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# Former Hemdean House School, Caversham

# Flood Risk Assessment

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| **Project No.** | 1953 |
| **Revision** | Initial Issue |
| **Date** | 30 January 2026 |
| **Client** | Churchill Living |
| **Prepared** | J Blyth |
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| **Authorised** | C Yalden |
| **File Ref.** | **P:\1953 Caversham\C Documents\Reports\1953 Former Hemdean School, Caversham - Flood Risk Assessment.docx** |

## 1 Introduction

### Introduction & Background

1.1 AWP has been commissioned by Churchill Living to prepare a Flood Risk Assessment in support of a full planning application for the proposed redevelopment of land at Former Hemdean House School, Hemdean Road, Caversham, Berkshire, RG4 7SD.

1.2 The proposed redevelopment of this brownfield site comprises; the demolition of a hardstanding playground and most of the former school buildings and replacement with a block of 51 retirement apartments; conversion of the existing School House to 10 open market apartments; conversion of the existing Nursery to an open market cottage; together with all associated access, parking and amenity spaces.

1.3 A copy of the proposed site layout is included within Appendix A.

1.4 The site lies in the south of the Village of Caversham, a suburb of Reading and is situated approximately 600m north of the River Thames, and

1.5 1.2km north of Reading Railway Station. The location of the site is shown in Figure 1.1.

**Figure 1.1 – Site Location Plan**

1.6 The site is bound by properties along Knighton Close to the north, Hemdean Road to the east, and residential development to the south and west.

1.7 This Flood Risk Assessment has been prepared with reference to regional and national guidance, including the National Planning Policy Framework (December 2024) and the following local and regional guidance documents:

- National Planning Policy Framework (Dec 2024 and amended Feb 2025);
- Planning Practice Guidance – Flood Risk & Coastal Change (Sept 2025);
- Reading Borough Council – Strategic Flood Risk Assessment (SFRA) Level 1 (Nov 2024);
- Reading Borough Council – Sustainable Design and Construction (Adopted Dec 2019);
- Environment Agency – Flood Warning Information Service 'Flood Risk from Rivers or the Sea' and 'Flood Risk from Surface Water' (Jan 2025);
- Environment Agency – Check Your Long Term Flood Risk (online), and;

- Environment Agency – Flood Risk Assessments: climate change allowances (online).

1.8 Reference has also been made to the following baseline information, received from Churchill Living:

- Cube Surveys Topographic Survey (May 2025);
- Churchill Living – Proposed Site Plan (ref. 10137CS-RF01);
- Crossfield Consulting - Ground Investigation (ref. CCL03842-CW37 June 2025);
- Thames Water Asset Records;
- Utility Surveys Ltd CCTV Drainage Survey;
- Barrell Arboricultural Constraints Plan (25058-TPP-01), and;
- Assorted – NRSWA Utility Records.

1.9 This document sets out the existing baseline conditions in Section 2 and the development proposals in Section 3. The proposed surface water management plan and foul water strategies that will serve the development are discussed in Sections 4 and 5 respectively, with Section 6 providing the ownership and maintenance information before concluding in Section 7.

# 2 Existing Baseline Conditions

### Existing Site

2.1 The site has an irregular site boundary, with a 'spur' in the north-west comprising an area of existing trees and vegetation. The remainder of the site is comprised of a mix of grassed recreation areas, access and parking, a hardstanding playground, and school buildings.

2.2 The existing site gains vehicular and pedestrian access from Hemdean Road to the south-east. This constitutes the sole entry and exit point for the existing site, with the remainder of the school grounds fenced off from neighbouring areas.

2.3 A topographic survey was conducted by Cube Surveys in May 2025. The survey indicated that levels along the western boundary are between 53.5 – 55.5m Above Ordnance Datum (AOD) and fall sharply at a grade of 1 in 2 for a distance of approximately 8m. From the base of this embankment, levels fall eastwards more gradually towards the playground at circa 41.3mAOD and associated recreation field beyond at circa 39.8mAOD, which presents a localised low-point within the site.

2.4 The site access represents the lowest point of the site, with levels between 39.4 – 39.6mAOD. Site levels within the site access fall toward Hemdean Road to the east, with no external catchments falling toward the site.

2.5 A copy of the Cube Surveys Topographic Survey is included within Appendix B.

2.6 An annotated sketch of existing site features is shown within Figure 1.2.

**Figure 1.2 – Existing site features**

2.7 A Tree Survey conducted by Barrell Tree Consultancy shows a number of existing trees mostly associated with the site boundaries and the existing vehicular access route. The tree constraints plan (January 2026) indicates the extents of tree root protection areas (RPAs), and fenced and unfenced precautionary areas (PAs), where demolition and development is managed according to the site Tree Protection Plan.

2.8 A copy of the Tree Survey produced by Barrell Tree Consultancy is included within Appendix C.

**Existing Flood Risk**

2.9 Reading Borough Council (RBC) are the Lead Local Flood Authority (LLFA) and oversee local flood risk, including the management of groundwater flooding, surface water runoff and ordinary watercourses.

2.10 Thames Water (TW) manage adopted sewerage and water supply in the area.

2.11 AWP have carried out a desktop assessment of potential flood risks using the Environment Agency's (EA) latest mapping (January 2026) and information from the 'RBC – Strategic Flood Risk Assessment (SFRA) Level 1 (Nov 2024).

Fluvial sources (River and Coastal flooding)

2.12 The entirety of the site and immediate surrounding area is within 'Flood Zone 1' (low risk), with less than 1 in 1,000 annual exceedance probability (AEP) of river or sea flooding (<0.1% AEP) as shown in Figure 2.1.

**Figure 2.1 – EA Flood map for planning**

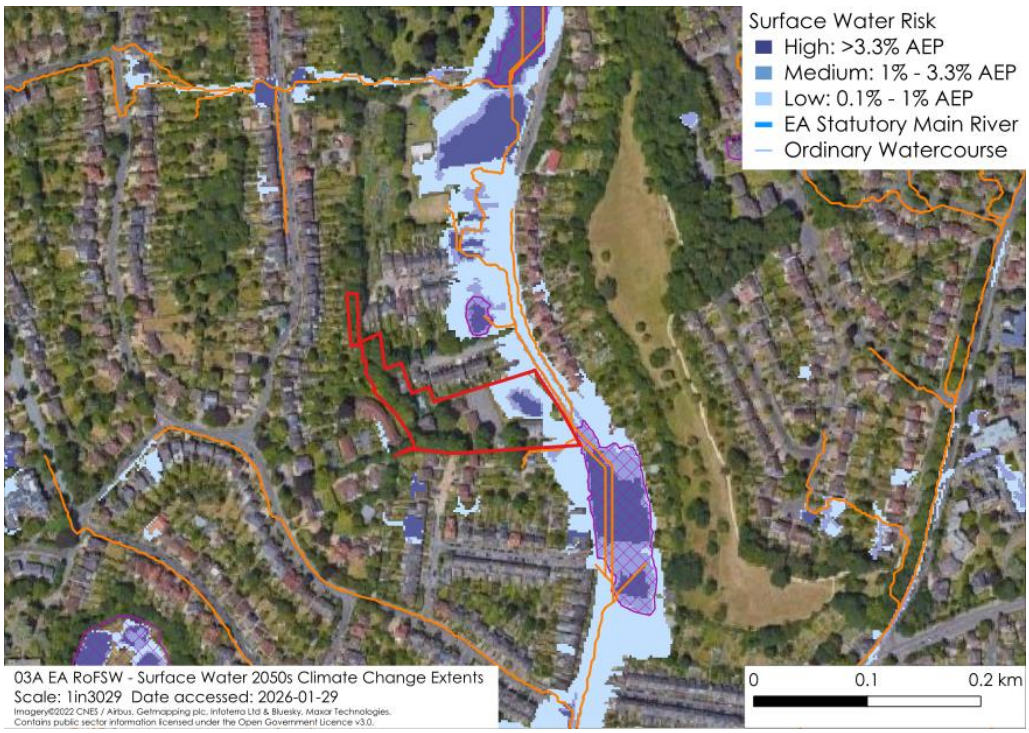
2.13 When climate change is considered to 2125, flood zones may extend north from the River Thames and marginally impact the existing access with Hemdean Road, at the south-east corner of the site. No new buildings are impacted by future zones and the development is therefore considered safe from fluvial and coastal flooding during its lifetime.

Pluvial sources (surface water flooding)

2.14 Surface water flooding data maps the extent of flooding due to overland surface water flows after rainfall. The relevant design flood event for surface water flooding is the 1% AEP event plus an allowance for climate change. In the Thames and South Chilterns Management Catchment the relevant climate change allowance for rainfall for residential development is 40% both in the 2050s and 2070s epochs.

2.15 The EA's 'Flooding from Surface Water – Climate Change 2050s' map has been reproduced as Figure 2.2 and shows the majority of the proposed development site as being at 'very low risk', with less than 1 in 1,000-year AEP from surface water flooding (<0.1% AEP) when climate change is considered.

**Figure 2.2 – EA Extents of Flooding from Surface Water Climate Change 2050s (orange lines = flow routes, purple hatch = storage areas)**




2.16 The extent of surface water flooding expected in the 1 in 100-year +40% climate change design rainfall event is represented by the 1%-3.3% AEP 'medium' event in Figure 2.2 and shows a small area of flooding in the recreation field – in the localised low-point of the site. The 'low' risk light blue extents indicated in Figure 2.2 are beyond the surface water design flood extents. No other flooding is expected within the development site during the design event and there are no areas of flooding within the site indicated as flow routes or serving as flood storage areas.

2.17 Overlay of the 'medium' extent of flooding in Figure 2.2 on the topographic survey indicates a peak level of circa 39.9mAOD and peak depths of 100mm at the lowest level indicated on the topographic survey in that area. The estimated peak level is 300mm below the proposed finished floor level of 40.2mAOD. These existing estimated flood levels are anticipated to be worst-case for 'medium' risk events as the indicated on-site flood extents occur as a result of site generated run-off. The introduction of a Surface Water Management Plan to intercept and accommodate run-off from the development site, up to the 1 in 100-year event, including

allowances for climate change, would further mitigate the existing surface water flooding within the site.

2.18 The estimated design surface water flood level and the proposed FFL level indicate the development achieves a freeboard of circa 0.3m, and indicates further resilience to flooding in events beyond the design event.

Groundwater Flooding

2.19 The EA 'Check your long-term flood risk' service indicates that 'This location is outside of a groundwater flood alert area.' Indicating the EA do not consider groundwater a priority source of flooding in this area.

2.20 Geological maps from the SFRA indicate that the site is likely to be underlain by the Seaford Chalk formation. In such areas, the SFRA states that '*These chalky formations, due to their high groundwater recharge, can potentially lead to high groundwater levels and an increased risk of groundwater flooding during wet periods.*'

2.21 Crossfield Consulting's Ground Investigation (GI), undertaken in May 2025 during the typical peak groundwater monitoring period, did not encounter standing groundwater in boreholes excavated to depths up to 4.0m below ground level (BGL). Seepage of groundwater was noted at 2.5mBGL in the 4.0m depth borehole.

2.22 Based on the available evidence, the risk of groundwater flooding is considered low.

Other sources of flooding

2.23 The site remains outside the maximum extent of flooding from reservoirs and is not located downstream of any canals, lakes or other man-made waterbody structures. The site is not considered to be at risk of flooding from artificial sources.

2.24 There are no recorded incidents of flooding in the EA 'History of Flooding' dataset within the vicinity of the site.

**Ground Conditions**

2.25 An intrusive ground investigation has been undertaken within the site by Crossfield Consulting and describes the underlying geology as follows:

*Topsoil – Topsoil was encountered in non-hardstanding areas of the site to maximum depth of 0.4m and is typically described as either a brown gravelly sand or sand and gravel with rootlets.*

*Made Ground - Made Ground was encountered in hard surfaced areas of the site to a depth of 0.2 m. This comprised 20 mm thick black asphalt surfacing underlain by a yellowish brown slightly silty slightly sandy clayey gravel.*

*Head Deposits - The topsoil and Made Ground are underlain by Head Deposits, which were proven to the maximum depth of the investigation, 3.9 m, within the eastern area of the site (DS1). The Head Deposits are typically described as a variable medium dense to very dense light grey and brown gravelly sand or gravel, gravels generally consisting of flint. Locally, in the central southern area of the site, the Head Deposits were seen as firm consistency slightly sandy silty clays to a depth of 0.6 m, underlain by yellowish brown silty sand to 1.0 m. Cobble sized flints were recorded in the eastern area of the site.*

*Bedrock - Undifferentiated Lewes Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation strata underlie the Head Deposits in the eastern area of the site and were proven directly beneath the topsoil in the higher, western area. In the eastern area of the site, chalk was recorded at a depth of 3.9 m and is typically described as a white, structureless chalk composed of firm to stiff consistency slightly gravelly silty clay (Chalk Grade – Dm, matrix supported). In the western area of the site chalk was recorded at a depth of 0.2 m and typically described as a white structureless chalk composed of gravel (Chalk Grade – Dc, clast supported).*

2.26 Crossfield Consulting's commentary on ground conditions in relation to infiltration indicates that due to the potential for impact of infiltration on ground stability when soakaways are used in a chalk, it would be prudent to investigate an alternative drainage solution other than infiltration.

2.27 A copy of extracts from the Crossfield Consulting GI are included within Appendix D.

**Existing Site Drainage**

2.28 The TW sewer records are reproduced in Figure 2.3, with full copies included in Appendix E. Foul and surface water sewers are shown in red and blue, respectively.

2.29 The asset records identify no adopted sewers exist within the site, but that adopted surface water sewers are located to the east in Hemdean Road.

2.30 TW recording indicate surface water manholes (SWMH) 3252 and 3156 with invert levels of 38.80mAOD and 37.64mAOD respectively. The invert level of

the adopted 375mm surface water 40m downstream from SWMH3252 is 38.24mAOD.

**Figure 2.3 – Thames Water Asset Records**

2.31 A CCTV drainage survey was completed by Utility Surveys LTD in May 2025. The survey indicates that buildings on the site have rainwater downpipes which discharge to ground and with no other storm drainage identified it is assumed these downpipes must lead to existing infiltration systems. Extracts from the CCTV Drainage Survey are shown in Figures 2.4 and 2.5, with a full copy of the CCTV drainage report included within Appendix F.

**Figure 2.4 - CCTV Drainage Survey Extract 1**

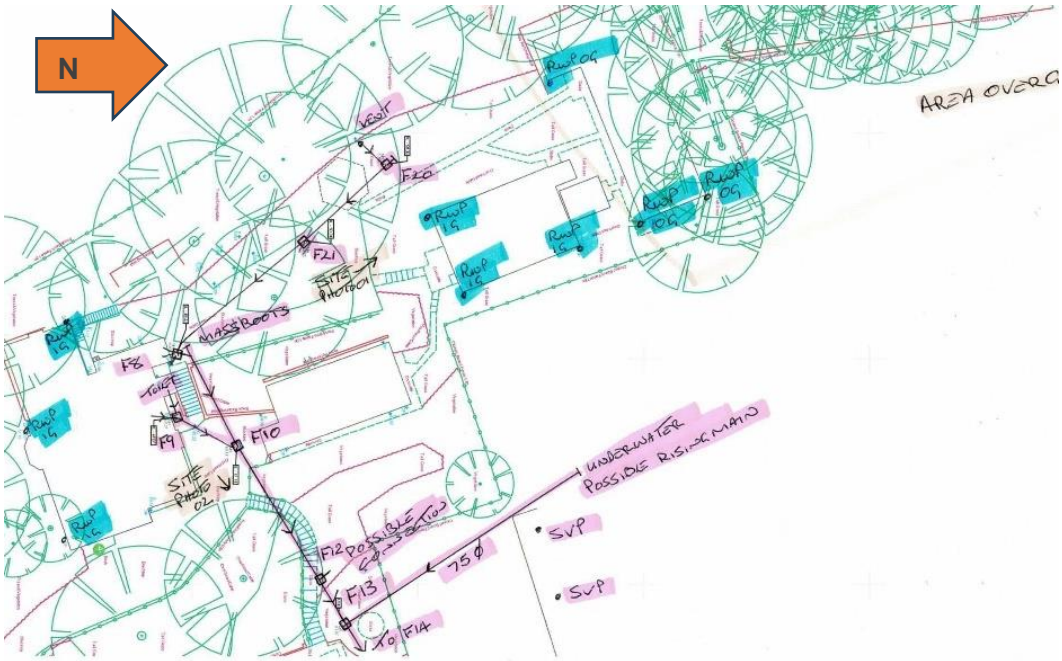



**Figure 2.5 – CCTV Drainage Survey Extract 2**

2.32 The data from the CCTV survey indicates a potential sewered/pumped drainage discharge crossing the northern boundary of the site and discharging in a gravity system along the northern boundary of the site. This sewer is likely a transferred asset under the Transfer of Private Sewer Regulations (2011) and is subject to a 3m easement in which new buildings cannot be placed.

2.33 It is anticipated that the transferred sewer will remain undiverted, but other redundant private drainage will be grubbed up and abandoned.

**Existing surface water runoff**

2.34 The existing brownfield site comprises the existing buildings, vehicular accesses, the playground and other impermeable surfaces associated with the existing land use.

2.35 Typically, rainfall on the green spaces and the existing roof areas of the site, would initially enter the ground according to the site infiltration potential. Beyond the capacity of the ground to accept water, surface water from these areas would remain at ground level and combine with discharge from other impermeable areas of the site and flow above ground according to the site topography. Flows from the majority of the site would be directed towards the localised low point of the existing recreation field where it will pool, until it either infiltrates to ground or weirs over the lowest local impounding level of 40.07mAOD.

2.36 An area of 0.066ha of the existing impermeable hardstanding is anticipated to discharge overground to the existing highway.

# 3 Development Proposal

3.1 The development comprises a single apartment building across a single finished floor level of 40.2mAOD. A new vehicular access and parking to serve the apartment building is proposed. This FRA will refer to this part of the development as the northern development.

3.2 In addition, the development proposes conversion (change of use) of two retained buildings – Hemdean House and the existing children's Nursey) to open market apartments and a cottage respectively. This southern development retains and improves (by locally widening/narrowing and extending) the existing access and parking to continue to serve the converted buildings.

3.3 Pedestrian access is maintained at the existing access point in the south-east corner and a second new pedestrian access point is created alongside the new vehicular access serving the retirement apartment block.

3.4 Beyond the retained buildings, the development is facilitated by demolition of the balance of the existing buildings and associated ground profile regrading and retention.

3.5 A copy of the proposed site layout, including preliminary levels throughout the development, can be seen within Appendix A.

**Vulnerability**

3.6 In accordance with the NPPF Annex 3: flood risk vulnerability classification, residential development is considered to be "More Vulnerable".

3.7 The Planning Practice Guidance indicates that "more vulnerable" development is appropriate within Flood Zone 1 and areas not at risk of surface water flooding, and that the site would pass the Sequential Test, which aims to steer development to the lowest category of flooding.

3.8 Whilst the development is proposed within areas mapped as being at risk of surface water flooding, in line with the PPG (Paragraph: 027 Reference ID: 7-027-20220825) the Sequential Test does not need to be applied on sites where "*a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere*."

3.9 Analysis is paragraphs 2.14-2.18 indicates the proposed FFL level provide a freeboard of 0.3m above the mapped worst-case design surface water flood event (1in100yr+40%) that provides resilience beyond the design event. The existing mapped levels are considered a worst-case as the Surface Water Management Plan for the proposed development will mitigate existing run-off up to the design flood event, overcoming the existing flood volumes and reducing flood risk to downstream catchments.

3.10 This site specific Flood Risk Assessment indicates the development would be safe for its lifetime and will reduce flood risk elsewhere.

3.11 The new proposed site will gain access from Hemdean Road, which remains in Flood Zone 1 and also outside the relevant 'medium risk' surface water design event, throughout the lifetime of the development. It is therefore considered that safe access and egress can be afforded to the site via Hemdean Road throughout the development's lifetime, with subsequent connection to the local distributor road network.

# 4 Surface Water Management Plan

4.1 This Flood Risk Assessment has been prepared to assess any relevant flood risks and drainage constraints and to identify an appropriate surface water management plan (SWMP) for the proposed development.

4.2 The drainage arrangements for the existing buildings subject to conversion will remain unchanged.

4.3 To ensure the new development is safe throughout its lifetime, the surface water strategy accounts for runoff in up to the 100-year return period.

4.4 The strategy also safeguards against the upper end allowances for climate change (40%) as stipulated for the Thames and South Chilterns Management Catchment, suitable for developments with a lifetime up to 2125 (epoch 2070s). The use of climate change allowances will provide betterment over existing conditions, where the rate and volume of runoff would continue to increase due to climate change.

4.5 The northern and southern area each benefit from a separate drainage system, comprising cellular attenuation tanks, flow controls and treatment measures.

**Discharge Method**

4.6 The SuDS Manual CIRIA 753 indicates the following drainage hierarchy;

- *Infiltration,*
- *Surface water body (e.g. watercourse)*
- *Surface water sewer, highway drain, or other drainage system,*
- *Combined sewer (last resort)*

<u>Infiltration Potential</u>

4.7 The advice received from Crossfield Consulting indicates it would be prudent for the site to consider an alternative to infiltration due in part to potential to adversely impact ground stability when soakaways are used in chalk.

<u>Discharge to Surface Water Body</u>

4.8 The site does not benefit from direct access to a watercourse.

4.9 The nearest available watercourse is the River Thames approximately 550m south-west of the site, and not considered a practicable discharge point

for this site. Instead, the site should consider an attenuated discharge to a surface water sewer.

Discharge to Surface Water Sewer

4.10 The TW asset records identify adopted surface water sewers in Hemdean Road with an invert level, local to the proposed new access, of 38.24mAOD.

4.11 The development proposes to discharge surface water runoff at restricted rates to the existing TW surface water sewer in Hemdean Road.

**Surface Water Strategy**

Discharge Rates

4.12 'Standard 3 – Management of extreme rainfall and flooding' of the National Standard for Sustainable Drainage Systems (NSfSuDS) indicates discharge from existing brownfield sites should not exceed 5x the greenfieid run-off rate (GFR) for the site.

4.13 Causeway FLOW has been used to determine GFRs for the Net Development Areas (NDA) associated with the northern and southern developments and these are summarised in Table 4.1

**Table 4.1 – Greenfield run-off rates (Northern and Southern areas)**

| | *Southern NDA (0.341ha)* | | *Northern NDAa (0.418ha)* | |
|---|---|---|---|---|
| ***Return Period*** | ***1x GFR*** | ***5x GFR*** | ***1x GFR*** | ***5x GFR*** |
| *1yr* | *0.2* | *1.0* | *0.2* | *1.0* |
| *30yr* | *0.5* | *2.5* | *0.6* | *3.0* |
| *100yr* | *0.5* | *2.5* | *0.7* | *3.5* |

4.14 On the basis of Standard 3 of the NSfSuDS, the SWMP limits peak flows from each area to 5x the greenfield discharge rate indicated in Table 4.1 for the indicated return periods, including an allowance for climate change.

4.15 A pre-development point of connection (PoC) enquiry has been submitted to Thames Water. The Causeway Flow calculations are included in Appendix G.

4.16 The SWMP provides betterment over the existing baseline as currently, most of the access, hardstandings and playground do not benefit from an attenuated drainage scheme, with their run-off discharging freely overground to either the recreation field or the adopted highway. The proposed SWMP reduces the area of the site discharging to the highway

from ~0.066ha to ~0.009ha achieving a ~86% betterment over the existing baseline.

Site Constraints

4.17 The proposed surface water drainage arrangements any new or reconstructed areas of hardpaving must consider the requirements of the site Tree Protection Plan and arboricultural recommendations. The requirements and extents of the relevant areas are indicated on the Barrell Tree Protection Plan in Appendix C.

4.18 We have identified areas of hardpaving inside RPA's on the preliminary drainage layout drawing within Appendix H. For the purpose of this FRA, these areas have been included as part of the drainage catchment within the attenuation models, however as part of any future detailed design package, if on-site testing indicates infiltration is feasible, these areas could be considered permeable in order to reduce the attenuation storage requirements.

Attenuation Method

4.19 Limiting peak flows to the indicated GFRs for all storm events. The storage proposal will need to accommodate all runoff in up to the 1 in 100-year return period, with allowance for climate change.

4.20 Runoff will pass through a Hydro International 'Downstream Defender' (or similar approved) for treatment after the final cellular attenuation tank in each system. The proposed locations of the cellular attenuation tanks are indicated on Drg 1952-01-PDL-1001 in Appendix H.

4.21 In the southern area three cellular attenuation tanks are proposed to capture run-off from the access road and associated parking areas. The upper and central tanks each have a flow control to mobile storage prior to discharge to a carrier surface water drainage system that discharges to the Lower Tank, which has a downstream flow control chamber set to meet the 5x GFR rates for the southern area.

4.22 In the northern area two cellular attenuation tanks are proposed to capture run-off from the new apartment building and its associated new access and parking. Flows from these tanks is reduced to 5x GFR rates for the northern area by a flow control chamber, located downstream from the second attenuation tank.

4.23 Flows from the attenuation storage tanks serving both the northern and southern areas will subsequently discharge to a new connection with the adopted surface water sewer in Hemdean Road. The invert level at the

proposed point of connection has been estimated as 38.24mAOD and should therefore support a gravity discharge connection from the site drainage.

4.24 Any redundant private surface water drainage infrastructure that serves the former buildings or existing impermeable areas which are not being retained will be abandoned and replaced with a new private gravity surface water sewer network to serve the proposed development.

4.25 The proposed surface water drainage system is shown in the preliminary drainage layout, 1953-01-PDL-1001, included within Appendix H.

Attenuation Volume Requirement

4.26 The attenuation requirements for this scheme do not consider Long Term Storage, as the proposed development has limited impact on impermeable catchments and further reducing the diameter of the proposed flow controls would make them impracticable and prone to blockage.

4.27 As the drainage arrangements for the open market conversions are to remain unchanged and the remaining proposed development comprises a single building of apartments. Property deeds associated with the new apartment block will prevent residents from implementing any works that would increase the drainage catchment (patio or property extensions) hence no allowance has been made for urban creep.

4.28 Causeway FLOW has been used to determine the storage requirements for the development. The output of this exercise has been summarised within Table 4.2, alongside the proposed attenuation provision. Copies of the model outputs can be found within Appendix I.

**Table 4.2 – Attenuation Storage Volume Requirements (1in100yr+CC)**

| Area | Attenuation Feature | Required ($m^3$) | Provided ($m^3$) |
|---|---|---|---|
| ***Southern*** | *Upper* | 26.6 | 28.3 |
| | *Central* | 23,2 | 24.5 |
| | *Lower* | 60.3 | 60.9 |
| **Northern** | Upper + Lower | 187.7 | 190.0 |

4.29 Discharge from the tank will pass through a new flow control chamber prior to discharging to the existing adopted surface water network in Hemdean Road at 5x GFR, subject to agreement with TW.

Water Quality

4.30 In line with the pollution indices set out in CIRIA SuDS Manual (C753) the development is required to provide 'SuDS component features' which have a 'total SuDS mitigation index' greater than or equal to the 'pollution hazard index'.

4.31 Residential development is considered to have a 'Low' pollution hazard level. Table 4.2 outlines the pollution hazard indices required for residential developments, taken from Table 26.2 of C753.

**Table 4.2 – Pollution Hazard Indices (Ref. C753 Table 26.2)**

| Pollution Hazard Level | Total Suspended Solids | Metals | Hydrocarbons |
|---|---|---|---|
| **Low** | 0.5 | 0.4 | 0.4 |

4.32 The SuDS component proposed for the site and its relevant 'mitigation indices' is identified within Table 4.3.

**Table 4.3 – Pollution Hazard Indices (Ref. C753 Table 26.2)**

| SuDS Component | Total Suspended Solids | Metals | Hydrocarbons |
|---|---|---|---|
| **Hydro International. Downstream Defender** | 0.5 | 0.4 | 0.8 |

4.33 Tables 4.2 and 4.3 demonstrate that the total 'mitigation index' is greater than the 'pollution hazard index', and therefore an appropriate level of water quality management is being achieved.

4.34 All mitigation indices supplied by Hydro International Ltd are independently verified and calculated using the methods laid out in the British Water How To Guide: Applying the CIRIA SuDS Manual Simple Index Approach to Proprietary Stormwater Treatment Devices.

Exceedance Measures

4.35 An exceedance event is a storm event which exceeds the 1 in 100-year plus climate change design storm, or an event which occurs in combination with a drainage blockage or failure.

4.36 During an exceedance event, rainfall will overwhelm the drainage system and may emerge from gullies, channels and manholes. Runoff will be unable to enter the drainage network and will instead follow the profile of the finished ground.

4.37 To provide protection against exceedance flows, the finished floor levels of the apartment building will sit above surrounding ground levels.

4.38 Exceedance runoff from the building roof and access and parking areas will be directed away from the building and, where possible, will be held to a shallow depth within parking and amenity areas.

4.39 If the storage capacity of the parking and amenity areas are exceeded, overland flows will follow the profile of the parking areas towards the southern boundary of the proposed development site, reflecting existing conditions.

4.40 Compared to existing brownfield conditions, the reduction in undrained impermeable drainage catchments (owing to the introduction of positive drainage in the southern area) will significantly reduce the frequency and impact of exceedance flooding in and from the site by intercepting flows that would otherwise flow towards the lower parts of the site and the highway beyond.

4.41 The proposed drainage arrangements, including flow paths for exceedance flows, are shown on the preliminary drainage layout found on drawing 1953-01-PDL-1001, included within Appendix H.

# 5 Foul Water Strategy

5.1 In terms of wastewater connections, the developer is entitled to make a connection to the nearest practical point on the network where the existing sewer is at least the same diameter as the new sewer required to provide capacity for the development.

5.2 Under the provisions of the Water Industry Act 1992 (as amended), the developer will need to pay the sewerage undertaker the published sewer connection charges and infrastructure charge per dwelling, and the sewerage undertaker is responsible for any network reinforcement.

Existing Foul Drainage

5.3 The TW records do not indicate the presence of any adopted foul or combined sewer systems within the site.

5.4 The CCTV drainage survey indicates that the former school was served by two separate private foul sewer systems, both discharging to the adopted foul sewer system beneath Hemdean Road. One system discharges to Hemdean Road at the north-eastern edge of the site, whilst the other discharges to Hemdean Road at the south-eastern edge of the site. These

systems will be referred to as the 'northern system' and 'southern system', respectively.

5.5 The northern system may accept flows from across the northern boundary of the site and therefore the northern system has been considered a potential transferred sewer under the Transfer of Private Sewer Regulations (2011) and a 3m easement should be applied to limit development local to this sewer.

5.6 The southern foul system conflicts with the proposed development in the northern area. Since the existing system within the site does not receive any flows from upstream of the proposed development, it remains private and will be abandoned and replaced with a new private gravity foul network to serve the proposed development in the northern area.

5.7 Foul drainage arrangements for the converted Cottage will be retained as existing. The peak foul flows generated by the conversion of Hemdean House to 10 no. apartments would not exceed the capacity of the existing 100mm diameter foul sewer that serves them, but, if the northern system is confirmed as a transferred sewer, Thames Water may request that the existing system is upsized to 150mm diameter. If that came to pass, our recommendation would be to install a new connection from Heamdean House to the proposed foul system that serves the retirement apartments.

5.8 A pre-development point of connection enquiry for the foul connection has been submitted to Thames Water.

5.9 The proposed foul drainage arrangements, assuming the existing arrangement remain unchanged can be seen on the preliminary drainage layout drawing 1953-01-PDL-1001 within Appendix H.

# 6 Ownership & Maintenance

6.1 Any adoptable drainage will be designed in accordance with the Design and Construction Guidance and will be offered to Thames Water for adoption.

6.2 Any private drainage will be designed in accordance with Building Regulations Part H and will become the responsibility of an appointed management company.

6.3 The operation and maintenance of any SuDS features will be undertaken in accordance with 'CIRIA C753 – The SuDS Manual, Chapter 32 – Operation and Maintenance'.

# 7 Conclusion

7.1 The proposed development has been assessed in line with the National Planning Policy Framework, to allow the planning application to be progressed and to show that the development can be undertaken in an acceptable manner from a flood risk perspective.

7.2 The proposed development is located within Flood Zone 1 and is not known to be susceptible to flooding from, groundwater, infrastructure, or artificial sources.

7.3 The introduction of a Surface Water Management Plan will provide suitable mitigation to overcome the existing on-site surface water flooding.

7.4 To ensure the development is safe throughout its lifetime, the surface water strategy accounts for runoff in up to the 1 in 100-year return period. The strategy also safeguards against climate change, providing betterment over existing conditions, where the rate and volume of runoff would continue to increase due to climate change.

7.5 Potential for ground instability caused by infiltration into chalk and the excessive distance from a watercourse suggests the site should implement a discharge to adopted surface water drainage in Hemdean Road. The site will therefore discharge at restricted rates to the existing adopted surface water sewer adjacent to the site.

7.6 The southern and northern areas of the site are served by two separate drainage systems incorporating cellular attenuation located in access and amenity spaces.

7.7 Attenuated flows will be discharged at rates not exceeding 5x greenfield discharge rates in line with the National Standard for Sustainable Urban Drainage to an adopted surface water sewer system adjacent to the site. Restriction of flows will be provided by new flow control chambers.

7.8 All surface water runoff will receive an appropriate level of treatment by means of a 'Downstream Defender'. This is considered a significant betterment over existing conditions, where the site has no pollution mitigation or stormwater attenuation.

7.9 Exceedance runoff from the building roof and access and parking areas will be directed away from the building and, where possible, held to a shallow depth within the parking areas. If the storage capacity of the parking areas is exceeded, overland flows will follow the profile of the parking areas towards the eastern boundary of the proposed development site, reflecting existing conditions.

7.10 The reduction in drainage catchment discharging directly to the highway and the provision of stormwater attenuation will significantly reduce the frequency and impact of exceedance flooding within and from the site.

7.11 Foul flows generated by the proposed development will be served either by existing arrangements (southern area subject to agreement with Thames Water), or by a new foul gravity network (northern area) and will discharge to the existing adopted foul system to the east in Hemdeam Road.

7.12 All proposed on-site surface water drainage will remain private and will be designed in accordance with Building Regulations Part H and CIRIA C753 and will become the responsibility of the appointed management company.

7.13 As the development will be safe from flooding throughout its lifetime and will actively reduce the flood risk to properties within the downstream catchment, it is recommended that the Local Planning Authority confirm they have no objections to the proposed development.

# **Appendix A** Proposed Site Layout

# **Appendix B** Topographic Survey

# **Appendix C** Arboricultural Report

# **Appendix D** Crossfield Consulting, Ground Investigation Extracts

# **Appendix E** Thames Water, Asset Records

# **Appendix F** Utility Surveys LTD CCTV Drainage Survey and Report

# **Appendix G** Greenfield Flow Rate Calculations

# **Appendix H** Preliminary Drainage Layout

# **Appendix I** Causeway FLOW Calculations

# **Appendix A** Proposed Site Layout

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REVISIONS

| Rev. | Date | By |
|---|---|---|

NORTH

* Proposed Nursery conversion to 1no. cottage (by others)

** Proposed School House conversion to 10no. open market flats (by others)

Existing mature trees, some indicated with TPOs

Mature trees to be removed

Proposed retaining wall with banking

+40.5m Assumed site level

Existing & proposed levels based on Topograhical Survey by cube surveys

Client

Churchill Living

Your lifestyle • Your choice

PROPOSED RETIREMENT APARTMENTS
FORMER HEMDEAN HOUSE SCHOOL
HEMDEAN ROAD, CAVERSHAM
RG4 7SD

PROPOSED SITE PLAN

RED FILE

| | | | |
|---|---|---|---|
| Scale | 1:400 @ A1 | Date | DEC 2025 |
| Drawn | KLS | Checked | RJ |

Drawing No. Rev.

10137CS RF01

planningissues
TOWN PLANNING AND ARCHITECTURE
Churchill House * Parkside * Ringwood * Hampshire * BH24 3SG
Tel: (01425) 462375 E-mail: design@planningissues.co.uk

# Former Hemdean House School, Hemdean Road - Proposed Retirement Housing - Proposed Site Plan

Scale 1:400

# **Appendix B** Topographic Survey

**Technical Notes:**

- All survey levels and co-ordinates are related to OS Datum using the GPS Active Network. The Grid is orientated to Grid North with a Scale Factor of 1.00.
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- Tree Information
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| BH | BOREHOLE (WITH No.) | PM | PARKING METER |
| BS | BUS STOP | P | POST |
| BT | BRITISH TELECOM COVER | RE | RODDING EYE |
| CATV | CABLE TELEVISION COVER | RS | ROAD SIGN |
| CC | CONTROL CABINET | RWL | RETAINING WALL |
| CL | COVER LEVEL (MANHOLE) | SA | SOAK AWAY |
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| CP | CATCH PIT | SG | STRIP GULLY |
| DP | RAIN WATER DOWN PIPE | SP | SIGN POST |
| EC | ELECTRIC CABLE | SV | STOP VALVE |
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| FH | FIRE HYDRANT | TOF | TOP OF FENCE LEVEL |
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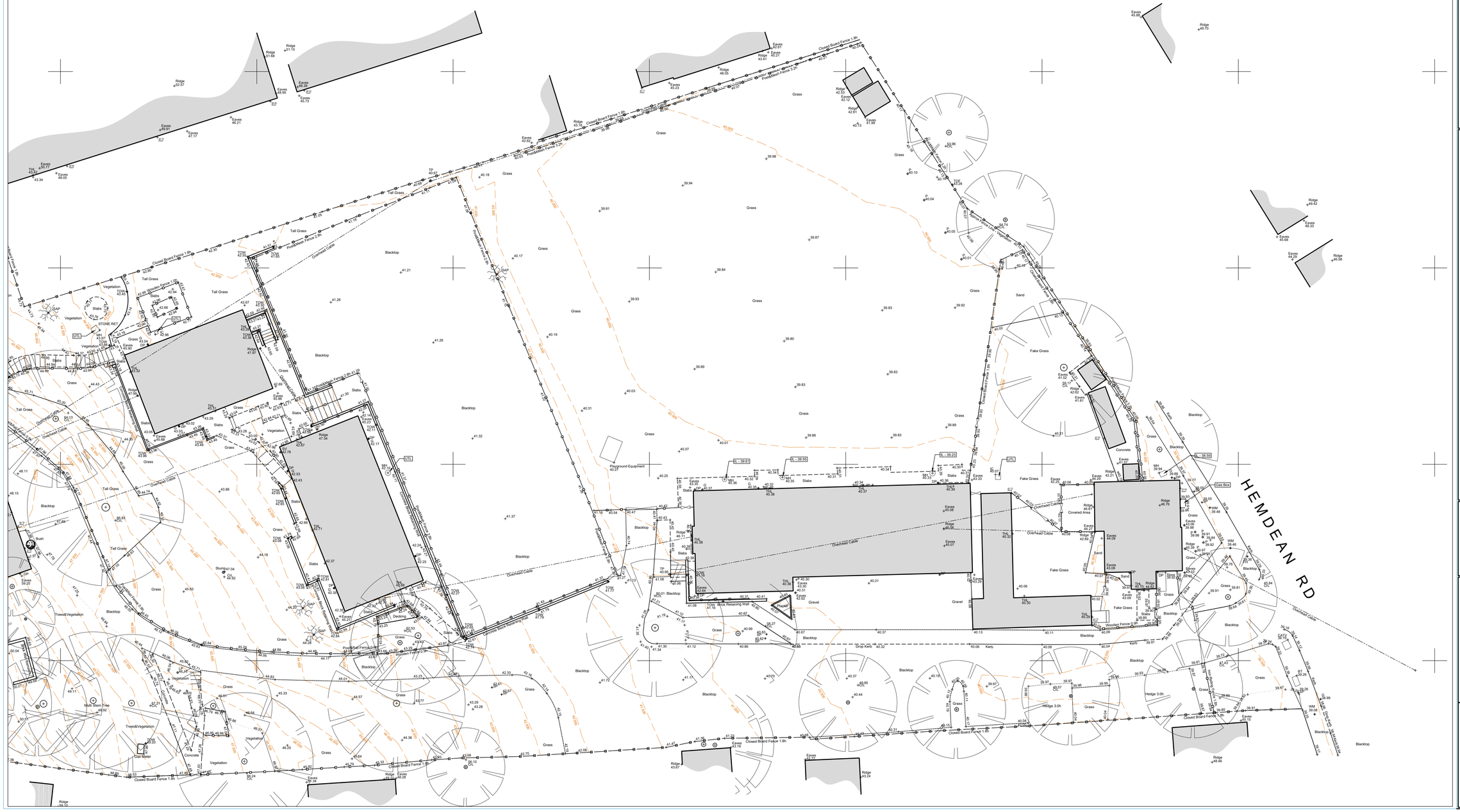
| KO | KERB OUTLET | WO | WASH OUT |
| LB | LITTER BIN | | |

BUILDINGS

OPEN SIDED BUILDINGS

TREE
SPREAD & DIA. TO SCALE

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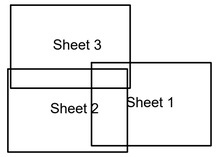


## LEGEND

| | |
|---|---|
| ELECTRIC | ELEC |
| ELECTRIC FROM RECORDS | ELEC (R) |
| WATER | WTR |
| WATER FROM RECORDS | WTR (R) |
| GAS | GAS |
| GAS FROM RECORDS | GAS (R) |
| BT | BT |
| BT FROM RECORDS | BT (R) |
| COMMS | COMMS |
| COMMS FROM RECORDS | COMMS (R) |
| STREET LIGHTING | SL |
| STREET LIGHTING FROM RECORDS | SL (R) |
| CCTV | CCTV |
| CCTV FROM RECORDS | CCTV (R) |
| TRAFFIC MANAGEMENT | TM |
| TRAFFIC MANAGEMENT FROM RECORDS | TM (R) |
| OIL PIPELINE | OIL |
| OIL PIPELINE FROM RECORDS | OIL (R) |
| UNKNOWN | UKN |
| MISCELLANEOUS | MISC |
| DRAINAGE | DRA |
| DRAINAGE FROM RECORDS | DRA (R) |
| OVERHEAD BT | BT (O) |
| OVERHEAD ELECTRIC | ELEC (O) |
| EXTRA HIGH VOLTAGE ELECTRIC | ELEC (EHV) |
| HIGH VOLTAGE ELECTRIC | ELEC (HV) |
| LOW VOLTAGE ELECTRIC | ELEC (LV) |
| HIGH PRESSURE GAS | GAS (HP) |
| LOW PRESSURE GAS | GAS (LP) |
| INTERMEDIATE PRESSURE GAS | GAS (IP) |
| ASSUMED DRAINAGE | ADR |
| SURVEY AREA | |
| TEXT BOX | Text |
| EOT | END OF TRACE |
| ND | NO DEPTH RECORDS |
| d | DEPTH OF UTILITY |
| Ø | DIAMETER OF PIPE |
| GPR | GROUND PENETRATING RADAR |

## SURVEY INFORMATION

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Topographical Survey
Former Hemdean House School
Hemdean Rd, Reading, RG4 7SD

**Remarks:**

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| Sheet Number: | 1 of 3 |
| Scale: A1: | 1:200 |

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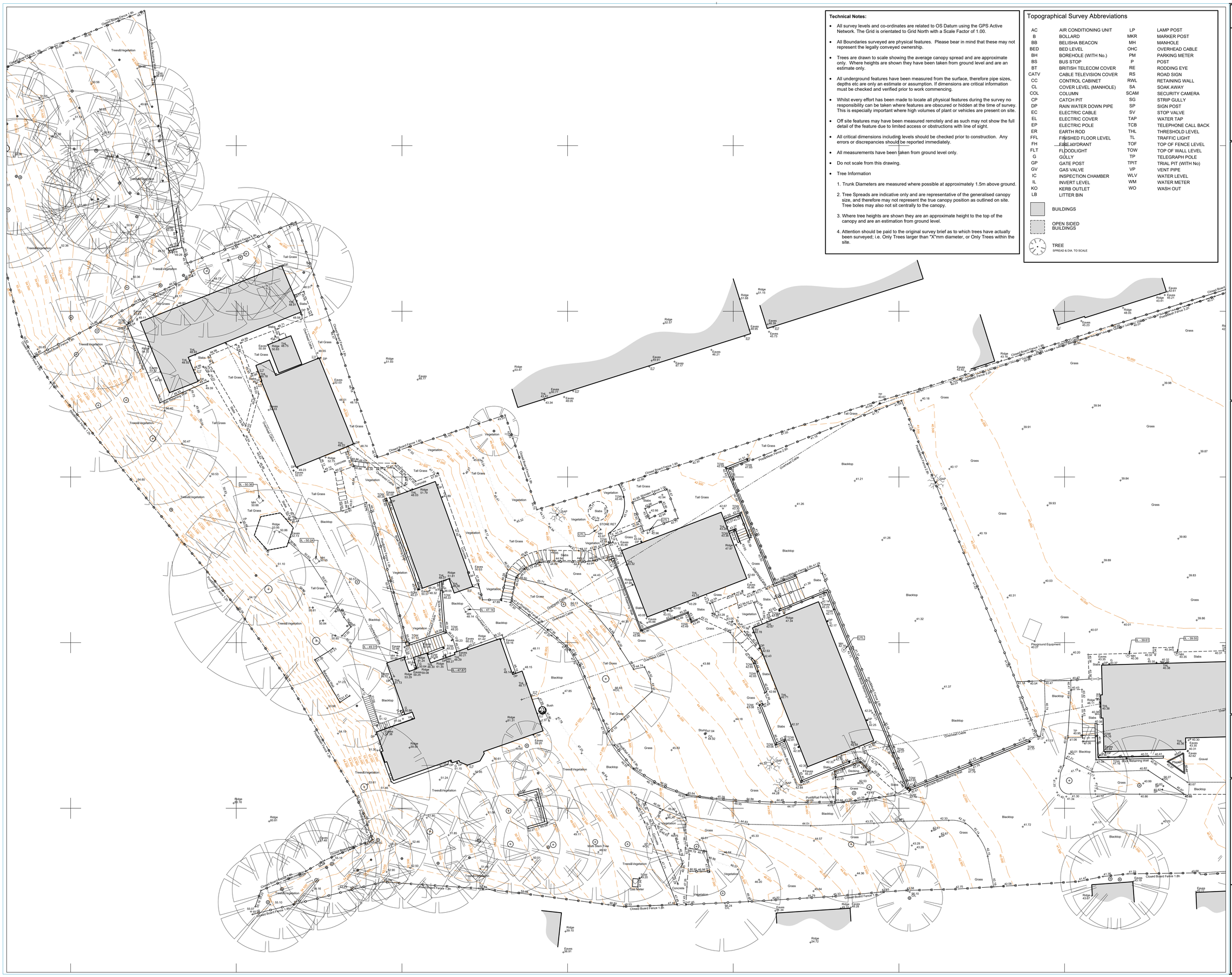
TEL. 01270 767 093
E. SALES@CUBESURVEYS.CO.UK



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BUILDINGS

OPEN SIDED BUILDINGS

TREE
SPREAD & DIA. TO SCALE

## Sheet Layout:

Sheet 3

Sheet 2

Sheet 1

## LEGEND

| | |
|---|---|
| ELECTRIC | ELEC |
| ELECTRIC FROM RECORDS | ELEC (R) |
| WATER | WTR |
| WATER FROM RECORDS | WTR (R) |
| GAS | GAS |
| GAS FROM RECORDS | GAS (R) |
| BT | BT |
| BT FROM RECORDS | BT (R) |
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| ASSUMED DRAINAGE | ADR |
| SURVEY AREA | |
| TEXT BOX | 0.000mm |
| EOT | END OF TRACE |
| ND | NO DEPTH RECORDS |
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| Drawing Number : | CUB-RBS-CRL-024 |
| Sheet Number: | 2 of 3 |
| Scale: A1: | 1:200 |


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E. SALES@CUBESURVEYS.CO.UK

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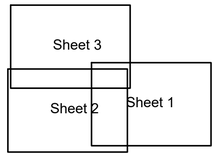
BUILDINGS

OPEN SIDED BUILDINGS

TREE
SPREAD & DIA. TO SCALE

## Sheet Layout:

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| GAS FROM RECORDS | GAS (R) |
| BT | BT |
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| COMMS | COMMS |
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| STREET LIGHTING | SL |
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| CCTV | CCTV |
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| ASSUMED DRAINAGE | ADR |
| SURVEY AREA | |
| TEXT BOX | Text |
| EOT | END OF TRACE |
| ND | NO DEPTH RECORDS |
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# **Appendix C** Arboricultural Report

# Tree protection - 25058-TPP-01

Location of trees, categorisation & protection/management proposals

Former Hemdean House School, Hemdean Road, Caversham RG4 7SD

Scale @ A1 1:400

0 8 16 24 32 40 m

**Provided drawings**

Topo: (30th APR 25) 250429_CAVERSHAM - GREY FILE (NO TOPO)
Layout: (15th JAN 2026) 24_SW048 - CAVERSHAM - GREY FILE_trees constraint.dwg

**Tree types**

T = Tree, G = Group, H = Hedge,W = Woodland, AW = Ancient woodland, V = Veteran

Application boundary

BS category A Trees of high quality

BS category B Trees of moderate quality

BS category C Trees of low quality

BS category U Unsuitable for retention

Trees to be removed

Protective barrier/fencing

Construction exclusion zone

Precautionary area within fencing where structures will be removed according to SGN 8, and new surfacing will be installed according to SGN 9. All exposed soil surfaces will be protected using ground protection according to SGN 3 for the duration of any access until the new surfacing is installed.

Precautionary area outside of fencing where all exposed soil will be protected with ground protection according to SGN 3, and all removal of structures and surfacing, and any replacements will be according to SGN 7, SGN 8, SGN 9, and SGN 10.

Root protection area (RPA) boundaries for category A and B trees

Root protection area (RPA) boundaries for category C trees

| Tree | Species | Category | Nominal RPA radius (m) | Tree works |
|---|---|---|---|---|
| T1 | Lime | C | 0.6 | |
| T2 | Lime | B | 10.2 | |
| T3 | Lime | B | 7.8 | Fell for development |
| T4 | Sycamore | B | 9.3 | |
| T5 | Plum | B | 7.2 | |
| T6 | Cherry | B | 3.6 | |
| T7 | Cherry | B | 4.2 | |
| T8 | Cherry | B | 5.1 | |
| T9 | Cherry | B | 4.8 | |
| T10 | Sycamore | B | 6.9 | |
| T11 | Beech | B | 6.6 | |
| T12 | Sycamore | B | 9 | |
| T13 | Pear | C | 5.4 | |
| T14 | Sycamore | B | 7.2 | |
| T15 | Sycamore | B | 5.4 | |
| G16 | Cypress | C | 2.4 | Fell for development |
| T17 | Sycamore | B | 6.6 | |
| T18 | Sycamore | B | 7.8 | |
| T19 | Sycamore | B | 7.8 | |
| T20 | Sycamore | B | 12.6 | |
| T21 | Yew | C | 5.4 | |
| G22 | Yew, sycamore, laurel | B | 6 | |
| T23 | Lime | B | 7.8 | |
| T24 | Sycamore | B | 9 | |
| T25 | Horse chestnut | A | 12 | |
| G26 | Sycamore | C | 3.6 | |
| T28 | Beech | A | 13.2 | |
| T29 | Corsican pine | A | 10.2 | |
| T30 | Sycamore | B | 6.6 | |
| G31 | Sycamore, field maple, thorn | C | 4.2 | |
| T32 | Sycamore | B | 9 | |
| T33 | Sycamore | B | 8.4 | |
| T34 | Sycamore | C | 7.2 | |
| T35 | Sycamore | B | 7.8 | |
| G36 | Sycamore | B | 6.6 | |
| W37 | Sycamore, beech | B | 4.2 | |
| T38 | Lime | C | 8.4 | |
| T40 | Sycamore | B | 8.1 | |
| T41 | Sycamore | B | 6 | |
| T42 | Yew | B | 6.3 | |
| T43 | Field maple | C | 5.1 | |
| T44 | Sycamore | C | 3.6 | |
| T45 | Sycamore | C | 4.8 | |
| T46 | Willow | C | 3.6 | |
| T47 | Apple | C | 4.8 | |

**All retained trees & hedges**

Carry out safety check and lift over site to 3-4 m as necessary

**Trees not shown on original topographical survey**

T1, T12, T13, G16, T18, T19, G22, T23, T25, G26, G31, G36, W37, T38, T42, T47

**Offsite trees**

T1, T2, T3, T4, T5, T10, T13, W37, T38, T47

**Trees with modified RPAs**

G22, G26, T21, T23, T24, T29, T47

*How to use this plan*

More detailed guidance on each Site Guidance Note (SGN) can be found in a printed hard copy compilation of all the SGNs, **Manual for Managing Trees On Development Sites version 3.0**, issued to the Site Manager at the pre-commencement site meeting (Note: This should be retained on site throughout the duration of works). Additionally, an electronic pdf compilation of all the SGNs, was submitted with this drawing to the local planning authority and the client. Alternatively, a pdf of each SGN can be downloaded by:

1. clicking the image links in the electronic pdf version of this plan;
2. holding a mobile phone QR (Quick Response) code reader over the QR code in the paper version of this plan; or,
3. visiting our website at https://www.barrelltreecare.co.uk/resources/technical-

Permission is granted to scale from this drawing for Local Authority Planning Approval purposes relating to tree protection measures only. Where applicable this drawing is to be read in conjunction with the arboricultural report.

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# **Appendix D** Crossfield Consulting, Ground Investigation Extracts

Crossfield
CONSULTING
GEOTECHNICAL ENVIRONMENTAL

# CHURCHILL LIVING

# HEMDEAN HOUSE SCHOOL, HEMDEAN ROAD, CAVERSHAM, RG4 7SD

# GROUND INVESTIGATION REPORT

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## 1. INTRODUCTION

A residential development is proposed at Hemdean House School, Caversham. The site is currently occupied by a school comprising several buildings and associated car park, hard surfaced playground and landscaped areas. It is understood the existing property is now vacant. The proposed development comprises a three-storey apartment block with managed landscaping and car parking, three private cottages with private gardening areas and conversion of a nursery and schoolhouse into apartments. Residents of the development will be of retirement age.

Crossfield Consulting Limited prepared a Desk Study Appraisal, as listed in the References, in February 2025 for the proposed development. Subsequent ground investigation work has been designed on the basis of the preliminary assessment provided in the Desk Study Appraisal.

Crossfield Consulting Limited has been commissioned by Churchill Living to undertake an investigation of the site to identify potential constraints to redevelopment relating to the ground conditions and including a risk-based environmental assessment and recommendations for remediation works, recommendations regarding ground stability/support, and recommendations for foundations, road pavement design and general construction advice in the context of the above development proposals.

This report presents the information obtained from a ground investigation. Sections 2 to 5 of the report, together with the associated Figures and Appendices, provides a Ground Investigation Report (GIR), as defined in BS EN 1997-1:2004 and BS EN 1997-2:2007. This report should be read in conjunction with the Desk Study Appraisal.

A risk-based assessment of potential contamination is included in Section 7 of the report. This assessment makes reference to the desk study, ground investigation information and a Conceptual Site Model. It is considered that the report complies with National Planning Policy Framework and is in general accordance with guidance published by the Environment Agency and NHBC. The ground investigation to inform the risk assessment of potential contamination is a detailed investigation, as defined in Environment Agency Land Contamination Risk Management (LCRM) (2025) and BS 10175:2011+A2:2017.

The report also includes a geotechnical assessment and the salient information, assessments and recommendations are presented in Sections 9 to 16 of the report, together with the associated Figures and Appendices.

The report has been prepared under the direction and supervision of a Chartered Geologist and Registered SiLC. It is considered that the report is suitable for submission in support of a planning application and the report is appropriate to assist in an appraisal of development solutions and costs, together with the preparation of engineering designs for the development. The report also complies with the published guidance relating to the requirements of a Building Control authority.

## 2. THE SITE

### 2.1 Location

The site is located approximately 2 km north of Reading town centre, as shown on Figure 1. The National Grid Reference for the site is SU 7129 7521.

The site is bounded by Hemdean Road to the east and residential properties to the north, west and south, as shown on Figure 2.

### 2.2 Site Description

This site description is based on observations made during a ground investigation undertaken in May 2025. A topographical survey has been undertaken and is presented as Figure 3.

The site is irregular in shape with an area of about 1.0 ha and slopes down from west to east.

The site comprises various buildings associated with the previous development, which is now vacant. The nursery in the southeast corner of the site was still in use at the time of the ground investigation. The original Victorian three-storey, former house and single-storey lodge are located in the southwestern and southeastern corner of the property respectively. The other buildings are typically single-storey and of more recent construction. The change in level across the site is accommodated by slopes, sets of steps and retaining walls.

The buildings on site were locked during the ground investigation, but likely to have been used as teaching areas. One building in the central western area of the site had various cooking appliances (ovens, stoves etc.) present throughout the building. The far northwestern area of the site was blocked with chicken wire fencing.

The external areas of the site comprise lawned landscaping in the northeast corner of the site, adjacent to a hardstanding playground in the central area of the site. The southern area of the site comprises an access road, which is surrounded by various matures trees and additional lawn areas. The remainder of the external areas of the site comprise dense overgrowth and more mature trees. It is understood that some of the trees are subject to Tree Protection Orders (TPOs).

### 2.3 Site History

A detailed history of the site, including historical map extracts and other pertinent information, is provided in the Desk Study Appraisal by Crossfield Consulting Limited. A summary of pertinent historical development at the site and in the surrounding area is provided below.

The earliest County Series map, dated 1877, records Hemdean House in the southwestern area of the site with landscaped grounds to the north and east. Bottom Lane (latterly known as Hemdean Road) is recorded on the eastern site boundary.

A tennis ground is recorded in the eastern area of the site by 1936 and the surrounding area comprises residential developments.

The 1955-1956 National Grid plan indicates that the site was known as Hemdean House School and included the development of two outbuildings and the removal of the tennis ground. A small building is shown immediately north of Hemdean House and a smaller outbuilding was located west of the Lodge.

Most of the single storey buildings on site had been constructed by the mid-1970s and no significant changes are indicated to the site after that date.

## 3. PUBLISHED GEOLOGY

Geological map data, published by the British Geological Survey (BGS), online and in print, on the 1:50,000 scale Sheet No. 268 (Reading) and the 1:10,000 scale Sheet No. SU77NW, together with online map data, indicate that Head deposits are present beneath the eastern area of the site, and comprise clay, silt, sand and gravel. Superficial deposits are indicated to be absent below the western area of the site.

The solid strata beneath the site are indicated to be undifferentiated Lewes Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation of the Cretaceous System.

## 4. DESK STUDY ENQUIRIES

Detailed desk study information is presented in the Desk Study Appraisal by Crossfield Consulting Limited. A summary of relevant information is provided below.

There are no active or historical landfills recorded within 250 m of the site.

Neither the site nor the land in close proximity are designated as contaminated land under Part 2A of the Environmental Protection Act (1990).

Hydrogeological information indicates that the superficial strata beneath the eastern part of the site are classified as 'Secondary Undifferentiated' aquifer strata. The bedrock strata beneath the site are classified as 'Principal' aquifer strata. The site is not within a groundwater source protection zone.

Hydrological information indicates that the nearest surface water feature is the River Thames, 500 m southwest of the site. The site is not within a Flood Zone 2 or Zone 3, as defined by the Environment Agency.

The BGS risk rating associated with ground dissolution of soluble rocks is a 'low' risk in the eastern area of the site.

With reference to the Stantec UK Ltd database of natural cavities, two sinkholes and one solution feature ('pipe') are recorded approximately 200 m southeast of the site.

The Groundsure report (based on UK Health Security Agency and British Geological Survey data, updated December 2022) indicates that the site is not within an area where radon precautions are required in new buildings.

## 5. GROUND CONDITIONS AND GEOLOGICAL MODEL

### 5.1 Ground Investigation

Details of the rationale and scope of the ground investigation and laboratory testing, together with exploratory hole logs, monitoring, in situ and laboratory test results, are given in Appendix I. The investigation has identified the presence of the following, below the site.

### 5.2 Buried Foundations and Services

No buried obstructions or services were encountered during the ground investigation but these will be present associated with the current development.

### 5.3 Strata Encountered

*Topsoil*
Topsoil was encountered in non-hardstanding areas of the site to a maximum depth of 0.4 m and is typically described as either a brown gravelly sand or sand and gravel with rootlets.

*Made Ground*
Made Ground was encountered in hard surfaced areas of the site to a depth of 0.2 m. This comprised 20 mm thick black asphalt surfacing underlain by a yellowish brown slightly silty slightly sandy clayey gravel.

*Head Deposits*
The topsoil and Made Ground are underlain by Head Deposits, which were proven to the maximum depth of the investigation, 3.9 m, within the eastern area of the site (DS1). The Head Deposits are typically described as a variable medium dense to very dense light grey and brown gravelly sand or gravel, gravels generally consisting of flint. Locally, in the central southern area of the site, the Head Deposits were seen as firm consistency slightly sandy silty clays to a depth of 0.6 m, underlain by yellowish brown silty sand to 1.0 m. Cobble sized flints were recorded in the eastern area of the site.

Standard Penetration Tests undertaken in the Head Deposits recorded 'N' values of between 13 and greater than 50. The values greater than 50 were typically due to the presence of large cobble/boulder size flints within the Head Deposits.

*Lewes Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation strata*
Undifferentiated Lewes Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation strata underlie the Head Deposits in the eastern area of the site and were proven directly beneath the topsoil in the higher, western area. In the eastern area of the site, chalk was recorded at a depth of 3.9 m and is typically described as a white, structureless chalk composed of firm to stiff consistency slightly gravelly silty clay (Chalk Grade – Dm, matrix supported). In the western area of the site chalk was recorded at a depth of 0.2 m and typically described as a white structureless chalk composed of gravel (Chalk Grade – Dc, clast supported).

A Standard Penetration Test undertaken in the chalk strata recorded an 'N' value of 39.

### 5.4 Groundwater

Groundwater was typically not encountered during the ground investigation. However, a groundwater seepage was recorded at 2.5 m depth in the eastern area of the site.

The groundwater conditions are based on observations made at the time of the fieldwork. It should be noted that groundwater levels may vary due to seasonal and other effects.

## 6. PROPOSED DEVELOPMENT

The proposed development, as shown in Figure 4, includes the following buildings and other features:

- A three-storey apartment block with managed landscaping and car parking
- A terrace of three cottages with private gardens
- Conversion of a Nursery building into apartments
- Conversion of a School House into apartments
- Managed landscaping and car parking for the remaining residential buildings.

## 7. ASSESSMENT OF POTENTIAL CONTAMINATION AND GROUND GASES

### 7.1 Assessment Criteria

Assessment of potential contamination and ground gases has been undertaken using a risk assessment based approach, as recommended within the Environmental Protection Act (1990) (and subsequent amendments), Environment Agency LCRM (2025), CLEA Model (2004-2009), BS 10175:2011+A2:2017, CIRIA C552 (2001) and NHBC R&D Report 66 (2008). This approach considers the likely source of contamination, given the history and location of the site, and the possible migration pathways by which these potentially hazardous substances may reach likely receptors, such as end users of the site, controlled waters or the wider environment, in the context of the proposed development.

Part IIA of the Environmental Protection Act (1990) states that

'Contaminated Land is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or
(b) significant pollution of controlled waters is being caused or there is significant possibility of such pollution being caused;'

All risk assessments carried out as part of this investigation have been carried out with respect to the definition of 'contaminated land' within Part IIA of the Environmental Protection Act (1990) and have considered the site both before and on completion of the development. The basis of the risk assessment is the Conceptual Site Model, which is derived from the desk study and initial information and identifies potential contaminant linkages that could affect receptors relevant to the site and the wider environment. The Conceptual Site Model is presented in Table 1.

Based on the model, a ground investigation was designed to obtain relevant information to assess further the identified contaminant linkages. Where relevant, this included the recovery of representative samples and subsequent analytical laboratory testing. The rationale for the sampling and testing is set out in Appendix I. The results of the analytical testing are presented in Appendix I and summarised in Table 2 an assessment of the identified contaminant linkages is presented in Table 3.

### 7.2 Potential Sources of Contamination

The site is now largely vacant, except for a children's nursery in the southeast corner of the site, and was most recently used as a school. The site was previously associated with a large residential property. The proposed development comprises a three-storey apartment block with managed soft landscaping and car parking, a terrace of three cottages with private gardening areas and conversion of a nursery and schoolhouse into apartments.

During the construction of the school development, Made Ground materials may have been imported. Imported materials may, based on the likely age and potential provenance, have included ashy materials that can be associated with toxic/phytotoxic metals and/or polyaromatic hydrocarbons (PAHs). Imported materials may also include asbestos containing materials (ACMs), if derived from demolition rubble.

Ashy materials may have also been spread in landscaping areas across shallow soils from domestic heating in residential/school properties.

Based on the available information, representative soil samples were recovered from the Made Ground materials encountered beneath the site and tested for the potential contaminants identified above. The test results are summarised in Table 2 and are presented against generic assessment criteria (GAC) and Category 4 Screening Levels (C4SL), relevant to the protection of human health in a residential development with managed landscaping. As can be seen from Table 2, the potential contaminant concentrations are recorded below the GAC (negligible risk to human health) and C4SL (low but acceptable risk to human health) and therefore, do not represent an unacceptable risk to end users. It is appreciated that there will also be areas of private gardens in the western part of the site but, based on available information, there appears to be little (or no) Made Ground material in that area. In addition, it is understood that it is proposed to reduce levels in that area such that natural strata are likely to be present at the surface in garden areas and, hence, no unacceptable risk to the health of the residents. Additional comments relevant to human health risk assessment are provided in Section 7.3.1.

Based on appropriate laboratory test data, risks to construction materials are assessed in Section 7.3.2.

No significant concentrations of potentially phytotoxic chemicals have been recorded. However, some areas of the site are currently devoid of topsoil, a suitable thickness of topsoil is likely to be required to provide a growing medium in proposed soft landscaping areas. Further comment is provided in Section 7.3.3.

The Conceptual Site Model does not identify a potential contaminant linkage in regard to controlled waters and the ground investigation (including visual/olfactory observations and laboratory testing) has confirmed that there are generally no detectable concentrations of readily mobile contaminants. On that basis, it is considered that no further risk assessment is required in relation to controlled waters.

No putrescible material has been identified at the site and no significant thicknesses of Made Ground have been recorded. There are no recorded landfills within influencing distance and the site is not within an area where precautions against the ingress of radon gas are required in new dwellings. Therefore, it is considered that there are no sources of hazardous ground gases at the site and ground gas protection is not required for the proposed development.

### 7.3 Contaminant Linkages – Solids and Liquids

Based on the Conceptual Site Model, consideration is given below to identified contaminant linkages and a risk evaluation is undertaken of each possible source-pathway-receptor linkage that may occur at the site. The risk evaluation considers the potential consequences and probability of occurrence in accordance with CIRIA C552 (2001). Where risks are identified as 'negligible', then by implication such risks are within normally accepted levels for the proposed development, and the further reduction of such risks by remediation works is considered unnecessary. Where risks are identified that are 'low' as defined in CIRIA C552 (2001), or worse, then consideration is given to the management of the identified risks, with appropriate recommended actions that may include engineering solutions/remediation works as described in the following sections.

#### 7.3.1 Human Health

As outlined in Table 2, all potential contaminants associated with the site history have been identified at concentrations below relevant GAC and C4SL values and no asbestos fibres have been recorded, such that it is evident that there are no valid sources of potential contamination indicated within the soil materials on site. Therefore, it is demonstrated that there is no valid contaminant linkage in relation to the proposed development and no further risk assessment is required in respect of the health of end-users in relation to the ground conditions at the site.

Groundworkers involved in the construction of the new development are unlikely to be exposed to short term (acute) risks. However, in line with good practice, it is recommended that personal protective equipment (PPE) be worn and high levels of hygiene be maintained by groundworkers. To minimise soils at the site becoming airborne and moving beyond the site boundaries during earth moving operations, it is recommended that soil dampening equipment be maintained on site during dry periods to minimise dust generation.

**7.3.2 Durability of Buried Structures and Services**

In view of the low soluble sulphate content and near-neutral soil conditions, there are no special precautions required for the protection of good quality buried foundation concrete. Based on guidance within *BRE Special Digest 1* (2005), the specified DC Class of concrete for buried structures and foundations should be suitable for an ACEC site classification of AC-1.

The site is not known to have been associated with past fuel and/or chemical storage and there are no such storage facilities in close proximity. Therefore, the site would not be considered to be 'brownfield' under the definition provided by UKWIR (2010) with respect to the assessment of ground for water supply pipes. Based on the guidance provided by UKWIR, conventional plastic materials can be used for potable water supply pipes without any requirements for specific testing.

It should be noted that individual water companies may have in-house requirements for the assessment of ground conditions for potable water supply pipes and these requirements may be in addition to, or may contradict, the guidance provided by UKWIR. Therefore, it is recommended that the relevant water supply company be consulted prior to finalising the potable water supply design.

**7.3.3 Landscape and Garden Areas**

A suitable thickness of topsoil is likely required to be imported to site for the managed landscaping areas and private garden areas. For any topsoil imported, it should be of appropriate quality and should not provide a source of contamination. Topsoil sourced from a brownfield site or from a topsoil recycling facility should be the subject of appropriate analytical testing to confirm that the imported soils do not themselves represent a risk to end users of the development or to the wider environment. In compliance with NCLOG (2024) published procedures, details of topsoil to be imported should be received and confirmed as compatible with use on a residential development prior to soil import; such materials should also be confirmed/documented as not waste materials.

**7.4 Recommended Remedial Works**

On the basis of the foregoing information and risk assessment, it is evident that there are no valid contaminant linkages such that remediation works (including ground gas precautions) should not be necessary for the proposed development.

**7.5 Construction Management/Best Practice**

In compliance with normal construction good practice, the following should be considered:

- Soils should be kept damp during groundworks undertaken in dry weather to minimise the potential for aerial migration of dust to neighbouring properties and public areas.
- Imported materials (if required) should be accompanied by appropriate documentation to confirm that they are suitable for use and that they are compatible with the contaminated land risk assessment (in the context of human health and also with due consideration to controlled waters and the wider environment). It should also be confirmed that imported soils are not a waste material.

### 7.6 Potential Liabilities

Based on the available data and risk assessment, it is considered that there should be no significant environmental liabilities associated with the ground conditions and site ownership. Provided the work outlined in Section 7.5 is undertaken, there should be no such liabilities following completion of the development.

## 8. ASSESSMENT OF MINING, QUARRYING AND OVERALL GROUND STABILITY

The site is not within an area of recorded underground mining or other such mineral extraction, nor are there any quarries recorded at the site. Non-coal mining records indicate that the site is within an area where underground workings (relating to chalk) may have occurred. However, the site is rated as Class A, which is the lowest rating given to non-coal mining areas. Therefore, it is considered that it is unlikely the proposed development should be constrained by ground stability issues associated with mining or quarrying.

Ground conditions beneath the site comprise chalk strata. Chalk strata can be dissolved by water and solution features can fill with loose superficial deposits. Such deposits can be susceptible to collapse settlement (if loads are applied) or to inundation settlement (if large volumes of water are introduced to the superficial materials). Furthermore, based on the geological database information, part of the site has been classified as having a 'moderately low' hazard rating for ground dissolution of soluble rocks. It would be prudent, therefore, to remain vigilant during groundworks to the presence of potentially anomalous ground conditions that could be indicative of solution features. If anomalous ground conditions are identified during construction works, it is recommended that the advice of a geotechnical engineer be obtained to assess the particular ground conditions. In such situations, localised zones of poor ground support may, on occasion, be mitigated by the inclusion of a grillage of ground beams in the building substructure that can span across areas of reduced support. It should be appreciated that any consideration of soakaway drainage will require an assessment of ground support risks.

## 9. ASSESSMENT OF SLOPES AND RETAINING STRUCTURES

It is understood that earthworks will be required to form development levels across the site. Due to the proposed changes in site levels, it will be necessary to provide additional retaining walls and slopes to accommodate changes in ground level.

For external retaining walls, the most appropriate wall type will be dependent on the change in ground level and the proximity to site boundaries. Depending on the height of material to be retained on any site boundary, it would be prudent to allow for embedded retaining walls. A king-post retaining wall is likely to provide the most cost-effective form of permanent vertical support.

## 10. GEOTECHNICAL ASSESSMENT

### 10.1 Assessment of Foundation Solutions

Ground conditions beneath the site are indicated to comprise topsoil down to a typical depth of 0.3 m in the eastern and western areas of the site. Made Ground was encountered below the tarmac surfaced road down to a depth of 0.2 m. Underlying the Topsoil/Made Ground, variable Head Deposits have been recorded to a depth of 3.9 m. The Lewes Chalk, Seaford Chalk and Newhaven Chalk Formations were encountered beneath the superficial deposits to the maximum investigated depth of 4.0 m. In the western area of the site, topsoil is directly underlain by medium density chalk. A groundwater seepage was recorded at 2.5 m in the eastern area of the site.

Based on the recorded ground conditions, it is considered that the Head Deposits and chalk strata will be suitable for the proposed development to be supported on strip/trench-fill or pad foundations. Foundations would need to extend through Made Ground, any weaker natural strata and extend into competent natural strata.

### 10.2 Recommended Foundation Design Parameters

#### 10.2.1 Strip/Trench Fill/Pad Foundations

On the basis of the foregoing assessment, it is considered that strip, trench fill or pad footings provides a foundation solution that should be compatible with the proposed structure(s). On the basis of the ground conditions and structures described in the report, the recommended parameters for the foundation design are as follows:

| | |
|---|---|
| *Foundation Strata:* | Medium dense to dense gravels and sands or competent chalk |
| *Foundation Depth:* | Minimum 0.6 m, deepened through Made Ground, materials with high root content and through lower strength/lower density materials at subcrop |
| *Nett Allowable Bearing Pressure:* | 150 kN/m$^2$ |

It is considered that total settlement of foundations designed on the above basis should be less than the normal serviceability limit state for this development (i.e. total settlements of 25 mm).

Based on guidance published within BRE Special Digest 1 (2005), the specified DC Class of concrete for buried structures and foundations should be suitable for an ACEC site classification of AC-1.

### 10.3 Floor Slab Recommendations

Whilst it is considered that a ground bearing floor slab may be suitable for the proposed structures, it is understood that suspended ground floor slabs are preferred.

### 10.4 General Construction Advice

All formations should be cleaned and subsequently inspected by a suitably qualified engineer prior to placing concrete. Should any soft, compressible or otherwise unsuitable materials be encountered they should be removed and replaced by blinding concrete.

Foundation concrete, or alternatively, a blinding layer of concrete, should be placed immediately after excavation and inspection in order to protect the formation against softening and disturbance.

Generally, all formations should be placed wholly within the same material type, unless specific geotechnical inspection and assessment have been undertaken.

Care should be taken to ensure that any existing services encountered are carefully and satisfactorily blocked to prevent water seeping through the drains and into any excavations.

## 11. TEMPORARY WORKS

Conventional plant is considered appropriate for shallow excavation works for the site.

Shallow excavations should remain stable in the short term. However, instability may occur in excavations left open for extended periods of time and during inclement weather. Support should be provided, or the sides battered back, in any excavations requiring man entry in compliance with the relevant risk assessment.

Groundwater is, based on current data, unlikely to be encountered within construction excavations, although water was locally noted at a depth of 2.5 m in the eastern part of the site. It is considered that pumping from screened sumps is likely to be a suitable dewatering technique within shallow excavations, if perched water is encountered.

## 12. ASSESSMENT OF SOAKAWAY DRAINAGE

Due to the presence of high permeability sands and gravels and/or chalk below the site, a soakaway drainage solution may be feasible for the proposed development. It is recommended that in situ percolation tests in accordance with the requirements of BRE DG365 should be undertaken to confirm this assessment and provide design parameters. However, it may be prudent to make allowance for an alternative drainage solution. In addition to the recommended testing, the use of soakaways would require an assessment of ground stability (in the context of ground dissolution and solution features). Based on the current data, no evidence to indicate the potential presence of solution features has been identified at the site. However, if anomalous ground is encountered during supplementary ground investigation work or during construction, then the use of soakaways may be constrained and further consideration of ground stability issues would be required.

The presence of a Principal Aquifer beneath the site suggests the use of soakaway drainage may require approval by the Environment Agency.

## 13. ROAD PAVEMENTS

Based on the nature of the shallow soils beneath the site a preliminary design equilibrium CBR of 3% may be considered for the design of road pavements. The materials at shallow depth may be regarded as frost susceptible.

## 14. ASSESSMENT OF MATERIALS FOR WASTE DISPOSAL

There is no requirement to remove soils from site and, therefore, development levels should be set such that soils can be retained and reused on site where possible. Providing development levels are set to accommodate soil arisings (for example, from foundation excavations), such materials would not be classified as waste if

retained and re-used on site. However, if materials are excess to requirements, they should be taken to an appropriately permitted waste facility.

If material is identified for removal to a waste facility, it will be necessary to provide a description of the material and laboratory test data to the receiving facility. This information is included in Appendix III. It should be noted that additional testing, either for classification purposes or for waste acceptance criteria (WAC) testing to confirm acceptability of the waste may be required.

The available analytical laboratory test data has been used to provide preliminary waste disposal advice. It should be noted that these test results may not specifically relate to materials that are, or will be, scheduled for removal from site. However, the results are appropriate for preliminary guidance and costing purposes.

A preliminary assessment of potential waste classification for materials on site has been undertaken in accordance with the Environment Agency's document Guidance on the Classification and Assessment of Waste WM3 (2021). The assessment indicates that the following preliminary waste classification advice would be appropriate.

- Topsoil and any other natural soils with high root/organic content is likely to be classified as 'non-hazardous' waste if taken to a landfill due to the organic content of such materials. Alternatively, these materials could be taken to a recycling facility.
- Testing undertaken on a sample of the asphalt type surfacing at the site has identified the likely presence of coal tar. On that basis, the material is likely to be classified as 'hazardous' waste and would require disposal accordingly (disposal at landfill may be possible subject to landfill acceptance requirements and the materials may need pre-treatment before being accepted). Disposal at a recycling facility may be precluded due to the potential coal tar and would depend on the recycling methods used by the facility.
- The available test data indicates that the Made Ground/shallow disturbed soils at the site should be classified as non-hazardous waste. WAC testing on the Made Ground indicates compliance with the inert WAC limiting values. Therefore, the Made Ground/shallow disturbed soils at the site should be accepted at an inert landfill for waste disposal purposes.
- Natural strata, providing they have not been impacted by potential contaminants associated with the site usages and do not have a high root/natural organic content, would be classified as 'inert' waste without any requirement for laboratory testing.

Waste requires pre-treatment prior to disposal at landfill and this may take the form of physical or chemical treatment to reduce hazards and/or waste volumes. The segregation and screening of waste soils into separate, and appropriately classified, waste streams would satisfy the pre-treatment criteria by ensuring that volumes of each waste category are minimised. Segregation of waste streams is also important to prevent materials being classified within a worse-case category and, therefore, incurring higher disposal costs. Mixing of different waste streams to dilute hazardous properties is not permitted.

It should be noted that the above assessment is provided in accordance with current waste disposal and environmental permitting legislation and guidance documents. However, individual landfills and other waste disposal facilities may have variances in their permit that differs from standard guidance. Waste facilities may also make decisions with respect to accepting waste on a commercial basis. Therefore, landfills or other waste facilities should be approached to confirm that they will accept waste materials prior to finalising waste disposal proposals.

## 15. RECOMMENDATIONS FOR SUPPLEMENTARY GROUND INVESTIGATION

It would be beneficial to undertake trial pits to enable in situ percolation tests in accordance with the requirements of BRE DG365 to be undertaken to confirm the suitability of soakaway drainage and provide design parameters. It would also be beneficial to undertake mechanically excavated trial pits in the area of the proposed cottages to provide additional information on ground conditions in this area.

## 16. RECOMMENDED SUPERVISION AND MONITORING

In compliance with the requirements in BS EN 1997-1:2004 and BE EN 1997-2:2007, construction and workmanship of the engineering solutions recommended in this report shall be supervised. In particular, issues listed in Section 10.4 General Construction Advice shall be considered in the implementation of the works and design of any necessary temporary works set out in Section 11.

In relation to the foundation solution(s) and ground floor slab recommendations in Section 9, the following supervision and monitoring is recommended.

- Inspections of formation strata in excavations for strip/pad footings

## 17. SUMMARY

A residential development is proposed at Hemdean House School, Caversham. The is currently occupied by vacant school grounds and an active nursery and was historically associated with a school and residential properties. The proposed development comprises a three-storey apartment block with managed landscaping and car parking, three private cottages with private gardening areas and conversion of a nursery and schoolhouse into apartments. Residents of the development will be of retirement age.

Ground conditions below the site are indicated to comprise topsoil across the eastern and western areas of the site to a maximum depth of 0.4 m. Made Ground was encountered in the central southern area of the site and comprised a 20 mm thick asphalt layer underlain by yellowish brown slightly silty slightly sandy clayey gravel to a depth of 0.2 m. Topsoil and Made Ground was underlain by Head Deposits to a recorded depth of 3.9 m in the eastern part of the site. Head Deposits are typically described as medium dense to very dense light grey and brown gravelly sand or gravel with variable cobble content. This was underlain by the collective Lewes Chalk, Seaford Chalk and Newhaven Chalk formations at depth of 0.2 m in the western area of the site and 3.9 m in the eastern area of the site. A groundwater seepage was recorded at 2.5 m in the eastern area of the site.

A conceptual site model has been developed that has identified a number of potential contaminant linkages and a suitable ground investigation was designed to assess those potential linkages further. On the basis of the analytical laboratory data and subsequent risk assessments, it is indicated that no valid contaminant linkages are present in relation to soils on site, and so no remedial works are necessary in this regard. It is considered that the proposed development should not be constrained by issues relating to ground gases or controlled waters.

Based on the available ground investigation information, it is considered that the current data supports the use of traditional spread foundations (strip, trench fill or pad footings) for the proposed development.

Due to the presence of shallow sands and gravels and/or chalk below the site, a soakaway drainage solution may be feasible for the proposed development. It is recommended that in situ percolation tests in accordance

with the requirements of BRE DG365 should be undertaken to confirm this assessment and provide design parameters. However, risk ratings in relation to ground dissolution and potential solution features should be noted. Whilst no evidence of solution features has currently been identified at the site, vigilance should be maintained during any supplementary ground investigation and during groundworks and, if anomalous ground is identified, the use of soakaways may become constrained and further assessment of ground stability risks would be required.

## REFERENCES

### *Site Specific Reference*

Crossfield Consulting Limited (February 2025) *Hemdean House School, Hemdean Road, Caversham - Desk Study Appraisal* Report Ref. CCL03842.CV70

### *Technical References*

BRE (2005) *Special Digest 1 – Concrete in aggressive ground,* CRC Ltd

BRE (2023) *BR211 – Radon: Guidance on protective measures for new buildings (sixth edition with minor revisions)* BRE Press

BSI (2020) *BS EN ISO 21365:2020 Soil Quality – Conceptual Site Models for Potentially Contaminated Sites* British Standards Institution

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BSI (2017) *BS 10175:2011+A2:2017 Code of Practice for Investigation of Potentially Contaminated Sites* British Standards Institution

BSI (2004) *BS EN1997-1:2004 Eurocode 7: Geotechnical Design – Part 1: General Rules* British Standards Institution

BSI (2007) *BS EN1997-2:2007 Eurocode 7: Geotechnical Design – Part 2: Ground Investigation and Testing* British Standards Institution

CIRIA (2001) *CIRIA C552 – Contaminated Land Risk Assessment: A Guide to Good Practice* Construction Industry Research Association

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CL:AIRE (2014) SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Final Project Report (Revision 2)* Contaminated Land: Applications in Real Environments

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Environment Agency (2009) *Updated Technical Background to the CLEA Model Science Report SC050021/SR3* EA

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Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework*

NHBC and Environment Agency (2008) *Guidance for the Safe Development of Housing on Land Affected by Contamination R&D Publication 66: 2008*

NHBC (2025) *Standards* National House Building Council

UKWIR (2010) *Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites Report Ref. No. 10/WM/03/21* UK Water Industry Research

## GENERAL NOTES

1. The report is limited to the site boundaries and is specific to the development proposals as identified by the Client (or Client's advisor) and confirmed within this report. The report should not be used in a different context. Where the report is identified as a site appraisal, further geoenvironmental assessment, and detailed investigations, will be required prior to finalisation of ground related assessment and designs. Other reports may recommend additional investigation or other works that would be considered essential prior to the preparation of final assessments and associated designs.

2. This report has been prepared by Crossfield Consulting Limited with all reasonable skill, care and diligence within the terms of the Appointment/Proposal Terms and Conditions (as applicable) and with the resources agreed with the Client. Responsibility for any matters outside the agreed scope is not accepted.

3. Where any data supplied by the Client or by other external sources, including previous site investigation data, has been used it has been assumed that the information is correct unless otherwise stated. No responsibility can be accepted by Crossfield Consulting Limited for inaccuracies within the data supplied by others.

4. Any borehole data from the British Geological Survey sources are included on the following basis: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".

5. Any assessments made in this report are based on the ground conditions indicated by the factual records included and/or referenced in the report, namely, trial pits and/or boreholes, together with the results of any field or laboratory testing undertaken and, where appropriate, other relevant site data/desk study information which may have been obtained for the site. Variations in ground conditions may occur between exploratory hole locations and there may be special conditions appertaining to the site that have not been revealed by the investigation and that have not been taken into account in the report. The assessment may be subject to amendment in the light of additional information becoming available.

6. Exploratory hole locations provided in the report are generally established by tape measurement (or similar measurement) from existing features or boundaries. Ground levels stated in the report are based on site survey plans as provided. Hole locations are not accurately surveyed and ground levels at these locations are not obtained unless specifically included in the agreed scope of services.

7. Unless stated otherwise, no consultations with regulatory authorities, funders or other third parties have been carried out; hence, definitive assurance that such third parties will accept the findings of this report cannot be provided.

8. This report is only valid when used in its entirety. Any information or advice should not be relied upon if removed from the report or not considered in the context of the whole document. Crossfield Consulting Limited cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared.

9. The report is provided for the sole use by the Client or its assignees and is confidential to the Client's professional advisers. No responsibility whatsoever for the contents of this report will be accepted to any person other than the Client or its assignees.

10. The Client cannot place reliance on the report until full payment has been made for the report and all associated works.

11. New information, improved methods, changes in published guidance, codes of practice, policies and legislation can occur at any time and may necessitate an alteration to the report in whole, or in part, after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to Crossfield Consulting Limited for re-assessment and, if necessary, re-appraisal.

# TRIAL PIT RECORDS

## KEY

| | | |
|---|---|---|
| J | Disturbed Jar Sample | Category B Samples |
| G | Soil Sample in Glass Container | Category B Samples |
| g | Soil Sample in Glass Vial | Category B Samples |
| B | Disturbed Bulk Sample | Category B Samples |
| C | "Undisturbed" CBR Mould Sample (denoted Category A: OS-TK/W in BS EN 22475-1:2006) | |
| W | Water Sample | |
| FVT | $c_{fv}$ | Undrained Shear Strength (from hand vane shear vane test) |
| FVT | $c_{rv}$ | Undrained Remoulded Shear Strength (from hand vane shear vane test) |
| FVT | $c_{fv}$ * | Undrained Shear Strength from Hand Vane Shear Strength Test on block sample dug from pit by excavator |

**Notes:**

1. All measurement values on record sheets are uncorrected, unless otherwise indicated.
2. For corrected test values, refer to report.
3. Identification and classification of strata is based on the guidance published in the current edition of BS5930 together with BS EN ISO 14688-1:2002, BS EN ISO 14688-2:2004, BS EN ISO 14689-1:2003
4. Consistency (soft, firm, stiff etc.) relates to a manual test/inspection on site (in compliance with BS EN ISO 14688-1:2002 Section 5.14)
5. Undrained shear strength (low, medium, high etc.) relates to in situ or laboratory test data and the associated assessed strength of a stratum (in compliance with BS EN ISO 14688-2:2004 Section 5.3 and Table 5).
6. The density of coarse-grained soils is based on SPT N values (or equivalent Dynamic Probe test or CPT data) as outlined in BS5930 and BS EN ISO 14688-2:2004.
7. Rock strength (weak, strong etc.) is based on field identification (and/or strength test data), as outlined in BS EN ISO 14689-1:2003 Table 5.

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GEOTECHNICAL ENVIRONMENTAL

# Hand Pit Record Sheet

| | | | |
|---|---|---|---|
| **Project** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **HP1** |
| **Date** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |
| **Bearing:** | | **Shoring** | None used |
| **Ground Level** | 50.00 m OD | | |
| **Plant** | Hand Dug | **Stability** | Instability in topsoil |
| **Co-ordinates** | | | |
| **Logged by** | BB | **Water** | No water encountered |
| **Checked by** | | | |

Logged on site during excavation

| Depth | Face A | Face B | Face C | Depth |
|---|---|---|---|---|
| 0.20 | | (1) | | 0.20 |
| 0.40 | | (2) | | 0.40 |
| | | Base of Pit | | |

| Sampling | | | Strata | | |
|---|---|---|---|---|---|
| Sample/Test Depth | Type | Strength (kN/m$^2$) | Ref. No. | Strata Depth | Description |
| | | | | 0.0 - 0.2 | Brown gravelly sand with large rootlets (TOPSOIL) |
| 0.40 | J | | | 0.2 - 0.4 | White structureless CHALK composed of fine to coarse GRAVEL (LEWES CHALK FORMATION, SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION GRADE Dc) |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. Symbols and abbreviations are explained on the accompanying key
3. All linear dimensions are in metres unless otherwise stated

# DYNAMIC SAMPLE RECORDS

## KEY

### Sampling

| | |
|---|---|
| J | Disturbed Jar Sample |
| G | Jar Sample in Glass Container |
| g | Soil Sample in Glass Vial |
| W | Water Sample |
| IC | Nett sample recovery ratio (ratio of length of recovered sample to length of sample run) |

### In Situ Measurements

| | | |
|---|---|---|
| FVT | $c_{fv}$ | Undrained Shear Strength (from hand vane shear vane test) |
| | $c_{rv}$ | Undrained Remoulded Shear Strength (from hand vane shear vane test) |
| | $c_{fv}$ * | Hand Vane Shear Strength Test (on Category A: OS-TK/W soil sample recovered in window sampler) |
| | S | Standard Penetration Test (SPT: split spoon sampler) |
| | SPT(C) | SPT carried out with a 60° cone |
| | 'N' | 'N' Value from SPT test |
| | $N_{10}$ | Dynamic Probe Test: Number of blows to drive 100 mm |
| DPH | $N_{H10}$ | Dynamic Probe Test: Heavy (30 kg mass & 500 mm fall) |
| DPSH-A | $N_{SHA10}$ | Dynamic Probe Test: Super-Heavy A (63.5 kg mass & 500 mm fall) |
| DPSH-B | $N_{SHB10}$ | Dynamic Probe Test: Super-Heavy B (63.5 kg mass & 750 mm fall) |
| | x / y mm | x Blows per y Driving Distance (for non-standard SPT or DP driving distance) |
| | T | Torque (max) required to turn rods (unit: Nm, unless otherwise shown) |

### Notes:

1. All measurement values on record sheets are uncorrected, unless otherwise indicated.
2. For corrected test values, refer to report.
3. Identification and classification of strata is based on the guidance published in the current edition of BS5930 together with BS EN ISO 14688-1:2002, BS EN ISO 14688-2:2004 and BS EN ISO 14689-1:2003
4. Consistency (soft, firm, stiff etc) relates to a manual test/inspection on site (in compliance with BS EN ISO 14688-1:2002 Section 5.14).
5. Undrained shear strength (low, medium, high etc) relates to in situ or laboratory test data and the associated assessed strength of a stratum (in compliance with BS EN ISO 14688-2:2004 Section 5.3 and Table 5).
6. The density of coarse-grained soils is based on SPT N values (or equivalent Dynamic Probe test or CPT data) as outlined in BS5930 and BS EN ISO 14688-2:2004.
7. Rock strength (weak, strong etc) is based on field identification (and/or strength test data), as outlined in BS EN ISO 14689-1:2003 Table 5.

# BOREHOLE & DRILLHOLE RECORDS - LEGENDS KEY SHEET

## Legend - Strata Encountered in Exploratory Hole

| Soil | Rock | | |
|---|---|---|---|
| | Sedimentary | Igneous | Metamorphic |
| Made Ground | Mudstone | Fine-grained | Fine-grained |
| Clay | Shale | Medium-grained | Medium-grained |
| Silt | Siltstone | Coarse-grained | Coarse-grained |
| Sand | Sandstone | | |
| Gravel | Limestone | | |
| Peat/Topsoil | Chalk | | |
| Organic Sand | Coal | | |
| Organic Clay | Conglomerate | | |

## Legend - Backfill to Borehole and Standpipe Installations

| Backfill | Installations |
|---|---|
| Soil arisings | Concrete Cover Over Standpipe |
| Bentonite | Plain Standpipe - Bentonite Surround |
| Cement-based Grout | Perforated Standpipe - Geotextile and Granular Filter Surround |
| Gravel | Perforated Standpipe End Geotextile and Granular Filter Surround |

**Notes:**

1. A combination of the strata symbols are indicative of mixed soil types.

2. The response zone of a standpipe refers to the section of perforated pipe within a granular surround, where substances may freely enter the standpipe from the surrounding strata.

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# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS1** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 39.90 m OD |
| **Method** | 0.0 m to 4.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| 0.20 | JGg | | | | Brown sand and gravel with rootlets. Gravel is fine to coarse and subangular to rounded of flint (TOPSOIL) | 0.30 | | | 39.60 |
| | | | | | Medium dense to dense light brown sandy GRAVEL. Gravel is fine to coarse and angular to subrounded of flint (HEAD DEPOSITS) | | | | |
| 1.00-1.45 | S | 1.00 | Dry | N=27 | | | | | |
| 1.40 | J | | | | | | | | |
| 2.00-2.45 | S | 1.00 | Dry | N=32 | | | | | |
| 3.00-3.45 | S | 1.00 | 2.50 | N=13 | | | | | |
| 4.00-4.45 | S | 1.00 | 2.50 | N=39 | White structeless CHALK composed of firm to stiff consistency slightly gravelly silty CLAY. Gravel is fine to coarse and subangular to subrounded of flint and chalk (LEWES CHALK FORMATION, SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION GRADE Dc) | 3.90<br>4.00 | | | 36.00<br>35.90 |
| | | | | | (End of Exploratory Hole) | | | | |

**Core Recovery**

| Depth | Recovery |
|---|---|
| 0.00-1.00 | 50% |
| 1.00-2.00 | 100% |
| 2.00-3.00 | 100% |
| 3.00-4.00 | 80% |

**Groundwater**

| Hole Depth | Strike Depth | Water Depth | Observations |
|---|---|---|---|
| 4.00 | 2.50 | - | Water seepage at 2.5 m |

**Additional Tests**

| Test type | Test Depth | Test Value |
|---|---|---|
| | | |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

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GEOTECHNICAL ENVIRONMENTAL

# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS2** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 40.00 m OD |
| **Method** | 0.0 m to 1.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| 0.40 | JGg | | | | Brown gravelly sand with rootlets. Gravel is fine to coarse and subangualr of flint (TOPSOIL) | 0.40 | | | 39.60 |
| | | | | | Light brown SAND and GRAVEL. Gravel is fine to coarse and angular to subrounded of flint (HEAD DEPOSITS) | 0.70 | | | 39.30 |
| 1.00-1.43 | S | 1.00 | Dry | N=50 275 mm | Light grey fine to coarse and angular to subrounded GRAVEL of flint (HEAD DEPOSITS) | 1.00 | | | 39.00 |
| | | | | | (End of Exploratory Hole) | | | | |

| Core Recovery | | Groundwater | | | | Additional Tests | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Recovery | Hole Depth | Strike Depth | Water Depth | Observations | Test type | Test Depth | Test Value |
| 0.00-1.00 | 70% | | | | Not encountered | | | |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

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GEOTECHNICAL ENVIRONMENTAL

# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS3** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 39.85 m OD |
| **Method** | 0.0 m to 1.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Brown gravelly sand with rootlets. Gravel is fine to coarse and subangular to rounded of flint (TOPSOIL) | 0.30 | | | 39.55 |
| 0.50 | JGg | | | | Light brown SAND and GRAVEL. Gravel is fine to coarse and angular to subrounded of flint (HEAD DEPOSITS) | 0.80 | | | 39.05 |
| 1.00-1.43 | S | 0.50 | Dry | N=50 275 mm | Light grey fine to coarse and angular to subrounded GRAVEL of flint (HEAD DEPOSITS) | 1.00 | | | 38.85 |
| | | | | | (End of Exploratory Hole) | | | | |

| Core Recovery | | Groundwater | | | | Additional Tests | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Recovery | Hole Depth | Strike Depth | Water Depth | Observations | Test type | Test Depth | Test Value |
| 0.00-1.00 | 70% | | | | Not encountered | | | |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

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GEOTECHNICAL ENVIRONMENTAL

# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS4** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 40.05 m OD |
| **Method** | 0.0 m to 2.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Brown gravelly sand with rootlets. Gravel is fine to coarse and subangular to subrounded of flint (TOPSOIL) | 0.30 | | | 39.75 |
| 0.40 | JGg | | | | Brown slightly silty sandy GRAVEL. Gravel is fine to coarse and subangular to rounded of flint (HEAD DEPOSITS) | 0.80 | | | 39.25 |
| 1.00-1.45 | S | 1.00 | Dry | N=13 | Medium dense light brown and grey slightly sandy GRAVEL. Gravel is fine to coarse and angular to subrounded of flint (HEAD DEPOSITS) | | | | |
| 2.00-2.20 | S | 2.00 | Dry | N=25 200 mm | | 2.00 | | | 38.05 |
| 2.20-2.39 | S | 2.00 | - | N=50 190 mm | (End of Exploratory Hole) | | | | |

| Core Recovery | | Groundwater | | | | Additional Tests | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Recovery | Hole Depth | Strike Depth | Water Depth | Observations | Test type | Test Depth | Test Value |
| 0.00-1.00 | 80% | | | | Not encountered | | | |
| 1.00-2.00 | 60% | | | | | | | |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

Crossfield CONSULTING
GEOTECHNICAL ENVIRONMENTAL

# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS5** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 39.85 m OD |
| **Method** | 0.0 m to 2.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Brown sightly gravelly sand with rootlets. Gravel is fine to coarse subangular to subrounded of flint (TOPSOIL) | 0.30 | | | 39.55 |
| | | | | | Brown sightly gravelly SAND. Gravel is fine to coarse subangular to subrounded of flint (HEAD DEPOSITS) | 0.70 | | | 39.15 |
| | | | | | Light grey fine to coarse and angular to subrounded GRAVEL of flint (HEAD DEPOSITS) | | | | |
| 1.00-1.45 | S | 1.00 | Dry | N=15 | | 1.00 | | | 38.85 |
| | | | | | Medium dense light brown sandy GRAVEL. Gravel is fine to coarse and angular to subrounded of flint (HEAD DEPOSITS) | | | | |
| 2.00-2.14 | S | 2.00 | Dry | N=25 135 mm | | 2.00 | | | 37.85 |
| 2.14-2.24 | S | 2.00 | - | N=50 105 mm | (End of Exploratory Hole) | | | | |

| Core Recovery | | Groundwater | | | | Additional Tests | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Recovery | Hole Depth | Strike Depth | Water Depth | Observations | Test type | Test Depth | Test Value |
| 0.00-1.00 | 70% | | | | Not encountered | | | |
| 1.00-2.00 | 60% | | | | | | | |

**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

Crossfield CONSULTING
GEOTECHNICAL ENVIRONMENTAL

# Dynamic Sample Record Sheet

| | | | |
|---|---|---|---|
| **Project:** | Hemdean House School, Hemdean Road, Caversham | **Hole Ref.** | **DS6** |
| **Date:** | 22/05/2025 | **Sheet** | 1 of 1 |
| | | **Job No.** | CCL03842 |

| | | | | | |
|---|---|---|---|---|---|
| **Contractor** | LTS Drilling Limited | **Equipment** | Archway Dart | **Ground Level.** | 44.95 m OD |
| **Method** | 0.0 m to 1.0 m dynamic sampling | | | **Co-ordinates** | |
| **Boring Diameter** | 150 mm | | | **Logged by:** BB | Logged on site during drilling operations |
| | | | | **Checked by:** | |

| Sample Depth | Sample or Test | Casing Depth | Water Depth | Test Value | Description | Depth | Legend | Backfill | Level O.D. |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | J | | | | Black asphalt | 0.02 | | | 44.93 |
| | | | | | (MADE GROUND) | 0.20 | | | 44.75 |
| 0.30 | JGg | | | | Yellowish brown slightly silty slightly sandy clayey gravel. Gravel is fine to coarse and angular to subrounded (MADE GROUND) | | | | |
| | | | | | Firm consistency yellowish brown slightly sandy silty CLAY with rare organics (HEAD DEPOSITS) | 0.60 | | | 44.35 |
| | | | | | Medium dense yellowish brown silty SAND | | | | |
| 1.00 | J | | | | (HEAD DEPOSITS) | 1.00 | | | 43.95 |
| 1.00-1.45 | S | | | N=27 | (End of Exploratory Hole) | | | | |

| Core Recovery | | Groundwater | | | | Additional Tests | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Recovery | Hole Depth | Strike Depth | Water Depth | Observations | Test type | Test Depth | Test Value |
| 0.00-1.00 | 100% | | | | | | | |

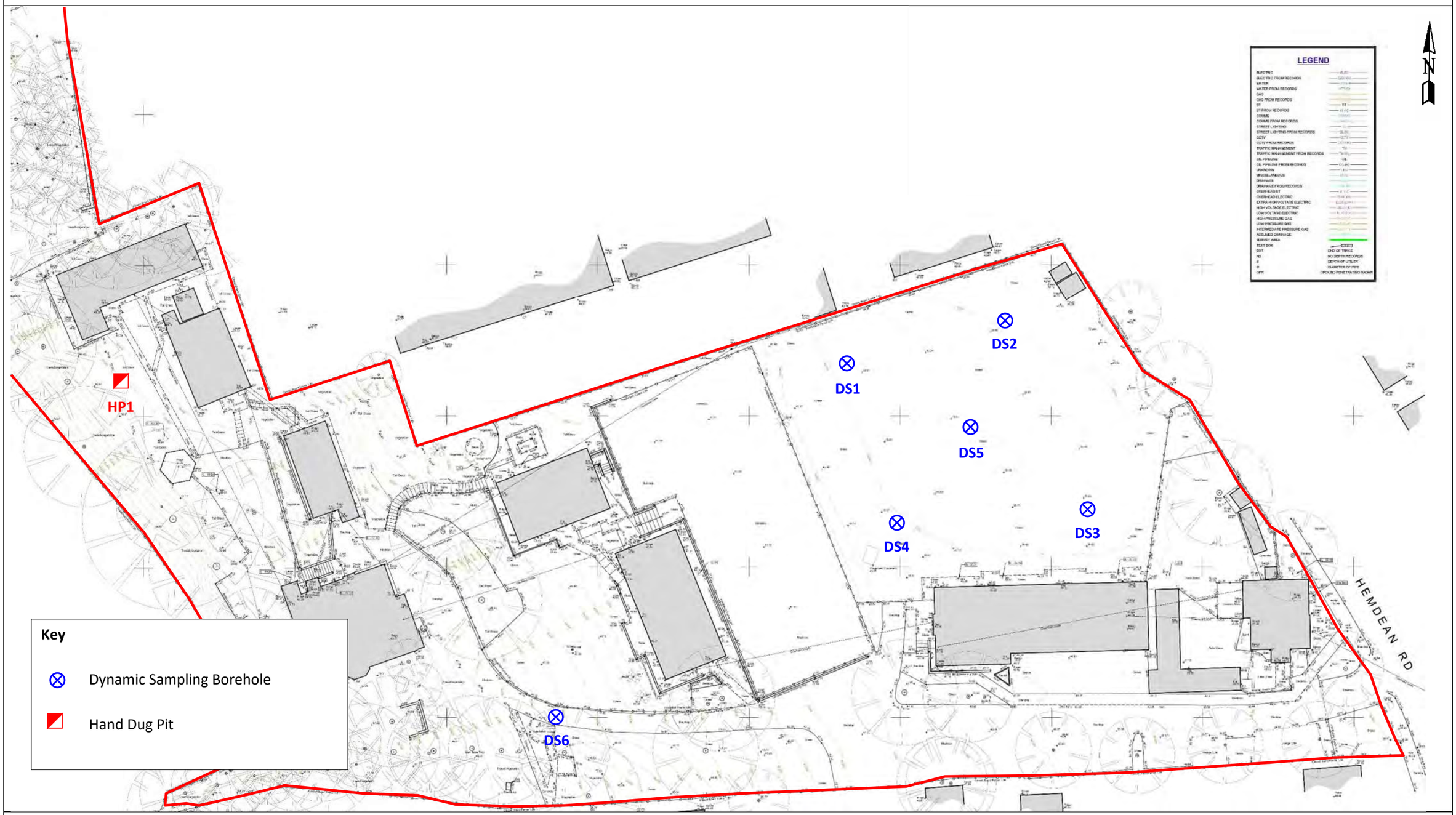
**Remarks**

*Ground Levels taken from from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

**Notes**

1. All logging and sampling in accordance with BS 5930:2015+A1:2020
2. The depths to strata change are approximate only
3. Symbols and abbreviations are explained on the accompanying key
4. All linear dimensions are in metres unless otherwise stated
5. Undrained shear strength test value given in $kN/m^2$

**FIGURE I-1**




**EXPLORATORY LOCATION PLAN**

Scale 1:500

Reproduced from Topographical Survey, dated May 2025, by Cube Surveys, Dwg No. CUB-RBS-CRL-024

# **Appendix E** Thames Water, Asset Records

# Asset Location Search

Thames Water Property Searches

NRSWA Ltd
The Rosery
Odiham Road
READING
RG7 1SD

**Search address supplied** Hemdean House School
Hemdean Road
Caversham
Reading
RG4 7SD

**Your reference** Caversham

**Our reference** ALS/ALS Standard/2025_5115218

**Search date** 5 February 2025

**Notification of Price Changes**

From 1st April 2024 Thames Water Property Searches will be increasing the prices of its CON29DW Residential and Commercial searches along with the Asset Location Search. Costs will rise in line with RPI as per previous years, which is sat at 6%.

Customers will be emailed with the new prices by February 28th 2024.

Any orders received with a higher payment prior to the 1st April 2024 will be non-refundable. For further details on the price increase please visit our website at www.thameswater-propertysearches.co.uk.

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

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

0800 009 4540

# Asset Location Search

Property Searches

**Search address supplied:** Hemdean House School, Hemdean Road, Caversham, Reading, RG4 7SD

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 search provides 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.**

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.**

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

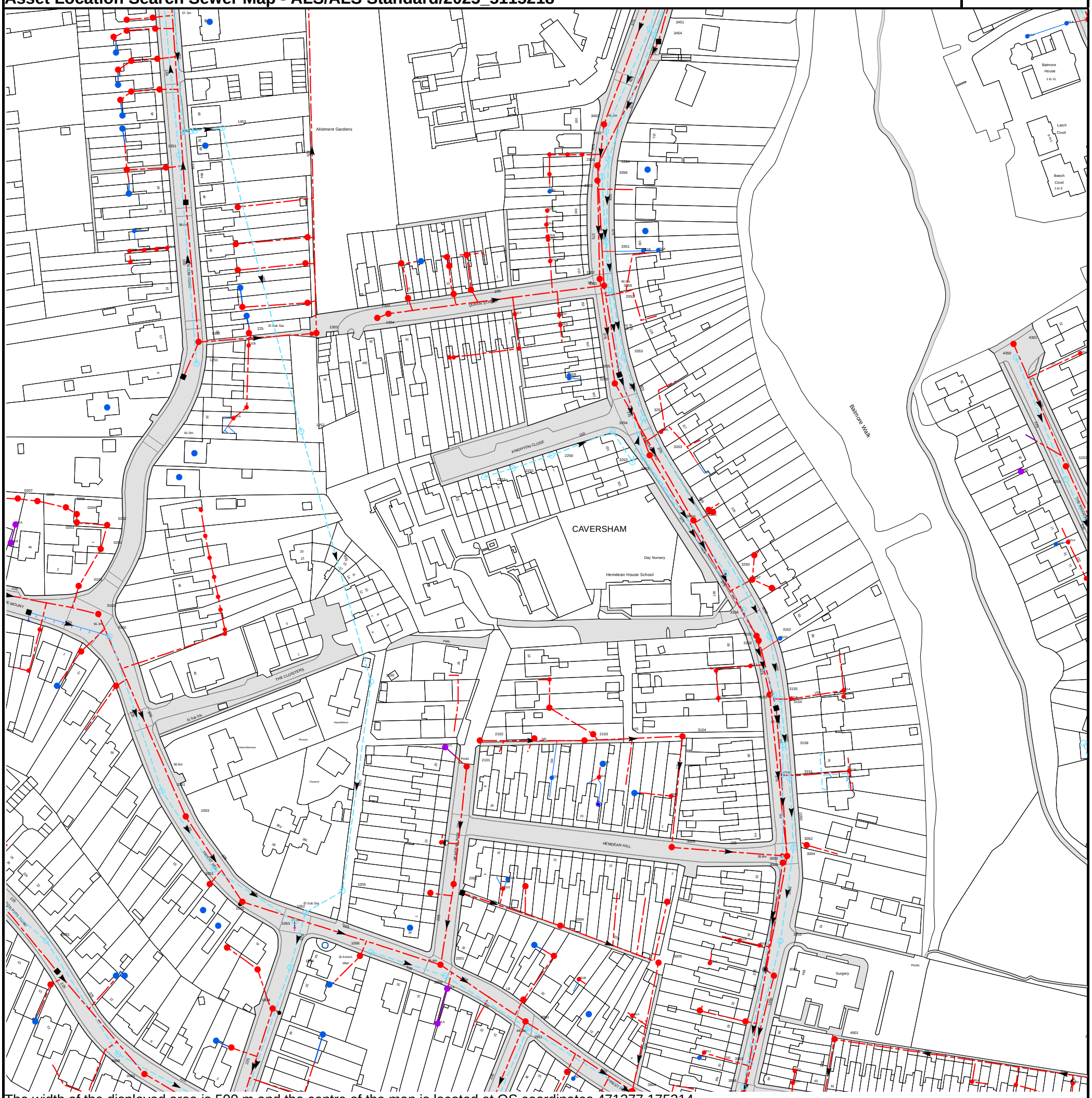
### Clean Water queries

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/2025_5115218




The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 471277,175214

**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.**

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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 |
|---|---|---|
| 521B | n/a | n/a |
| 421A | n/a | n/a |
| 391K | n/a | n/a |
| 391L | n/a | n/a |
| 391I | n/a | n/a |
| 391J | n/a | n/a |
| 311H | n/a | n/a |
| 311I | n/a | n/a |
| 311J | n/a | n/a |
| 321A | n/a | n/a |
| 5453 | 65.07 | 62.87 |
| 5402 | 64.87 | 62.37 |
| 04ZW | n/a | n/a |
| 04ZV | n/a | n/a |
| 231B | n/a | n/a |
| 231C | n/a | n/a |
| 23ZT | n/a | n/a |
| 23ZS | n/a | n/a |
| 231I | n/a | n/a |
| 231D | n/a | n/a |
| 231H | n/a | n/a |
| 231G | n/a | n/a |
| n/a | n/a | n/a |
| 23ZR | n/a | n/a |
| 2303 | 41.12 | 38.39 |
| 2301 | 41.19 | 39.94 |
| 3302 | 40.7 | 38.17 |
| 3356 | 41.18 | 39.59 |
| 3301 | 40.68 | 39.38 |
| 3402 | 41.47 | 38.45 |
| 3452 | 41.49 | n/a |
| 3351 | 40.76 | 38.18 |
| 3354 | 41.25 | 38.42 |
| 3355 | 40.65 | 39.37 |
| 3352 | 40.57 | 38.06 |
| 331B | n/a | n/a |
| 33YV | n/a | n/a |
| 33ZS | n/a | n/a |
| 3451 | 43.14 | 38.86 |
| 3454 | n/a | n/a |
| 331A | n/a | n/a |
| 01YY | n/a | n/a |
| 01YQ | n/a | n/a |
| 1302 | 60.26 | 58.65 |
| 031A | n/a | n/a |
| 031B | n/a | n/a |
| 031C | n/a | n/a |
| 031D | n/a | n/a |
| 131A | n/a | n/a |
| 031E | n/a | n/a |
| 03ZW | n/a | n/a |
| 03ZR | n/a | n/a |
| 13YQ | n/a | n/a |
| 1351 | 58.27 | 56.78 |
| 1452 | 57.97 | 55.17 |
| 141B | 58.14 | 55.24 |
| 141A | n/a | n/a |
| 04YY | n/a | n/a |
| 04ZP | n/a | n/a |
| 04YZ | n/a | n/a |
| 04YW | n/a | n/a |
| 04YV | n/a | n/a |
| 04ZR | n/a | n/a |
| 04YT | n/a | n/a |
| 04YS | n/a | n/a |
| 04YR | n/a | n/a |
| 04ZT | n/a | n/a |
| 04YQ | n/a | n/a |
| 04YP | n/a | n/a |
| 04XZ | n/a | n/a |
| 211C | n/a | n/a |
| 121A | n/a | n/a |
| 131B | n/a | n/a |
| 1303 | 51.15 | 49.75 |
| 13XZ | n/a | n/a |
| 1304 | 44.25 | 42.87 |
| 13ZR | n/a | n/a |
| 231F | n/a | n/a |
| 2302 | 43.9 | 42.56 |
| 13XX | n/a | n/a |
| 13XW | n/a | n/a |
| 23TV | n/a | n/a |
| 23VP | n/a | n/a |
| 23XV | n/a | n/a |
| 13ZP | n/a | n/a |
| 13YY | n/a | n/a |
| 23XP | n/a | n/a |
| 13YX | n/a | n/a |
| 23TY | n/a | n/a |
| 23WW | n/a | n/a |
| 23XQ | n/a | n/a |

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|---|---|---|
| 23XW | n/a | n/a |
| 13YW | n/a | n/a |
| 13YV | n/a | n/a |
| 231A | n/a | n/a |
| 231E | n/a | n/a |
| 13YT | n/a | n/a |
| 13XR | n/a | n/a |
| 1453 | 55.93 | 54.4 |
| 14YY | n/a | n/a |
| 591I | n/a | n/a |
| 51XZ | n/a | n/a |
| 5202 | 58.89 | 56.96 |
| 4350 | 61.12 | 59.67 |
| 531C | n/a | n/a |
| 4301 | 61.24 | 59.42 |
| 441A | n/a | n/a |
| 541A | n/a | n/a |
| 3102 | 39.11 | 37.54 |
| 311D | n/a | n/a |
| 3152 | 39.18 | 37.25 |
| 3101 | 39.32 | 37.62 |
| 3156 | 39.33 | 37.64 |
| 31WY | n/a | n/a |
| 3157 | 39.42 | 37.21 |
| 32YX | n/a | n/a |
| 3250 | n/a | n/a |
| 32YV | n/a | n/a |
| 521C | n/a | n/a |
| 521A | n/a | n/a |
| 5251 | 58.75 | 57.13 |
| 301A | n/a | n/a |
| 3956 | 39.1 | 37.55 |
| 3907 | 39.07 | 36.82 |
| 39SY | n/a | n/a |
| 3953 | 39.21 | 36.87 |
| 301B | n/a | n/a |
| 3103 | 38.87 | 37.46 |
| 3001 | 39.51 | 36.32 |
| 3155 | 38.89 | 37.55 |
| 3051 | 39.72 | 36.97 |
| 3154 | 38.94 | 37.24 |
| 3158 | 39.07 | n/a |
| 3003 | 39.51 | 37.04 |
| 3053 | 39.5 | 37.81 |
| 311G | n/a | n/a |
| 3004 | 39.46 | 37.11 |
| 3151 | 39.06 | 37.22 |
| 311E | n/a | n/a |
| 3052 | 39.33 | 37 |
| 30WZ | n/a | n/a |
| 4901 | 39.95 | 38.59 |
| 41ZR | n/a | n/a |
| 411A | n/a | n/a |
| 411B | n/a | n/a |
| 491A | n/a | n/a |
| 49XV | n/a | n/a |
| 2251 | 41.86 | 40.78 |
| 23WQ | n/a | n/a |
| 21YV | n/a | n/a |
| 21YR | n/a | n/a |
| 21YQ | n/a | n/a |
| 2250 | n/a | n/a |
| 211B | n/a | n/a |
| 221B | n/a | n/a |
| 221A | n/a | n/a |
| 2103 | n/a | n/a |
| 21YP | n/a | n/a |
| 211A | n/a | n/a |
| 311F | n/a | n/a |
| 3254 | 40.45 | 39.15 |
| 3202 | 40.41 | 38.04 |
| 3255 | 40.49 | 39.31 |
| 3353 | 40.44 | 37.89 |
| 3253 | 40.21 | 38.83 |
| 3252 | 40.01 | 38.8 |
| 3251 | 40.26 | 37.72 |
| 3203 | 40.07 | 38.57 |
| 3104 | 40.95 | 39.89 |
| 3201 | 39.84 | 37.79 |
| 32YP | n/a | n/a |
| 32YT | n/a | n/a |
| 2001 | 48.13 | 46.29 |
| 201C | n/a | n/a |
| 2050 | 47.67 | 46.21 |
| 201A | n/a | n/a |
| 2002 | 49.97 | 47.45 |
| 201E | n/a | n/a |
| 201D | n/a | n/a |
| 20WS | n/a | n/a |
| 2901 | 44.7 | 43.31 |
| 20VV | n/a | n/a |
| 2951 | 44.48 | 43.16 |
| 20XP | n/a | n/a |

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|---|---|---|
| 20WT | n/a | n/a |
| 2004 | n/a | n/a |
| 29YR | n/a | n/a |
| 291H | n/a | n/a |
| 201B | n/a | n/a |
| 20XX | n/a | n/a |
| 391A | n/a | n/a |
| 3904 | 40.63 | 39.15 |
| 31XY | n/a | n/a |
| 3006 | 42.26 | 40.99 |
| 30XW | n/a | n/a |
| 311C | n/a | n/a |
| 3005 | 42.13 | 39.74 |
| 30ZQ | n/a | n/a |
| 301C | n/a | n/a |
| 00YX | n/a | n/a |
| 0950 | 53.91 | 52.5 |
| 00XS | n/a | n/a |
| 0901 | 52.66 | 50.78 |
| 1003 | 58.63 | 56.3 |
| 10YQ | n/a | n/a |
| 10ZQ | n/a | n/a |
| 1051 | 57.79 | 56.46 |
| 19ZX | n/a | n/a |
| 10YR | n/a | n/a |
| 10YW | n/a | n/a |
| 19ZW | n/a | n/a |
| 1001 | 56.9 | 55.07 |
| 10YY | n/a | n/a |
| 1004 | 52.38 | n/a |
| 1054 | 53.42 | 51.32 |
| 1053 | 54.91 | 53.76 |
| 1052 | 54.57 | 51.67 |
| 19XR | n/a | n/a |
| 10YZ | n/a | n/a |
| 1055 | 54.22 | 51.89 |
| 10YT | n/a | n/a |
| 1056 | 51.02 | 49.71 |
| 20VQ | n/a | n/a |
| 2052 | n/a | n/a |
| 291A | n/a | n/a |
| 0102 | 61.42 | 57.8 |
| 0201 | n/a | n/a |
| 02YY | n/a | n/a |
| 0202 | 62.96 | 61.82 |
| 0152 | 60.94 | 59.42 |
| 01XY | n/a | n/a |
| 0151 | n/a | n/a |
| 12ZX | n/a | n/a |
| 12ZW | n/a | n/a |
| 1251 | 60.52 | 59.19 |
| 12YV | n/a | n/a |
| 12YT | n/a | n/a |
| 12YS | n/a | n/a |
| 12ZR | n/a | n/a |
| 11ZR | n/a | n/a |
| 11ZQ | n/a | n/a |
| 11ZS | n/a | n/a |
| 11ZP | n/a | n/a |
| 12ZS | n/a | n/a |
| 1252 | n/a | n/a |
| 1150 | 54.66 | 53.04 |
| 23WS | n/a | n/a |
| 23WR | n/a | n/a |
| 2101 | 49.98 | 49 |
| 2102 | 49.74 | 48.15 |
| 2252 | 41.9 | 40.85 |
| 021B | n/a | n/a |
| 021A | n/a | n/a |
| 0207 | n/a | n/a |
| 0206 | n/a | n/a |
| 01ZT | n/a | n/a |
| 0205 | 63.68 | 63 |
| 0203 | 63.07 | 62.41 |
| 0204 | 63.1 | 62.55 |
| 0101 | n/a | n/a |
| 01ZR | n/a | n/a |
| 09YX | n/a | n/a |
| 00YP | n/a | n/a |
| 0051 | 59.93 | 58.68 |

**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 Key

## Public Sewer Types (Operated and maintained by Thames Water)

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

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

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

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

## Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

## 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
- Meter
- Dam Chase
- Vent
- Fitting

## Operational Controls

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

- Ancillary
- Drop Pipe
- Control Valve
- 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.

- Inlet
- Outfall
- Undefined End

## Other Symbols

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

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

## Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

## Ducts or Crossings

- Casement — Ducts may contain high voltage cables. Please check with Thames Water.
- Conduit Bridge
- Subway
- Tunnel

**Notes:**

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the 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 indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. 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, please contact Property Searches on 0800 009 4540.

# Asset Location Search Water Map - ALS/ALS Standard/2025_5115218

The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 471277, 175214.

**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.**

**Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.**

# Asset Location Search - Water 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.

| 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') |

## 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

**Casement:** Ducts may contain high voltage cables. Please check with Thames Water.

## 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.

## Payment 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 within 14 days of the 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. 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'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. 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 980 8800.

If you are unhappy with our service, you can speak to your original goods or customer service provider. If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

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 0300 034 2222 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** |
|---|---|---|
| Please Call **0800 009 4540** quoting your invoice number starting CBA or ADS | Account number **90478703**<br>Sort code **60-00-01**<br>A remittance advice must be sent to:<br>**Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.**<br>or email<br>**ps.billing@thameswater.co.uk** | By calling your bank and quoting:<br>Account number **90478703**<br>Sort code **60-00-01**<br>and your invoice number |

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

# **Appendix F** Utility Surveys LTD CCTV Drainage Survey and Report

CCTV SURVEYS

HIGH PRESSURE JETTING

HOME BUYER SURVEYS

BUILD OVER SURVEYS

COMPREHENSIVE REPORTING

DRAIN LINING REPAIRS

DrainSafe
Approved Drainage Contractors

National Association N.A.D.C. Drainage Contractors

UTILITY SURVEYS LTD.


**5 SUFFOLK ROAD**
**MALDON**
**ESSEX**
**CM9 6AX**
Telephone: 07971 910370


# CCTV REPORT

| | |
|---|---|
| **CLIENT** | CHURCHILL LIVING |
| **LOCATION** | HEMDEAN HOUSE SCHOOL<br>HEMDEAN ROAD<br>CAVERSHAM<br>READING<br>RG4 7SD |
| **DATE** | 19/05/2025 |
| **REF** | 071660 |

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2. CONTACT INFORMATION……3
3. UTILITY SURVEYS LTD CONTACT DETAILS……..3
4. SITE DESCRIPTION……...4
5. SURVEY BRIEF……...…5
6. SURVEY TECHNIQUES……7
7. INDIVIDUAL INSPECTION REPORT……...8

**REGISTER OF APPENDICES**

A. MANHOLE INSPECTION REPORT
B. COPIES OF SITE HAND WRITTEN DAILY RECORD SHEETS
C. ANNOTATED SITE DRAWINGS

## GENERAL INFORMATION

Utility Surveys Ltd have been appointed by Churchill Living to undertake a Sewer Condition Survey at the location identified. This survey commenced on 19 May 2025.

## CONTACT INFORMATION

| | |
|---|---|
| **SITE ADDRESS:**<br>**HEMDEAN HOUSE SCHOOL**<br>**HEMDEAN ROAD**<br>**CAVERSHAM**<br>**READING RG4 7SD** | **SITE CONTACT: N/A**<br><br>**CONTACT NO:**<br><br>**EMAIL:** |
| **CLIENT DETAILS:**<br>**CHURCHILL LIVING**<br>**CHURCHILL HOUSE**<br>**PARKSIDE**<br>**RINGWOOD**<br>**HAMPSHIRE**<br>**BH24 3SG** | **CONTACT: HARRY YOUNG**<br><br>**CONTACT NO: 01425 462139**<br><br>**EMAIL:** |

## UTILITY SURVEYS LTD CONTACT DETAILS

| | |
|---|---|
| **OFFICE** | **SIMON GARDINER**<br>**07971 910370**<br>**simon@utilitysurveysltd.co.uk** |
| **RIG MANAGER** | **SIMON GARDINER** |

## SITE DESCRIPTION

### Site Description

DEVELOPMENT SITE

### Site Boundaries

CLEARLY DEFINED ON SUPPLIED DRAWINGS

## SURVEY BRIEF

### Sewer Condition Inspection Survey

The Purpose of the Sewer Condition Inspection Survey was to establish the location and extent of foul and/ or surface water drainage systems and to document their condition prior to any further works.

- A full condition survey can only be produced if precleansing / jetting is carried out in conjunction with the CCTV survey.

- If precleansing is not carried out at the time of the survey further faults and conditional defects may be present but not recorded in this report.

In addition Utility Surveys Ltd have;

- Attempted to investigate all agreed areas, although if not all could be fully accessed (see Daily Record Sheet).

- Produced a report to establish the location and extent of foul and surface water drainage systems and to document their condition prior to any further works.

- Provided the basic information from which a remediation or management plan can be instigated.

- Highlighted the requirement for urgent action to repair or remediation works to the surveyed drainage system.

- Incorporated in the results any additional manholes/ drainage found, which may have been buried, obscured or not identified in the original scope of works.

## Agreed Restrictions and Exclusions

This report is based upon a Sewer Condition Inspection Survey of an unfamiliar site.

During the course of the survey all reasonable efforts were made to identify and access all Manholes and foul/ surface drainage/ outfall, throughout the site.

Some installations/ areas may not have been inspected due to access and or safety reasons (e.g. Wet Wells, Large Unventilated Tanks, Traffic Management Situations). Unless an accepted safe system of work has been devised.

Access may not have been gained to several areas of the site due to conditions outside the control of the client or contractor, any such areas have been documented within this report (see Daily Record Sheet).

Any diagrams/ CAD drawings in the report are not to be scaled and are illustrative only to indicate approximate locations.

Manhole covers will not be lifted if:

a) There is a danger of damaging surrounding flooring or finishes.
b) They are covered, i.e. under fitted carpets, flooring, tiling or paving etc.
c) Under fittings, fixtures, fencing, equipment etc.

Buried manholes will be located, if possible, position marked. If instructed, excavated in soft ground only up to a depth of 350mm with temporary reinstatement.

No allowance has been made for any precleansing unless stated in the quotation.

Full and free access to all areas affected is to be arranged by the instructing party.

## SURVEY TECHNIQUES

The areas set out within the survey brief underwent inspection for a Sewer Condition Inspection Survey each area within the agreed scope of works was surveyed for location extent and condition of foul and/ or surface water drainage systems and CCTV footage gathered for confirmation. Every reasonable effort was made to investigate all aspects of the drainage system. Additional photographs were taken where relevant to the inspection.

There were no deviations from the agreed scope of works.

This Sewer Condition Inspection Survey was carried out in accordance with the Utility Surveys Ltd documented 'in-house' procedure 820 'Code of Working Practice' based on National Sewerage Association guidance.
The Sewer Condition Inspection Survey Report states information recorded at the time of survey only, based on visual and CCTV assessment in accordance with sewer classification codings issued by WRC, incorporating the following inspection criteria:

CONDITION of pipe work
LOCATION of pipe work
EXTENT of the pipe work

A defect grade description has been provided for the identification of defective pipe work.

Changes to any of the above criteria shall necessitate the need for reassessment

These gradings and the reports can be used to form the basis of a planned preventative maintenance programme. This can be the subject of further discussions with our technical support team.

**Utility Surveys Ltd**
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WEB PROJECT
CLICK TO OPEN THIS PROJECT

**Project**

**Project Name:** Hemdean House School

**Project Number:** 071660

**Project Date:** 5/19/2025

**Utility Surveys Ltd**
*5 Suffolk Road, Maldon*
*Tel. 07872 542303*
*matt@utilitysurveysltd.co.uk*

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# Project Information

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

## Client

**Company:** Churchill Living
**Contact:** Harry Young
**Street:** Churchill House, Parkside
**Town or City:** Ringwood
**County:** Hampshire
**Post Code:** BH24 3SG
**Phone:** 01425 462139
**Email:** harry.young@crl.co.uk

## Site

**Department:** Hemdean House School
**Street:** Hemdean Road
**Town or City:** Caversham
**County:** Reading
**Post Code:** RG4 7SD

## Contractor

**Company:** Utility Surveys Ltd
**Contact:** Matt Campbell
**Street:** 5 Suffolk Road
**Town or City:** Maldon
**Post Code:** CM9 6AX
**Phone:** 07872 542303
**Email:** matt@utilitysurveysltd.co.uk

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*matt@utilitysurveysltd.co.uk*

# Project Information

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

## Project Drawing, Page 'Page'

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# Scoring Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

## 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.

| Item No. | PLR | Grade | Description |
|---|---|---|---|
| 12 | F9X | 5 | Hole in drain or sewer, from 11 o'clock to 2 o'clock |
| 13 | F11Y | 5 | Hole in drain or sewer, from 10 o'clock to 10 o'clock |
| 22 | F16X | 4 | Broken pipe at joint, from 7 o'clock to 10 o'clock |

## 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.

| Item No. | PLR | Grade | Description |
|---|---|---|---|
| 11 | F8X | 5 | Roots, mass, 60% cross-sectional area loss |
| 12 | F9X | 3 | Attached deposits, encrustation at joint, from 3 o'clock to 6 o'clock, 5% cross-sectional area loss |
| 13 | F11Y | 5 | Roots, mass, 60% cross-sectional area loss |
| 18 | F15X | 4 | Multiple defects |
| 21 | F13 SPURA | 3 | Attached deposits, grease, from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, finish |
| 22 | F16X | 4 | Roots, tap at joint |

## Abandoned Surveys

| Item No. | PLR | Description |
|---|---|---|
| 1 | F1 SPURA | Survey abandoned |
| 13 | F11Y | Survey abandoned |
| 21 | F13 SPURA | Survey abandoned |

## Information

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

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# Section Profile - 5/19/2025 - F1 SPURA

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

## Circular, 75 mm, 0 mm

| Item No. | Upstream Node | Downstream Node | Date | Road | Material | Total Length | Inspected Length |
|---|---|---|---|---|---|---|---|
| 21 | F13 SPUR | F13 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 24.98 m | 24.98 m |

**Total: 1 Inspection x Circular 75 mm, 0 mm = 24.98 m Total Length and 24.98 m Inspected Length**

## Circular, 100 mm, 0 mm

| Item No. | Upstream Node | Downstream Node | Date | Road | Material | Total Length | Inspected Length |
|---|---|---|---|---|---|---|---|
| 1 | F1 SPUR | F1 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 3.30 m | 3.30 m |
| 2 | F1 | F2 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 6.72 m | 6.72 m |
| 3 | F2 | F3 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 8.29 m | 8.29 m |
| 5 | F4 SPUR | F4 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 2.25 m | 2.25 m |
| 6 | F4 | F5 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 5.66 m | 5.66 m |
| 7 | F5 | F6 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 15.94 m | 15.94 m |
| 8 | F6 | F1 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 6.22 m | 6.22 m |
| 9 | F3 | F7 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 0.57 m | 0.57 m |
| 10 | F7 | MAIN | 5/19/2025 | Hemdean Road | Vitrified clay | 0.21 m | 0.21 m |
| 11 | F8 | MAIN | 5/19/2025 | Hemdean Road | Vitrified clay | 0.55 m | 0.55 m |
| 12 | F9 | F10 | 5/19/2025 | Hemdean Road | Vitrified clay | 4.91 m | 4.91 m |
| 16 | F13 | F14 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 8.81 m | 8.81 m |
| 17 | F14 | F15 | 5/19/2025 | Hemdean Road | Vitrified clay | 20.04 m | 20.04 m |
| 18 | F15 | F16 | 5/19/2025 | Hemdean Road | Vitrified clay | 31.01 m | 31.01 m |
| 19 | F17 | F14 | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 6.08 m | 6.08 m |
| 20 | F18 | MAIN | 5/19/2025 | Hemdean Road | Polyvinyl chloride | 0.22 m | 0.22 m |
| 22 | F16 | F19 | 5/19/2025 | Hemdean Road | Vitrified clay | 24.03 m | 24.03 m |

**Total: 17 Inspections x Circular 100 mm, 0 mm = 144.81 m Total Length and 144.81 m Inspected Length**

## Circular, 150 mm, 0 mm

| Item No. | Upstream Node | Downstream Node | Date | Road | Material | Total Length | Inspected Length |
|---|---|---|---|---|---|---|---|
| 13 | F11 | F10 | 5/19/2025 | Hemdean Road | Vitrified clay | 8.91 m | 8.91 m |
| 14 | F10 | F12 | 5/19/2025 | Hemdean Road | Vitrified clay | 14.14 m | 14.14 m |
| 15 | F12 | F13 | 5/19/2025 | Hemdean Road | Vitrified clay | 3.16 m | 3.16 m |

**Total: 3 Inspections x Circular 150 mm, 0 mm = 26.21 m Total Length and 26.21 m Inspected Length**

**Total: 21 Inspections = 196.00 m Total Length and 196.00 m Inspected Length**

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| | |
|---|---|
| Number of sections | 21 |
| Total length of sections | 196.00 m |
| Total length of inspected sections | 196.00 m |
| Total length of not inspected sections | 0.00 m |
| Number of abandoned inspections | 3 |
| Number of section inspection photos | 54 |
| Number of section inspection videos | 21 |
| Number of section inspection scans | 0 |
| Number of section inclination measurements | 0 |

| | | | |
|---|---|---|---|
| **PLR:** | F1 SPURA | **Upstream Node:** | F1 SPUR |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F1 |
| **Inspected Length:** | 3.30 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 3.30 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 2.90 | LU | Line deviates up |
| 3 | 3.30 | SA | Survey abandoned |

| | | | |
|---|---|---|---|
| **PLR:** | F1X | **Upstream Node:** | F1 |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F2 |
| **Inspected Length:** | 6.72 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 6.72 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.66 | WL | Water level, 5% of the vertical dimension |
| 3 | 0.79 | WL | Water level, 10% of the vertical dimension |
| 4 | 0.83 | WL | Water level, 20% of the vertical dimension |
| 5 | 1.15 | CUW | Loss of vision, camera under water, start |
| 6 | 4.13 | CUW | Loss of vision, camera under water, finish |
| 7 | 5.57 | WL | Water level, 10% of the vertical dimension |
| 8 | 5.81 | WL | Water level, 5% of the vertical dimension |
| 9 | 6.72 | ICF | Finish node, inspection chamber, reference: F1 |

| | | | |
|---|---|---|---|
| **PLR:** | F2X | **Upstream Node:** | F2 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F3 |
| **Inspected Length:** | 8.29 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 8.29 m | **Material:** | Polyvinyl chloride |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 5% of the vertical dimension |
| 2 | 3.20 | WL | Water level, 10% of the vertical dimension |
| 3 | 4.05 | WL | Water level, 20% of the vertical dimension |
| 4 | 5.99 | WL | Water level, 10% of the vertical dimension |
| 5 | 6.19 | WL | Water level, 5% of the vertical dimension |
| 6 | 7.54 | WL | Water level, 10% of the vertical dimension |
| 7 | 8.29 | ICF | Finish node, inspection chamber, reference: F3 |

| | | | |
|---|---|---|---|
| **PLR:** | F4 SPURC | **Upstream Node:** | F4 SPUR |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F4 |
| **Inspected Length:** | 2.25 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 2.25 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 1.40 | LL | Line deviates left |
| 3 | 2.25 | GYF | Finish node, gully, reference: F4 SPUR |

| | | | |
|---|---|---|---|
| **PLR:** | F4X | **Upstream Node:** | F4 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F5 |
| **Inspected Length:** | 5.66 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 5.66 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 1.42 | WL | Water level, 5% of the vertical dimension |
| 3 | 1.82 | WL | Water level, 10% of the vertical dimension |
| 4 | 3.35 | WL | Water level, 5% of the vertical dimension |
| 5 | 3.77 | WL | Water level, 10% of the vertical dimension |
| 6 | 3.92 | WL | Water level, 20% of the vertical dimension |
| 7 | 4.05 | JN | Junction, at 2 o'clock , 100 mm dia @CON |
| 8 | 4.53 | WL | Water level, 10% of the vertical dimension |
| 9 | 5.23 | WL | Water level, 5% of the vertical dimension |
| 10 | 5.66 | ICF | Finish node, inspection chamber, reference: F5 |

| | | | |
|---|---|---|---|
| **PLR:** | F5X | **Upstream Node:** | F5 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F6 |
| **Inspected Length:** | 15.94 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 15.94 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 15.94 | ICF | Finish node, inspection chamber, reference: F6 |

| | | | |
|---|---|---|---|
| **PLR:** | F6X | **Upstream Node:** | F6 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F1 |
| **Inspected Length:** | 6.22 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 6.22 m | **Material:** | Polyvinyl chloride |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 1.65 | WL | Water level, 5% of the vertical dimension |
| 3 | 6.22 | ICF | Finish node, inspection chamber, reference: F1 |

| | | | |
|---|---|---|---|
| **PLR:** | F3Y | **Upstream Node:** | F3 |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F7 |
| **Inspected Length:** | 0.57 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 0.57 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 5% of the vertical dimension |
| 2 | 0.57 | ICF | Finish node, inspection chamber, reference: F3 |

| | | | |
|---|---|---|---|
| **PLR:** | F7X | **Upstream Node:** | F7 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | MAIN |
| **Inspected Length:** | 0.21 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 0.21 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.21 | WRF | Finish node, winser trap, reference: MAIN |

| | | | |
|---|---|---|---|
| **PLR:** | F8X | **Upstream Node:** | F8 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | MAIN |
| **Inspected Length:** | 0.55 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 0.55 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.00 | RF | Roots, fine, start |
| 3 | 0.55 | RF | Roots, fine, finish |
| 4 | 0.55 | RM | Roots, mass, 60% cross-sectional area loss |
| 5 | 0.55 | BRF | Finish node, major connection without manhole, reference: MAIN |

| | | | |
|---|---|---|---|
| **PLR:** | F9X | **Upstream Node:** | F9 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F10 |
| **Inspected Length:** | 4.91 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 4.91 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.44 | SC | Pipe size changes, new size(s), 150 mm high |
| 3 | 0.78 | RFJ | Roots, fine at joint |
| 4 | 0.82 | BJ | Broken pipe at joint, from 12 o'clock to 12 o'clock |
| 5 | 0.99 | FLJ | Fracture, longitudinal at joint, at 3 o'clock |
| 6 | 2.31 | RFJ | Roots, fine at joint |
| 7 | 2.86 | RFJ | Roots, fine at joint |
| 8 | 2.94 | H | Hole in drain or sewer, from 11 o'clock to 2 o'clock |
| 9 | 4.13 | DEEJ | Attached deposits, encrustation at joint, from 3 o'clock to 6 o'clock, 5% cross-sectional area loss |
| 10 | 4.49 | CC | Crack, circumferential, from 9 o'clock to 4 o'clock |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 11 | 4.91 | MHF | Finish node, manhole, reference: F10 |

| | | | |
|---|---|---|---|
| **PLR:** | F11Y | **Upstream Node:** | F11 |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F10 |
| **Inspected Length:** | 8.91 m | **Dia/Height:** | 150 mm |
| **Total Length:** | 8.91 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 1.67 | CC | Crack, circumferential, from 7 o'clock to 9 o'clock |
| 3 | 2.62 | H | Hole in drain or sewer, from 10 o'clock to 10 o'clock |
| 4 | 2.62 | RF | Roots, fine |
| 5 | 6.79 | RFJ | Roots, fine at joint |
| 6 | 7.15 | RFJ | Roots, fine at joint, start |
| 7 | 8.76 | RFJ | Roots, fine at joint, finish |
| 8 | 8.76 | RM | Roots, mass, 60% cross-sectional area loss |
| 9 | 8.89 | JN | Junction, at 9 o'clock , 100 mm dia @CON |
| 10 | 8.91 | SA | Survey abandoned |

| | | | |
|---|---|---|---|
| **PLR:** | F10X | **Upstream Node:** | F10 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F12 |
| **Inspected Length:** | 14.14 m | **Dia/Height:** | 150 mm |
| **Total Length:** | 14.14 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 6.41 | LD | Line deviates down |
| 3 | 7.22 | LCCIP | Cured-in-place lining ends at this point |
| 4 | 8.60 | CC | Crack, circumferential, from 7 o'clock to 12 o'clock |
| 5 | 8.96 | RFJ | Roots, fine at joint |
| 6 | 10.24 | H | Hole in drain or sewer, from 10 o'clock to 12 o'clock |
| 7 | 12.00 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock |
| 8 | 12.64 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock |
| 9 | 13.29 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock |
| 10 | 13.74 | CC | Crack, circumferential, from 9 o'clock to 3 o'clock |
| 11 | 13.80 | CC | Crack, circumferential, from 3 o'clock to 5 o'clock |
| 12 | 14.14 | MHF | Finish node, manhole, reference: F12 |

| | | | |
|---|---|---|---|
| **PLR:** | F12X | **Upstream Node:** | F12 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F13 |
| **Inspected Length:** | 3.16 m | **Dia/Height:** | 150 mm |
| **Total Length:** | 3.16 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 2.85 | CC | Crack, circumferential, from 9 o'clock to 2 o'clock |
| 3 | 3.16 | MHF | Finish node, manhole, reference: F13 |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| | | | |
|---|---|---|---|
| **PLR:** | F13X | **Upstream Node:** | F13 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F14 |
| **Inspected Length:** | 8.81 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 8.81 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 8.81 | MHF | Finish node, manhole, reference: F14 |

| | | | |
|---|---|---|---|
| **PLR:** | F14X | **Upstream Node:** | F14 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F15 |
| **Inspected Length:** | 20.04 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 20.04 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 9.88 | RPL | Point repair, localised lining from 12 o'clock to 12 o'clock |
| 3 | 18.73 | WL | Water level, 5% of the vertical dimension |
| 4 | 18.77 | RPL | Point repair, localised lining from 12 o'clock to 12 o'clock |
| 5 | 20.04 | MHF | Finish node, manhole, reference: F15 |

| | | | |
|---|---|---|---|
| **PLR:** | F15X | **Upstream Node:** | F15 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F16 |
| **Inspected Length:** | 31.01 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 31.01 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.16 | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock |
| 3 | 0.49 | JN | Junction, at 12 o'clock , 100 mm dia @CON |
| 4 | 1.51 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 5 | 2.22 | RF | Roots, fine |
| 6 | 2.83 | RTJ | Roots, tap at joint, start |
| 7 | 3.56 | RTJ | Roots, tap at joint, finish |
| 8 | 8.06 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 9 | 10.65 | RFJ | Roots, fine at joint |
| 10 | 11.89 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 11 | 12.71 | JN | Junction, at 12 o'clock , 100 mm dia @CON |
| 12 | 13.80 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 13 | 16.75 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 14 | 19.84 | RTJ | Roots, tap at joint |
| 15 | 19.84 | CLJ | Crack, longitudinal at joint, at 5 o'clock |
| 16 | 20.57 | RTJ | Roots, tap at joint |
| 17 | 23.39 | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock |
| 18 | 27.58 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock |
| 19 | 31.01 | MHF | Finish node, manhole, reference: F16 |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| | | | |
|---|---|---|---|
| **PLR:** | F17X | **Upstream Node:** | F17 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F14 |
| **Inspected Length:** | 6.08 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 6.08 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 2.61 | LL | Line deviates left |
| 3 | 2.76 | JN | Junction, at 3 o'clock , 100 mm dia @CON |
| 4 | 5.17 | WL | Water level, 5% of the vertical dimension |
| 5 | 6.08 | MHF | Finish node, manhole, reference: F14 |

| | | | |
|---|---|---|---|
| **PLR:** | F18X | **Upstream Node:** | F18 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | MAIN |
| **Inspected Length:** | 0.22 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 0.22 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.22 | BRF | Finish node, major connection without manhole, reference: MAIN |

| | | | |
|---|---|---|---|
| **PLR:** | F13 SPURA | **Upstream Node:** | F13 SPUR |
| **Inspection Direction:** | Upstream | **Downstream Node:** | F13 |
| **Inspected Length:** | 24.98 m | **Dia/Height:** | 75 mm |
| **Total Length:** | 24.98 m | **Material:** | Polyvinyl chloride |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.09 | DEG | Attached deposits, grease, from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, start |
| 3 | 20.56 | WL | Water level, 5% of the vertical dimension |
| 4 | 24.61 | WL | Water level, 10% of the vertical dimension |
| 5 | 24.70 | WL | Water level, 30% of the vertical dimension |
| 6 | 24.98 | CUW | Loss of vision, camera under water |
| 7 | 24.98 | DEG | Attached deposits, grease, from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, finish |
| 8 | 24.98 | SA | Survey abandoned |

| | | | |
|---|---|---|---|
| **PLR:** | F16X | **Upstream Node:** | F16 |
| **Inspection Direction:** | Downstream | **Downstream Node:** | F19 |
| **Inspected Length:** | 24.03 m | **Dia/Height:** | 100 mm |
| **Total Length:** | 24.03 m | **Material:** | Vitrified clay |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 1 | 0.00 | WL | Water level, 0% of the vertical dimension |
| 2 | 0.00 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 3 | 0.29 | RFJ | Roots, fine at joint |
| 4 | 0.40 | JN | Junction, at 12 o'clock , 100 mm dia @CON |
| 5 | 0.84 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 6 | 1.94 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 7 | 3.91 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock |
| 8 | 6.07 | CL | Crack, longitudinal, at 11 o'clock |

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# Section Summary

| Project Name | Project Number | Project Date |
|---|---|---|
| Hemdean House School | 071660 | 5/19/2025 |

| No. | m+ | Code | Observation |
|---|---|---|---|
| 9 | 6.07 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock |
| 10 | 6.75 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock |
| 11 | 7.26 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock |
| 12 | 8.68 | WL | Water level, 5% of the vertical dimension |
| 13 | 9.13 | FLJ | Fracture, longitudinal at joint, at 8 o'clock |
| 14 | 9.13 | CLJ | Crack, longitudinal at joint, at 12 o'clock |
| 15 | 9.21 | BJ | Broken pipe at joint, from 7 o'clock to 10 o'clock |
| 16 | 9.21 | FL | Fracture, longitudinal, at 8 o'clock |
| 17 | 9.21 | CL | Crack, longitudinal, at 3 o'clock |
| 18 | 10.97 | CLJ | Crack, longitudinal at joint, at 12 o'clock |
| 19 | 11.18 | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock |
| 20 | 12.30 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock |
| 21 | 13.61 | CCJ | Crack, circumferential at joint, from 9 o'clock to 10 o'clock |
| 22 | 16.07 | CCJ | Crack, circumferential at joint, from 9 o'clock to 11 o'clock |
| 23 | 17.86 | CCJ | Crack, circumferential at joint, from 9 o'clock to 2 o'clock |
| 24 | 19.17 | RTJ | Roots, tap at joint |
| 25 | 20.42 | RFJ | Roots, fine at joint |
| 26 | 21.03 | WL | Water level, 10% of the vertical dimension |
| 27 | 21.47 | WL | Water level, 20% of the vertical dimension |
| 28 | 21.62 | RFJ | Roots, fine at joint |
| 29 | 22.08 | WL | Water level, 30% of the vertical dimension |
| 30 | 22.59 | CUW | Loss of vision, camera under water, start |
| 31 | 24.03 | CUW | Loss of vision, camera under water, finish |
| 32 | 24.03 | MHF | Finish node, manhole, reference: F19 |

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# Abandoned section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 19/05/25 | 9:40 | Not Specified | No Rain Or Snow | No | F1 SPURA |

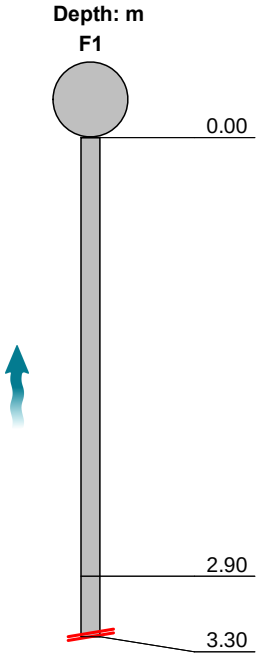
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F1 SPUR |
| **Road:** | Hemdean Road | **Inspected Length:** | 3.30 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 3.30 m | **Downstream Node:** | F1 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 2.90 | LU | Line deviates up | |
| 3.30 | SA | Survey abandoned: SHARP BEND UP | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 2 | 1 | 19/05/25 | 9:44 | Not Specified | No Rain Or Snow | No | F1X |

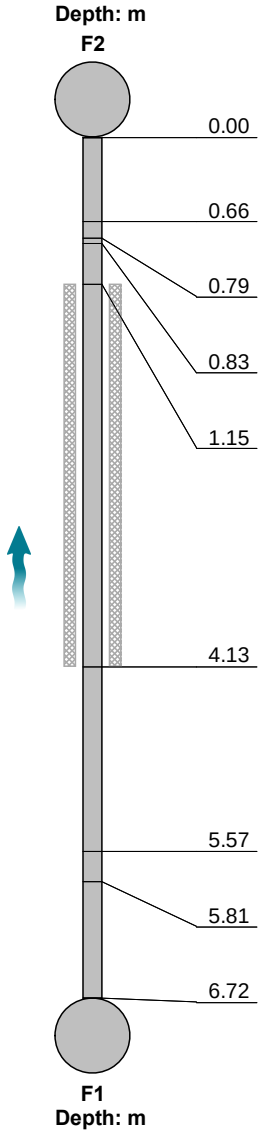
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F1 |
| **Road:** | Hemdean Road | **Inspected Length:** | 6.72 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 6.72 m | **Downstream Node:** | F2 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:59**




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 0.00 | | WL | Water level, 0% of the vertical dimension | |
| 0.66 | | WL | Water level, 5% of the vertical dimension | |
| 0.79 | | WL | Water level, 10% of the vertical dimension | |
| 0.83 | | WL | Water level, 20% of the vertical dimension | |
| 1.15 | S01 | CUW | Loss of vision, camera under water, start | |
| 4.13 | F01 | CUW | Loss of vision, camera under water, finish | |
| 5.57 | | WL | Water level, 10% of the vertical dimension | |
| 5.81 | | WL | Water level, 5% of the vertical dimension | |
| 6.72 | | ICF | Finish node, inspection chamber, reference: F1 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 3 | 1 | 19/05/25 | 9:50 | Not Specified | No Rain Or Snow | No | F2X |

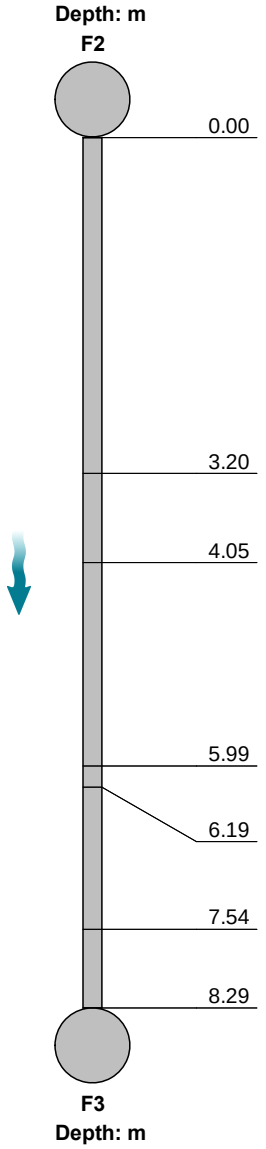
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F2 |
| **Road:** | Hemdean Road | **Inspected Length:** | 8.29 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 8.29 m | **Downstream Node:** | F3 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:72**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 5% of the vertical dimension | |
| 3.20 | WL | Water level, 10% of the vertical dimension | |
| 4.05 | WL | Water level, 20% of the vertical dimension | |
| 5.99 | WL | Water level, 10% of the vertical dimension | |
| 6.19 | WL | Water level, 5% of the vertical dimension | |
| 7.54 | WL | Water level, 10% of the vertical dimension | |
| 8.29 | ICF | Finish node, inspection chamber, reference: F3 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 5 | 1 | 19/05/25 | 10:03 | Not Specified | No Rain Or Snow | No | F4 SPURC |

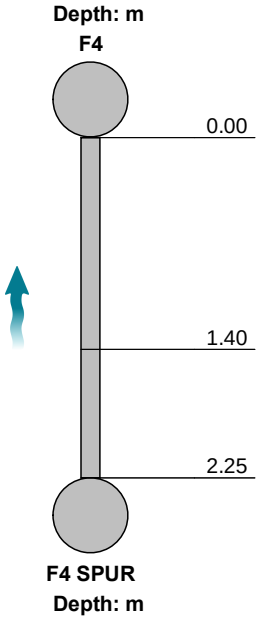
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F4 SPUR |
| **Road:** | Hemdean Road | **Inspected Length:** | 2.25 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 2.25 m | **Downstream Node:** | F4 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 1.40 | LL | Line deviates left | |
| 2.25 | GYF | Finish node, gully, reference: F4 SPUR | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 6 | 1 | 19/05/25 | 10:06 | Not Specified | No Rain Or Snow | No | F4X |

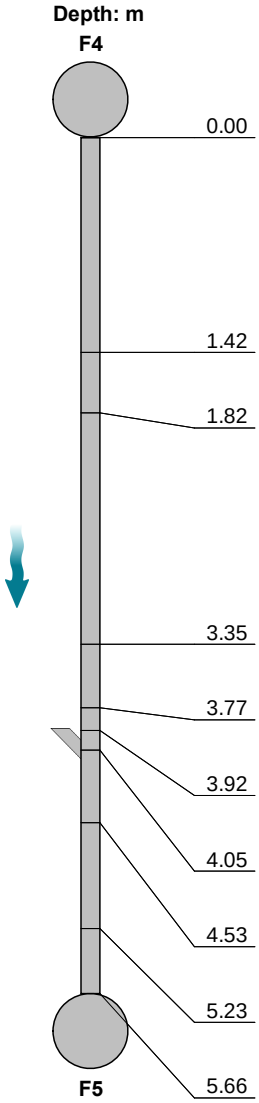
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F4 |
| **Road:** | Hemdean Road | **Inspected Length:** | 5.66 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 5.66 m | **Downstream Node:** | F5 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 1.42 | WL | Water level, 5% of the vertical dimension | |
| 1.82 | WL | Water level, 10% of the vertical dimension | |
| 3.35 | WL | Water level, 5% of the vertical dimension | |
| 3.77 | WL | Water level, 10% of the vertical dimension | |
| 3.92 | WL | Water level, 20% of the vertical dimension | |
| 4.05 | JN | Junction, at 2 o'clock , 100 mm dia @CON | |
| 4.53 | WL | Water level, 10% of the vertical dimension | |
| 5.23 | WL | Water level, 5% of the vertical dimension | |
| 5.66 | ICF | Finish node, inspection chamber, reference: F5 | |

JN - 4.05

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 7 | 1 | 19/05/25 | 10:10 | Not Specified | No Rain Or Snow | No | F5X |

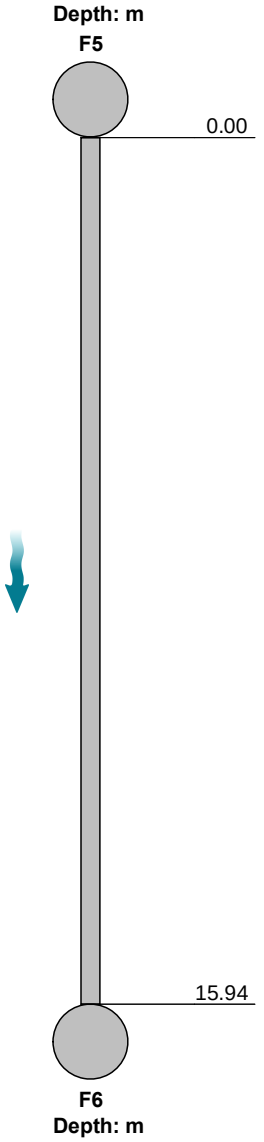
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F5 |
| **Road:** | Hemdean Road | **Inspected Length:** | 15.94 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 15.94 m | **Downstream Node:** | F6 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:139**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 15.94 | ICF | Finish node, inspection chamber, reference: F6 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 8 | 1 | 19/05/25 | 10:16 | Not Specified | No Rain Or Snow | No | F6X |

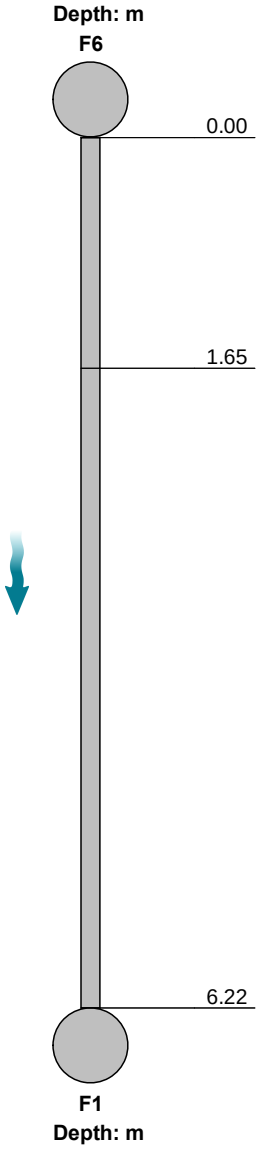
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F6 |
| **Road:** | Hemdean Road | **Inspected Length:** | 6.22 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 6.22 m | **Downstream Node:** | F1 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:54**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 1.65 | WL | Water level, 5% of the vertical dimension | |
| 6.22 | ICF | Finish node, inspection chamber, reference: F1 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 9 | 1 | 19/05/25 | 10:29 | Not Specified | No Rain Or Snow | No | F3Y |

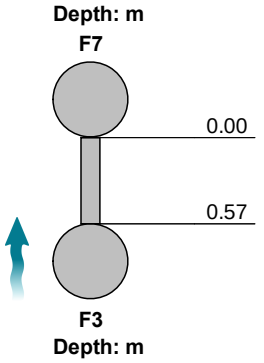
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F3 |
| **Road:** | Hemdean Road | **Inspected Length:** | 0.57 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 0.57 m | **Downstream Node:** | F7 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 5% of the vertical dimension | |
| 0.57 | ICF | Finish node, inspection chamber, reference: F3 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 10 | 1 | 19/05/25 | 10:32 | Not Specified | No Rain Or Snow | No | F7X |

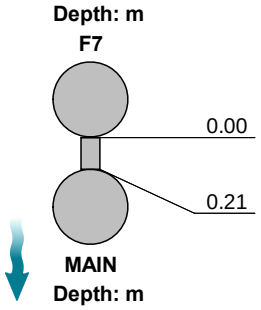
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F7 |
| **Road:** | Hemdean Road | **Inspected Length:** | 0.21 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 0.21 m | **Downstream Node:** | MAIN |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 0.21 | WRF | Finish node, winser trap, reference: MAIN | |

WRF - 0.21

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 11 | 1 | 19/05/25 | 11:23 | Not Specified | No Rain Or Snow | No | F8X |

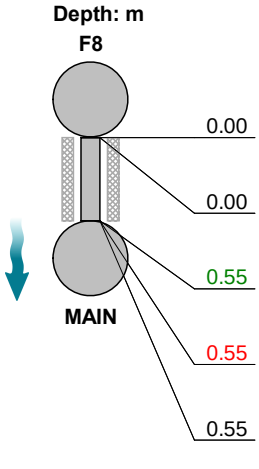
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F8 |
| **Road:** | Hemdean Road | **Inspected Length:** | 0.55 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 0.55 m | **Downstream Node:** | MAIN |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

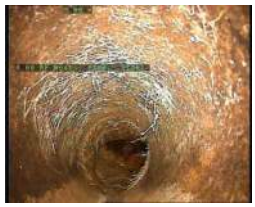
| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No flow control | **Material:** | Vitrified clay |
| **Year Constructed:** | Not Specified | **Lining Type:** | No Lining |
| **Inspection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

**Comments:**
**Recommendations:**

**Scale: 1:50**




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 0.00 | | WL | Water level, 0% of the vertical dimension | |
| 0.00 | S01 | RF | Roots, fine, start | |
| 0.55 | F01 | RF | Roots, fine, finish | 2 |
| 0.55 | | RM | Roots, mass, 60% cross-sectional area loss | 5 |
| 0.55 | | BRF | Finish node, major connection without manhole, reference: MAIN | |


RF - 0.00

RM - 0.55

| 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 | 15.0 | 29.1 | 16.0 | 5.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 12 | 1 | 19/05/25 | 11:33 | Not Specified | No Rain Or Snow | No | F9X |

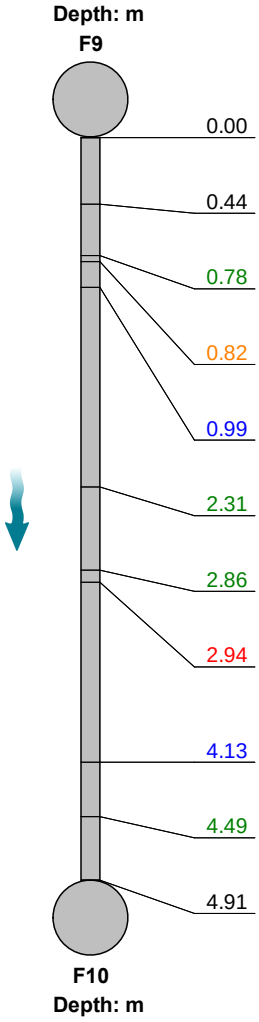
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F9 |
| **Road:** | Hemdean Road | **Inspected Length:** | 4.91 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 4.91 m | **Downstream Node:** | F10 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 0.44 | SC | Pipe size changes, new size(s), 150 mm high | |
| 0.78 | RFJ | Roots, fine at joint | 2 |
| 0.82 | BJ | Broken pipe at joint, from 12 o'clock to 12 o'clock | 4 |
| 0.99 | FLJ | Fracture, longitudinal at joint, at 3 o'clock | 3 / 2 |
| 2.31 | RFJ | Roots, fine at joint | 2 |
| 2.86 | RFJ | Roots, fine at joint | 2 |
| 2.94 | H | Hole in drain or sewer, from 11 o'clock to 2 o'clock | 5 |
| 4.13 | DEEJ | Attached deposits, encrustation at joint, from 3 o'clock to 6 o'clock, 5% cross-sectional area loss | 3 |
| 4.49 | CC | Crack, circumferential, from 9 o'clock to 4 o'clock | 2 / 2 |
| 4.91 | MHF | Finish node, manhole, reference: F10 | |

SC - 0.44

RFJ - 0.78

BJ - 0.82

FLJ - 0.99

RFJ - 2.31

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 12 | 1 | 19/05/25 | 11:33 | Not Specified | No Rain Or Snow | No | F9X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

H - 2.94

DEEJ - 4.13

CC - 4.49

| STR No. Def | STR Peak | STR Mean | STR Total | STR Grade | SER No. Def | SER Peak | SER Mean | SER Total | SER Grade |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 165.0 | 60.1 | 295.0 | 5.0 | 6 | 2.0 | 1.4 | 7.0 | 3.0 |

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# Abandoned section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 13 | 1 | 19/05/25 | 11:43 | Not Specified | No Rain Or Snow | No | F11Y |

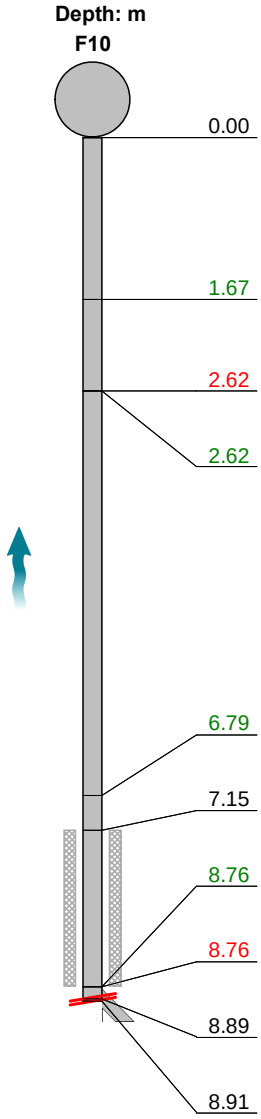
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F11 |
| **Road:** | Hemdean Road | **Inspected Length:** | 8.91 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 8.91 m | **Downstream Node:** | F10 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:78**




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 0.00 | | WL | Water level, 0% of the vertical dimension | |
| 1.67 | | CC | Crack, circumferential, from 7 o'clock to 9 o'clock | 2 / 2 |
| 2.62 | | H | Hole in drain or sewer, from 10 o'lock to 10 o'clock | 5 |
| 2.62 | | RF | Roots, fine | 2 |
| 6.79 | | RFJ | Roots, fine at joint | 2 |
| 7.15 | S01 | RFJ | Roots, fine at joint, start | |
| 8.76 | F01 | RFJ | Roots, fine at joint, finish | 2 |
| 8.76 | | RM | Roots, mass, 60% cross-sectional area loss | 5 |
| 8.89 | | JN | Junction, at 9 o'clock , 100 mm dia @CON | |
| 8.91 | | SA | Survey abandoned: UNABLE TO PASS ROOTS | |

CC - 1.67

H - 2.62

RF - 2.62

RFJ - 6.79

RFJ - 7.15

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# Abandoned section inspection

WEB PROJECT
CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 13 | 1 | 19/05/25 | 11:43 | Not Specified | No Rain Or Snow | No | F11Y |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

RM - 8.76

| STR No. Def | STR Peak | STR Mean | STR Total | STR Grade | SER No. Def | SER Peak | SER Mean | SER Total | SER Grade |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 165.0 | 19.6 | 175.0 | 5.0 | 5 | 15.0 | 2.2 | 20.0 | 5.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 14 | 1 | 19/05/25 | 11:51 | Not Specified | No Rain Or Snow | No | F10X |

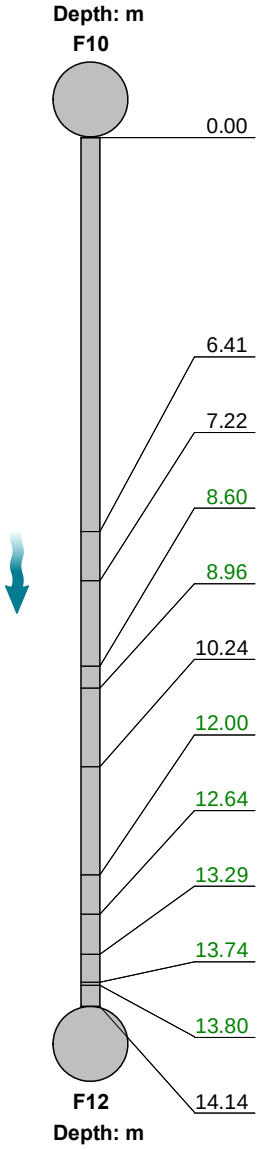
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F10 |
| **Road:** | Hemdean Road | **Inspected Length:** | 14.14 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 14.14 m | **Downstream Node:** | F12 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 150 mm |
| **Flow Control:** | No flow control | **Material:** | Vitrified clay |
| **Year Constructed:** | Not Specified | **Lining Type:** | Cured in place lining |
| **Inspection Purpose:** | Routine inspection | **Lining Material:** | Polyester |

**Comments:**
**Recommendations:**

**Scale: 1:123**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 6.41 | LD | Line deviates down | |
| 7.22 | LCCIP | Cured-in-place lining ends at this point | |
| 8.60 | CC | Crack, circumferential, from 7 o'clock to 12 o'clock | 2 |
| 8.96 | RFJ | Roots, fine at joint | 2 |
| 10.24 | H | Hole in drain or sewer, from 10 o'clock to 12 o'clock | |
| 12.00 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock | 2 |
| 12.64 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock | 2 |
| 13.29 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock | 2 |
| 13.74 | CC | Crack, circumferential, from 9 o'clock to 3 o'clock | 2 |
| 13.80 | CC | Crack, circumferential, from 3 o'clock to 5 o'clock | 2 |
| 14.14 | MHF | Finish node, manhole, reference: F12 | |

CC - 8.60

RFJ - 8.96

H - 10.24

CCJ - 12.00

CCJ - 12.64

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 14 | 1 | 19/05/25 | 11:51 | Not Specified | No Rain Or Snow | No | F10X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

CCJ - 13.29

CC - 13.74

| 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 | 7 | 1.0 | 0.5 | 7.0 | 2.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 15 | 1 | 19/05/25 | 12:00 | Not Specified | No Rain Or Snow | No | F12X |

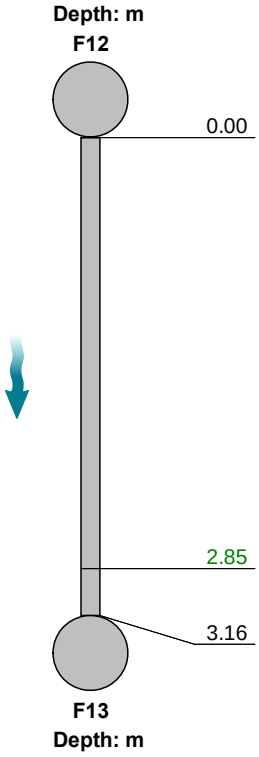
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F12 |
| **Road:** | Hemdean Road | **Inspected Length:** | 3.16 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 3.16 m | **Downstream Node:** | F13 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 150 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 2.85 | CC | Crack, circumferential, from 9 o'clock to 2 o'clock | 2 / 2 |
| 3.16 | MHF | Finish node, manhole, reference: F13 | |

CC - 2.85

| 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 | 3.2 | 10.0 | 2.0 | 1 | 1.0 | 0.3 | 1.0 | 2.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 16 | 1 | 19/05/25 | 12:07 | Not Specified | No Rain Or Snow | No | F13X |

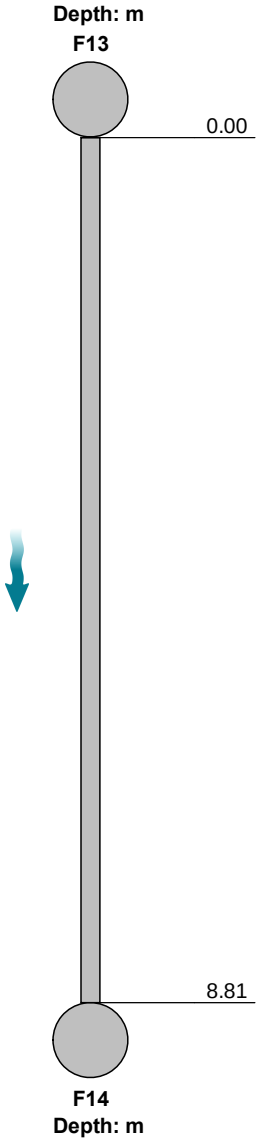
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F13 |
| **Road:** | Hemdean Road | **Inspected Length:** | 8.81 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 8.81 m | **Downstream Node:** | F14 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:77**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 8.81 | MHF | Finish node, manhole, reference: F14 | |

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 17 | 1 | 19/05/25 | 11:12 | Not Specified | No Rain Or Snow | No | F14X |

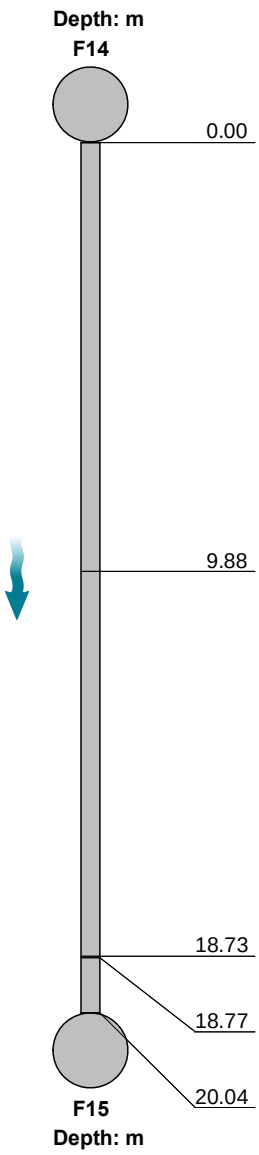
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F14 |
| **Road:** | Hemdean Road | **Inspected Length:** | 20.04 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 20.04 m | **Downstream Node:** | F15 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:174**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 9.88 | RPL | Point repair, localised lining from 12 o'clock to 12 o'clock | |
| 18.73 | WL | Water level, 5% of the vertical dimension | |
| 18.77 | RPL | Point repair, localised lining from 12 o'clock to 12 o'clock | |
| 20.04 | MHF | Finish node, manhole, reference: F15 | |

RPL - 9.88

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 18 | 1 | 19/05/25 | 12:20 | Not Specified | No Rain Or Snow | No | F15X |

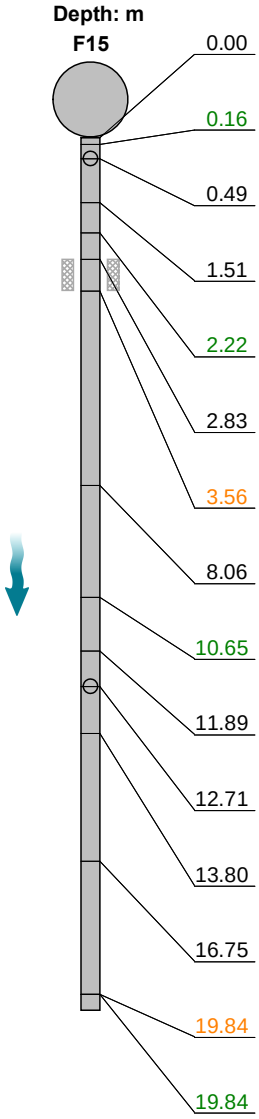
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F15 |
| **Road:** | Hemdean Road | **Inspected Length:** | 31.01 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 31.01 m | **Downstream Node:** | F16 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:175**




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 0.00 | | WL | Water level, 0% of the vertical dimension | |
| 0.16 | | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock | 2 / 2 |
| 0.49 | | JN | Junction, at 12 o'clock , 100 mm dia @CON | |
| 1.51 | | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 2.22 | | RF | Roots, fine | 2 |
| 2.83 | S01 | RTJ | Roots, tap at joint, start | |
| 3.56 | F01 | RTJ | Roots, tap at joint, finish | 4 |
| 8.06 | | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 10.65 | | RFJ | Roots, fine at joint | 2 |
| 11.89 | | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 12.71 | | JN | Junction, at 12 o'clock , 100 mm dia @CON | |
| 13.80 | | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 16.75 | | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 19.84 | | RTJ | Roots, tap at joint | 4 |
| 19.84 | | CLJ | Crack, longitudinal at joint, at 5 o'clock | 2 / 2 |

CCJ - 0.16

JN - 0.49

RPL - 1.51

RF - 2.22

RTJ - 2.83

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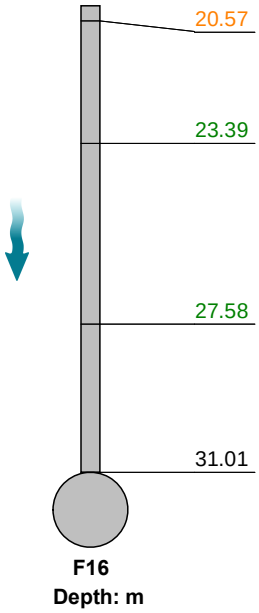
# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 18 | 1 | 19/05/25 | 12:20 | Not Specified | No Rain Or Snow | No | F15X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

**Scale:** 1:175




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 20.57 | RTJ | Roots, tap at joint | 4 |
| 23.39 | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock | 2 / 2 |
| 27.58 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock | 2 / 2 |
| 31.01 | MHF | Finish node, manhole, reference: F16 | |

RPL - 8.06

RFJ - 10.65

RPL - 13.80

RTJ - 19.84

CCJ - 23.39

CCJ - 27.58

| STR No. Def | STR Peak | STR Mean | STR Total | STR Grade | SER No. Def | SER Peak | SER Mean | SER Total | SER Grade |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 10.0 | 1.3 | 40.0 | 2.0 | 9 | 6.0 | 0.7 | 21.0 | 4.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 19 | 1 | 19/05/25 | 12:53 | Not Specified | No Rain Or Snow | No | F17X |

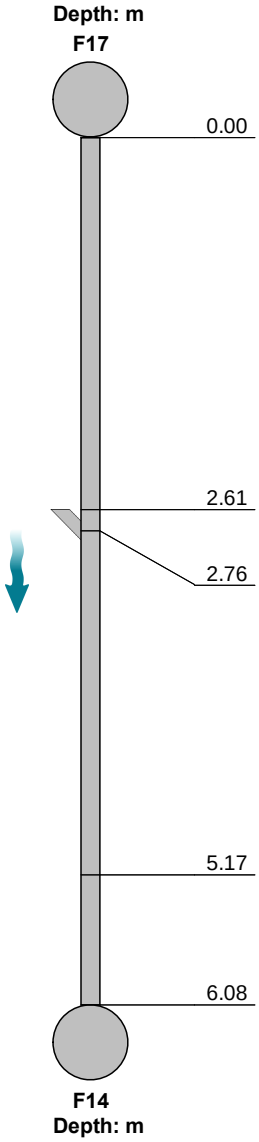
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F17 |
| **Road:** | Hemdean Road | **Inspected Length:** | 6.08 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 6.08 m | **Downstream Node:** | F14 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

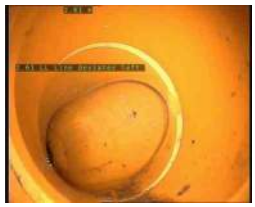
| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No flow control | **Material:** | Polyvinyl chloride |
| **Year Constructed:** | Not Specified | **Lining Type:** | No Lining |
| **Inspection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

**Comments:**
**Recommendations:**

**Scale: 1:53**




| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 2.61 | LL | Line deviates left | |
| 2.76 | JN | Junction, at 3 o'clock , 100 mm dia @CON | |
| 5.17 | WL | Water level, 5% of the vertical dimension | |
| 6.08 | MHF | Finish node, manhole, reference: F14 | |


LL - 2.61

JN - 2.76

| 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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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 20 | 1 | 19/05/25 | 13:02 | Not Specified | No Rain Or Snow | No | F18X |

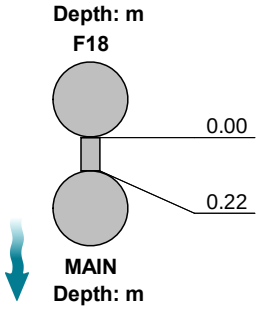
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F18 |
| **Road:** | Hemdean Road | **Inspected Length:** | 0.22 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 0.22 m | **Downstream Node:** | MAIN |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 100 mm |
| **Flow Control:** | No 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 | WL | Water level, 0% of the vertical dimension | |
| 0.22 | BRF | Finish node, major connection without manhole, reference: MAIN | |

| 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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# Abandoned section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 21 | 1 | 19/05/25 | 13:14 | Not Specified | No Rain Or Snow | No | F13 SPURA |

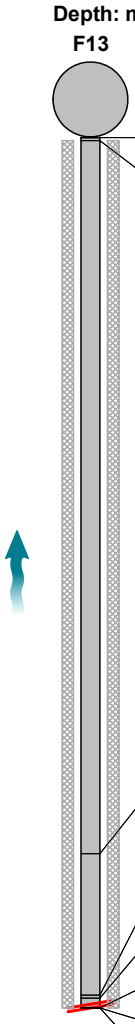
| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Upstream | **Upstream Node:** | F13 SPUR |
| **Road:** | Hemdean Road | **Inspected Length:** | 24.98 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 24.98 m | **Downstream Node:** | F13 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

| | | | |
|---|---|---|---|
| **Use:** | Foul | **Pipe Shape:** | Circular |
| **Type of Pipe:** | Gravity drain/sewer | **Dia/Height:** | 75 mm |
| **Flow Control:** | No flow control | **Material:** | Polyvinyl chloride |
| **Year Constructed:** | Not Specified | **Lining Type:** | No Lining |
| **Inspection Purpose:** | Routine inspection | **Lining Material:** | No Lining |

**Comments:**
**Recommendations:**

**Scale: 1:217**




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 0.00 | | WL | Water level, 0% of the vertical dimension | |
| 0.09 | S01 | DEG | Attached deposits, grease, from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, start | |
| 20.56 | | WL | Water level, 5% of the vertical dimension | |
| 24.61 | | WL | Water level, 10% of the vertical dimension | |
| 24.70 | | WL | Water level, 30% of the vertical dimension | |
| 24.98 | | CUW | Loss of vision, camera under water | |
| 24.98 | F01 | DEG | Attached deposits, grease, from 12 o'clock to 12 o'clock, 5% cross-sectional area loss, finish | 3 |
| 24.98 | | SA | Survey abandoned: CAMERA UNDERWATER | |

| STR No. Def | STR Peak | STR Mean | STR Total | STR Grade | SER No. Def | SER Peak | SER Mean | SER Total | SER Grade |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.0 | 0.0 | 0.0 | 1.0 | 1 | 4.0 | 4.0 | 100.0 | 4.0 |

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# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 22 | 1 | 19/05/25 | 13:33 | Not Specified | No Rain Or Snow | No | F16X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

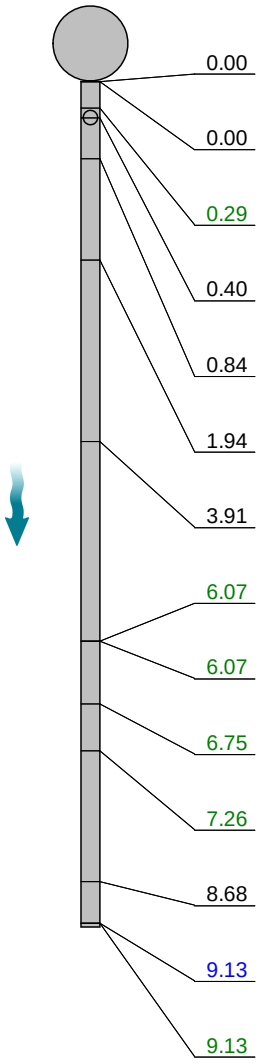
| | | | | | |
|---|---|---|---|---|---|
| **Town or Village:** | Caversham | **Inspection Direction:** | Downstream | **Upstream Node:** | F16 |
| **Road:** | Hemdean Road | **Inspected Length:** | 24.03 m | **Upstream Pipe Depth:** | |
| **Location:** | Property or buildings | **Total Length:** | 24.03 m | **Downstream Node:** | F19 |
| **Surface Type:** | | **Joint Length:** | | **Downstream Pipe Depth:** | |

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

**Comments:**
**Recommendations:**

**Scale: 1:82**

**Depth: m**
**F16**



| Position [m] | Code | Observation | Grade |
|---|---|---|---|
| 0.00 | WL | Water level, 0% of the vertical dimension | |
| 0.00 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 0.29 | RFJ | Roots, fine at joint | 2 |
| 0.40 | JN | Junction, at 12 o'clock , 100 mm dia @CON | |
| 0.84 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 1.94 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 3.91 | RPL | Point repair, localised lining, from 12 o'clock to 12 o'clock | |
| 6.07 | CL | Crack, longitudinal, at 11 o'clock | 2 / 2 |
| 6.07 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock | 2 / 2 |
| 6.75 | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock | 2 / 2 |
| 7.26 | CCJ | Crack, circumferential at joint, from 9 o'clock to 3 o'clock | 2 / 2 |
| 8.68 | WL | Water level, 5% of the vertical dimension | |
| 9.13 | FLJ | Fracture, longitudinal at joint, at 8 o'clock | 3 / 2 |
| 9.13 | CLJ | Crack, longitudinal at joint, at 12 o'clock | 2 / 2 |

RFJ - 0.29

JN - 0.40

RPL - 1.94

CL - 6.07

CCJ - 6.07

**Utility Surveys Ltd**
*5 Suffolk Road, Maldon*
*Tel. 07872 542303*
*matt@utilitysurveysltd.co.uk*

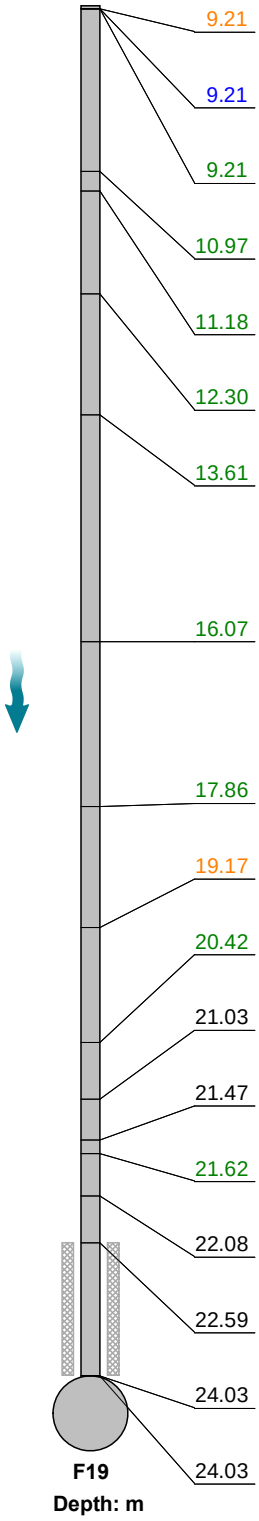
# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 22 | 1 | 19/05/25 | 13:33 | Not Specified | No Rain Or Snow | No | F16X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

Scale: 1:82




| Position [m] | | Code | Observation | Grade |
|---|---|---|---|---|
| 9.21 | | BJ | Broken pipe at joint, from 7 o'clock to 10 o'clock | 4 |
| 9.21 | | FL | Fracture, longitudinal, at 8 o'clock | 3 / 2 |
| 9.21 | | CL | Crack, longitudinal, at 3 o'clock | 2 / 2 |
| 10.97 | | CLJ | Crack, longitudinal at joint, at 12 o'clock | 2 / 2 |
| 11.18 | | CCJ | Crack, circumferential at joint, from 10 o'clock to 3 o'clock | 2 / 2 |
| 12.30 | | CCJ | Crack, circumferential at joint, from 10 o'clock to 2 o'clock | 2 / 2 |
| 13.61 | | CCJ | Crack, circumferential at joint, from 9 o'clock to 10 o'clock | 2 / 2 |
| 16.07 | | CCJ | Crack, circumferential at joint, from 9 o'clock to 11 o'clock | 2 / 2 |
| 17.86 | | CCJ | Crack, circumferential at joint, from 9 o'clock to 2 o'clock | 2 / 2 |
| 19.17 | | RTJ | Roots, tap at joint | 4 |
| 20.42 | | RFJ | Roots, fine at joint | 2 |
| 21.03 | | WL | Water level, 10% of the vertical dimension | |
| 21.47 | | WL | Water level, 20% of the vertical dimension | |
| 21.62 | | RFJ | Roots, fine at joint | 2 |
| 22.08 | | WL | Water level, 30% of the vertical dimension | |
| 22.59 | S01 | CUW | Loss of vision, camera under water, start | |
| 24.03 | F01 | CUW | Loss of vision, camera under water, finish | |
| 24.03 | | MHF | Finish node, manhole, reference: F19 | |

CCJ - 6.75

CCJ - 7.26

FLJ - 9.13

BJ - 9.21

CLJ - 10.97

CCJ - 17.86

**Utility Surveys Ltd**
*5 Suffolk Road, Maldon*
*Tel. 07872 542303*
*matt@utilitysurveysltd.co.uk*

# Completed section inspection

WEB PROJECT CLICK TO OPEN THIS SECTION

| Item No. | Insp. No. | Date | Time | Client`s Job Ref | Weather | Pre Cleaned | PLR |
|---|---|---|---|---|---|---|---|
| 22 | 1 | 19/05/25 | 13:33 | Not Specified | No Rain Or Snow | No | F16X |

| Operator | Vehicle | Camera | Preset Length | Legal Status | Alternative ID |
|---|---|---|---|---|---|
| Matthew Campbell | S6 USL | Minicam | Not Specified | Not Specified | Not Specified |

RTJ - 19.17

RFJ - 20.42

RFJ - 21.62

| STR No. Def | STR Peak | STR Mean | STR Total | STR Grade | SER No. Def | SER Peak | SER Mean | SER Total | SER Grade |
|---|---|---|---|---|---|---|---|---|---|
| 15 | 180.0 | 11.7 | 280.0 | 4.0 | 18 | 5.0 | 0.9 | 22.0 | 4.0 |

**REGISTER OF APPENDICES**

A. MANHOLE INSPECTION REPORT

B. COPIES OF SITE HAND WRITTEN DAILY RECORD SHEETS

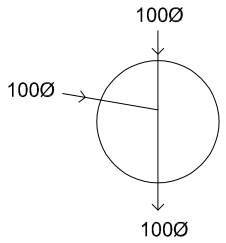
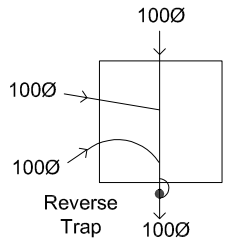
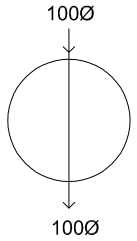
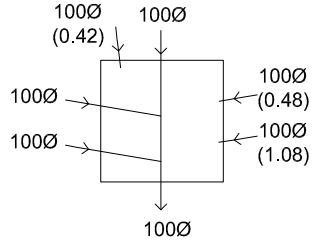
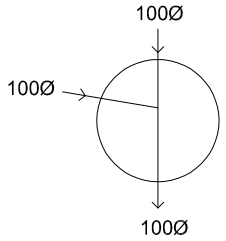
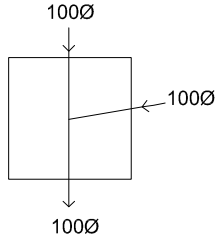
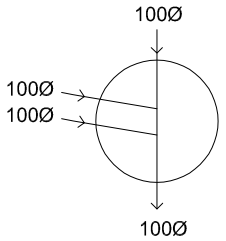
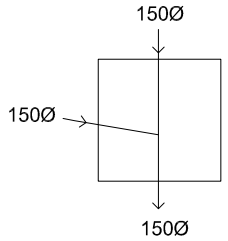
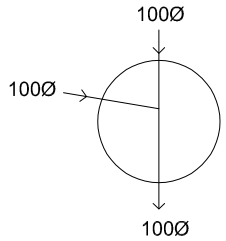
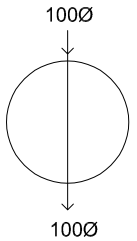
C. ANNOTATED SITE DRAWINGS

# UTILITY SURVEYS LTD

## 5 SUFFOLK ROAD MALDON ESSEX CM9 6AX

LOCATION: HORNDEAN HOUSE SCHOOL CAVERSHAM JOB REF: 071660

CLIENT: CHURCHILL LIVING DATE: 19/05/2025

| | | | |
|---|---|---|---|
| MH No. F1<br>DEPTH. 0.90<br>COVER. SM<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F7<br>DEPTH. 1.30<br>COVER. RM<br>CONSTRUCTION. Br<br>REMARKS. |  |
| MH No. F2<br>DEPTH. 1.03<br>COVER. SM<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F8<br>DEPTH. 1.40<br>COVER. RM<br>CONSTRUCTION. Br<br>REMARKS. |  |
| MH No. F3<br>DEPTH. 1.03<br>COVER. SM<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F9<br>DEPTH. 0.41<br>COVER. SM<br>CONSTRUCTION. Br<br>REMARKS. |  |
| MH No. F4<br>DEPTH. 0.74<br>COVER. CL<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F10<br>DEPTH. 1.01<br>COVER. RM<br>CONSTRUCTION. Br<br>REMARKS. RENDERED |  |
| MH No. F5<br>DEPTH. 0.77<br>COVER. CL<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F11<br>DEPTH.<br>COVER.<br>CONSTRUCTION.<br>REMARKS. | NOT FOUND<br>OR REACHED |
| MH No. F6<br>DEPTH. 1.07<br>COVER. CL<br>CONSTRUCTION. Plastic<br>REMARKS. |  | MH No. F12<br>DEPTH.<br>COVER.<br>CONSTRUCTION.<br>REMARKS. | BURIED<br>IN<br>VEGETATION |

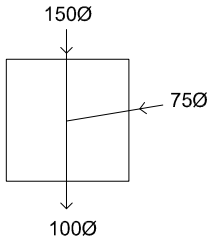
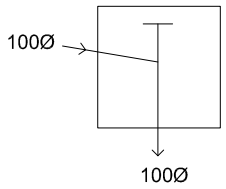
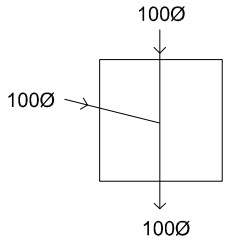
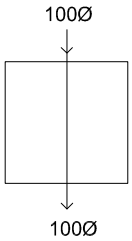
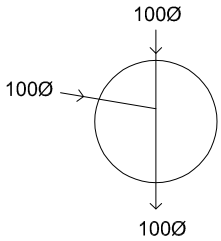
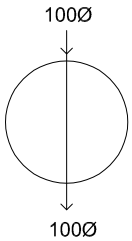
| KEY: | | | |
|---|---|---|---|
| | C - Circular | L - Light Duty | Co - Concrete |
| | S - Square | M - Medium Duty | Br - Brick |
| | T - Triangular | H - Heavy Duty | R - Rectangular |

# UTILITY SURVEYS LTD

## 5 SUFFOLK ROAD MALDON ESSEX CM9 6AX

LOCATION: HORNDEAN HOUSE SCHOOL CAVERSHAM JOB REF: 071660

CLIENT: CHURCHILL LIVING DATE: 19/05/2025

| | | | |
|---|---|---|---|
| MH No. F13<br>DEPTH. 0.82<br>COVER. SM<br>CONSTRUCTION. Br<br>REMARKS. RENDERED COVER BROKEN<br><br>SPUR A POSSIBLE RISING MAIN |  | MH No. F19<br>DEPTH.<br>COVER.<br>CONSTRUCTION.<br>REMARKS. | BURIED<br>IN<br>VEGETATION |
| MH No. F14<br>DEPTH.<br>COVER.<br>CONSTRUCTION.<br>REMARKS. | BURIED<br>IN<br>VEGETATION | MH No. F20<br>DEPTH. 0.30<br>COVER. RL<br>CONSTRUCTION. Plastic<br>REMARKS. |  |
| MH No. F15<br>DEPTH.<br>COVER.<br>CONSTRUCTION.<br>REMARKS. | BURIED<br>IN<br>VEGETATION | MH No. F21<br>DEPTH. 0.32<br>COVER. RL<br>CONSTRUCTION. Plastic<br>REMARKS. |  |
| MH No. F16<br>DEPTH. 0.50<br>COVER. RL<br>CONSTRUCTION. Br<br>REMARKS. COVER UNDER BOUNDARY WALL |  | | |
| MH No. F17<br>DEPTH. 0.60<br>COVER. SL<br>CONSTRUCTION. Plastic<br>REMARKS. |  | | |
| MH No. F18<br>DEPTH. 0.69<br>COVER. CL<br>CONSTRUCTION. Plastic<br>REMARKS. |  | | |

| KEY: | | | |
|---|---|---|---|
| | C - Circular | L - Light Duty | Co - Concrete |
| | S - Square | M - Medium Duty | Br - Brick |
| | T - Triangular | H - Heavy Duty | R - Rectangular |

SITE PHOTO 01

SITE PHOTO 02

SITE PHOTO 03

SITE PHOTO 04

MH F20

MH F21

# CCTV Sewer Survey – Daily Record Sheet

DrainSafe
Approved Drainage Contractors

UTILITYSURVEYS LTD.

5 Suffolk Road
Maldon
Essex
CM9 6AX

Tel: 07971910370

Date: 19/05/2025 Job No: 071660

Client: CHURCHILL LIVING

Site Address: HEMDEAN HOUSE SCHOOL
HORNDEAN ROAD
CAVERSHAM

Rig Manager: S. GARDINER Operative: M. CAMPBELL

| Manhole Start | Manhole Finish | Sewer dia. | Recorded Metreage | Survey Abandoned | Remarks |
|---|---|---|---|---|---|
| F1 | SLURA | 100 | 3-30 | | |
| F1 | F2 | 100 | 6-72 | | |
| F2 | F3 | 100 | 8-29 | | |
| F4 | SLURC | 100 | 2-25 | | GULLY |
| F4 | F5 | 100 | 5-66 | | |
| F5 | F6 | 100 | 15-94 | | |
| F6 | F1 | 100 | 6-22 | | |
| F7 | F3 | 100 | 1-57 | | |
| F7 | MAIN | 100 | 0-21 | | REVERSE TRAP |
| F8 | MAIN | 100 | 0-55 | | |
| F9 | F10 | 100 | 4-91 | | |
| F10 | F11 | 150 | 8-91 | | MASS ROOTS |
| F10 | F12 | 150 | 14-14 | | |
| F12 | F13 | 150 | 3-16 | | |
| F13 | F14 | 100 | 8-81 | | |
| F14 | F15 | 100 | 20-04 | | |
| F15 | F16 | 100 | 31-01 | | |
| F17 | F14 | 100 | 6-08 | | |
| F18 | MAIN | 100 | 0-22 | | JOINS MAIN |
| F13 | SLURA | 75 | 24-98 | ✓ | POSSIBLE RISING MAIN UNDERWATER. |
| | | TOTAL | | | |

Standing Time: 

Meterage check: X

Length: OK

Reason for standing time:

Remarks:

F7 OUTFALL ON REVERSE TRAP
F12 POSSIBLE CONNECTION FROM OFFSITE
F13 75mmØ POSSIBLE RISING MAIN FROM OFFSITE

Checked

# CCTV Sewer Survey – Daily Record Sheet

DrainSafe
Approved Drainage Contractors

UTILITYSURVEYS LTD.

5 Suffolk Road
Maldon
Essex
CM9 6AX

Tel: 07971910370

Date: 19/05/2025 Job No: 071660

Client: CHURCHILL LIVING

Site Address: HEMDEAN HOUSE SCHOOL
HORNDEAN ROAD
CAVERSHAM.

Rig Manager: S. GARDINER Operative: M. CAMPBELL

| Manhole Start | Manhole Finish | Sewer dia. | Recorded Metreage | Survey Abandoned | Remarks |
|---|---|---|---|---|---|
| F16 | F19 | 100 | 24.03 | | |
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| | | | | | |
| | | TOTAL | | | |

Standing Time: 

Meterage check: X

Length: OK

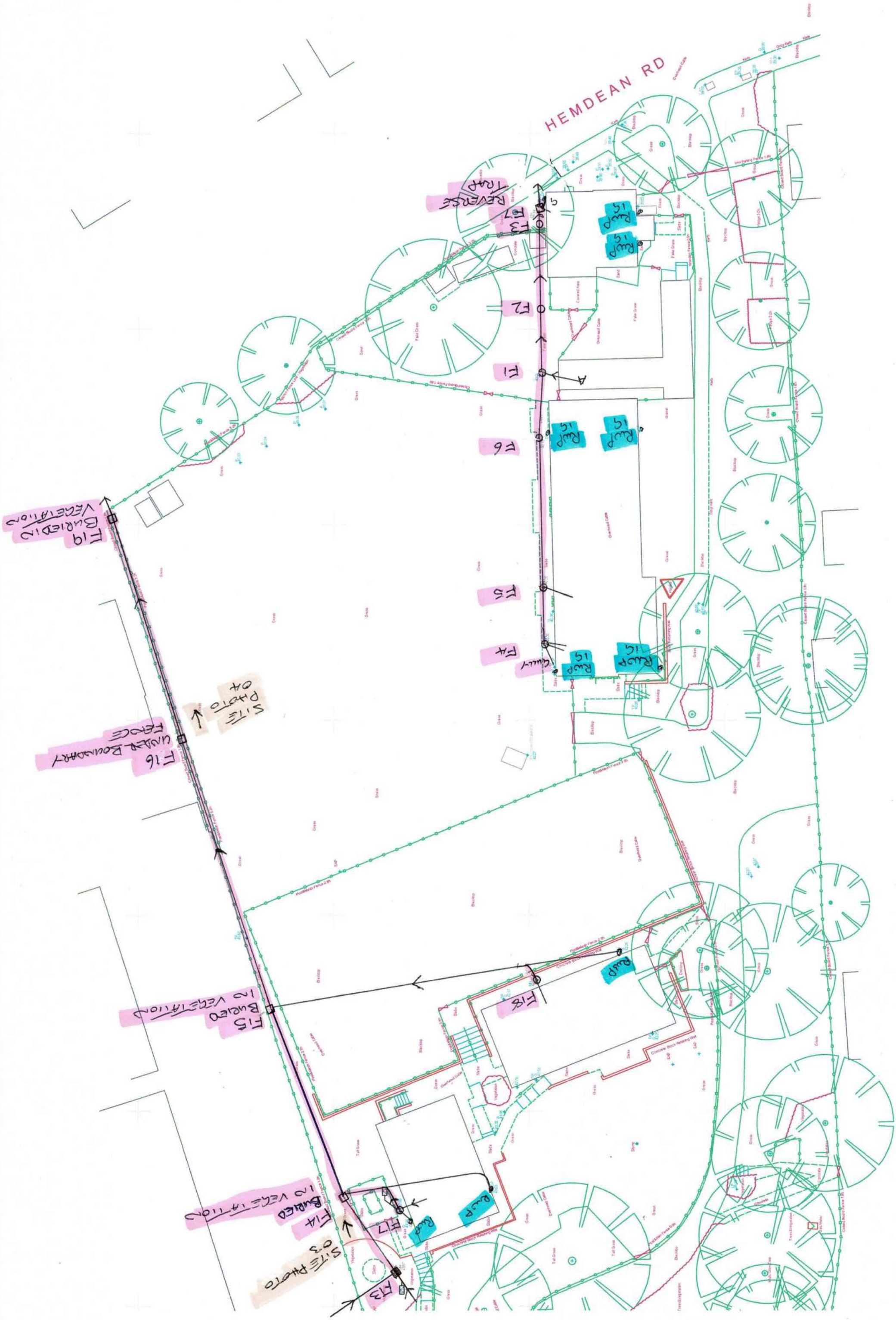
Reason for standing time

Remarks

F19 TRAPPED OUTFALL, BURIED IN VEGETATION
F20-F21 - F8 50% ROOTS & DEBRIS

Checked

AREA OVERGROWN
RWP 0G
KEY
F20
RWP 0G
RWP 0G
RWP 1G
RWP 1G
RWP 1G
F21
SITE PHOTO 01
MASS ROOTS
RWP 1G
F8
TOILET
F9
F10
RWP 1G
SITE PHOTO 02
UNDERWATER POSSIBLE RISING MAIN
SVP
SVP
F12 POSSIBLE CONNECTION
75 Ø
F13
TO F14



F13
SITE PHOTO 03
F14 BURIED IN VEGETATION
RWP
RWP
F17
F18
RWP
F15 BURIED IN VEGETATION
RWP 19
RWP 19
GULLY
F4
F5
F16 UNDER BOUNDARY FENCE
SITE PHOTO 04
F19 BURIED IN VEGETATION
RWP 19
RWP 19
F6
A
F1
F2
RWP 19
RWP 19
F3
F7
REVERSE TRAP
HEMDEAN RD

# **Appendix G** Greenfield Flow Rate Calculations

## Simulation Settings

| | | | | | |
|---|---|---|---|---|---|
| Rainfall Methodology | FEH-22 | Skip Steady State | x | 1 year (l/s) | 0.2 |
| Rainfall Events | Singular | Drain Down Time (mins) | 240 | 100 year (l/s) | 0.5 |
| Summer CV | 1.000 | Additional Storage (m³/ha) | 0.0 | Check Discharge Volume | x |
| Winter CV | 1.000 | Starting Level (m) | | | |
| Analysis Speed | Normal | Check Discharge Rate(s) | ✓ | | |

**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 | 35 | 0 | 0 |
| 100 | 40 | 0 | 0 |

## Pre-development Discharge Rate

| | | | |
|---|---|---|---|
| Site Makeup | Greenfield | Growth Factor 30 year | 2.40 |
| Greenfield Method | FEH | Growth Factor 100 year | 2.48 |
| Positively Drained Area (ha) | 0.341 | Betterment (%) | 0 |
| SAAR (mm) | 647 | QMed | 0.2 |
| Host | 1 | QBar | 0.2 |
| BFIHost | 0.847 | Q 1 year (l/s) | 0.2 |
| Region | 6 | Q 30 year (l/s) | 0.5 |
| QBar/QMed conversion factor | 1.136 | Q 100 year (l/s) | 0.5 |
| Growth Factor 1 year | 0.85 | | |

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## Simulation Settings

| | | | | | |
|---|---|---|---|---|---|
| Rainfall Methodology | FEH-22 | Skip Steady State | x | 1 year (l/s) | 0.2 |
| Rainfall Events | Singular | Drain Down Time (mins) | 240 | 100 year (l/s) | 0.7 |
| Summer CV | 1.000 | Additional Storage (m³/ha) | 0.0 | Check Discharge Volume | x |
| Winter CV | 1.000 | Starting Level (m) | | | |
| Analysis Speed | Normal | Check Discharge Rate(s) | ✓ | | |

**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 | 35 | 0 | 0 |
| 100 | 40 | 0 | 0 |

## Pre-development Discharge Rate

| | | | |
|---|---|---|---|
| Site Makeup | Greenfield | Growth Factor 30 year | 2.40 |
| Greenfield Method | FEH | Growth Factor 100 year | 2.48 |
| Positively Drained Area (ha) | 0.418 | Betterment (%) | 0 |
| SAAR (mm) | 647 | QMed | 0.2 |
| Host | 1 | QBar | 0.3 |
| BFIHost | 0.847 | Q 1 year (l/s) | 0.2 |
| Region | 6 | Q 30 year (l/s) | 0.6 |
| QBar/QMed conversion factor | 1.136 | Q 100 year (l/s) | 0.7 |
| Growth Factor 1 year | 0.85 | | |

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# **Appendix H** Preliminary Drainage Layout

**Key**

- Site Boundary
- Northern Net Development Area
- Southern Net Development Area

Existing Drainage:

- Adopted Surface Water Sewer
- Adopted Surface Water Manhole
- Adopted Foul Water Sewer
- Adopted Foul Water Manhole
- Private Surface Water Sewer
- Private Foul Water Sewer

Proposed Drainage:

- Building Catchment
- Hardstanding Catchment
- Hardstanding within RPA's to be in accordance with arboricultural recommendations
- Private Cellular Attenuation Tank (0.8m depth) with gravel trench (1.0m wide)
- Private Surface Water Sewer
- Downstream Defender Proprietary Treatment System
- Private Surface Water Inspection Chamber
- Private Surface Flow Control Chamber
- Private Foul Water Sewer
- Private Foul Water Inspection Chamber
- Drainage to be abandoned
- Overland flood flow route

Constraints:

- Root Protection Area (Cat A&B)
- Root Protection Area (Cat C)
- No dig
- Precautionary Zone, Barrell SGN permeable surface necessary.
- Protective barrier / fencing
- Tree to be removed
- Surface Water Flood Extents 1in100 yr+40% Climate Change (2050s)
- Surface Water Flood Extents 1in30 yr+40% Climate Change (2050s)

**Area Summary Schedule**

| | |
|---|---|
| Proposed Development Boundary | 1.084 ha |
| Net Development Area - North | 0.481 ha |
| Net Development Area - South | 0.341 ha |
| Impermeable Area - North | 0.237 ha |
| Impermeable Area - South | 0.139 ha |

**Discharge Rates**

In accordance with Standard 3 of the National Standard for Sustainable Urban Drainage, discharge from existing brownfied development sites should be limited to 5x the greenfield discharge rates (GFRS) based on the Net Development Area. Causeway FLOW has been used to determine the GFRs using the FEH Statistical Method.

| | Southern Area GFRs | | Northern Area GFRs | |
|---|---|---|---|---|
| Return Period | 1x (l/s) | 5x (l/s) | 1x (l/s) | 5x (l/s) |
| 1 in 1 year | 0.2 | 1.0 | 0.2 | 1.0 |
| 1 in 30 year | 0.5 | 2.5 | 0.6 | 3.0 |
| 1 in 100 year | 0.5 | 2.5 | 0.7 | 3.5 |

**Attenuation Provision**

**Southern Upper**

| | |
|---|---|
| Ownership | Private |
| Type | Cellular Storage |
| Hydraulic Control | 22mm Orifice @ IL |
| Porosity | 95% (Cellular Storage) |
| Dimensions | 10.0mx3.5mx0.8m |
| Volume Provision | 28.3m³ |
| Volume Required | 26.6m³ |
| Outfall | Controlled discharge to on-site private surface water sewer. |

**Southern Central**

| | |
|---|---|
| Ownership | Private |
| Type | Cellular Storage |
| Hydraulic Control | 30mm Orifice @ IL |
| Porosity | 95% (Cellular Storage) |
| Dimensions | 8.5 m x 3.5 x 0.8m |
| Volume Provision | 24.5m³ |
| Volume Required | 23.2m³ |
| Outfall | Controlled discharge to on-site private surface water sewer. |

**Southern Lower**

| | |
|---|---|
| Ownership | Private |
| Type | Cellular Storage |
| Hydraulic Control | 35mm Orifice @ IL |
| Porosity | 95% (Cellular Storage) |
| Dimensions | 26.0mx3.0mx0.8m |
| Volume Provision | 60.9m³ |
| Volume Required | 60.3m³ |
| Outfall | Controlled discharge to off-site adopted surface water sewer via Downstream Defender. |

**Total Attenuation Provision 110.1 m³**
**Total 100yr + 40% Volume Required 113.7 m³**
**Total 100yr + 40% Peak Discharge 2.4 l/s**

**Area Summary Schedule (cont.)**

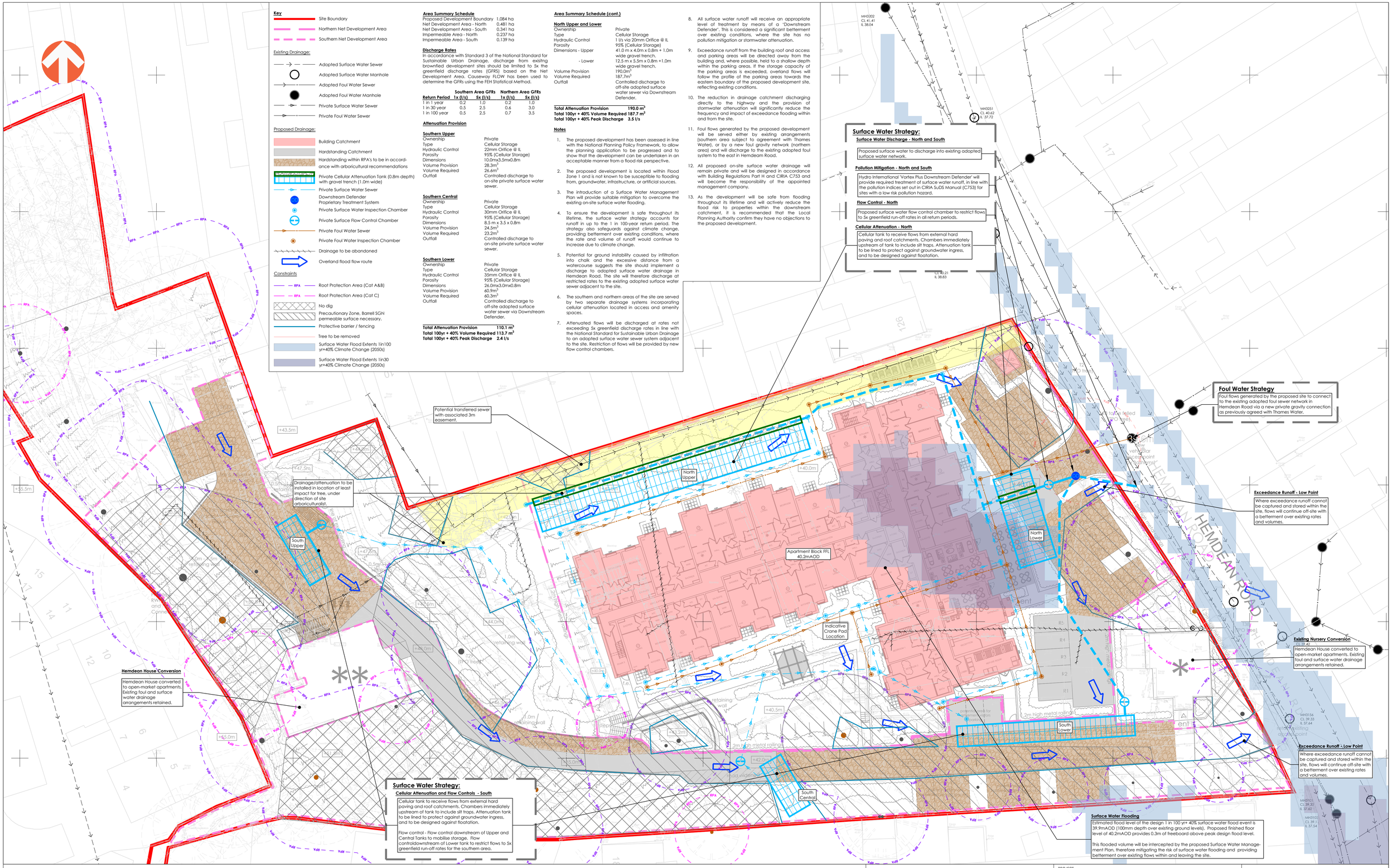
**North Upper and Lower**

| | |
|---|---|
| Ownership | Private |
| Type | Cellular Storage |
| Hydraulic Control | 1 l/s via 20mm Orifice @ IL |
| Porosity | 95% (Cellular Storage) |
| Dimensions - Upper | 41.0 m x 4.0m x 0.8m + 1.0m wide gravel trench. |
| - Lower | 12.5 m x 5.5m x 0.8m +1.0m wide gravel trench. |
| Volume Provision | 190.0m³ |
| Volume Required | 187.7m³ |
| Outfall | Controlled discharge to off-site adopted surface water sewer via Downstream Defender. |

**Total Attenuation Provision 190.0 m³**
**Total 100yr + 40% Volume Required 187.7 m³**
**Total 100yr + 40% Peak Discharge 3.5 l/s**

**Notes**

1. The proposed development has been assessed in line with the National Planning Policy Framework, to allow the planning application to be progressed and to show that the development can be undertaken in an acceptable manner from a flood risk perspective.
2. The proposed development is located within Flood Zone 1 and is not known to be susceptible to flooding from, groundwater, infrastructure, or artificial sources.
3. The introduction of a Surface Water Management Plan will provide suitable mitigation to overcome the existing on-site surface water flooding.
4. To ensure the development is safe throughout its lifetime, the surface water strategy accounts for runoff in up to the 1 in 100-year return period. The strategy also safeguards against climate change, providing betterment over existing conditions, where the rate and volume of runoff would continue to increase due to climate change.
5. Potential for ground instability caused by infiltration into chalk and the excessive distance from a watercourse suggests the site should implement a discharge to adopted surface water drainage in Hemdean Road. The site will therefore discharge at restricted rates to the existing adopted surface water sewer adjacent to the site.
6. The southern and northern areas of the site are served by two separate drainage systems incorporating cellular attenuation located in access and amenity spaces.
7. Attenuated flows will be discharged at rates not exceeding 5x greenfield discharge rates in line with the National Standard for Sustainable Urban Drainage to an adopted surface water sewer system adjacent to the site. Restriction of flows will be provided by new flow control chambers.
8. All surface water runoff will receive an appropriate level of treatment by means of a 'Downstream Defender'. This is considered a significant betterment over existing conditions, where the site has no pollution mitigation or stormwater attenuation.
9. Exceedance runoff from the building roof and access and parking areas will be directed away from the building and, where possible, held to a shallow depth within the parking areas. If the storage capacity of the parking areas is exceeded, overland flows will follow the profile of the parking areas towards the eastern boundary of the proposed development site, reflecting existing conditions.
10. The reduction in drainage catchment discharging directly to the highway and the provision of stormwater attenuation will significantly reduce the frequency and impact of exceedance flooding within and from the site.
11. Foul flows generated by the proposed development will be served either by existing arrangements (southern area subject to agreement with Thames Water), or by a new foul gravity network (northern area) and will discharge to the existing adopted foul system to the east in Hemdean Road.
12. All proposed on-site surface water drainage will remain private and will be designed in accordance with Building Regulations Part H and CIRIA C753 and will become the responsibility of the appointed management company.
13. As the development will be safe from flooding throughout its lifetime and will actively reduce the flood risk to properties within the downstream catchment, it is recommended that the Local Planning Authority confirm they have no objections to the proposed development.




| REV | DATE | DESCRIPTION | BY | CHK | APD |
|---|---|---|---|---|---|
| A | 30.01.2026 | INITIAL ISSUE | PT/JB | JB | CPY |

CLIENT: Churchill Living

DRAWING STATUS: PLANNING APPLICATION

PROJECT: Former Hemdean House School, Caversham

TITLE: Preliminary Drainage Layout

PROJECT No: 1953

DRAWING No: 01-PDL-1001

REV: A

SCALE @ A1: 0 1:250 12.5 metres

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# **Appendix I** Causeway FLOW Calculations

## Design Settings

| | | | |
|---|---|---|---|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 5 | Connection Type | Level Soffits |
| Additional Flow (%) | 0 | Minimum Backdrop Height (m) | 0.200 |
| CV | 1.000 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 5.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

## Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Depth (m) | Invert Level (m) |
|---|---|---|---|---|---|---|
| North | 0.237 | 5.00 | 40.000 | 1200 | 1.585 | 38.415 |
| South Upper | 0.039 | 5.00 | 48.500 | 1200 | 2.000 | 46.500 |
| South Central | 0.040 | 5.00 | 42.150 | 1200 | 2.000 | 40.150 |
| South Lower | 0.060 | 5.00 | 40.300 | 1200 | 1.808 | 38.492 |

## Links

| Name | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | South Upper | South Lower | 120.000 | 0.600 | 46.500 | 38.492 | 8.008 | 15.0 | 100 | 6.00 | 50.0 |
| 1.001 | South Central | South Lower | 35.000 | 0.600 | 40.150 | 38.492 | 1.658 | 21.1 | 100 | 5.35 | 50.0 |

| Name | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 2.006 | 15.8 | 7.0 | 1.900 | 1.708 | 0.039 | 0.0 | 46 | 1.943 |
| 1.001 | 1.688 | 13.3 | 7.2 | 1.900 | 1.708 | 0.040 | 0.0 | 53 | 1.725 |

## Simulation Settings

| | | | | | |
|---|---|---|---|---|---|
| Rainfall Methodology | FEH-22 | Analysis Speed | Detailed | Starting Level (m) | |
| Rainfall Events | Singular | Skip Steady State | x | Check Discharge Rate(s) | x |
| Summer CV | 1.000 | Drain Down Time (mins) | 240 | Check Discharge Volume | x |
| Winter CV | 1.000 | Additional Storage (m³/ha) | 0.0 | | |

**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 | 35 | 0 | 0 |
| 30 | 35 | 0 | 0 |
| 100 | 40 | 0 | 0 |
| 1000 | 0 | 0 | 0 |

## Node South Online Orifice Control

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Design Depth (m) | 0.800 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Design Flow (l/s) | 2.5 | | |
| Invert Level (m) | 38.000 | Diameter (m) | 0.035 | | |

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**Node North Online Orifice Control**

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Invert Level (m) | 38.415 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Diameter (m) | 0.030 | | |

**Node North Online Orifice Control**

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Invert Level (m) | 39.150 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Diameter (m) | 0.043 | | |

**Node South Upper Online Orifice Control**

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Design Depth (m) | 0.800 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Design Flow (l/s) | 0.8 | | |
| Invert Level (m) | 46.500 | Diameter (m) | 0.022 | | |

**Node South Central Online Orifice Control**

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Design Depth (m) | 0.800 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Design Flow (l/s) | 1.0 | | |
| Invert Level (m) | 40.150 | Diameter (m) | 0.030 | | |

**Node South Lower Online Orifice Control**

| | | | | | |
|---|---|---|---|---|---|
| Flap Valve | x | Invert Level (m) | 38.492 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Diameter (m) | 0.035 | | |

**Node North Soakaway Storage Structure**

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 38.580 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 4.000 | Number Required | 1 |
| Porosity | 0.95 | Pit Length (m) | 41.000 | | |

**Node North Soakaway Storage Structure**

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 38.580 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 1.000 | Number Required | 1 |
| Porosity | 0.30 | Pit Length (m) | 41.000 | | |

**Node North Soakaway Storage Structure**

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 38.415 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 5.500 | Number Required | 1 |
| Porosity | 0.95 | Pit Length (m) | 12.500 | | |

**Node North Soakaway Storage Structure**

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 38.415 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 1.000 | Number Required | 1 |
| Porosity | 0.30 | Pit Length (m) | 5.500 | | |

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## Node South Upper Soakaway Storage Structure

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 46.500 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 10.000 | Number Required | 1 |
| Porosity | 0.95 | Pit Length (m) | 3.500 | | |

## Node South Central Soakaway Storage Structure

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 40.150 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | 142 | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 8.500 | Number Required | 1 |
| Porosity | 0.95 | Pit Length (m) | 3.500 | | |

## Node South Lower Soakaway Storage Structure

| | | | | | |
|---|---|---|---|---|---|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 38.492 | Depth (m) | 0.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Inf Depth (m) | |
| Safety Factor | 2.0 | Pit Width (m) | 26.000 | Number Required | 1 |
| Porosity | 0.95 | Pit Length (m) | 3.000 | | |

## Rainfall

| Event | Peak Intensity (mm/hr) | Average Intensity (mm/hr) | Event | Peak Intensity (mm/hr) | Average Intensity (mm/hr) |
|---|---|---|---|---|---|
| 1 year +35% CC 15 minute summer | 76.981 | 21.783 | 30 year +35% CC 120 minute winter | 71.862 | 28.585 |
| 1 year +35% CC 15 minute winter | 54.022 | 21.783 | 30 year +35% CC 180 minute summer | 81.719 | 21.029 |
| 1 year +35% CC 30 minute summer | 49.798 | 14.091 | 30 year +35% CC 180 minute winter | 53.120 | 21.029 |
| 1 year +35% CC 30 minute winter | 34.946 | 14.091 | 30 year +35% CC 240 minute summer | 63.673 | 16.827 |
| 1 year +35% CC 60 minute summer | 32.867 | 8.686 | 30 year +35% CC 240 minute winter | 42.303 | 16.827 |
| 1 year +35% CC 60 minute winter | 21.836 | 8.686 | 30 year +35% CC 360 minute summer | 47.405 | 12.199 |
| 1 year +35% CC 120 minute summer | 26.650 | 7.043 | 30 year +35% CC 360 minute winter | 30.814 | 12.199 |
| 1 year +35% CC 120 minute winter | 17.706 | 7.043 | 30 year +35% CC 480 minute summer | 36.541 | 9.657 |
| 1 year +35% CC 180 minute summer | 22.643 | 5.827 | 30 year +35% CC 480 minute winter | 24.277 | 9.657 |
| 1 year +35% CC 180 minute winter | 14.718 | 5.827 | 30 year +35% CC 600 minute summer | 29.376 | 8.035 |
| 1 year +35% CC 240 minute summer | 18.879 | 4.989 | 30 year +35% CC 600 minute winter | 20.072 | 8.035 |
| 1 year +35% CC 240 minute winter | 12.543 | 4.989 | 30 year +35% CC 720 minute summer | 25.762 | 6.904 |
| 1 year +35% CC 360 minute summer | 15.199 | 3.911 | 30 year +35% CC 720 minute winter | 17.314 | 6.904 |
| 1 year +35% CC 360 minute winter | 9.879 | 3.911 | 30 year +35% CC 960 minute summer | 20.591 | 5.422 |
| 1 year +35% CC 480 minute summer | 12.231 | 3.232 | 30 year +35% CC 960 minute winter | 13.640 | 5.422 |
| 1 year +35% CC 480 minute winter | 8.126 | 3.232 | 30 year +35% CC 1440 minute summer | 14.358 | 3.848 |
| 1 year +35% CC 600 minute summer | 10.127 | 2.770 | 30 year +35% CC 1440 minute winter | 9.649 | 3.848 |
| 1 year +35% CC 600 minute winter | 6.919 | 2.770 | 100 year +40% CC 15 minute summer | 557.471 | 157.745 |
| 1 year +35% CC 720 minute summer | 9.082 | 2.434 | 100 year +40% CC 15 minute winter | 391.208 | 157.745 |
| 1 year +35% CC 720 minute winter | 6.103 | 2.434 | 100 year +40% CC 30 minute summer | 366.441 | 103.690 |
| 1 year +35% CC 960 minute summer | 7.510 | 1.978 | 100 year +40% CC 30 minute winter | 257.152 | 103.690 |
| 1 year +35% CC 960 minute winter | 4.975 | 1.978 | 100 year +40% CC 60 minute summer | 245.256 | 64.814 |
| 1 year +35% CC 1440 minute summer | 5.484 | 1.470 | 100 year +40% CC 60 minute winter | 162.942 | 64.814 |
| 1 year +35% CC 1440 minute winter | 3.686 | 1.470 | 100 year +40% CC 120 minute summer | 144.298 | 38.134 |
| 30 year +35% CC 15 minute summer | 413.914 | 117.124 | 100 year +40% CC 120 minute winter | 95.868 | 38.134 |
| 30 year +35% CC 15 minute winter | 290.466 | 117.124 | 100 year +40% CC 180 minute summer | 107.916 | 27.770 |
| 30 year +35% CC 30 minute summer | 268.262 | 75.909 | 100 year +40% CC 180 minute winter | 70.148 | 27.770 |
| 30 year +35% CC 30 minute winter | 188.254 | 75.909 | 100 year +40% CC 240 minute summer | 83.609 | 22.095 |
| 30 year +35% CC 60 minute summer | 179.158 | 47.346 | 100 year +40% CC 240 minute winter | 55.548 | 22.095 |
| 30 year +35% CC 60 minute winter | 119.029 | 47.346 | 100 year +40% CC 360 minute summer | 61.839 | 15.913 |
| 30 year +35% CC 120 minute summer | 108.165 | 28.585 | 100 year +40% CC 360 minute winter | 40.197 | 15.913 |

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## Rainfall

| Event | Peak Intensity (mm/hr) | Average Intensity (mm/hr) | Event | Peak Intensity (mm/hr) | Average Intensity (mm/hr) |
|---|---|---|---|---|---|
| 100 year +40% CC 480 minute summer | 47.517 | 12.557 | 1000 year 120 minute winter | 103.608 | 41.213 |
| 100 year +40% CC 480 minute winter | 31.569 | 12.557 | 1000 year 180 minute summer | 116.319 | 29.933 |
| 100 year +40% CC 600 minute summer | 38.118 | 10.426 | 1000 year 180 minute winter | 75.610 | 29.933 |
| 100 year +40% CC 600 minute winter | 26.045 | 10.426 | 1000 year 240 minute summer | 90.177 | 23.831 |
| 100 year +40% CC 720 minute summer | 33.371 | 8.944 | 1000 year 240 minute winter | 59.911 | 23.831 |
| 100 year +40% CC 720 minute winter | 22.427 | 8.944 | 1000 year 360 minute summer | 66.935 | 17.225 |
| 100 year +40% CC 960 minute summer | 26.591 | 7.002 | 1000 year 360 minute winter | 43.509 | 17.225 |
| 100 year +40% CC 960 minute winter | 17.614 | 7.002 | 1000 year 480 minute summer | 51.601 | 13.637 |
| 100 year +40% CC 1440 minute summer | 18.443 | 4.943 | 1000 year 480 minute winter | 34.283 | 13.637 |
| 100 year +40% CC 1440 minute winter | 12.395 | 4.943 | 1000 year 600 minute summer | 41.470 | 11.343 |
| 1000 year 15 minute summer | 595.006 | 168.366 | 1000 year 600 minute winter | 28.335 | 11.343 |
| 1000 year 15 minute winter | 417.548 | 168.366 | 1000 year 720 minute summer | 36.335 | 9.738 |
| 1000 year 30 minute summer | 398.031 | 112.629 | 1000 year 720 minute winter | 24.419 | 9.738 |
| 1000 year 30 minute winter | 279.320 | 112.629 | 1000 year 960 minute summer | 28.932 | 7.619 |
| 1000 year 60 minute summer | 269.435 | 71.204 | 1000 year 960 minute winter | 19.165 | 7.619 |
| 1000 year 60 minute winter | 179.006 | 71.204 | 1000 year 1440 minute summer | 19.949 | 5.347 |
| 1000 year 120 minute summer | 155.948 | 41.213 | 1000 year 1440 minute winter | 13.407 | 5.347 |

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**Results for 1 year +35% CC 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 |
|---|---|---|---|---|---|---|---|---|
| 720 minute summer | North | 525 | 38.713 | 0.298 | 6.0 | 42.7816 | 0.0000 | OK |
| 360 minute summer | South Upper | 240 | 46.656 | 0.156 | 1.6 | 5.3573 | 0.0000 | SURCHARGED |
| 240 minute summer | South Central | 152 | 40.289 | 0.139 | 2.1 | 4.0907 | 0.0000 | SURCHARGED |
| 720 minute summer | South Lower | 525 | 38.676 | 0.184 | 2.3 | 13.8579 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|---|---|---|---|---|---|---|---|---|
| 720 minute summer | North | Orifice | | 1.0 | | | | 43.1 |
| 720 minute summer | North | Orifice | | 0.0 | | | | 0.0 |
| 360 minute summer | South Upper | 1.000 | South Lower | 0.4 | 0.193 | 0.024 | 0.4969 | |
| 240 minute summer | South Central | 1.001 | South Lower | 0.7 | 0.252 | 0.050 | 0.1501 | |
| 720 minute summer | South Lower | Orifice | | 1.0 | | | | 35.9 |

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**Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.39%**

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|---|---|---|---|---|---|---|---|---|
| 480 minute winter | North | 464 | 39.170 | 0.755 | 16.0 | 150.7363 | 0.0000 | OK |
| 180 minute winter | South Upper | 176 | 47.070 | 0.570 | 5.7 | 19.5840 | 0.0000 | SURCHARGED |
| 180 minute summer | South Central | 136 | 40.723 | 0.573 | 8.5 | 16.8493 | 0.0000 | SURCHARGED |
| 480 minute winter | South Lower | 472 | 39.099 | 0.607 | 5.6 | 45.6579 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|---|---|---|---|---|---|---|---|---|
| 480 minute winter | North | Orifice | | 1.6 | | | | 54.5 |
| 480 minute winter | North | Orifice | | 0.2 | | | | 0.7 |
| 180 minute winter | South Upper | 1.000 | South Lower | 0.8 | 0.194 | 0.048 | 0.5133 | |
| 180 minute summer | South Central | 1.001 | South Lower | 1.4 | 0.311 | 0.105 | 0.1592 | |
| 480 minute winter | South Lower | Orifice | | 2.0 | | | | 61.0 |

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**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.32%**

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|---|---|---|---|---|---|---|---|---|
| 360 minute winter | North | 344 | 39.371 | 0.956 | 26.5 | 187.7252 | 0.0000 | OK |
| 240 minute winter | South Upper | 228 | 47.273 | 0.773 | 6.0 | 26.5935 | 0.0000 | SURCHARGED |
| 120 minute winter | South Central | 114 | 40.938 | 0.788 | 10.6 | 23.1720 | 0.0000 | SURCHARGED |
| 600 minute winter | South Lower | 585 | 39.367 | 0.875 | 6.2 | 60.3064 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|---|---|---|---|---|---|---|---|---|
| 360 minute winter | North | Orifice | | 1.8 | | | | 51.1 |
| 360 minute winter | North | Orifice | | 1.7 | | | | 26.0 |
| 240 minute winter | South Upper | 1.000 | South Lower | 0.9 | 0.187 | 0.056 | 0.5184 | |
| 120 minute winter | South Central | 1.001 | South Lower | 1.6 | 0.335 | 0.124 | 0.1620 | |
| 600 minute winter | South Lower | Orifice | | 2.4 | | | | 80.9 |

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**Results for 1000 year Critical Storm Duration. Lowest mass balance: 99.30%**

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|---|---|---|---|---|---|---|---|---|
| 480 minute winter | North | 328 | 40.000 | 1.585 | 22.6 | 190.0438 | 4.7855 | FLOOD |
| 180 minute winter | South Upper | 172 | 48.007 | 1.507 | 8.1 | 28.3214 | 0.0000 | SURCHARGED |
| 120 minute winter | South Central | 96 | 41.832 | 1.682 | 11.4 | 24.5258 | 0.0000 | SURCHARGED |
| 480 minute winter | South Lower | 464 | 39.922 | 1.430 | 7.7 | 60.9345 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|---|---|---|---|---|---|---|---|---|
| 480 minute winter | North | Orifice | | 2.4 | | | | 63.5 |
| 480 minute winter | North | Orifice | | 3.5 | | | | 41.5 |
| 180 minute winter | South Upper | 1.000 | South Lower | 1.2 | 0.231 | 0.078 | 0.5314 | |
| 120 minute winter | South Central | 1.001 | South Lower | 2.4 | 0.416 | 0.182 | 0.1699 | |
| 480 minute winter | South Lower | Orifice | | 3.0 | | | | 78.3 |

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