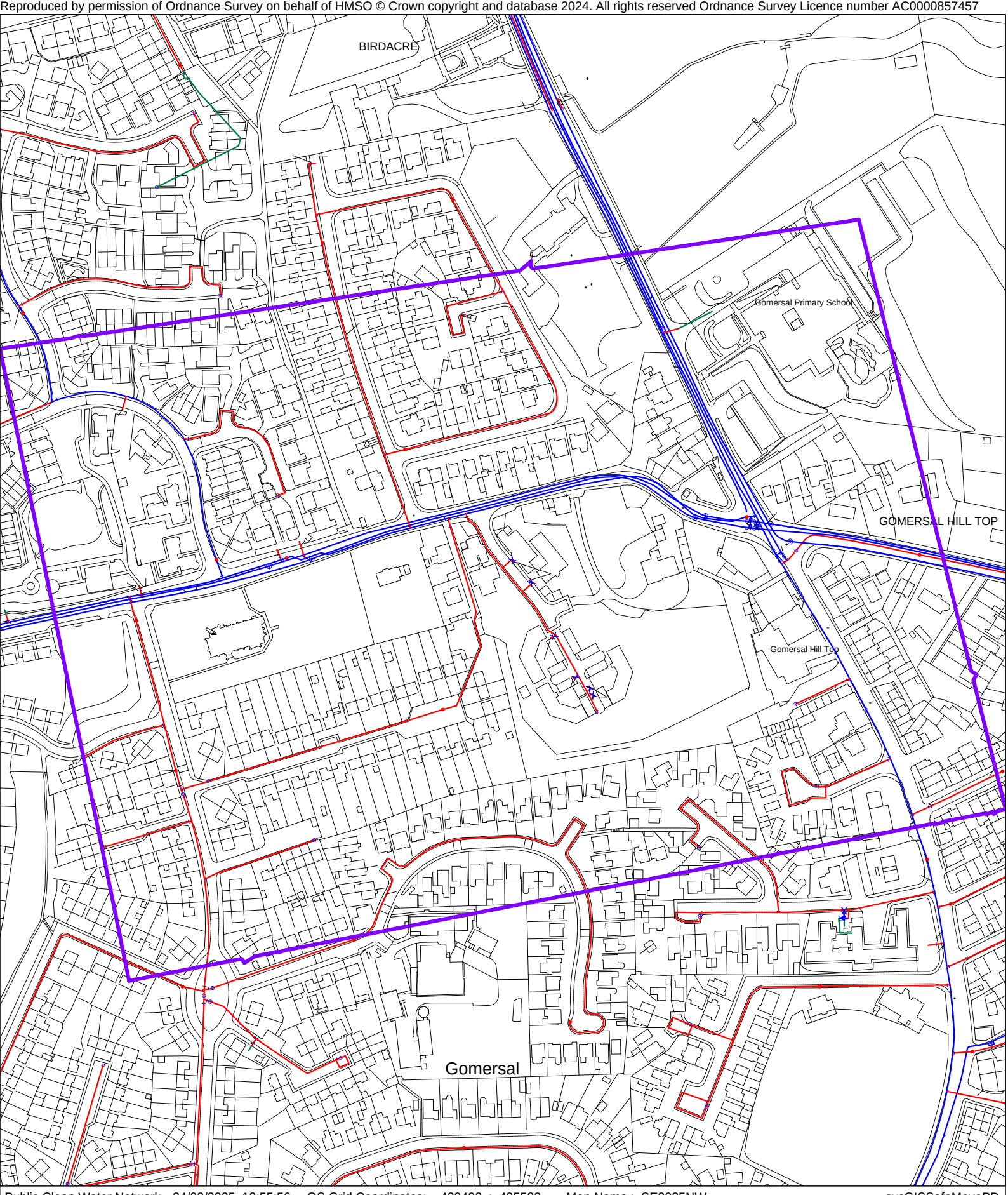
Sewer Legend



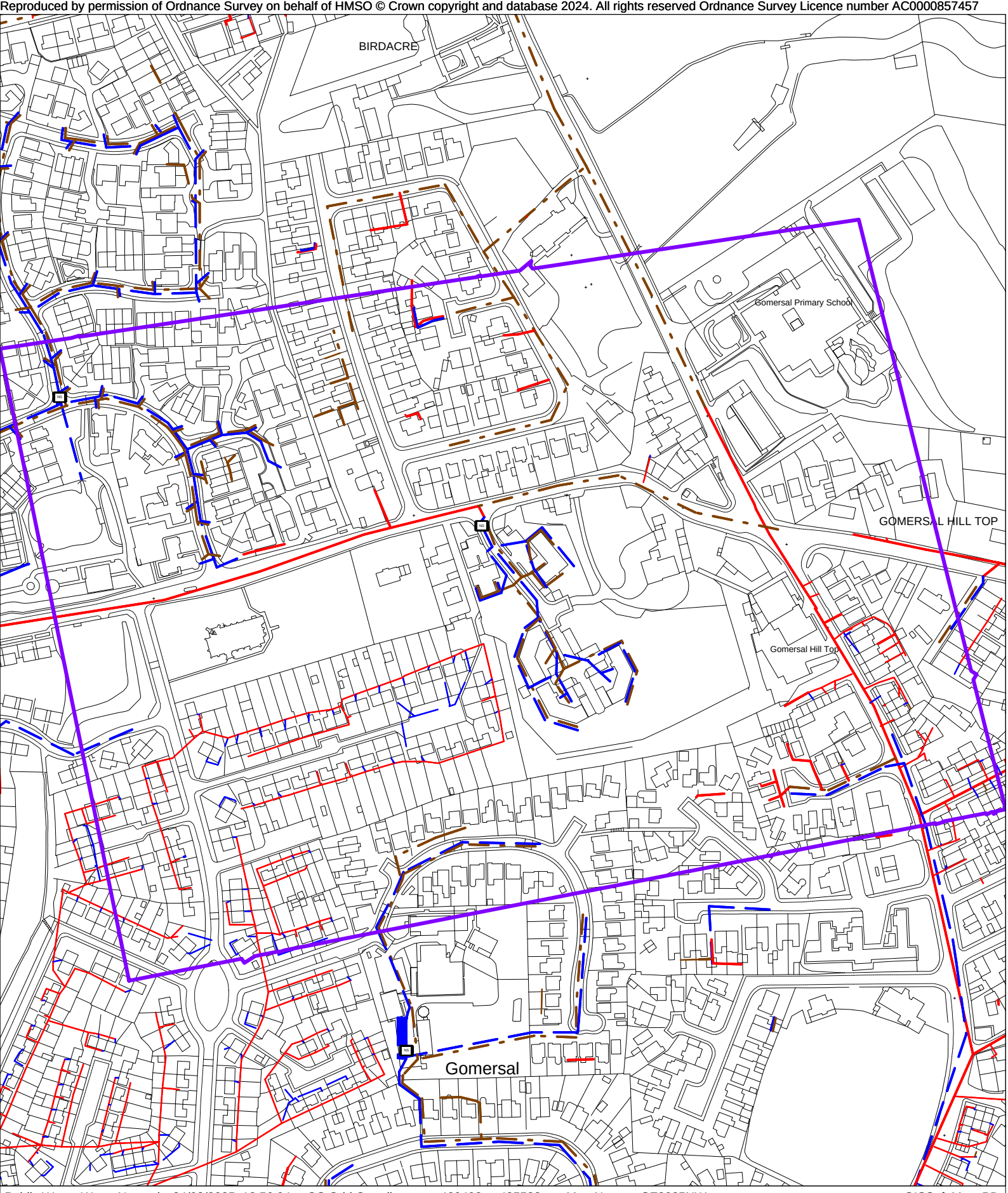
Please note that the direction of flow arrows may not always appear depending on the scale of the map.

Water Legend





Public Clean Water Network 24/03/2025 12:55:56 OS Grid Coordinates: 420492 : 425583 Map Name : SE2025NW svcGISSafeMovePD



Public Waste Water Network 24/03/2025 12:56:04 OS Grid Coordinates: 420492 : 425583 Map Name : SE2025NW svcGISSafeMovePD

Appendix C
Causeway Flow Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	19.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.350	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
AT	0.120	5.00	100.000	1200	1.500

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	40	10	0

Node AT Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	98.500	Product Number	CTL-SHE-0159-1170-0800-1170
Design Depth (m)	0.800	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	11.7	Min Node Diameter (mm)	1200

Node AT Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	98.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	45

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	56.0	0.0	0.800	56.0	0.0	0.801	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	AT	38	98.623	0.123	13.7	6.6690	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
60 minute summer	AT	Hydro-Brake®	7.8	14.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	AT	40	98.811	0.311	33.1	16.9021	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
60 minute summer	AT	Hydro-Brake®	11.7	34.9

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	AT	46	99.296	0.796	67.0	43.2723	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
60 minute summer	AT	Hydro-Brake®	11.7	70.7