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ENVIRONMENT

Lone Star Land Ltd
Bretch Hill
Banbury Phase 2
Flood Risk Assessment

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Bretch Hill
Banbury Phase 2
Flood Risk Assessment

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All Environment Agency mapping data used under special license. Data is current as of October 2021 and is subject to change.

The information presented, and conclusions drawn, are based on statistical data and are for guidance purposes only. The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. It has been produced on behalf of Lone Star Land Ltd in respect of a planning application for the proposed residential development of Bretch Hill, Banbury. (approximate grid reference: SP 43814 39822).

This report demonstrates that the proposed development is not at significant flood risk, subject to the recommended flood mitigation strategies being implemented.

The site is shown to be entirely located within Flood Zone 1 (Low Probability). The nearest Flood Zone extents are located approximately 1.1km to the west of the site associated with the Sor Brook a tributary of the River Cherwell, flowing in a south easterly direction. An Unnamed Ordinary Watercourse (UOW) is shown to be located approximately 650m west of the site; however, the site is elevated above this UOW.

Surface water flood risk mapping demonstrates the site generally to be at low risk of flooding however areas of Low Risk (1 in1000 year event) are shown to be present on the southern part of the site boundary.

Flood risk posed to the site by canals, reservoirs, sewers and groundwater is considered to be low.

The proposed development will increase the area of impermeable surfaces leading to a potential increase in runoff. Further information on the drainage approach will be provided within the accompanying Sustainable Drainage Statement, reference BP2-BWB-ZZ-XX-RP-CD-0001_SDS.

In compliance with the requirements of the NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

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1. INTRODUCTION

1.1 This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of Lone Star Land Ltd in respect of a planning application for the proposed residential development at Bretch Hill, Banbury.

1.2 This FRA is intended to support an outline planning application and as such the level of detail included is commensurate and subject to the nature of the proposals. Summary information is included as **Table 1.1**.

Table 1.1: Site Summary

Site Name	Bretch Hill
Location	Banbury
NGR (approx.)	SP 43814 39822
Application Site Area (ha)	3.15 (Approximately)
Development Type	Residential
Flood Zone Classification	Flood Zone 1
NPPF Vulnerability	More Vulnerable
Environment Agency Office	Thames
Lead Local Flood Authority	Oxfordshire County Council
Local Planning Authority	Cherwell District Council

Sources of Data

i. Topographical Survey by Staf Surv, reference 11576
ii. OS Explorer Series mapping
iii. Local Authority Surface Water Flood Risk Maps
iv. Cherwell Strategic Level 1 & 2 Strategic Flood Risk Assessment
v. Oxfordshire County Council Preliminary Flood Risk Assessment
vi. Web Based Soil Mapping
vii. Thames Water Sewer Records
viii. British Geological Survey Geology Maps

Existing Site

1.3 The site is located to the western extent of Banbury, Oxfordshire approximately 2km west of the town centre. The greenfield site is surrounded by residential development to the north and east the B4035 (Broughton Road) to the south and farmland to the west. The site is split into the indicative site boundary and the wider site ownership. Although the client is in ownership of the entire site, development is limited to the indicative site boundary. The rest of this report will concern only the indicative site boundary.

1.4 The site's location is illustrated within **Figure 1.1.**

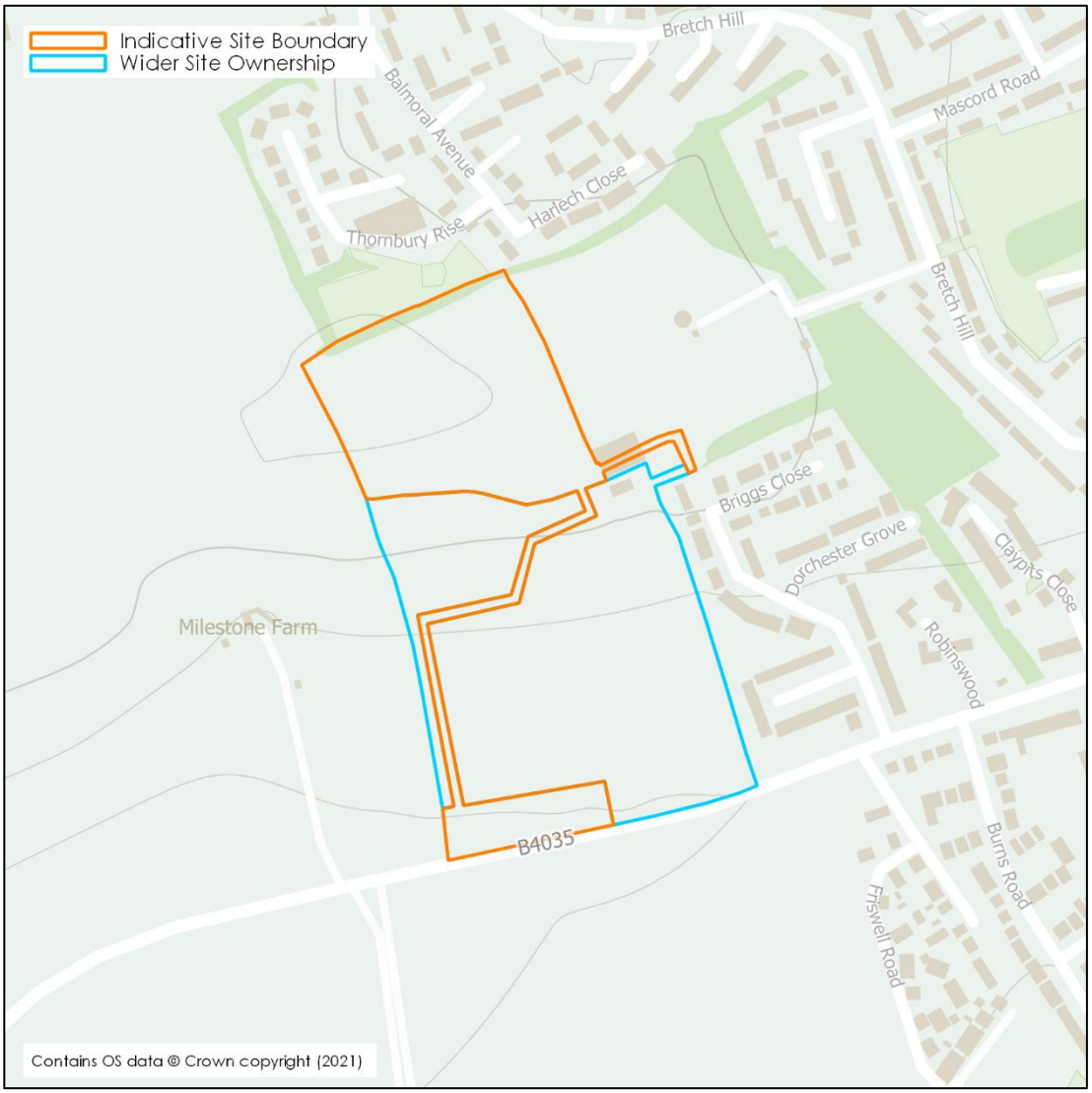

Figure 1.1: Site Location

1.5 A topographical survey has been carried out and is included as **Appendix 1**. This shows the site to generally fall from north to south with a maximum level of approximately 161.2m Above Ordnance Datum (AOD) in the north to a low point of approximately 129.1m AOD on the southern boundary of the site.

Proposed Development

1.6 The proposals are for residential development for the erection of 49 dwellings with public open space and other infrastructure. Proposed layout plans are included as **Appendix 2**.

2. FLOOD RISK PLANNING POLICY

National Planning Policy Framework

2.1 The NPPF[1] sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online[2].

2.2 The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

2.3 The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should be considered when preparing an FRA.

2.4 The Planning Practice Guidance includes a series of tables that define Flood Zones (Table 1), the flood risk vulnerability classification of development land uses (Table 2) and 'compatibility' of development within the defined Flood Zones (Table 3).

2.5 This FRA is written in accordance with the NPPF and the Planning Practice Guidance.

Flood Map for Planning

2.6 With particular reference to planning and development, the Flood Map for Planning produced by the Environment Agency identifies Flood Zones in accordance with Table 1 of the Planning Practice Guidance. Further details on the Flood Zone classifications are outlined in **Table 2.1**.

Table 2.1: Flood Zone Classifications

Flood Zone	Description
Flood Zone 1 (Low Probability)	Land having less than a 1 in 1000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability).
Flood Zone 2 (Medium Probability)	Land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1% AEP); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1% AEP).
Flood Zone 3a (High Probability)	Land having a 1 in 100 or greater annual probability of river flooding (>1% AEP); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP). This is represented by "Flood Zone 3" on the Flood Map for Planning.
Flood Zone 3b (The Functional Floodplain)	Flood Zone 3b (The Functional Floodplain) is defined as land where water must flow or be stored in times of

[1] Revised National Planning Policy Framework, Ministry of Housing, Communities & Local Government, amended 2021
[2] Planning Practice Guidance: https://www.gov.uk/government/collections/planning-practice-guidance

Flood Zone	Description
	flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

2.7 The site is shown to be located within Flood Zone 1, as shown in **Figure 2.1**.

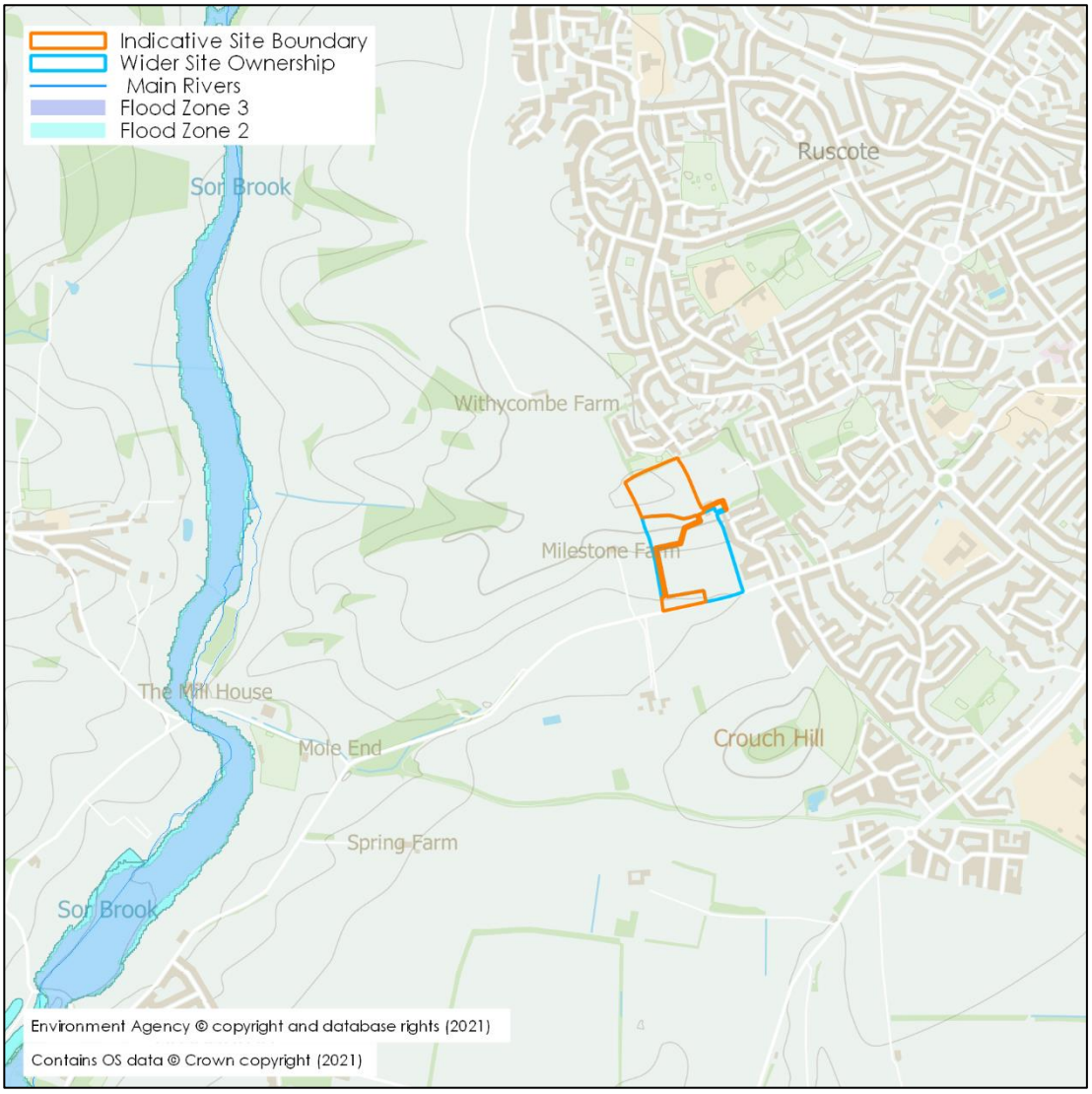

Figure 2.1: Flood Map for Planning

The Design Flood

2.8 The Planning Practice Guidance identifies that new developments should be designed to provide adequate flood risk management, mitigation, and resilience against the 'design flood' for their lifetime.

2.9 This is a flood event of a given annual flood probability, which is generally taken as fluvial (river) flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), or tidal flooding with a 0.5% annual probability (1 in 200 chance each year),

against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Climate Change

2.10 Predicted future change in peak river flows caused by climate change are provided by the Environment Agency within their online guidance[3], with a range of projections applied to regionalised 'River Basin Districts', which are further subdivided into Management Catchments.

2.11 The site falls within the Cherwell and Ray Management Catchment of the Thames River Basin District. **Table 2.2** identifies the relevant peak river flow allowances from this Management Catchment.

Table 2.2: Peak River Flow Allowance for the Cherwell and Ray Management Catchment within the Thames River Basin District

Allowance Category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper End	24%	27%	49%
Higher Central	11%	10%	25%
Central	6%	4%	15%

2.12 When determining the appropriate allowance for use in and FRA the Flood Zone classification, flood risk vulnerability and the anticipated lifespan of the development should be considered.

2.13 **Table** 2.3 provides a matrix summarising the Environment Agency's guidance on determining the appropriate allowances.

Table 2.3: Application of the Appropriate Climate Change Allowance

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
1	Use the central allowance where a location may fall within Flood Zone 2 or 3 in the future.				
2	Use the higher central allowance	Use the central allowance			
3a	Use the higher central allowance	Development should not be permitted	Use the central allowance		

[3] Environment Agency, Flood risk assessments: climate change allowances: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-1

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
3b	Use the higher central allowance	Development should not be permitted			Use the central allowance
If development is considered appropriate by the local authority when not in accordance with Flood Zone vulnerability categories, then it would be appropriate to use the higher central allowance.					

2.14 The site is located entirely within Flood Zone 1. The EA guidance does state that for a site in Flood Zone 1 and identified to be at risk in the future the Central allowance should be used, however, the distance of the site from watercourses, and the intervening topography, mean fluvial flood risk is not expected to be an issue for the site now or in the future. Therefore, the climate change allowances are no considered further within this report.

Strategic Flood Risk Assessment

2.15 A Strategic Flood Risk Assessment (SFRA) is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future.

2.16 The Cherwell Level 1 SFRA[4] has been reviewed in the production of this FRA. The SFRA provides information specific to the site location in the form of fluvial, surface water and groundwater flood risk mapping, as well as records of historic flooding. Information from the Level 1 SFRA will be referenced within **Section 3** where applicable.

2.17 The Cherwell Level 2 SFRA[5] was produced to facilitate the application of Sequential and Exception Tests to screen allocated development sites. The proposed application site is not referenced within the Level 2 SFRA.

Preliminary Flood Risk Assessment

2.18 A Preliminary Flood Risk Assessment (PFRA) is an assessment of floods that have taken place in the past and floods that could take place in the future. It generally considers flooding from surface water runoff, groundwater and ordinary watercourses, and is prepared by the Lead Local Flood Authorities.

2.19 The Oxfordshire County Council PFRA[6] considers flooding from surface water runoff, groundwater, ordinary watercourses and canals. It also references the historical river flooding which occurred in the local area in Summer 2007. However, no historic instances of flooding at the site are referenced. Information from the PFRA will be referenced within this report where applicable.

[4] Cherwell Level 1 Strategic Flood Risk Assessment (Cherwell District Council, May 2017)
[5] Cherwell Level 2 Strategic Flood Risk Assessment (Cherwell District Council, May 2017)
[6] Oxfordshire County Council Preliminary Flood Risk Assessment (Oxfordshire County Council, June 2011)

Local Flood Risk Management Strategy

2.20 A Local Flood Risk Management Strategy (LFRMS) is prepared by a Lead Local Flood Authority to help understand and manage flood risk at a local level.

2.21 The LFRMS aims to ensure that the knowledge of local flood risk issues is communicated effectively so that they can be better managed. The LFRMS also aims to promote sustainable development and environmental protection.

2.22 The Oxford County Council LFRMS[7] has been reviewed and will be referenced within this report where applicable.

[7] Local Flood Risk Management Strategy (Oxfordshire County Council, September 2014)

3. POTENTIAL SOURCES OF FLOOD RISK

3.1 Flooding can occur from a variety of sources, or combination of sources, which may be natural or artificial. **Table 3.1** below identifies the potential sources of flood risk to the site in its current condition, and the impacts which the development could have in the wider catchment, prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within **Section 4**.

Table 3.1: Pre-Mitigation Sources of Flood Risk

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial			X		The site is located in Flood Zone 1.
			X		There are two ordinary watercourses in the vicinity of the site; however, the site is elevated above these UOWs.
Canals			X		The Oxford canal is located approximately 2.1km to the east. The site is shown to be elevated 50m above the canal.
Groundwater			X		The site is shown to fall within an area predicted to be at a low susceptibility to groundwater flooding.
Reservoirs and waterbodies				X	The site is shown to fall outside of the area at risk of reservoir failure.
Pluvial runoff			X		The site is shown to be at low risk of surface water flooding. A small area of Low Risk (1:1000) is shown to be present within the wider site ownership.
Sewers			X		The sewer network around the site may have limited capacity, which could be exceeded in an extreme storm event. The sewer network in the area is shallow suggesting there is a residual risk from this source.
Effect of Development			X		Development will not result in impedance of pluvial and fluvial flow routes.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
on Wider Catchment		X			The development will increase the area of impermeable surfaces leading to a potential increase in runoff.

Fluvial Flood Risk

3.2 Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

3.3 The Cherwell Level 1 SFRA states that the largest fluvial flood event was recorded in 1998 in Banbury. The second largest fluvial flood event recorded in Banbury was in July 2007. The SFRA does not specifically refer to flooding at the site in these events.

Main Rivers

3.4 The site is shown to be located within Flood Zone 1, as illustrated in **Figure 2.1**, which is land defined as having a low probability of flooding from river or sea. The nearest Flood Zone extents are located approximately 1.1km west of the site associated with the Sor Brook, a tributary of the River Cherwell, flowing in a south easterly direction.

3.5 The Sor Brook has Flood Zones 2 and 3 along its alignment, however, flood defences are shown to be present (in form of natural banks) which result in minimal flood risk being present beyond the eastern bank. Furthermore, contour data shows the land indicated to lie within the floodplain extents associated with the Sor Brook is at a level of less than 110.0m AOD, with the site being located above 129.12m AOD. Therefore, the site is elevated above the Sor Brook and accompanying Flood Zones.

3.6 The River Cherwell is located approximately 2.3km to the east of the site. Flood zones 2 and 3 are present along the channel alignment; however, the risk posed to the site form surrounding Main Rivers is considered to be low, based upon the distance to the watercourse and the site being raised approximately 29m above the watercourse.

Unnamed Ordinary Watercourse

3.7 An Unnamed Ordinary Watercourse (UOW) is shown to be located approximately 650m west to the site; however, the site is shown to be elevated 30m above this UOW.

3.8 A ditch can also be seen adjacent to the southern boundary of the site, where Thames Water sewer records show 300mm surface water sewers outfalling into via a headwall. However the development is elevated significantly above this watercourse and therefore is not considered to pose a risk.

3.9 Overall, there is considered to be a low risk posed to the site from fluvial sources.

Flood Risk from Canals

3.10 The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders and boreholes and manages water levels by transferring it within the canal system.

3.11 Water in a canal is typically maintained at predetermined levels by control weirs. When rainfall or other water enters the canal, the water level rises and flows out over the weir. If the level continues rising it will reach the level of the storm weirs. The control weirs and storm weirs are normally designed to take the water that legally enters the canal under normal conditions. However, it is possible for unexpected water to enter the canal or for the weirs to become obstructed. In such instances the increased water levels could result in water overtopping the towpath and flowing onto the surrounding land.

3.12 Flooding can also occur where a canal is impounded above surrounding ground levels and the retaining structure fails.

3.13 The Oxford Canal is located approximately 2.1km east to the site, adjacent to the alignment of the River Cherwell. There are records of canal flooding in Banbury stated in the Cherwell Level 1 SFRA, which occurred in July 2007. The contour data shows the site to be elevated 50m above the canal.

3.14 Owing to the intervening distance and topography, flood risk from canal sources pose very low risk to the site.

Groundwater Flood Risk

3.15 Groundwater flooding occurs when the water table rises above ground elevations. It is most likely to happen in low lying areas underlain by permeable geology. This may be regional scale chalk or sandstone aquifers, or localised deposits of sands and gravels underlain by less permeable strata such as that in a river valley.

3.16 The British Geological Survey (BGS) mapping shows that there are no superficial deposits located within the vicinity of the site. The site is shown to be underlain by four different bedrock geologies: 'Chipping Norton Limestone Formation', 'Horsehay Sand Formation', 'Northampton Sand Formation' and 'Whitby Mudstone Formation'.

3.17 Mapping of the groundwater susceptibility contained within the SFRA highlights that the site is at a 'low' susceptibility to groundwater flooding.

3.18 There are no BGS borehole logs within the site based on online records. The nearest record is located approximately 300m south west of the site and is underlain by the same bedrock (Whitby Mudstone Formation). However, no groundwater information has been provided on online records.

3.19 The overall flood risk from groundwater sources is considered to be low.

Flood Risk from Reservoirs & Large Waterbodies

3.20 Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.

3.21 To help identify this risk, reservoir failure flood risk mapping has been prepared, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map shown below as **Figure 3.1** displays a worst-case scenario and is only intended as a guide.

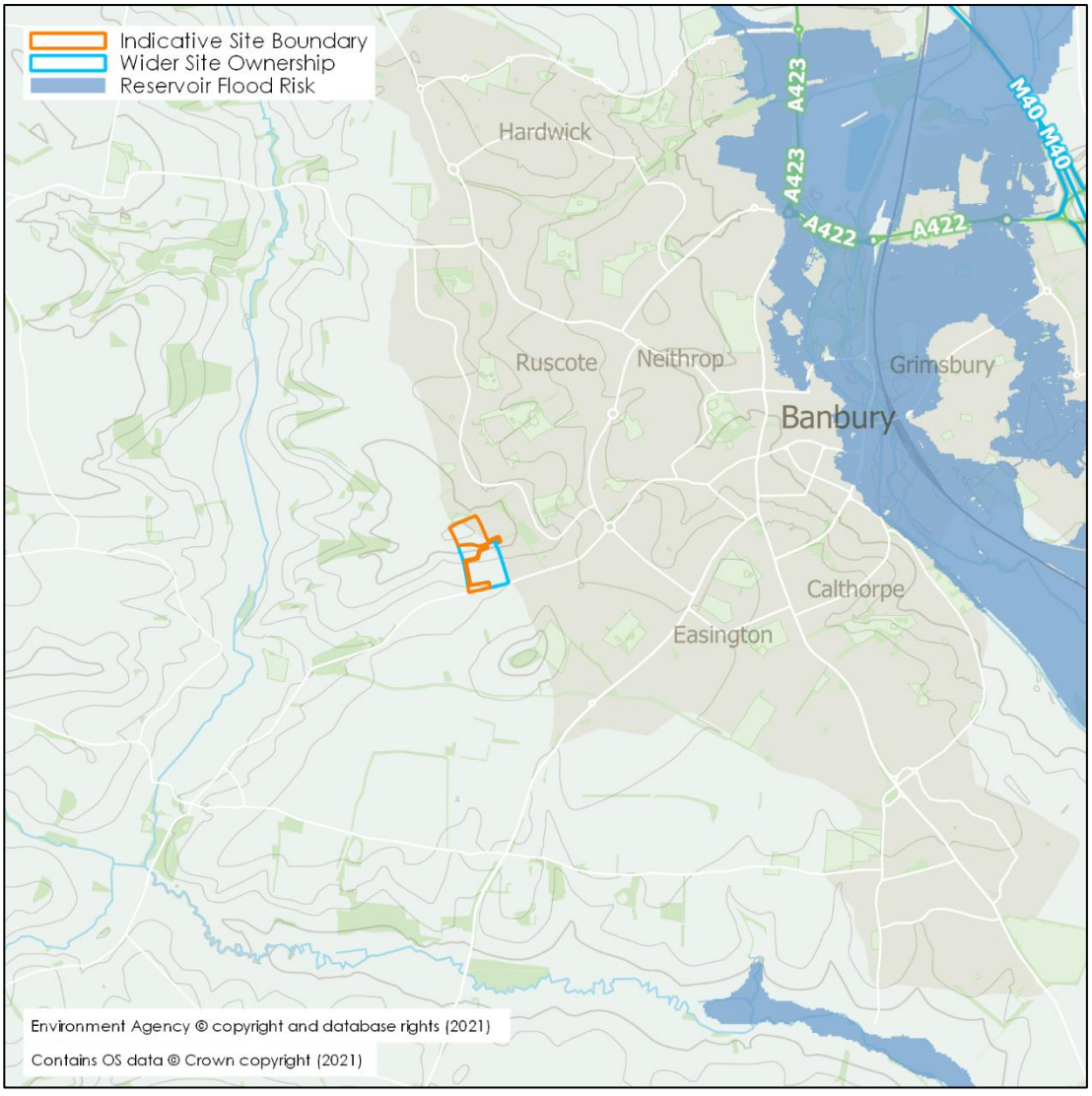

Figure 3.1: Reservoir Failure Flood Risk Map

3.22 The site is shown to fall out of the area at risk of reservoir failure. The nearest reservoir failure extent to the site is located approximately 2km east of the site.

3.23 The overall risk posed to the site from the reservoir source is therefore considered to be low.

Pluvial Flood Risk

3.24 Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

3.25 Risk of flooding from surface water mapping has been prepared, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as **Figure 3.2**.

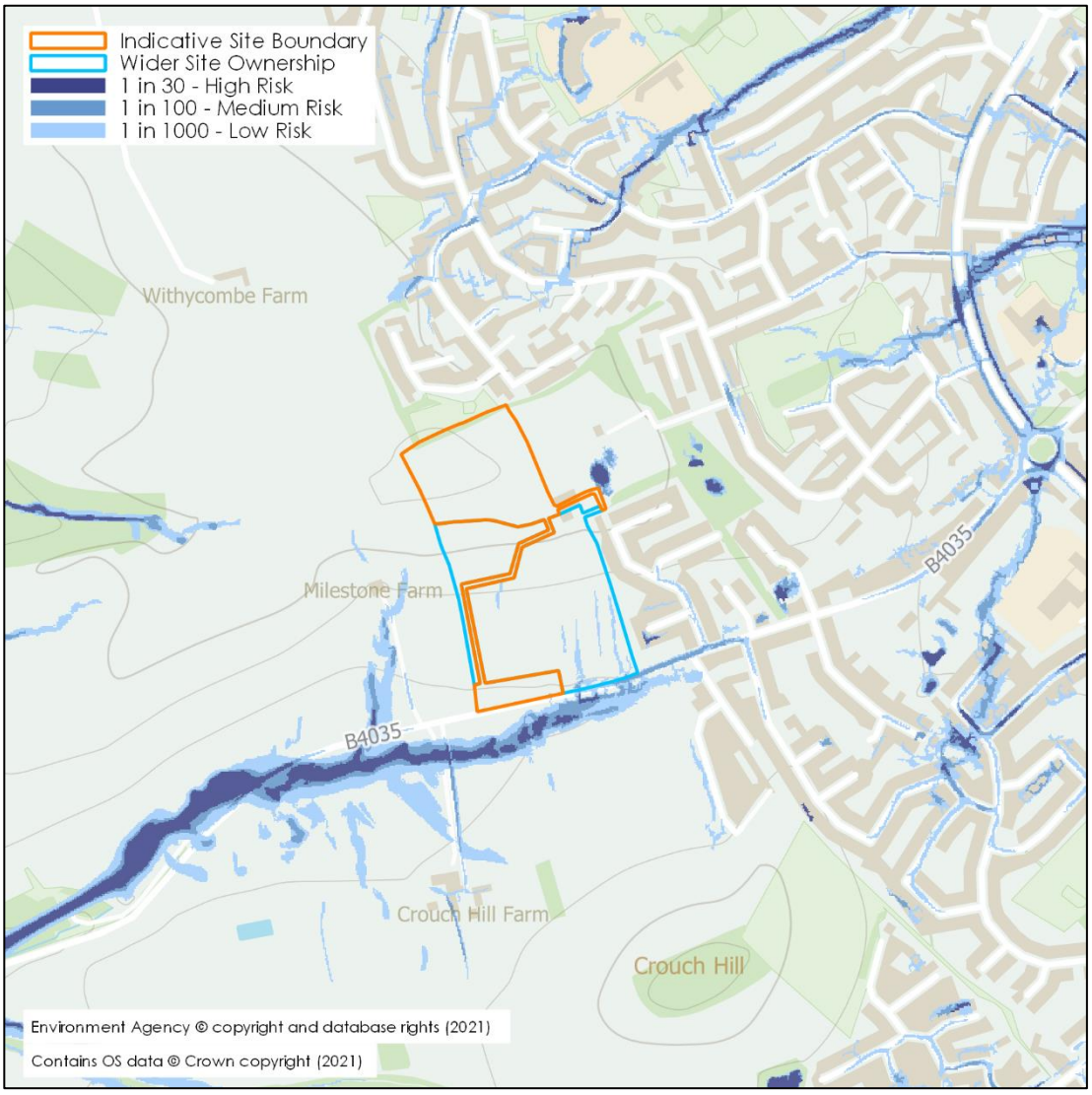

Figure 3.2: Surface Water Flood Risk Mapping

3.26 As shown in **Figure 3.2**, the site is predominately at a very low risk of pluvial flooding. There is also an area at risk on Broughton Road which appears to be part of wider flow

routes associated with the Sor Brook. The risk at the proposed access point to the east of the site just off Balmoral Avenue is low.

3.27 A small area of low to medium risk is shown on Broughton road, with depths of 0.15m in the 1 in 100-year design event. A small area of low to medium risk is also shown north east of the site with depths of 0.15m.

3.28 Overall, the site is shown to be at a low risk of flooding from pluvial sources.

Flood Risk from Sewers

3.29 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or as a result of a reduction in capacity due to collapse or blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

3.30 The local sewerage undertaker is Thames Water and a copy of their asset plan is included as **Appendix 3**. There are no public sewer assets located within the site boundary and it is anticipated that there is no private sewer network within the site area due to the greenfield nature of the site.

3.31 The records show the presence of public sewers within Balmoral Avenue to the north and south and within the residential area to the east. A 225mm - 300mm public surface water sewer and a 150mm public foul sewer is shown within Balmoral Avenue to the north. A 150mm – 225mm public surface water sewer and 150mm – 225mm public foul sewer is also indicated within Balmoral Avenue to the south. Depth to invert of these sewers is circa 1.6m – 3.2m.

3.32 Contour data has shown that in the event of exceedance by sewer flooding, flows are expected to be directed away from the site to the east of Balmoral Avenue.

3.33 Overall, the risk of flooding from sewer sources is considered to be low. Mitigation measures for any residential risk are outlined in **Section 4**.

Effect of Development on Wider Catchment

Development Land Use/Drainage Considerations

3.34 The proposed development will increase the area of impermeable surfaces leading to a potential increase in runoff. Appropriate mitigation measures are outlined in **Section 4**.

4. FLOOD RISK MITIGATION

4.1 **Section 3** has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be incorporated within the proposed development to address and reduce the risk of flooding to within acceptable levels.

Development Levels

4.2 Finished floor levels of the proposed development should be raised 150mm above surrounding ground levels to mitigate the residual risk of flooding from sewer sources.

4.3 Ground levels should be profiled to encourage pluvial runoff and overland flows away from the built development and towards the nearest drainage point.

Safe Access and Egress

4.4 As it is located in Flood Zone 1, safe Access and Egress is available via Balmoral Avenue to the eastern part of the site.

Surface Water Drainage

4.5 To mitigate the development's impact on the current runoff regime it is proposed to incorporate surface water attenuation and storage as part of the development proposals.

4.6 Thames Water sewer records demonstrate that 300mm surface water sewers outfall into a watercourse along the southern boundary of the site, via a headwall. As such, this is considered to be an ordinary watercourse.

4.7 In brief, the development will continue to discharge surface water to the nearby watercourse at the equivalent greenfield QBAR rate. Attenuated surface water storage will be provided in the form of above ground basin with capacity for the 1 in 100-year storm with an 40% allowance for climate change.

4.8 The development should be designed with exceedance in mind and the road network should be used to convey excess overland flows towards the attenuation points.

4.9 Further information on the drainage approach will be provided within the accompanying Sustainable Drainage Statement, reference BP2-BWB-ZZ-XX-RP-CD-0001_SDS.

Foul Water Drainage

4.10 It is proposed to drain used water from the development separately to surface water.

4.11 Thames Water sewer records indicate the presence of 150mm foul sewers along Balmoral Avenue to the east. In view of the levels between the site and the existing

sewerage assets, a gravity connection is proposed to convey flows from the development towards foul sewers located along Balmoral Avenue to the east (nearest manhole ref: 8801).

4.12 Further information on the drainage approach will be provided within the accompanying Sustainable Drainage Statement, reference BP2-BWB-ZZ-XX-RP-CD-0001_SDS.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 This FRA has been prepared in accordance with requirements set out in the NPPF and the associated Planning Practice Guidance. The FRA has been produced on behalf of Lone Star Land Ltd in respect of a planning application for the proposed residential development of Bretch Hill, Banbury.

5.2 This FRA is intended to support an outline planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

5.3 This report demonstrates that the proposed development is not at significant flood risk, subject to the recommended flood mitigation strategies being implemented. The identified risks and mitigation measures are summarised within **Table 5.1**:

Table 5.1: Summary of Flood Risk Assessment

Flood Source	Risk & Proposed Mitigation Measures
Sewer	There is low risk of flooding identified from these sources. Finished floor levels of the proposed development should be raised 150mm above surrounding ground levels to mitigate the residual risk of flooding from sewer sources.
Pluvial runoff	The site is shown to be at low risk of flooding from pluvial sources. External levels should be raised 150mm above surrounding ground level to mitigate any residual risk. Ground levels should be profiled to encourage pluvial runoff and overland flows away from the built development and towards the nearest drainage point.
Impact of the Development	In brief, the development will continue to discharge surface water to the nearby surface water sewer at the equivalent greenfield QBAR rate. Attenuated surface water storage will be provided in the form of a SuDS detention basin with capacity for the 1 in 100-year storm with an 40% allowance for climate change. The development should be designed with exceedance in mind and the road network should be used to convey excess overland flows towards the attenuation points. Foul water from the development should be discharged separately to surface water.
This summary should be read in conjunction with BWB's full report. It reflects an assessment of the Site based on information received by BWB at the time of production.	

5.4 In compliance with the requirements of the NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

APPENDICES

Appendix 1: Topographical Survey

stafsurv LAND SURVEYORS

www.stafsurv.com

Vernon Courtyard, Main Road, Sudbury, Derbyshire. DE6 5HS
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NOTES

Boundaries surveyed are physical features and may not necessarily represent the legally conveyed ownership.

Tree Spreads, Girths and Heights are approximate, any tree species identified should not be relied upon and checked by a specialist if critical

Underground drainage depths, pipe sizes and runs have been recorded from the surface and may have been estimated or assumed

Features surveyed off site such as buildings and trees may have been recorded remotely and may not be shown in full detail due to access / sighting restrictions

SURVEY CONTROL

CO-ORDINATES & DATUM DERRIVED
USING GEOID MODEL OSGM15(GB) &
HORIZONTAL TRANSFORMATION OSTN15

SURVEY STATIONS

Name	Easting	Northing	Height
STNA	443863.389	239915.780	152.527
STNAA	444059.231	239727.308	132.436
STNB	443875.476	239886.494	149.754
STNBB	443983.893	239705.479	130.944
STNC	443888.253	239855.719	144.951
STNCC	443911.192	239686.167	130.140
STND	443853.876	239668.089	129.717
STNE	443777.580	239652.201	129.320
STNF	443646.739	239623.305	127.575

CLIENT

ONE STAR LAND

SITE

Broughton Road
Banbury

PROJECT

Topographical
Survey

SCALE

1:750 @ A0

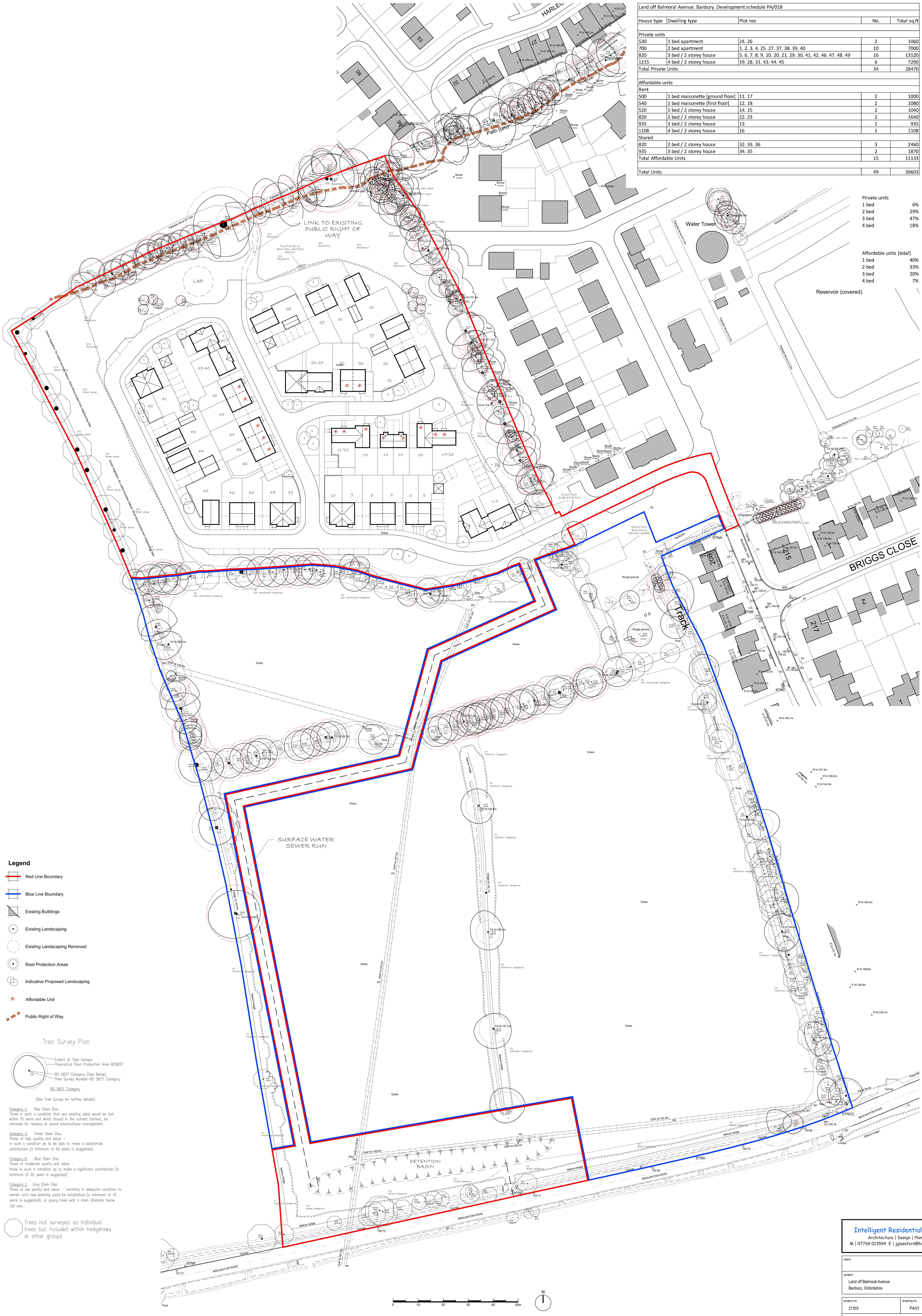
DATE

16/04/2021

DRAWING No.

11576

Appendix 2: Proposed Layout



Land off Balmoral Avenue. Banbury. Development schedule PA/01B

House type	Dwelling type	Plot nos	No.	Total sq.ft
Private units				
530	1 bed apartment	24. 26	2	1060
700	2 bed apartment	1. 2. 3. 4. 25. 27. 37. 38. 39. 40	10	7000
820	3 bed / 2 storey house	5. 6. 7. 8. 9. 10. 20. 21. 29. 30. 41. 42. 46. 47. 48. 49	16	13120
1215	4 bed / 2 storey house	19. 28. 31. 43. 44. 45	6	7290
Total Private Units			34	28470
Affordable units				
Rent				
500	1 bed maisonette [ground floor]	11. 17	2	1000
540	1 bed maisonette [first floor]	12. 18	2	1080
520	1 bed / 2 storey house	14. 15	2	1040
820	2 bed / 2 storey house	22. 23	2	1640
935	3 bed / 2 storey house	13	1	935
1108	4 bed / 2 storey house	16	1	1108
Shared				
820	2 bed / 2 storey house	32. 33. 36	3	2460
935	3 bed / 2 storey house	34. 35	2	1870
Total Affordable Units			15	11133
Total Units			49	39603

Private units	
1 bed	6%
2 bed	29%
3 bed	47%
4 bed	18%

Affordable units [total]	
1 bed	40%
2 bed	33%
3 bed	20%
4 bed	7%

Legend

- Red Line Boundary
- Blue Line Boundary
- Existing Buildings
- Existing Landscaping
- Existing Landscaping Removed
- Root Protection Areas
- Indicative Proposed Landscaping
- Affordable Unit
- Public Right of Way

Tree Survey Plan

- Extent of Tree Canopy
- Theoretical Root Protection Area BS5837
- BS 5837 Category (See Below)
- Tree Survey Number-BS 5837 Category

BS 5837 Category

(See Tree Survey for further details)

Category U Red Stem Disc
Those in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management.

Category A Green Stem Disc
Those of high quality and value: - in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

Category B Blue Stem Disc
Those of moderate quality and value: - those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)

Category C Grey Stem Disc
Those of low quality and value: - currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm.

Trees not surveyed as individual trees but included within hedgerows or other groups

0 10 20 30 40 50m

N

Intelligent Residential Design
Architecture | Design | Planning
M | 07768 013594 E | jglassford@btinternet.com

client	
project	Land off Balmoral Avenue Banbury, Oxfordshire
project no: 21303	drawing no: PA/01
drawing description -	Illustrative Masterplan
scale: 1:500 @ A0	date drawn: September 2021 / rev: C

ILLUSTRATIVE MASTERPLAN - 1:500

Appendix 3: Sewer Records

Asset location search

Property Searches

BWB Consulting Limited
5th Floor,Waterfront House Waterfront House

NOTTINGHAM
NG2 3DQ

Search address supplied Land North Of Broughton Road
Balmoral Avenue
Banbury
OX16 0BG

Your reference BMW3250

Our reference ALS/ALS Standard/2021_4406584

Search date 30 April 2021

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

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

0800 009 4540

Search address supplied: Land North Of Broughton Road, Balmoral Avenue, Banbury, OX16 0BG

Dear Sir / Madam

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

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

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

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

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

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

Contact Us

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

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

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

The following quartiles have been printed as they fall within Thames' sewerage area:

SP4339NE
SP4340SE
SP4439NW
SP4440SW

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

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

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

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

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

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

The following quartiles have been printed as they fall within Thames' water area:

SP4339NE
SP4340SE
SP4439NW
SP4440SW

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

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

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

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

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

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

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

Clean Water queries

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

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

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

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4406584

SP4339NE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 443750,239750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8950	151.53	149.6
8801	150.41	148.56
8850	149.62	146.79
8802	147.72	145.16
8851	145.85	143.3
881A	n/a	n/a
8803	143.5	140.68
9850	141.9	139.57
981D	n/a	n/a
9801	140.05	137.4
981A	n/a	n/a
981B	n/a	n/a
981C	n/a	n/a
9851	140.68	138.25
9950	150.32	148.72
9853	137.31	135.24
9802	136.2	134.96
9852	142.69	141.06
971A	n/a	n/a
9652	130.41	129.76
971D	n/a	n/a
971E	n/a	n/a
9752	132.58	131.58
9650	130.6	129.97
971G	131.18	128.94
971F	131.3	128.9
971I	n/a	n/a
9750	135.08	133.26
9703	134.76	134
971H	n/a	n/a
9751	133.92	130.76
971C	n/a	n/a
9702	134.67	133.81
971B	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4406584

SP4340SE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 443750,240250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

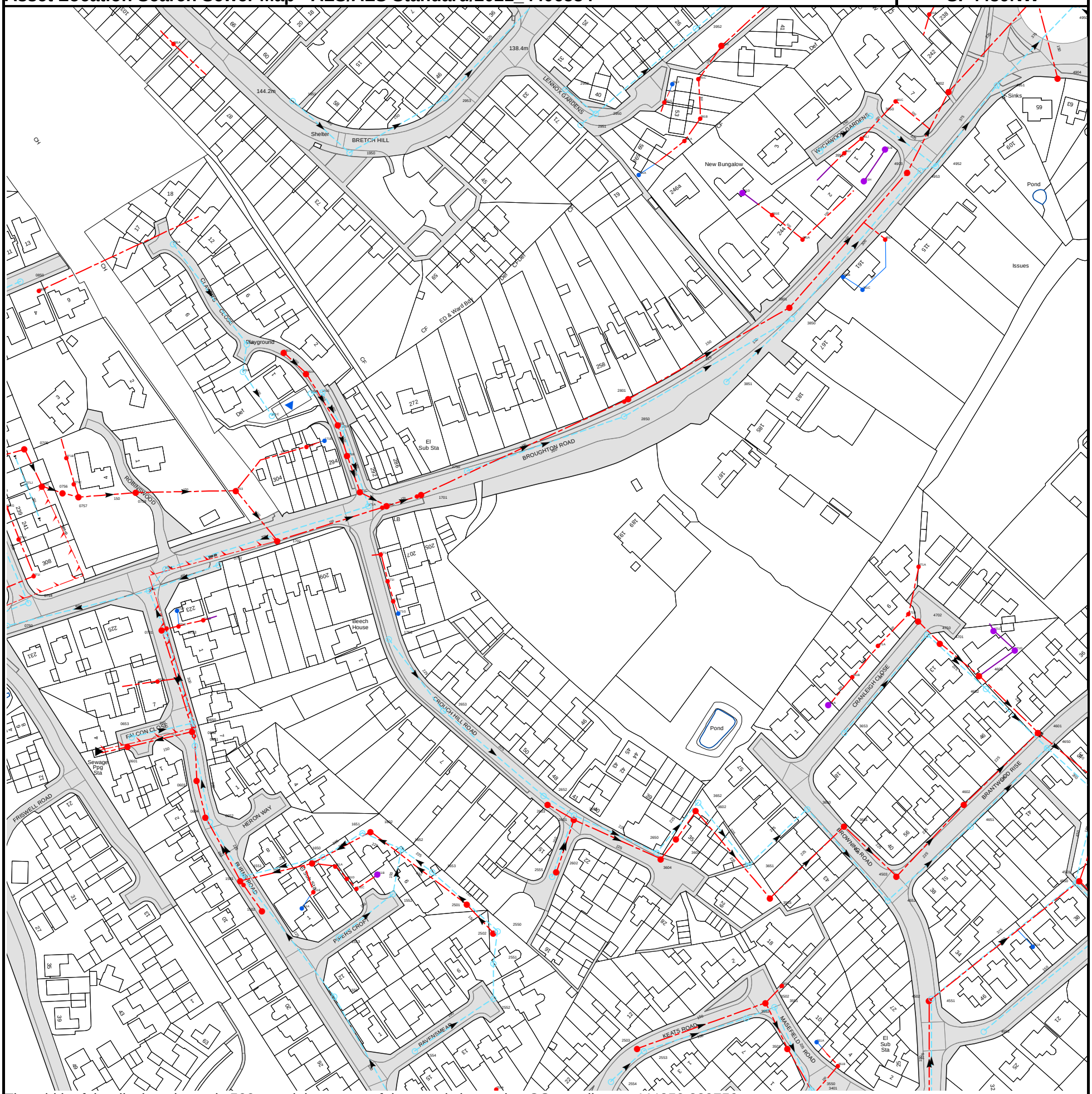
Manhole Reference	Manhole Cover Level	Manhole Invert Level
841F	n/a	n/a
841G	n/a	n/a
7455	134.52	132.66
741B	n/a	n/a
7457	136.25	134.16
7456	136.19	131.25
7406	136.07	131.04
7407	136.31	134.15
741E	n/a	n/a
641P	n/a	n/a
8358	130.09	126.95
8307	130.03	127.44
7303	137.07	133.9
7354	137.15	133.97
8361	132.88	129.97
831A	n/a	n/a
841A	n/a	n/a
841B	n/a	n/a
941A	n/a	n/a
8401	133.82	130.12
7451	134.71	130.3
741F	n/a	n/a
7401	134.43	130.29
7453	135.58	133.57
741D	n/a	n/a
7402	135.28	130.64
7452	135.46	130.63
8451	132.23	130.74
741A	n/a	n/a
8452	131.33	128.85
741C	n/a	n/a
841E	n/a	n/a
841C	n/a	n/a
7405	136.14	130.92
7454	136.22	131.05
8453	131.47	129
841D	n/a	n/a
9402	130.37	129.14
931A	n/a	n/a
941C	n/a	n/a
9354	132.59	130.15
9353	132.46	129.74
941D	n/a	n/a
9302	132.23	129.63
9255	n/a	n/a
9401	129	125.77
9494	n/a	n/a
9201	142.87	141.09
9202	142.77	138.84
911A	n/a	n/a
9203	140.18	137.06
9251	143.56	140.97
9303	n/a	n/a
921D	n/a	n/a
9252	143.3	140.45
921E	n/a	n/a
921C	n/a	n/a
9352	134.23	130.8
9351	134.13	131.07
941E	n/a	n/a
8252	139.1	135.99
8253	139.47	136.42
831C	n/a	n/a
831D	n/a	n/a
8353	132.86	130.92
8354	132.97	130.63
8303	132.83	130.17
8359	131.1	128.41
821C	n/a	n/a
8308	131.01	127.85
8201	141.55	138.51
8202	141.46	138.12
8251	141.52	138.58
8357	130.9	128.85
8355	131.71	129.2
8304	131.61	128.71
8306	130.81	128.43
8356	131.84	129.64
821B	n/a	n/a
8305	131.75	129.43
831F	n/a	n/a
821A	n/a	n/a
831G	n/a	n/a
831E	n/a	n/a
921B	n/a	n/a
931B	n/a	n/a
921A	n/a	n/a
7352	141.87	138.83
7256	143.32	141.05
7203	143.74	141.59

Manhole Reference	Manhole Cover Level	Manhole Invert Level
7255	142.92	140.72
731D	n/a	n/a
7302	139.77	135.92
7353	139.44	136.27
721A	n/a	n/a
731E	n/a	n/a
7351	138.79	136.47
7202	139.73	137.4
7251	139.63	137.68
731A	n/a	n/a
7252	139.35	137.13
7204	139.13	136.84
731B	n/a	n/a
7253	138.56	134.89
7205	138.82	134.75
8204	137.16	134.26
8205	136.03	133.63
8206	135.97	133.52
8352	135.05	132.29
8351	135.31	133.35
8301	135.17	133.19
8302	134.78	131.88
831B	n/a	n/a
8203	139.02	135.39
5102	151.57	150.22
5105	151.6	149.6
5104	152.56	149.43
5101	152.85	149.66
5103	n/a	n/a
6160	152.49	149
6159	151.47	148.84
6002	n/a	n/a
6163	151.35	149.15
6251	148.54	146.14
6158	150.3	148.66
6162	n/a	n/a
621B	n/a	n/a
621C	n/a	n/a
621D	n/a	n/a
6157	151.693	148.343
6161	151.3	148.81
6151	146.91	144.2
6101	146.93	143.84
621F	n/a	n/a
611C	n/a	n/a
6001	150.87	148.32
6003	n/a	n/a
6152	146.54	143.91
611B	n/a	n/a
611A	n/a	n/a
711A	n/a	n/a
7163	n/a	n/a
7159	143.64	139.95
7164	n/a	n/a
7103	150.29	148.44
7162	n/a	n/a
7102	150.51	148.82
7101	150.36	148.7
7201	142.87	140.38
7151	150.29	147.02
7155	144.11	141.78
7051	152.9	149.44
7152	150.54	149.14
7154	148.93	145.83
7104	144.76	143.22
7158	144.45	142.34
7105	144.64	141.88
7254	139.37	137.67
7206	139.36	137.99
7153	149.7	148.21
7157	143.39	141.41
7156	141.73	140.34
7106	141.93	140.44
8152	149.04	146.44
8102	149.07	146.47
8151	150.3	149.03
8101	150.31	148.79
8153	148.76	146.85
7001	152.9	149.7
621A	n/a	n/a
621E	n/a	n/a
6252	149.22	147.69
6253	148.58	146.8
521A	n/a	n/a
521B	n/a	n/a
531B	n/a	n/a
6351	146.62	144.4
6301	145.36	143.22
6302	144.08	142.23
6352	144.31	141.8
6304	144.01	140.46
6354	143.98	140.74
6353	143.8	140.24

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6303	143.87	140.1
631C	n/a	n/a
7301	141.99	138.18
6355	143.63	140.57
631D	n/a	n/a
6305	143.77	140.79
531C	n/a	n/a
631A	n/a	n/a
631B	n/a	n/a
6308	144.19	142.68
531D	n/a	n/a
6358	145.06	141.18
5301	146.09	142.69
6309	145	142.04
6357	143.75	141.12
6307	143.66	141.62
6356	143.036	140.956
6306	142.91	141.34
531A	n/a	n/a
5451	145.88	141.41
641C	n/a	n/a
5403	145.69	142.49
641E	n/a	n/a
541C	n/a	n/a
541D	n/a	n/a
541E	n/a	n/a
6451	142.36	140.12
541A	n/a	n/a
641A	n/a	n/a
641G	n/a	n/a
6401	142.03	139.81
541B	n/a	n/a
641B	n/a	n/a
641L	n/a	n/a
641F	n/a	n/a
5453	145.87	142.01
5402	145.52	143.06
5452	145.88	141.95
641D	n/a	n/a
6403	141.23	138.52
5454	144.95	143.25
5401	144.94	143.75
641H	n/a	n/a
641N	n/a	n/a
641O	n/a	n/a
641I	n/a	n/a

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4406584

SP4439NW



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,239750

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,239750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
451A	n/a	n/a
4550	131.59	127.57
4501	131.52	127.38
4650	130.09	128.13
4601	130.04	127.57
4652	n/a	n/a
4603	129.96	127.88
471D	n/a	n/a
471C	n/a	n/a
3952	130.93	n/a
3953	n/a	n/a
491A	n/a	n/a
4904	120.84	119.23
4950	121.7	118.62
3851	129.14	128.47
3850	127.52	125.72
3801	127.18	125.08
381C	n/a	n/a
381B	n/a	n/a
381A	n/a	n/a
481A	n/a	n/a
391E	n/a	n/a
391D	n/a	n/a
391H	n/a	n/a
291A	n/a	n/a
4903	122.66	120.88
4953	122.39	120.71
4952	122.4	120.47
391I	n/a	n/a
3951	121.7	120.99
491B	n/a	n/a
391A	n/a	n/a
391J	n/a	n/a
391B	n/a	n/a
3950	121.76	120.79
391G	n/a	n/a
491C	n/a	n/a
4902	121.19	118.68
4951	121.13	120.18
391F	n/a	n/a
391C	n/a	n/a
171E	n/a	n/a
181F	n/a	n/a
181I	n/a	n/a
2850	131.71	130.15
181C	n/a	n/a
2801	131.54	128.67
181D	n/a	n/a
181E	n/a	n/a
181H	n/a	n/a
181G	n/a	n/a
181A	n/a	n/a
1950	143.65	141.81
2951	135.8	n/a
2950	135.26	133.06
1951	144.28	142.91
2953	141.23	139.45
2952	136.92	135.35
0850	143.93	142.5
081B	n/a	n/a
081A	n/a	n/a
091A	n/a	n/a
181B	n/a	n/a
071G	n/a	n/a
0750	131.25	130.31
071H	n/a	n/a
0705	135.1	133.64
071J	n/a	n/a
0754	131.47	130.37
071I	n/a	n/a
0702	131.52	130.58
0756	n/a	n/a
071B	n/a	n/a
071C	n/a	n/a
0757	n/a	n/a
0758	n/a	n/a
0751	132.41	130.56
061A	n/a	n/a
0701	132.6	129.25
071A	n/a	n/a
0753	132.6	130.6
071F	n/a	n/a
071E	n/a	n/a
0650	133.03	130.71
0602	133.12	128.87
071D	n/a	n/a
0752	133.1	132.28
1703	133.94	132.27
1702	133.92	132.02
171F	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
171B	n/a	n/a
171C	n/a	n/a
171A	n/a	n/a
171J	n/a	n/a
171D	135.7	131.22
171I	n/a	n/a
1750	136.64	135.02
171H	n/a	n/a
171G	n/a	n/a
1701	135.8	130.96
2653	136.39	134.84
2750	135.47	133.93
2650	132.79	130.85
3604	132.65	130.71
3603	131.99	130.4
3602	131.73	130.14
3652	131.82	130.33
3651	131.27	129.7
3502	131.96	130.76
3503	131.05	129.54
3551	131.97	130.21
351C	n/a	n/a
3650	130.55	129.05
361A	n/a	n/a
3601	130.35	128.85
3653	130.04	128.8
361B	n/a	n/a
371A	n/a	n/a
4552	130.66	128.8
4503	130.45	128.62
471B	n/a	n/a
4702	129.36	128.17
471A	n/a	n/a
4750	129.4	128.46
4502	131.57	128.05
4551	131.53	128.26
4701	129.67	128.09
4602	130.32	128.1
4651	130.36	128.55
0601	132.48	128.51
0653	132.53	130.9
0651	133.35	132.11
0603	134	131.59
0604	134.88	131.95
0652	135.03	132.47
1501	136.86	132.1
1551	136.84	132.81
1502	138.03	136.07
151A	n/a	n/a
1601	138.32	132.33
151E	n/a	n/a
1650	138.31	132.92
1550	139.91	137.05
161A	n/a	n/a
1553	138.61	136.85
151D	n/a	n/a
151C	n/a	n/a
1651	137.75	133
1602	137.69	132.43
151B	n/a	n/a
1552	137.54	135.56
1652	n/a	n/a
1554	138.61	136.36
1653	137	133.27
251A	n/a	n/a
2554	134.42	132.96
2552	135.63	134
2551	135.33	n/a
2502	n/a	n/a
2550	135.71	133.53
2501	136.17	132.93
2555	134.54	133.09
2602	134.51	133.09
2601	134.16	132.46
2651	134.28	132.61
2603	134.71	133.12
2652	134.84	133.5
3550	132.54	129.97
351B	n/a	n/a
2553	133.48	132
3501	132.17	130.41
2503	133.59	132.26
351A	n/a	n/a
4553	132.18	129.98
3552	132.25	130.36

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4406584

SP4440SW

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,240250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4301	109.12	105.85
4401	108.41	106.32
0403	n/a	n/a
0452	126.27	124.5
0453	126.03	123.11
2405	128.74	127.07
1403	129.43	127.51
141D	n/a	n/a
241A	n/a	n/a
141E	n/a	n/a
2452	126.97	125.28
241L	n/a	n/a
2451	125.11	123.81
1401	127.62	n/a
2404	126.43	124.8
241K	n/a	n/a
1450	127.59	126.15
1402	127.51	126.35
241D	n/a	n/a
241E	n/a	n/a
241F	n/a	n/a
3450	115.11	112.44
3457	118.91	117.15
341G	n/a	n/a
3456	118.77	117.01
3451	116.28	114.73
341H	n/a	n/a
3455	118.82	n/a
341D	n/a	n/a
3452	119.49	117.32
341F	n/a	n/a
3402	114.77	113.12
341E	n/a	n/a
3403	117.61	116.27
341C	n/a	n/a
3454	115.3	113.4
3404	119.96	117.55
341B	n/a	n/a
3401	114.39	112.03
3453	122.99	121.6
241M	n/a	n/a
2403	124.1	121.77
341A	n/a	n/a
4402	114.01	111.3
131C	n/a	n/a
131D	n/a	n/a
131B	n/a	n/a
241I	n/a	n/a
241J	n/a	n/a
2402	127.78	125.74
2450	127.37	125.12
1451	131.55	129.69
141C	n/a	n/a
1404	131.55	129.51
2401	127.29	125.41
241G	n/a	n/a
241C	n/a	n/a
241H	n/a	n/a
2453	129.79	128.11
241B	n/a	n/a
031K	n/a	n/a
031C	n/a	n/a
131L	n/a	n/a
031E	n/a	n/a
031F	n/a	n/a
031B	n/a	n/a
0350	133.1	130.55
031A	n/a	n/a
131E	n/a	n/a
131F	n/a	n/a
131G	n/a	n/a
0302	130.01	128.63
1352	131.88	129.52
1406	131.55	130.37
0454	127.45	126.27
1453	130.33	128.95
041D	n/a	n/a
041E	n/a	n/a
041A	n/a	n/a
1405	131.62	130.19
1452	n/a	n/a
041F	n/a	n/a
0402	127.92	127.03
141B	n/a	n/a
0451	128.06	127.02
141A	n/a	n/a
0401	128.06	126.87
0450	127.92	126.62
3202	116.92	114.94
321D	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4203	n/a	n/a
4252	111.42	108.27
3251	116.46	113.46
321E	n/a	n/a
4250	110.92	107.84
421A	n/a	n/a
4201	111.17	107.86
321F	n/a	n/a
421B	n/a	n/a
431C	n/a	n/a
431B	n/a	n/a
431A	n/a	n/a
4302	111.1	107.46
4350	109.9	106.92
3350	117.09	114.32
4351	113.48	110.81
4303	115.17	111.69
3303	118.74	115.23
4304	109.28	107.66
4352	109.94	107.78
3351	117.14	115.43
3304	118.03	116.31
3353	118.6	117.29
3352	117.58	115.99
4450	108.63	106.54
3203	119.47	117.61
3204	122.78	120.7
3252	119.31	117.49
3253	122.96	120.85
2201	123.6	121.46
221B	n/a	n/a
331H	n/a	n/a
331I	n/a	n/a
331F	n/a	n/a
331J	n/a	n/a
331E	n/a	n/a
331G	n/a	n/a
331D	n/a	n/a
331C	n/a	n/a
331B	n/a	n/a
3358	n/a	n/a
3355	124.23	122.09
331A	n/a	n/a
2301	125.49	123.64
3354	122.51	120.74
3305	n/a	n/a
3357	122.81	121.08
3356	121.48	118.78
3461	120.4	118.12
3460	119.07	117.7
3459	119.07	117.68
3458	118.88	117.29
221E	n/a	n/a
1201	135.53	134.11
221F	n/a	n/a
221A	n/a	n/a
2251	131.03	129.18
2202	130.13	127.87
2250	127.19	124.18
231D	n/a	n/a
1351	133.83	131.65
231E	n/a	n/a
231F	n/a	n/a
2350	126.73	124.48
231C	n/a	n/a
231G	n/a	n/a
231H	n/a	n/a
231B	n/a	n/a
041G	n/a	n/a
041C	n/a	n/a
0153	143.24	141.68
041B	n/a	n/a
021J	n/a	n/a
021I	n/a	n/a
021H	n/a	n/a
021G	n/a	n/a
021F	n/a	n/a
0250	138.59	136.82
021L	n/a	n/a
021K	n/a	n/a
021C	n/a	n/a
021D	n/a	n/a
021A	n/a	n/a
121A	n/a	n/a
021B	n/a	n/a
131K	n/a	n/a
031G	n/a	n/a
131J	n/a	n/a
131N	n/a	n/a
031J	n/a	n/a
0351	135.69	n/a
131M	n/a	n/a
131I	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
031I	n/a	n/a
031D	n/a	n/a
0352	133.14	131.58
131H	n/a	n/a
031H	n/a	n/a
0301	132.5	131.31
311C	n/a	n/a
3102	118.52	115.58
2101	120.18	117.64
4150	117.62	115.42
3151	119.91	117.67
3103	119.74	117.45
3153	119.24	116.97
2150	119.43	117.3
2158	119.41	117.95
311I	n/a	n/a
311F	n/a	n/a
2157	119.87	118.36
3101	116.34	114.03
2159	119.98	118.32
311G	n/a	n/a
311H	n/a	n/a
3150	116.27	114.41
2254	120.03	118.53
3255	119.95	118.71
321G	n/a	n/a
3201	116.17	113.66
3250	115.44	113.22
4202	112.59	110.52
321H	n/a	n/a
4251	112.29	109.55
321C	n/a	n/a
421C	n/a	n/a
0050	141.14	136.76
0001	140.29	136.53
2002	129.79	127.86
2001	129.01	n/a
001A	n/a	n/a
2051	128.92	125.48
0151	138.65	133.86
211A	n/a	n/a
0150	137.76	n/a
011B	n/a	n/a
2103	124.95	123.51
2102	124.54	122.05
1151	136.77	129.2
2151	124.19	121.27
011D	n/a	n/a
011C	n/a	n/a
011A	n/a	n/a
1150	135.75	127.21
2152	127.63	121.13
0102	142.97	140.34
0152	141.05	138.5
0101	138.95	136.94
021E	n/a	n/a
1252	136.66	134.95
1253	136.69	135.22
221D	n/a	n/a
1251	134.6	132.92
201A	n/a	n/a
3052	127.88	125.69
301C	n/a	n/a
301D	n/a	n/a
3051	124.29	121.24
301B	n/a	n/a
3003	125.3	123.77
301A	n/a	n/a
311D	n/a	n/a
311E	n/a	n/a
3002	122.02	120.69
311A	n/a	n/a
3053	125.82	124.02
3057	n/a	n/a
311J	n/a	n/a
3001	124.55	122.76
311K	n/a	n/a
4003	n/a	n/a
4002	119.77	116.71
401A	n/a	n/a
401B	n/a	n/a
4050	119.74	117.16
4001	120.18	117.39
4004	121.44	118.05
2050	136.57	133.98
2003	139.16	137.11
2052	137.06	135.5
1002	137.46	134.17
201C	n/a	n/a
201B	n/a	n/a
201D	n/a	n/a
101A	n/a	n/a
1003	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
101B	n/a	n/a
1051	133.9	131.02
1001	134.28	131.64
1050	133.86	130.78
0002	142.87	141.39
0051	142.32	139.08
441A	n/a	n/a

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ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

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

2) All measurements on the plans are metric.

3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

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

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2021_4406584

SP4339NE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 443750,239750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search Water Map - ALS/ALS Standard/2021_4406584

SP4340SE

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 443750,240250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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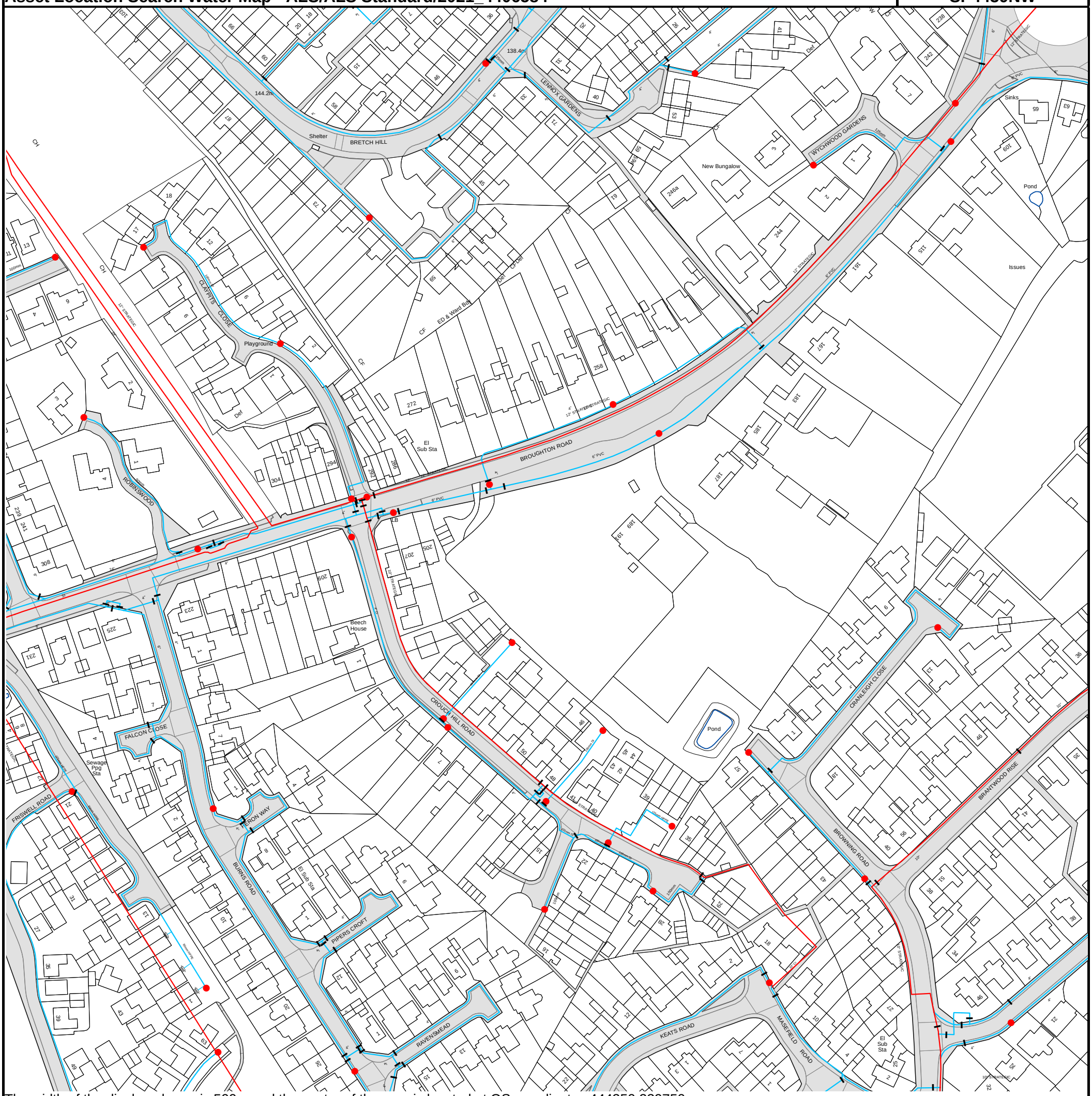
Asset Location Search Water Map - ALS/ALS Standard/2021_4406584

SP4439NW

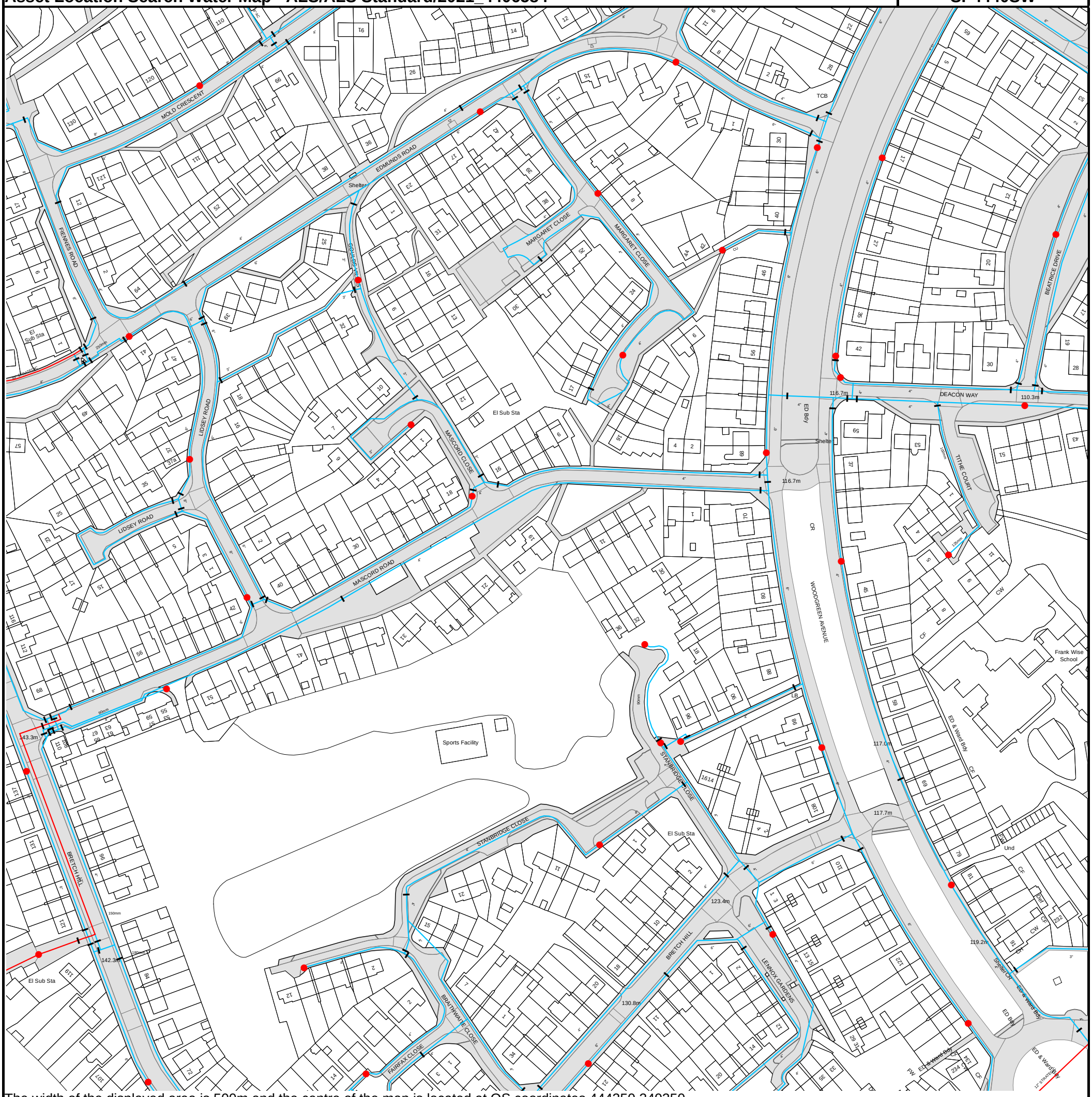


The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,239750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search Water Map - ALS/ALS Standard/2021_4406584

SP4440SW



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 444250,240250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0800 009 4540** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

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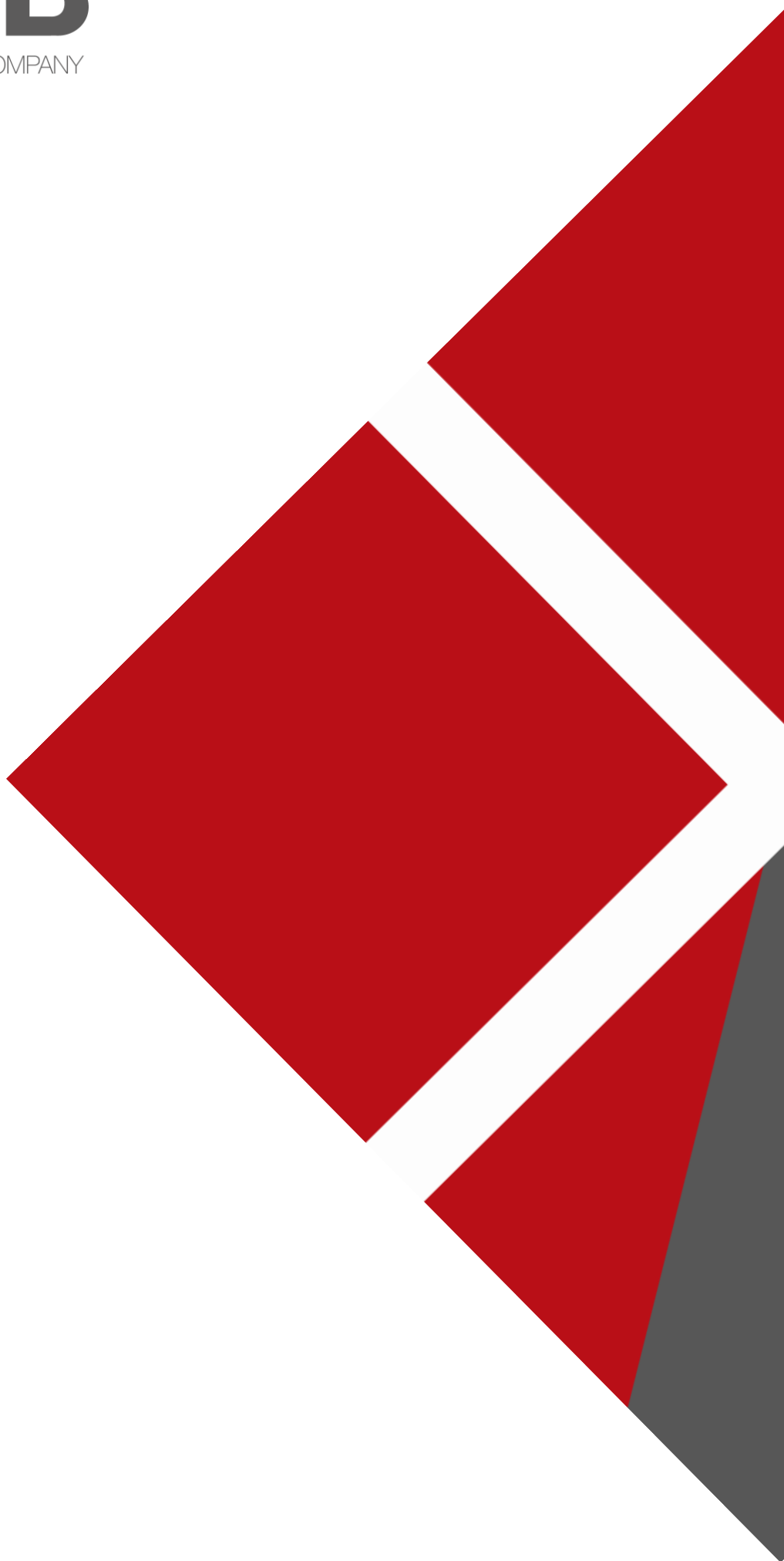

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