

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS



Flood Risk Assessment and Drainage Strategy Queens Drive – Rochdale

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Client: Mosscare St Vincent's Housing Group Limited

Project Name: Queens Drive

Project No. 100.25073

Report Title: Flood Risk Assessment and Drainage Strategy Report

Document ref: 100.25073-ACE-ZZ-ZZ-RP-C-0001

Date: 15/12/2025

Table 1 - Revision Table

REVISION	DATE	AUTHOR	CHECKED	APPROVED	DESCRIPTION
P01	15/12/ 2025	A Jencu	R Rigge	N Brown	First Issue

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Executive Summary

This Flood Risk Assessment and Drainage Strategy, for Mosscafe St Vincent's Housing Group Limited, supports the planning application for a proposed residential development at Queens Drive, Rochdale. The scheme comprises 28 social residential units, including a 3-storey apartment building and five 3-storey dwellings, with associated access, parking, and landscaping.

The site is located within Flood Zone 1, indicating the lowest risk of flooding from rivers and the sea. There is no fluvial or tidal flood risk, and groundwater flood risk is considered low. However, surface water (pluvial) flood risk is present due to the current disused brownfield condition of the site. This risk will be mitigated through the implementation of a detailed drainage strategy.

The proposed drainage strategy incorporates sustainable drainage systems (SuDS), including rainwater harvesting, permeable paving, rain gardens, and controlled discharge to a public surface water sewer at a restricted rate, as agreed with the Lead Local Flood Authority.

Foul water will be discharged to the public combined sewer, with flows not expected to increase compared to historic residential use.

The design meets national and local standards for sustainable drainage, enhancing water quality, amenity, and biodiversity, achieving the mitigation in line with The SuDS Manual Simple Index approach.

Mitigation measures include setting finished floor levels 150mm above surrounding ground to protect against surface water flooding, and designing exceedance routes and attenuation features to safely manage extreme rainfall events.

A detailed maintenance regime is outlined to ensure the long-term performance of the drainage system.

In conclusion, the proposed development can be safely accommodated on the site with minimal flood risk, subject to the implementation of the recommended drainage and mitigation measures. The strategy aligns with national and local planning policy requirements and supports the planning application for residential use.

1.0 Limitations of report

1.1 Background

In accordance with the National Planning Policy Framework (NPPF) a formal Flood Risk Assessment (FRA) is required in support of a planning application for development sites greater than 1ha in size within Flood Zone 1 or any development located within Flood Zones 2 and 3.

The level of detail within an FRA should be appropriate to the scale and nature of the development.

Adept Consulting Engineers Ltd have been appointed Mosscafe St Vincent's Housing Group Limited to carry out a Flood Risk Assessment (FRA) and Drainage Strategy to support the Full Planning Application for residential development (Use Class C3) for 28no. social residential units, comprising of a 3-storey apartment building of 23no. units, and 5no. 3-storey dwellings, with associated access, car parking and landscaping.

1.2 Methodology

The study consisted of data collection and review, desk-based research and consultation with regulatory bodies and third parties in relation to flood risk and drainage.

The Study provides a risk-based assessment of potential flooding to the site caused by various sources, including fluvial, tidal, surface water/pluvial, groundwater, surcharged sewers and other man-made sources. Mitigation measures are identified to address the risk to the site and any potential future risk to other land.

This report is intended to cover the requirements of Rochdale Borough Council's validation checklist and to serve as the Flood Risk Assessment and Site-specific Drainage Strategy document to support the planning application.

2.0 Limitations of report

This report has been prepared by Adept Consulting Engineers Limited for Mosscafe St Vincent's Housing Group Limited in accordance with the background and methodology described above in sections 1.1 and 1.2.

Detailed calculations, and a detailed drainage design have been undertaken as part of this study. The calculations and design are based on the information and assumptions covered in this report at the time of preparation and provide a suitable design and points of connection.

The report is based on the interpretation and assessment of data provided by third parties. Adept Consulting Engineers Limited cannot guarantee the reliability of the third-party information obtained. The conclusions and findings of the report may change if the third-party data is subsequently amended or updated.

3.0 Description of the existing site

3.1 Site Location

The site is located approximately 1,250m south of the A627(M) Junction with the Rochdale Bypass, just off the A664 in Rochdale .

The site is bound by woodland to the south, existing residential developments to the East, West is an existing allotment Q-Gardens and Queens Drive to the immediate North

The full site address is;

Land south of Queens Drive,
Kirkholt,
Rochdale,
OL11 2NP

The UK Grid Reference is

SD892113
389282 mE
411312 mN

A site location plan is attached within Appendix A

3.2 Site Description

Table 2 - Site Description

SITE DESCRIPTION	
Total Site Area	3,864 m ²
Existing Impermeable Area	Approximately 1,675m ² An existing hardstanding plan is provided in Appendix B
Land use	The site was previously occupied by a car park and an NHS GP surgery. The surgery building has since been demolished, leaving only the existing slab in place. The car park is currently disused and access is restricted by large stones. A more detailed history of the site as a brownfield location is provided below.
Topography	The site currently falls towards Queens Drive from South to North, there is also a gradient providing falls East to West.. A detailed topographical survey has been undertaken and is provided in Appendix C
Known Site Constraints	There is one combined public sewers that cross the site. There is also. A combined and surface water sewer within the footpath immediately adjacent to this site. The public sewer records are provided in Appendix D.

Brief Planning History

The site has undergone significant changes over the past three decades:

Historic Use: Originally developed in the mid-20th century with six residential blocks of flats (circa 1956). Three blocks were demolished in 2009 following long-term vacancy and dereliction.

Interim Use: The land was later occupied by a temporary Kirkholt Medical Practice and associated car parking. This facility was demolished after the completion of a new medical centre nearby. The eastern portion of the site remained vacant, while the western section was partially used for community gardening (Q-Gardens).

Recent Planning Activity:

2018: Reserved Matters and discharge of conditions for the new medical centre (applications 18/00900/DOC and 18/01416/REM).

2023: Demolition of the temporary medical building (application 23/00898/DEM).

3.3 Existing Drainage

Private Drainage System

There is an existing private separate surface & foul water network on site. However, due to the proposed site use and the unknown condition of the existing this will be removed and replaced in its entirety.

Watercourses

There are no watercourses mapped within the site boundary or adjacent to the site

Public Sewers - United Utilities

Based on the information available, it has been determined that a public sewer crosses the site. This United Utilities records identified as a 300 mm vitrified clay pipe. Both the chamber and the pipe at this location were detected and recorded during the GPR survey.

A combined sewer chamber and surface water chamber are located within the public footpath immediately north of the site. United Utilities have been consulted and have provided written permission for foul flows to be connected to either or both of the combined sewers, while surface water from the site may be discharged at a restricted rate to the surface water sewer.

Records of the consultations are available in Appendix E

GPR survey and CCTV Drainage Survey

A ground penetrating radar (GPR) survey has been undertaken. The survey identified several existing services and drains. All existing drains indicated on the plan will be completely removed. The current service cables will be reviewed, and where feasible, will be either rerouted or reused.

The results of the GPR survey are included in Appendix F

4.0 Flood risk sources and extents

4.1 Summary

A summary of the sources and level of flood risk (negligible, low, medium or high) is given in Table 4 below.

Table 3 - Flood sources and Risk

SOURCE	RISK LEVEL
Flood Zone	Flood Zone 1
Fluvial	n/a – not within the site
Surface Water / Pluvial	Medium and High

The sources and level of flood risk are demonstrated below.

4.2 River & Sea & EA Flood Zone

Reference is made to the EA Flood Map for Planning which identifies the site as being within a Flood Zone 1

The Environment Agency Flood Map for Planning is provided in Appendix G

In line NPPF Annex 3; Flood Vulnerability Classifications, the existing site would be categorised as **More Vulnerable**. The development proposals do not change this, refer to Section 5.0 for further details.

4.3 Tidal

There is no tidal flooding on the site.

4.4 Surface Water / Pluvial

Reference is made to the EA Flood Maps for Planning that identify sites that flood in for the 1 in 30, 1 in 100 & 1 in 1000 year events.

The 1 in 30 year surface water flooding notes on the maps is shown below



Figure 1 - EA Flood Maps 1 in 30 year surface water flooding

The 1 in 100 year surface water flooding notes on the maps is shown below

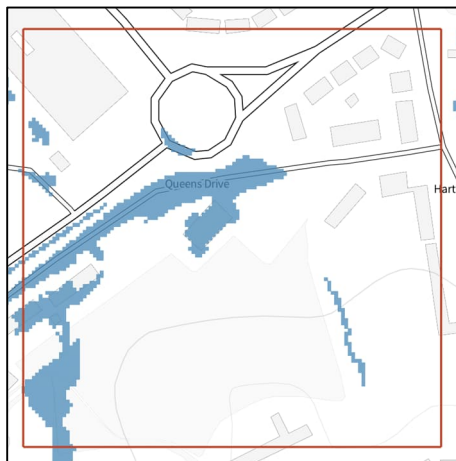


Figure 2 - EA Flood Maps 1 in 100 year surface water flooding

The 1 in 1000 year surface water flooding notes on the maps is shown below



Figure 3 - EA Flood Maps 1 in 1000 year surface water flooding

The focus of the flooding in the 1 in 100 year return period is the area of the site which is a disused slab, and currently not positively drained.

The flooding shown on the site for the 1 in 30 and 1 in 100 year flooding is believed to be due to the disused nature of the brownfield site, i.e. a site without a positive maintained drainage system.

The redevelopment of the site and the installation of a managed drainage network will mitigate the flooding from within the site boundary. The design flood events for the site are.

- No surcharging in 1 in 1 events
- No flooding in 1 in 30 year + CC event
- No flooding of building in the 1 in 100 year + CC event.

The climate change values will be selected from based on the latest Environment Agency Guidance.

4.5 Groundwater Flooding

Groundwater flooding can occur when groundwater levels rise above ground surface levels. The underlying geology has a major influence on where this type of flooding takes place; it is most likely to occur in low lying areas underlain by permeable rocks (aquifers).

The site is located in an area of “low” risk from groundwater flooding.

4.6 Other Man-Made Sources

United Utilities have not indicated that their asset is at risk of Surface Water flooding, nor have they reported capacity issues on the site.

4.7 Vulnerability

The proposed development is for residential development (Use Class C3) for 28no. social residential units, comprising of a 3-storey apartment building of 23no. units, and 5no. 3-storey dwellings, with associated access, car parking and landscaping as such the proposed vulnerability classification is “More Vulnerable”

4.8 Sequential Test

As the site is situated within Flood Zone 1, it is considered to be at the lowest risk of flooding from rivers and the sea. In accordance with the National Planning Policy Framework (NPPF), the Sequential Test is not required for developments located in Flood Zone 1, as this zone is deemed suitable for all types of land use, including residential development. The site is identified as “defined Urban Area” on the Rochdale Local Plan, however has not been specifically identified for redevelopment.

Given the site’s topography and its location outside of higher risk flood zones, there are no restrictions on the placement of development plots due to flood risk. The proposed development can be accommodated within Flood Zone 1 without the need for further flood risk justification.

As the vulnerability classification of the proposed development is “More Vulnerable,” it remains entirely suitable for Flood Zone 1 locations under current planning guidance.

Consequently, the Exception Test is not applicable, as the development is proposed in an area assessed as having minimal flood risk.

The Rochdale Borough Council Local Plan Map is provided in Appendix H

4.9 Design Consideration and Flood Mitigation

The development levels should consider the standing advise provided by the Environment Agency considering the risk of surface water flooding levels noting that flood waters should be routed away from building. As such the immediate FFL of the site should be set 150mm above the surrounding levels, with localised ramping to the entrances as required.

FFLs should consider the 1% AEP flooding event from site and the wider flooding entering the site

4.10 North West SuDS Proforma

Rochdale Borough Council require the Northwest SuDS proforma to be completed for all major developments.

A completed version of the form is provided in Appendix I

5.0 Proposed development

5.1 Development Outline

The proposed development entails the construction of 28no. social residential units, comprising of a 3-storey apartment building of 23no. units, and 5no. 3-storey dwellings, with associated access, car parking and landscaping

The proposed layout is provided within the Appendix J

5.2 Rainfall Data

Rainfall estimates in the UK have historically been derived from the Flood Studies Report (FSR), which was based on data from 1941–1970 and primarily intended for large river catchments.

However, the FSR methodology is now considered outdated and has largely been replaced by the Flood Estimation Handbook (FEH). FEH uses more recent and extensive datasets, improved statistical techniques, and digital mapping to provide depth–duration–frequency (DDF) estimates that are more accurate and representative of current conditions

FEH 22 data is used in the assessment of development.

National Planning Policy

The Government has established the National Planning Policy Framework (NPPF). This sets out the government's planning policies for England and how these are expected to be applied. Chapter 14 specifically relates to drainage systems and requires developments to incorporate sustainable drainage systems in the development.

National standards for sustainable drainage systems (SuDS)

The national standards provide information for designers, property developers, local authorities and other interested parties, such as sewerage undertakers and the Environment Agency. They also contain links to additional supporting information relating to sustainable drainage systems (SuDS)

Strategic Flood Risk Assessment

As well as the national standard, the Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) for Rochdale Borough Council has been reviewed.

The SFRA maps notes the site as a residential provision, an extract of the map is provided in Appendix K

Department for Environment, Flooding and Rural Affairs (DEFRA)

DEFRA provided a non-statutory technical standard for sustainable drainage systems in 2015 which sets out guidance on peak flow control, volume control, flood risk in the development. This guidance requires that for the 1 in 100-year, 6-hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event.

Lead Local Flood Authority (LLFA)

A pre-planning consultation has taken place with the LLFA, involving both email correspondence and a follow-up meeting. During the meeting, the design strategy was reviewed and feedback was provided. The design discussed in this document and presented on the supporting plans has been updated to incorporate those discussions.

A record of the conversation and communications can be found in Appendix L.

5.3 Existing Surface Water Flows

Despite the existing site being brownfield as the existing development is being removed in its entirety the proposals are to discharge surface water at greenfield rates, as such, Qbar is to be used as the development flow.

FEH 22 data has been used to calculate the Qbar rate, this is 0.9l/s

However, in the consultation with the LLFA, it was agreed to prevent a risk of blockage the flow rate could be increased to a maximum of 5l/s.

Greenfield rate calculations are provided in Appendix M

5.4 Hydraulic Calculations

The proposed. Drainage scheme has been modelled using infra drainage. FGH data has been imported. And calculations are provided with this report.

The surface water network for the development has been designed to the hydraulic standards of the Sewer Sector Guidance, these being:

- No surcharge of pipes for the 1 in 2-year storm return period.
- No flooding for the 1 in 30 year storm return period, plus climate change.
- No flooding of buildings for the 1 in 100 year storm return period, plus climate change.

Road, roofs and private hard standing areas have 100% impermeability (run-off coefficient) and full contribute to the flows in the surface water network.

The volumetric run-off values for both the summer and winter simulations have been set to 0.75.

Urban creep will be set to zero as and development is a managed development with no private ownership as such and development beyond that provided as part of this application will be subject to its own detailed planning application.

In accordance with the LLFA guidance and the design life of the building peak rainfall climate change allowances will be selected based on the Environment Agency guidance for the Irwell Management Catchment.

Upper end values currently set at 40% and 45% for 1 in 30 and 1 in 100 year storm event.

The calculations are provided in Appendix N

5.5 Proposed Surface Water Drainage Strategy

In line with the National Standards for Sustainable Drainage Systems the below sections review the outline scheme against the National Standards for Sustainable Drainage Systems Standards S1 – S7.

The outline scheme is shown indicatively within **Error! Reference source not found.**

Standard S1 – Run-off destinations

In line with Standard S1 the destination is reviewed in accordance with the following priorities.

- *priority 1: collected for non-potable use*
- *priority 2: infiltrated to ground*
- *priority 3: discharged to an above ground surface water body*
- *priority 4: discharged to a surface water sewer, or another piped surface water drainage system*
- *priority 5: discharged to a combined sewer*

Priority 1: Collected for Non-Potable Use (Rainwater Harvesting)

Above-ground rainwater harvesting (RWH) systems have been provided for the houses, supporting non-potable uses such as irrigation, and wash-down. The exact manufacturer of the storage tanks will be confirmed prior to construction. However, the apartment block did not have sufficient space available to accommodate the additional plant and infrastructure needed for a communal RWH system.

Roof catchments for the houses will be prioritised to maximise water quality and minimise treatment requirements.

Priority 2: Infiltrated to Ground

A detailed Phase II ground investigation has been undertaken. This included undertaking falling head tests within a number of Window Samples to determined viability of soakaways on the scheme.

This testing found that the Infiltration rates are considered “poor” with rates between $\times 10^{-6}$ – $\times 10^{-8}$

Extracts from the report are provided in **Error! Reference source not found.**

Priority 3: Discharged to an Above-Ground Surface Water Body

There are no above-ground surface water bodies within the red line boundary (RLB) or immediately accessible for direct discharge. Consequently, this priority is not available for the site.

Priority 4: Discharged to a Surface Water Sewer (or Other Piped SW System)

A United Utilities surface water chamber is immediately adjacent to the site. United Utilities have confirmed via consultation this as an available discharge location.

This public sewer is the location for the surface water discharge from site.

Standard S2 – Management of everyday rainfall (interception)

Each house will incorporate an above-ground rainwater harvesting tank to capture roof runoff for reuse, reducing the volume of water entering the drainage system.

Additionally, roof runoff from the houses will be directed to individual rain gardens located within the communal amenity space, providing interception storage and promoting infiltration (although slow) and evapotranspiration.

The block of flats will discharge roof water to the wider SuDS network for treatment and attenuation.

Car parking areas will be constructed using permeable paving, except where located over the public sewer, allowing rainfall to infiltrate (although slowly) and reducing surface runoff. This integrated approach ensures that the first 5 mm of rainfall is managed within the site, supporting compliance with Standard 2

The Long Term Storage approach will be applied to this scheme as the proposed development and spatial constraints of the site do not allow for a tank and overflows. Hence Q_{bar} is the proposed discharge rate.

Standard S3 – Management of extreme rainfall and flooding

Surface water systems will not surcharge in the 1 in 30yr event.

Permeable paving across the private car park will provide sub-base storage and attenuation during high-intensity storms, while rain gardens will offer additional temporary storage and slow conveyance of flows.

Roof runoff from the flats and houses will be controlled through flow restriction devices before entering the public sewer network, ensuring discharge rates do not exceed pre-development greenfield conditions (Q_{bar}) for all storm events.

Exceedance routes have been planned so that any residual flows during extreme events are safely directed towards landscaped areas and away from buildings, minimising flood risk to property and public safety

Proposed Level plan is provided in Appendix Q

Proposed Hardstanding Plan is provided in Appendix B

The overland flow route for flooded flows is provided in Appendix R

Standards S4 – Water quality

The drainage strategy incorporates permeable paving across all car parking areas, which provides initial filtration and sediment removal as water infiltrates through the surface and sub-base layers.

Rain gardens will further enhance water quality by promoting natural filtration and biological uptake of pollutants from roof and surface runoff.

Roof water from the houses, considered relatively clean, will be directed to rainwater harvesting tanks and rain gardens, while runoff from trafficked areas will pass through treatment stages before discharge. This multi-stage approach ensures effective removal of pollutants such as hydrocarbons and suspended solids, safeguarding downstream water quality and supporting compliance with the SuDS Manual

Table 4 provides a summary of the Pollution Index level for the proposed development.

Table 4 - Pollution Hazard Score for the site (reference Ciria 753 Table 26.2)

Area of site	Land use	Pollution Index
Roofs	<i>Residential Roofs</i>	Very Low
Parking Areas	<i>Residential Car Parks</i>	Low

Standard S5 - Amenity

To enable a significant portion of the site as amenity space, the below ground drains is attenuated in one location below the apartment car park. This has enabled the planting of a significant portion of trees and grassland to aid in the Bio diversity Net Gain of the scheme. Additionally the inclusion of a raingarden in the shared space is creating an attractive environment for residents while delivering functional drainage benefits.

These features will be integrated with pedestrian routes and open spaces, enhancing usability and promoting a sense of place.

Permeable paving in the car park maintains a high-quality finish while supporting sustainable

drainage objectives,.

Standard S6 – Biodiversity

The drainage design is linked closely with the landscaping design ensuring that the planting supports biodiversity. The rain gardens will be planted with a single Heavy Standard Tree as well as the lower level seeded with a Native Species Rich Mixture is a specific mix for Eco Lawns, that can be left to grow long and strimmed just once or twice in a season in May and late August encouraging pollinators and, creating habitats for insects and small wildlife.

These features will retain water temporarily, supporting wet-tolerant vegetation and contributing to ecological diversity within the site.

5.6 Foul Drainage

Strategy

In accordance with Building Regulations Part H, foul and surface water drainage systems will be kept separate on the Application Site prior to discharge.

A Pre-Development Enquiry will be submitted to United Utilities to confirm an acceptable discharge location. However, given the historic use of the site, the proposed development is not considered likely to increase the foul flows from the site. As such is not expected to receive a negative response.

An S106 application will be submitted as required as part of the development

Proposed Peak Foul Water Flows

The proposed peak foul water flow from the Application Site have been calculated in line with the discharge unit method as set out in BS 12056, using System II as required by the Sewerage Sector Guidance.

The peak foul flow rate is 6.7l/s

Foul calculations are provided in Appendix S

5.7 Future Maintenance

The long-term performance of the proposed drainage system is dependent on the implementation of an appropriate maintenance regime. Regular inspection and maintenance will ensure that the system continues to function as designed, preventing blockages, structural failures, and environmental degradation.

At this stage, specific products and proprietary systems have not yet been selected. As such, a detailed maintenance schedule, including product-specific requirements, will be developed and included in the final Operation and Maintenance (O&M) Manual once the design is finalised and suppliers are confirmed.

However, general maintenance principles of typical drainage are included in Appendix T

6.0 Conclusions

This report set out to assess the flood risk and establish a robust drainage strategy for the proposed residential development at Queens Drive, Rochdale.

The assessment confirms that the site is located within Flood Zone 1, indicating a low probability of flooding from rivers and the sea, and that groundwater flood risk is also low. While surface water flood risk is present due to the current brownfield condition, this risk will be effectively mitigated through the implementation of a comprehensive sustainable drainage strategy.

The proposed drainage design incorporates a range of sustainable drainage systems (SuDS), including rainwater harvesting, permeable paving, rain gardens, and controlled discharge to the public sewer network.

These measures will ensure that surface water is managed in accordance with national and local standards, protecting both the development and the surrounding area from flood risk. Finished floor levels and exceedance routes have been carefully planned to further reduce risk and ensure the safety of future residents.

The report's findings demonstrate that the objectives of the assessment have been met: the flood risk to the site and surrounding area has been thoroughly evaluated, and a drainage strategy has been developed that aligns with planning policy and best practice. A comprehensive maintenance regime has also been outlined to ensure the long-term effectiveness of the drainage infrastructure.

In summary, the proposed development can proceed safely and sustainably, with all flood risk and drainage considerations appropriately addressed. The strategy supports the planning application and ensures the development will be resilient to future climate and environmental changes.

Appendix A. Site Location Plan



Do Not Scale				
Drawing Notes				
Drawing & schedule based on the following information:				
Architect's drawing/model: -				
Revision: -				
Received: -				
Topographic Survey: -				
Revision: -				
Received: -				
Health, Safety & Environmental Notes				
Depicts Low Residual Risk Depicts Medium Residual Risk Depicts High Residual Risk				
Refer to Designer's Risk Assessment for Control Measures				
15.12.25	Planning Issue	AJ	RR	P01
Date	Description	By	Chk	Rev
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Project Queens Drive				
Title Site Location Plan				
Client MSV Housing				
Scale @ A1 1:1000	Initial author AJ	Initial checker RR	Approver NB	Initial Date Dec' 25
Status S2	Purpose Preliminary	Adepts Project Number 100.25073		
Project Originator-Functional Breakdown-Spatial Breakdown-Form-Discipline-Number 100.25073-ACE-ZZ-ZZ-D-C-3000				Rev. P01

Appendix B. Existing & Proposed Impermeable Area Plan



Do Not Scale

Drawing Notes

Drawing & schedule based on the following information:
Architect's drawing/model: REF
Revision: REV
Received: RECEIVED DATE
Topographic Survey: REF
Revision: REV
Received: RECEIVED DATE

Health, Safety & Environmental Notes

Depicts Low Residual Risk

Depicts Medium Residual Risk

Depicts High Residual Risk

Refer to Designer's Risk Assessment for Control Measures

1. Total site area (RLB) 3,864m² = 0.39ha.
2. Existing impermeable area = 1,675m² ≈ 43%
3. Proposed impermeable area = 2,284m² ≈ 59%

12.12.25	Planning Issue	AH	RR	P01
Date	Description	By	Chk	Rev

ADEPT

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Project

Queens Drive, Kirkholt

Title

Existing & Proposed Impermeable Areas

Client

MSV Housing

Scale @ A1	Initial author	Initial checker	Approver	Initial Date
1:200	AH	RR	NB	Dec' 25
Status	Purpose	Adept Project Number		
S2	Preliminary	100.25073		

Project Originator/Functional Breakdown/Spatial Breakdown/Form/Discipline Number

100.25073-ACE-ZZ-ZZ-DR-C-1015

Rev.

P01

Appendix C. Existing Topographical Survey

Appendix D. United Utilities Sewer Records

Adept CSCE

7
St. James Square, 4th Floor
Manchester, Greater Manchester
M2 6DN

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 100.25073-QueensDrive
Our Ref: UUPS-ORD-662367
Date: 03/07/2025**

Dear Sirs

Location: KIRKHOLT MEDICAL PRACTICE QUEENS DRIVE, ROCHDALE, OL11 2NP

I acknowledge with thanks your request dated 02/07/2025 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



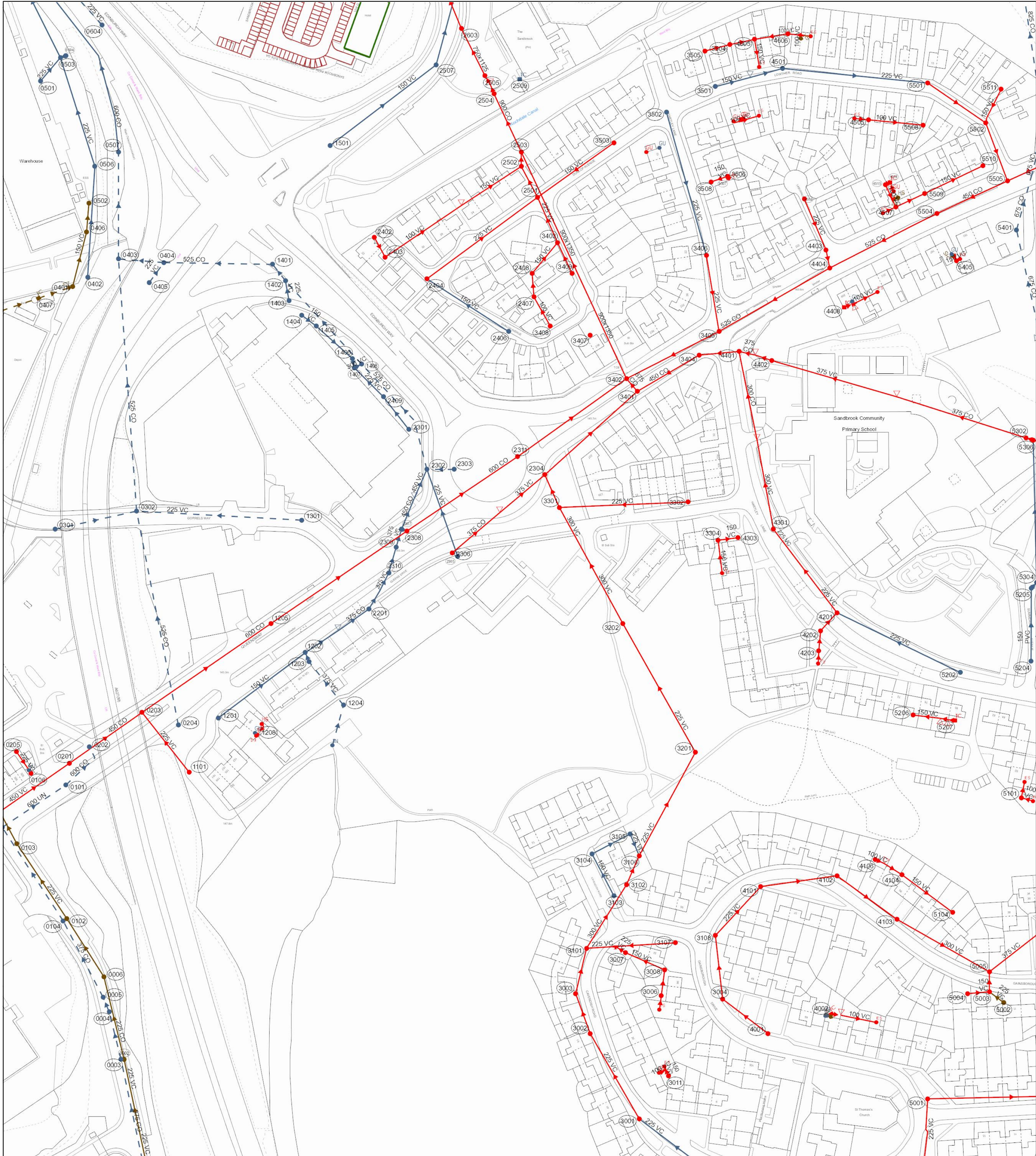
Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
2301	142.98	CO	140.86	225	100	VC	22.82351	1 in 285	
2403	141.76	CO	140.05	100	100	VC	50.53041	1 in 285	
4403	143.45	CO	141.91	225	100	VC	10.19804	1 in 7	
4301	146.23	CO	143.3	300	100	VC	49.81665	1 in 29	
0102	148.51	FO	147.31	225	100	VC	49.73383	1 in 10	
3001	143.16	SW	142.2	150	100	VC	19.66688	1 in 68	
2309	143.12	SW	141.53	375	150	VC	10.44031	1 in 10	
3011		SW		150	100	VC	5.65229	1 in 10	
0004		SW		375	150	VC	8.79524	1 in 10	
4001		SW		150	100	VC	31.15612	1 in 10	
2503	140.68	CO	0	900	100	CO	35.34115	1 in 285	
5401	140.1	SW	137.84	675	100	VC	30.08322	1 in 29	
4401	144.62	CO	138.61	450	100	VC	22.00772	1 in 105	
2505	137.8	CO	135.16	750	100	VC	29.08885	1 in 20	
3302	145.99	CO	143.39	225	100	VC	71.06335	1 in 20	
0501	135.66	SW	133.25	225	100	VC	17.02939	1 in 1703	
1501		SW	0	150	100	VC	73.4304	1 in 34	
1406	142.39	SW	140.46	225	100	VC	5.09902	1 in 34	
3301	143.07	CO	140.28	375	100	VC	19.99772	1 in 73	
2501	142.36	CO	140.47	225	100	VC	19.23538	1 in 23	
4502	144.76	CO	142.82	225	100	VC	30.46399	1 in 23	
3107		CO	0	225	100	VC	40.05175	1 in 23	
5101		CO	0	100	100	VC	8.678703	1 in 97	
2306	142.34	CO	140.7	375	100	VC	34.55877	1 in 97	
0201	143.66	CO	0	450	100	VC	48.82822	1 in 572	
2304	144.67	CO	138.98	450	100	VC	68.68042	1 in 36	
0204	143.61	SW	141.2	525	100	VC	120.2266	1 in 36	
3406		SW	0	225	100	VC	42.57934	1 in 36	
2507		SW	0	150	100	VC	37.23553	1 in 36	
1408	142.38	SW	138.32	525	100	VC	62.28965	1 in 56	
4101	168.18	CO	164.35	225	100	VC	42.25411	1 in 56	
5202	150.1	SW	148.34	225	100	VC	75.58439	1 in 20	
1407	142.48	FO	140.23	350	100	VC	47.21232	1 in 224	
0406		FO	0	300	100	VC	15.99129	1 in 224	
3002		CO	0	300	100	VC	23.4094	1 in 144	
1202	143.02	SW	141.8	375	100	VC	21.63331	1 in 144	
3502	143.13	SW	141.96	225	100	VC	82.0061	1 in 144	
0205		SW	0	225	100	VC	14.40709	1 in 144	
0301	140.22	SW	138.87	225	100	VC	48.09772	1 in 56	
5001	170.39	SW	167.56	300	100	VC	53.3215	1 in 27	
0506	136.15	SW	133.68	225	100	VC	62.95468	1 in 109	
4201	147.08	CO	144.56	225	100	VC	57.80138	1 in 77	
3303	146.17	CO	147.51	225	100	VC	11.04536	1 in 4	
1403	141.83	SW	139.55	225	100	VC	11.8034	1 in 4	
0101		CO	0	600	100	VC	28.63902	1 in 4	
0104		SW		375	100	VC	61.54486	1 in 80	
3103	166.82	SW	164.84	225	100	VC	36.79474	1 in 40	
6504	136.11	SW	134.71	150	100	VC	3.16278	1 in 40	
1401	142.51	SW	141.05	150	100	VC	10	1 in 56	
3003		CO	0	300	100	VC	25.70992	1 in 77	
0403		SW		600	100	VC	59	1 in 102	
1405	142.45	SW	140.84	225	100	VC	26.90725	1 in 77	
2404	142.71	CO	141.27	225	100	VC	75.80238	1 in 102	
5101		SW		150	100	VC	20.02581	1 in 102	
0507	140.19	SW	134.96	600	100	VC	94.88387	1 in 102	
3408	146.31	CO	146.4	100	100	VC	18.57596	1 in 102	
2201	142.77	SW	141.68	375	100	VC	11.6919	1 in 233	
5302	143.61	CO	141.88	375	100	VC	74.7282	1 in 66	
3101	164.55	CO	162.66	300	100	VC	41.34025	1 in 62	
0203	143.57	CO	138.52	600	100	VC	86.26703	1 in 125	
2308	143	CO	137.51	600	100	VC	73.4983	1 in 125	
4202	147.53	CO	144.77	225	100	VC	13.43562	1 in 67	
2311	144.86	CO		600	100	VC	73.11734	1 in 67	
5002	165.94	FO	163.77	225	100	VC	10	1 in 7	
4404	143.48	CO	137.21	525	100	VC	70.3278	1 in 260	
0503	138.12	SW	133.08	225	100	VC	69.18191	1 in 260	
5204	150.46	SW	148.32	150	100	PVC	40.2322	1 in 13	
3004	169.31	CO	167.14	225	100	VC	35.27783	1 in 15	
1101	145.33	CO	141.79	225	100	VC	42.0119	1 in 24	
4505		CO	0	100	100	VC	30.02985	1 in 24	
4606		CO	0	100	100	VC	18.57199	1 in 147	
3405	144.19	CO	136.87	525	100	VC	87.24059	1 in 147	
3007		SW		225	100	VC	6.517908	1 in 31	
2302	143.71	SW	140.62	525	100	VC	70.34262	1 in 31	
0002		CO	0	375	100	VC	27.02625	1 in 106	
2305	142.39	SW	141.42	225	100	VC	50.92151	1 in 106	
3402	145.32	CO	135.62	900	100	BR	137.8006	1 in 79	
4501	143.76	SW	141.86	225	100	VC	80.399	1 in 79	
3001		CO	0	225	100	VC	54.20332	1 in 28	
2402	141.41	CO	140.52	100	100	VC	12.52996	1 in 28	
5501	143.39	CO	140.81	225	100	VC	38.83298	1 in 47	
3006		SW		150	100	VC	14.30212	1 in 5	
5004	165.74	CO	164.56	150	100	VC	12.04159	1 in 5	
3104	161.23	SW	160.25	225	100	VC	23.70564	1 in 28	
3403	143.98	CO	141.56	225	100	VC	27.313	1 in 28	
2902	141.28		0	225	100	VC	8	1 in 28	
0005		SW		375	100	VC	47.34582	1 in 485	
4106		CO		100	100	VC	5.095118	1 in 485	
2310	143.11	SW	141.61	375	100	VC	14.56022	1 in 50	
2409	142.63	SW	140.76	225	100	VC	22.62742	1 in 50	
3401	145.28	CO	138.7	675	100	VC	8.215644	1 in 4	
4605		CO		150	100	VC	15.4844	1 in 113	
0402	137.08	SW	134.24	225	100	VC	61.13101	1 in 113	
3008		CO		150	100	VC	23.57649	1 in 135	
1205	143.11	CO	138.24	600	100	CO	90.9973	1 in 22	
0302	140.54	SW	137.79	525	100	VC	139.3593	1 in 22	
2408	145.17	CO	142.72	150	100	VC	22.02271	1 in 22	
3201		CO	0	225	100	VC	81.49233	1 in 43	
2303	143.89	SW	141.29	225	100	VC	15	1 in 43	
4402	143.97	CO	139.77	375	100	VC	9.458833	1 in 63	
3202	146.73	CO	145.47	300	100	VC	72.94518	1 in 14	
1203	143.3	SW	141.96	375	100	VC	5.385165	1 in 100	
4102	165.72	CO	163.57	225	100	VC	40.80441	1 in 46	
3409	145.2	CO	144.2	150	100	VC	18.78209	1 in 13	
5205	164.32	CO	161.72	375	100	VC	74.8131	1 in 14	
3504		CO		150	100	VC	13.94036	1 in 14	
2406	146.42	SW	145.42	150	100	VC	63.63603	1 in 8	
5205	147.35	SW	145.18	150	100	PVC	4.291281	1 in 8	
2903	138.65	CO	0	750	100	VC	31.26471	1 in 8	
2504	137.9	CO	133.75	900	100	VC	5.385165	1 in 8	
3105		SW	0	225	100	VC	13	1 in 22	
5602	142.56	CO	139.9	225	100	VC	34.17801	1 in 22	
5003	164.33	CO	161.92	300	100	VC	11	1 in 92	
2407	145.88	CO	0	100	100	VC	13.0384	1 in 47	
3503	142.87	CO	141.73	150	100	VC	51.61365	1 in 47	
3106	162.39	CO	157.7	225	100	VC	64.88461	1 in 4	
3102	163.91	CO	161.94	225	100	VC	17.46425	1 in 4	
1301	142.53	SW	141.05	225	100	VC	91.13726	1 in 43	
3505		CO		150	100	VC	14.15787	1 in 43	
3404	144.54	CO	139.38	450	100	VC	39.44617	1 in 74	
1402		SW		525	100	VC	11.40175	1 in 13	
3103	163.65	SW	162.24	150	100	VC	25.94224	1 in 13	
4103	164.94	CO	162.66	300	100	VC	66.66965	1 in 64	
4001	171.86	CO	170	225	100	VC	31.40064	1 in 12	
0405	142.18	SW	140.98	225	100	VC	13.80147	1 in 5	
0103	144.4	FO	142.31	225	100	VC	20.06149	1 in 8	
1401		SW		525	100	VC	60.08833	1 in 148	
5605	142.2	CO	138.12	450	100	VC	42.95465	1 in 34	
0003		FO		450	100	VC	46.91378	1 in 34	
2307	142.88	SW	141.52	450	100	VC	18.38478	1 in 40	
2307	142.88	SW	141.78	225	100	VC	3.16278	1 in 40	
0604	137.98	SW	136.4	225	100	VC	211.5126	1 in 23	
3506		CO		150	100	VC	9.637199	1 in 23	
0404	141.92	SW	136.42	525	100	VC	25.07987	1 in 23	
1201	145.41	SW	144.53	150	100	VC	60	1 in 23	
4507		CO		150	100	VC	17.60665	1 in 23	
5405		CO		150	100	VC	2.1889	1 in 23	
3304		CO		150	100	VC	11.09959	1 in 128	
4104		CO		150	100	VC	34.751	1 in 128	
1204	144.31	SW	142.11	375	100	VC	30.61046	1 in 128	
5009		VC		150	100	VC	35.55983	1 in 128	
4515		CO		100	100	VC	13.47358	1 in 141	
5504	1								

Appendix E. Correspondence with United Utilities

United Utilities Grasmere House, 2nd Floor
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

22.10.2025

Dear Robert Rigge

Pre-Development Enquiry for **Queens Drive, Rochdale**; UU Reference Number: **07775088**.

We have assessed your application based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your strategy will need review by other authorities as part of the planning process. We advise conducting necessary site investigations to confirm viability of your proposals.

Modelled Flood Risk

I can confirm that we do not have modelled flood risk within the vicinity of the proposed development.

Please note that our modelling data is indicative, and only representative of the 1:100year storm event.

[Please see comment 2 of the attached guidance sheet](#)

Asset Protection

According to our public sewer records, there are public sewers located within your site boundary. This requires an easement of 6m. If you cannot achieve the required clearance, you may wish to consider diverting and/or abandoning the public sewer.

375mm combined sewer indicated at 1.6m deep.

225mm surface water sewer indicated at 1m deep.

300mm combined sewer indicated at 2.8m deep.

[Please see comment 3 of the attached guidance sheet and Working Near Our Pipelines Guidance document](#)

Foul Water

Foul flow from this site will be allowed to drain into the public combined sewer system.

Our preferred point of discharge would be to the 300mm diameter public combined sewer within the development of your proposed development at an unrestricted rate.

WASTEWATER PRE-DEVELOPMENT ENQUIRY

A second allowed point of discharge would be to the 375mm diameter public combined sewer within the development of your proposed development at an unrestricted rate.

Manhole reference SD89112306, **Grid reference** 389247 411318

[Please see the images at the end of this letter for clarification](#)

Surface Water

Follow the National Planning Policy Guidance drainage hierarchy and Provide evidence for discounting higher options before considering public sewer discharge. Consult the Lead Local Flood Authority regarding surface water concerns.

[Please see comment 4 within the guidance sheet](#)

Infiltration

[Please see comment 4 within the guidance sheet](#)

Public Sewer

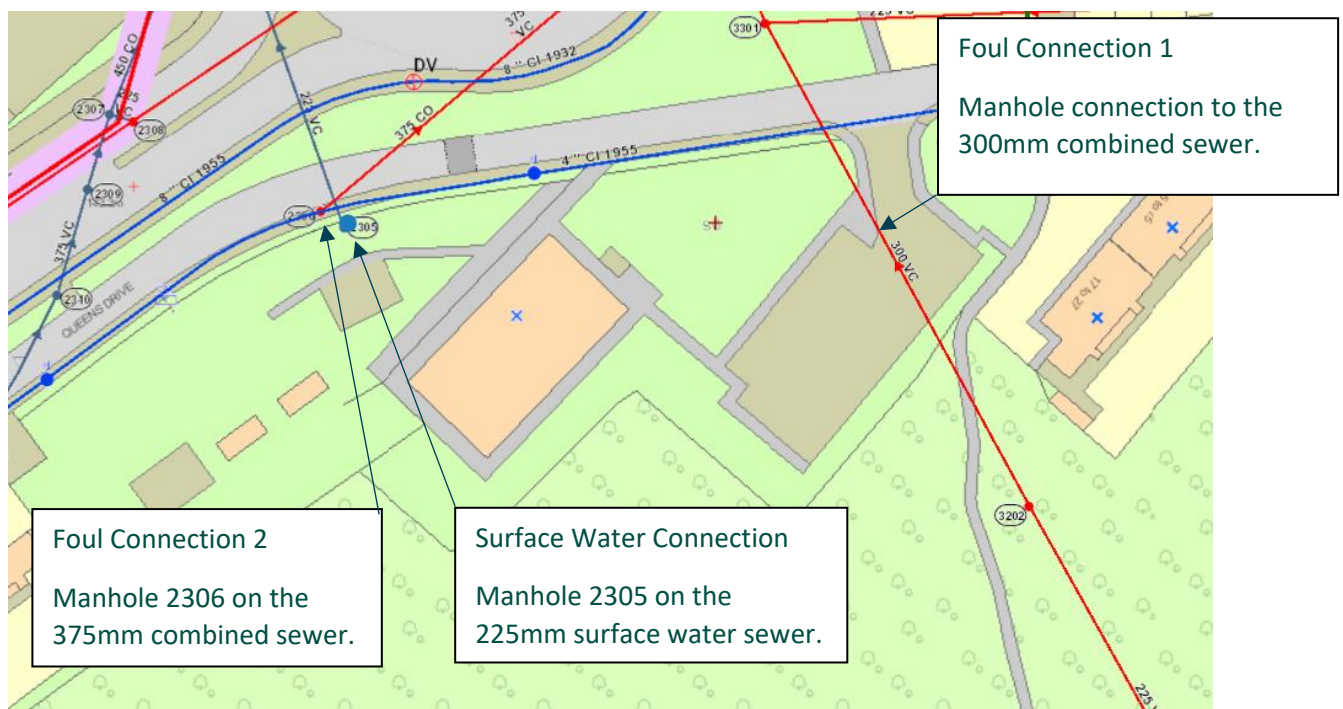
United Utilities will consider a connection to the 225mm diameter public surface water within Queens Drive of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities requests that any agreed rate does not exceed 5l/s.

Manhole reference SD89112305, **Grid reference** 389250 411316

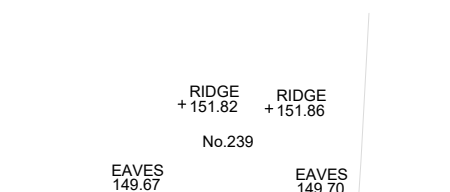
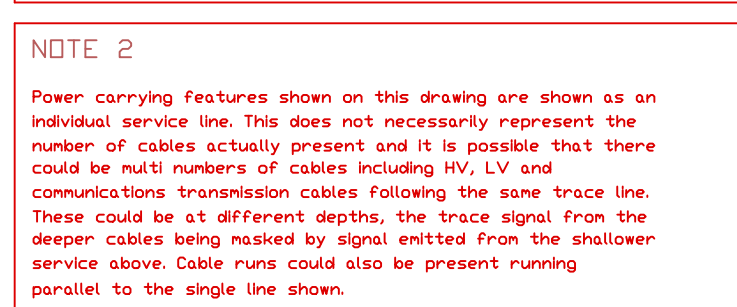
[Please see images at the end of this letter for clarification](#)

Site Images

[Image of Development with connection points](#)



Appendix F. Existing GPR Survey



Sheet Size & Drg Number & Revision
A0 24B138/001

Appendix G. Environment Agency Flood Map for Planning

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
389287/411293

Created
8 December 2025 20:47

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)

389287/411293

Scale

1:2,500

Created

8 Dec 2025 20:47

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area


0 20 40 60m

Appendix H. Rochdale Borough Council Local Plan Map

Title / comments:

KEY

Policies affecting this area.

Borough Boundary

Defined Urban Area

G/D/1(Land between the Defined Urban Area and the Green Belt or between the Green Belt and the Borough Boundary is subject to Policy **D/10** Protected Open Land)

Print Email [Show help menu site guide](#)

[Rochdale District Council](#)

Appendix I. Northwest SuDS Proforma

NORTH WEST SuDS PRO-FORMA

This pro-forma is a requirement for any planning application for major development¹.

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#) and any necessary adoption standards.

HOW TO COMPLETE

Blue Box	Instruction/ Question
Orange Box	Evidence Required
White Box	To be completed by Developer / Consultant

1. Complete ALL white boxes
2. Submit this pro-forma to the Local Planning Authority, along with:
 - Sustainable Drainage Strategy
 - Site Specific Flood Risk Assessment (if required)
 - Minimum supporting evidence, as indicated in orange boxes of this pro-forma.

GUIDANCE TO SUPPORT YOU

The pro-forma should be completed in conjunction with ‘Completing your SuDS Pro Forma Guide.’

The pro-forma can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or appropriate industry standard surface water management design software.

¹ as defined in Section 2 of [Statutory Instrument 2015 No. 595](#) or on sites in Critical Drainage Areas.

SECTION 1. APPLICATION & DEVELOPMENT DETAILS

Planning Application Reference <i>(if available)</i>	Submitted in support of planning	
State type of planning application <i>i.e. Pre-application, Outline, Full, Hybrid, Reserved Matters*</i> *Information only required if drainage is to be considered as part of reserved matters application		
Developer(s) Name:	MSV Housing	
Consultant(s) Name:	Adept Civil and Structural	
Development Address <i>(including postcode)</i>	Land south of Queens Drive, Kirkholt, Rochdale, OL11 2NP	
Development Grid Reference <i>(Eastings/Northings)</i>	389282mE, 411312mN	
Total Development Site Area (Ha)	0.39ha	
Drained Area (Ha)* of Development	0.23ha	
Please indicate the flood zone that your development is in. Tick all that apply. <i>Based on the Environment Agency Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).</i>	Flood Zone 1 ☒ Flood Zone 2 ☐ Flood Zone 3a ☐ Flood Zone 3b ☐	
What is the surface water risk of the site? Tick all that apply. <i>Based on the Environment Agency Surface Water Flood Map.</i>	High ☒ Medium ☒ Low ☐	
Have you submitted a Site Specific Flood Risk Assessment (FRA)? <i>See separate guidance notes for clarification on when a FRA is required</i>	Yes ☒ No ☐	
Have you submitted a Sustainable Drainage Strategy?	Yes ☒ No ☐	
Does your drainage proposal provide multi-functional benefits via SuDS?	Yes ☒ No ☐	
Expected Lifetime of Development (years) <i>Refer to Planning Practice Guidance "Flood Risk and Coastal Change" Paragraph 026</i>	80 years	
Development Type:		State Proposed Number of Units
Greenfield Site Site is wholly undeveloped, and a new drainage system will be installed	☐	
Previously Developed/ Brownfield Site - Site is already developed, and the <u>entirety</u> of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable); <u>OR</u> - Where records of the previously developed system are not available so that the hydraulic characteristics of the system cannot be determined or where the drainage system is not in reasonable working order <i>i.e. broken, blocked or no longer operational for other reasons.</i>	☒	
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 1.		

SECTION 2: IMPERMEABLE AREA AND EXISTING DRAINAGE

	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)	0.16	0.23	+0.07
Evidence Required: Plans showing development layout of site with existing and proposed impermeable areas.			☒

Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?	Yes ☒ No ☐ Don't Know ☐
Evidence Required: Plan(s) showing existing layout to include all: - Watercourses, open and culverted - Water bodies – ponds, swales etc. - Sewers, including manholes - Highway drains, include manholes, gullies etc. - Infiltration features - soakaways, filter drains etc.	☒

Drainage Design <u>Outline planning applications</u> should be able to demonstrate that a suitable drainage system is achievable. <u>All other type of planning application</u> should provide full details or reference to previous planning application where drainage details have been submitted or approved.	
Select which design approach you are taking to manage water quantity (refer to Section 3.3 SuDS Manual)	
Approach 1 – Volume control / Long Term Storage (Technical Standards S2/3, S4/5) - The attenuated runoff volume for the 1 in 100 year 6 hour event (plus climate change allowance) is limited to the greenfield runoff volume for the 1 in 100 year 6 hour event, with any additional runoff volume utilising long term storage and either infiltrated or released at 2 l/s/ha - The discharge rate for the critical duration 1 in 1 year event is restricted to the 1 in 1 year greenfield runoff rate - The discharge rate for the critical duration 1 in 100 year event (plus climate change allowance) is restricted to the 1 in 100 year greenfield runoff rate	☐
Approach 2 – Qbar (Technical Standards S6) Justification has been provided that the provision of volume control/long term storage is not appropriate and an attenuation only approach is proposed. All events up to the critical duration 1 in 100 year event (plus climate change allowance) are limited to Qbar (1 in 2 year greenfield rate) or 2 l/s/ha, whichever is greater.	☒
Evidence Required: Plans showing: - Existing flow routes and flood risks - Modified flow routes - Contributing and impermeable areas - Current (if any) and proposed 'source control' and 'management train' locations of sustainable drainage components (C753 Chapter 7) - Details of drainage ownership - Details of exceedance routes (Technical Standards S9) - Topographic survey - Locations and number of existing and proposed discharge points Note consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 2.

- Existing topo survey
- Overland flow plan
100.25073-ACE-ZZ-ZZ-DR-C-1210
- Proposed Drainage
100.25073-ACE-ZZ-ZZ-DR-C-1000

SECTION 3: PEAK RUNOFF RATES – TECHNICAL STANDARDS S2, S3 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s) <i>Previously developed sites - In line with S3 should be equivalent to Greenfield runoff rates – discuss with LLFA if this is not achievable pre-application</i>
Qbar (Approach 2)	UNRESTRICTED	0.7l/s	5l/s as agreed with Keith
1 in 1 Year Event (Approach 1)			
1 in 30 Year Event			
1 in 100 Year Event* (Approach 1)			
* Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. The climate change allowance should only be applied to the proposed rate and not the existing or greenfield rate.			
Evidence Required:			
Methodology used to calculate peak runoff rate clearly stated and justified.			☒
Impermeable areas plan, supported by topographical survey confirming positive drainage.			☒
Hydraulic calculations and details of software used.			☒

State the hydraulic method used in your calculations
(Refer to Table 24.1 of The SuDS Manual)

FEH 2022

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 3.

Proposed area plan
Proposed hydraulic calcs

SECTION 4: DISCHARGE VOLUME – TECHNICAL STANDARDS S4, S5 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Volume (m ³)	Greenfield Volume (m ³)	Proposed Volume (m ³)
1 in 100 Year 6 Hour Event (Approach 1)			
Does the below statement apply to your development proposal? Long term storage is not achievable on this site and, in accordance with S6 of the Non-Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100-year critical event are limited to Qbar (Approach 2)			Yes ☒ No ☐
Evidence Required: Approach to managing the quantity of surface water leaving the site clearly stated and justified Methodology used to calculate discharge volume clearly stated and justified. Hydraulic calculations and details of software used.			☐ ☐ ☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 4.	
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SECTION 5: STORAGE – TECHNICAL STANDARDS S7 AND S8

State climate change allowance used (%)	1 in 30yr – 40% 1 in 100yr – 45%
State housing density (houses per ha)	
State urban creep allowance used (%)	0 – the development is a managed site as such no private ownership
Evidence Required: State / used in appropriate industry standard surface water management design software.	☒

State storage volume required (m ³) (<i>excluding non-void spaces</i>) <i>Must include an allowance for climate change and urban creep</i>	76m ³
Have you incorporated interception into your design? (Refer to Chapter 24 of The SuDS Manual C753) <i>Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.</i>	Yes ☒ No ☐
Evidence Required: Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	☒

Summarise how storage will be provided for 1 in 30 year event on site. <i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designated areas <u>and</u> no flooding occurs offsite in a 1 in 100 year (plus climate change allowance) event.</i>	House roof areas drain to RWH tanks and raingardens
Summarise how storage will be provided for 1 in 100 year (plus climate change) event on site. <i>Where storage above the 1 in 30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in appropriate industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site</i>	Storage is provided in the car park of the apartment building
Evidence Required: Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.	100.25073-ACE-ZZ-ZZ-DR-C-1000 Hydraulic calcs
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SECTION 6: WATER QUALITY PROTECTION

Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.

Is the proposal site known to be or potentially contaminated?	Yes ☐	No ☒
If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters though the mobilisation of contaminants and/or creation of new pollution pathways.		

Confirm the <i>Pollution Hazard Level</i> of the proposed development - Tick <u>ALL</u> that apply Refer to <i>Pollution Hazard Indices for different Land Use Classifications</i> in Table 26.2 of <i>The SuDS Manual C753</i> for further guidance.		
Pollution Hazard Level Tick <u>ALL</u> that apply	Surface water run-off from the proposed development will drain from:	
VERY LOW	☒	Residential roofs
LOW	☒	- Other roofs (typically commercial/industrial roofs) - Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads) - Non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day
MEDIUM	☐	- Commercial yard and delivery areas - Non-residential car parking with frequent change (e.g. hospitals, retail) - All roads except low traffic roads and trunk roads/motorways²
HIGH	☐	- Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites) - Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured - Industrial sites - Trunk roads and motorways¹

If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?	Yes ☒	No ☐
If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with <i>The SuDS Manual (C753)</i>.		

If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?	Yes ☐	No ☐
- If the proposed development has a high polluting potential, a detailed risk assessment <i>will</i> be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 170 of the National Planning Policy Framework. - If the proposed development has a medium polluting potential, a detailed risk assessment <i>may</i> be required depending on the nature, scale and location of the development.		

Has pre-application advice on water quality been obtained from the Environment Agency?	Yes ☐	No ☐
If YES, provide details:		

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 6.	Proposed drainage layout
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² Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

SECTION 7: DETAILS OF YOUR SUSTAINABLE DRAINAGE SYSTEM

a) Function of your Sustainable Drainage System

Do your proposals store rainwater for later use (as a resource)?	Yes ☒ No ☐
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Individual properties have RWH tanks
Do your proposals promote source control to manage rainfall close to where it falls? (e.g. promoting natural losses through soakage, infiltration and evapotranspiration)	Yes ☒ No ☐
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Soakaway not possible – testing provided, rain gardens and permeable paving provided where possible.
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7a.	

b) Hierarchy of Drainage Options – Planning Practice Guidance

The proposed method of discharge are set out within order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 1: Into the ground (via infiltration)		Yes ☐ No ☒	
If YES - Evidence Required		If NO – Evidence Required Tick <u>ALL</u> that apply	
☐	A. Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B <i>An editable version of this form is available on SusDrain website.</i>	☒	A. Site investigation to demonstrate that the ground is not free draining. Test results to be provided in accordance with: - The methodology within BRE 365 (2016), <u>OR</u> - Falling head permeability tests BS EN ISO 22282-2: 2012
☐	B. British Geological Survey (BGS) Infiltration SuDS Map	☐	B. NOTE: where an applicant is unable to access a site to undertake testing, e.g. where unable to access a site for an outline application, they can submit a SuDS GeoReport or similar.
☐	C. Infiltration testing to BRE 365 (2016) or falling head permeability tests to BS EN ISO 2228-2: 2012 (<i>optional for outline</i>)	☐	C. Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality.
☐	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration proposals are proven not feasible upon further site specific ground investigation e.g. to consider seasonal variations to groundwater.	☐	D. Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area. <i>*Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).</i>

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 2: To a surface water body (<i>select type</i>)		Yes ☐ No ☒ N/A ☐	
NOTE: Consent from LLFA or Permit from Environment Agency may be required – refer to guidance		☐ Main river	☐ Canal
		☐ Ordinary watercourse	☐ Other water body
If YES - Evidence Required		If NO – Evidence Required Tick <u>ALL</u> that apply	
☐	Surface water body / watercourse survey and report	☒	Plan showing nearby watercourses and waterbodies AND
		☒	Statement providing justification in your Sustainable Drainage Strategy <i>Note: Where discharge of any element in the hierarchy is discounted, an applicant should provide justification. If the reasoning for discounting a discharge of surface water to watercourse relates to issues associated with third party land or the securing of any other required consent, it may be necessary for the applicant to provide evidence to the local planning authority to support their proposed approach.</i>

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 3: To a surface water sewer or highway drain (<i>select type</i>)		Yes ☒ No ☐ N/A ☐	
		☒ Surface water sewer	☐ Highway drain
If YES - Evidence Required		If NO – Evidence Required Tick <u>ALL</u> that apply	
☐	Written correspondence from Water and Sewerage Company/ Highway Authority regarding proposed connection.	☒	Plan showing nearby sewers and highway drains AND
		☒	Statement providing justification in your Sustainable Drainage Strategy

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 4: To combined sewer		Yes ☐ No ☐ N/A ☒	
If YES - Evidence Required		If NO – Evidence Required	
☐	Written correspondence from Water and Sewerage Company	N/A	

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7b.	Public sewer plan, EA maps & correspondence with UU.
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c) Proposed SuDS Component Types

	Tick ALL that apply				
Within property boundary	☒ Rainwater harvesting	☐ Green/ blue roofs	☐ Pervious pavements [Type: A ☐ B ☐ C ☐	☐ Soakaway	☐ Bio retention systems

	Tick ALL that apply				
Within development site boundary (not property)	☐ Infiltration system [Type: ☐ Surface level ☐ Below ground]		☐ Filter strips	☐ Filter drains	☐ Swales
	☒ Bio retention system	☐ Detention basins	☐ Ponds and wetlands	☒ Attenuation tanks/ Oversized pipes	☐ Other (state below)
	If 'Other' please state:				

Off site (not within the boundary of the proposed development)	Please state:
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I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm ☒
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year plus climate change rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm ☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7c.	
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SECTION 8: OPERATION AND MAINTENANCE – TECHNICAL STANDARD S12 AND NATIONAL PLANNING POLICY FRAMEWORK

The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).

	Information Provided?
Management Plan	Yes ☒ No ☐
Evidence Required: Plan/ drawing provided to show the position of the different SuDS components with: - Key included to identify any of the adopting bodies that you will be offering your sustainable drainage components for adoption (<i>relates to maintenance and management arrangements below</i>). - Plan/ drawing to identify any areas where certain activities are prohibited, detailing reasons why.	☒
Action plan for accidental pollutant spillages.	☒

	Information Provided?
Maintenance Schedule	Yes ☒ No ☐
Evidence Required: A copy of the maintenance schedule including: - Proactive and preventative maintenance Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them. - Reactive and corrective maintenance (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.	☒

	Information Provided?
Maintenance and Management Arrangements	Yes ☒ No ☐
Evidence Required: Evidence of formal agreement with the party responsible for undertaking maintenance. Please select any of the adopting bodies that you will be offering your sustainable drainage components for adoption. Tick all that apply. ☐ Water and Sewerage Company <i>Section 104 agreement (Water Industry Act 1991)</i> ☐ Highway Authority <i>Section 278/38 agreement (Highways Act 1980)</i> ☐ Local Authority Public Open Space [<i>Refer to Local Authority Policy</i>] Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. ☐ Management Company ☒ Property Owner (<i>for SuDS components within property boundary only</i>) ☐ Other (please state) All private drainage will be maintained by MSV	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 8.

Indicative plan and schedule provided, details provided when manufactures selected.

DECLARATION AND SUBMISSION

This pro-forma has been completed using evidence from information which has been submitted with the planning application.

The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details			
Completed by	R Rigge	Email Address	Robert.rigge@adeptcsce.com
		Telephone Number(s)	0161 974 0291
Signed off by		Accreditation(s) and/or Qualification(s) of Signatory	CEng MICE
Date (dd/mm/yyyy)	15/12/2025	Company	Adept

Client Details			
Name	Bob Plesance	Company	MSV Housing

Appendix J. Proposed Site Plan



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■THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES & REFERENCES.

■ANY DISCREPANCY TO BE VERIFIED WITH THE ARCHITECT BEFORE PROCEEDING WITH THE WORKS.

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■WHERE AN ITEM IS COVERED BY DRAWINGS OF DIFFERENT SCALES, THE LARGER SCALE DRAWING TO BE WORKED TO. DO NOT SCALE FROM THE DRAWING. FIGURED DIMENSIONS TO BE WORKED TO IN ALL CASES.

■CHECK ALL DIMENSIONS ON SITE.

■DRAWING TO BE READ IN CONJUNCTION WITH THE HEALTH & SAFETY PLAN, AND ALL RELEVANT RISK ASSESSMENTS AND THE FOLLOWING DRAWINGS:

Schedule of Accommodation

Flat Type	Description	Area/m2	Total
A1	1B2P	50.3	12
A2	1B2P	50.3	11

Total 23

100% 1-beds
(Car parking : 75% shown)

House Type	Description	Area/m2	Total
B	4B7P	127.8	3
B(V1)	4B7P	129.3	1
B(V2)	4B7P	129.3	1

Total 5

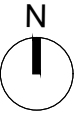
(Car parking : 200% shown)

GIFA

Flat Block	Floor	Number	Area/m2
Ground	1	517.0	
1-2	2	517.0	
Total		1034.0	

House Block	Floor	Number	Area/m2
Ground	1	240.7	
1	1	253.7	
2	1	171.4	
Total		665.8	

- Site Boundary (0.38Ha)
- Proposed Community Gardens Site (~0.19)
- Existing Community Gardens Boundary
- Existing Buildings
- Existing Trees
- Existing Trees - Removed
- New Trees
- Tarmac / parking areas
- Hard landscaped areas
- Grassed areas / BNG
- Private gardens



Revision	Date	By	Remarks
A	15.11.24	OP	Drawing updated to suit house and flat block layouts
B	04.12.24	OP	Stage 2 Drawing Issue - dwgs updated to suit proposed elevations
C	02.07.25	OP	Parking court, red line boundary & bin stores amended, and general updates
D	14.10.25	OP	Alterations to red line boundary, cycle store and general building updates
E	22.10.25	OP	Sub Station updated in line with M&E / Utilities recommendations, red line boundary update
F	11.11.25	OP	Updates to suit removed sprinkler system in apartment block
G	10.12.25	OP	Revised red line boundary. Landscape & SE coordination

Date:		Scale @A3:	Project Number:		Drawing Number:		Revision:		Drawing Purpose:	
Oct 2024		1:500	22-042		SK23		G		INFORMATION	
Drawn:	Checked:	Status:	Project	Originator	Vol/Sys	Level	Type	Role	Number	
OP	AJD		XX - XX - XX - XX - XX - XX - XX							

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M15 4PY

Client:	MSV Housing
Project:	Queens Drive, Kirkholt
Drawing Name:	Proposed Site Plan (Option 11)