



Level 1 Flood Risk Assessment and Drainage Strategy

Land at Church Lane, Manchester M9 4JW
HAD & Co

June 2022

Project Information

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1. Executive Summary

Aval Consulting Group Limited has been commissioned by HAD & Co ('the client') to provide a Level 1 Flood Risk Assessment and Drainage Strategy in relation to a planning application for the proposed extension at Land at Church Lane, Manchester M9 4JW.

The site is located within a Flood Zone 1 and the Strategic Flood Risk Assessment and the NPPF 2021 guidance will be used to identify if a Sequential and/or Exception Test is required.

The site is at a very low risk of river/sea and a low risk of surface water flooding.

The proposed development includes a surface water drainage plan including a dedicated surface water drainage system to help drain the surface water away from the site.

The proposed development will include SuDS such as permeable paving, water butts and attenuation storage within the site boundary to help aid in the discharge of surface water.

2. Introduction

2.1 Overview

AVAL Consulting Group Limited (ACL) has been commissioned by the client to produce a Level 1 Flood Risk Assessment and Drainage Strategy for the proposed development at Land at Church Lane, Manchester M9 4JW.

This report will state the Flood Zone the development is located in and identify if a Sequential and/or Exception test is required as per the SFRA and the NPPF.

The proposed development includes a surface water drainage plan including a dedicated surface water drainage system to drain the surface water from the site.

The site drawings are presented in Appendix A.

2.2 Site Location and Details

Figure 2.1 shows the proposed site location. The surroundings of the proposed development site are largely residential. The site is bounded by Church Lane to the North, greenfield area to the south and residential developments towards the west and east.



Figure 2.1: Proposed Site Location (Source: HAD & Co)

2.3 Proposed Development and Vulnerability Classification

The proposed development is the construction of a four-storey residential block consisting of 28no. flats with a roof and associated amenity areas and landscaping.

The site is located at an average height of 73.00 AOD. A detailed topographical data is available in Appendix B.

As per the National Planning Policy Framework, the proposed residential use will be under the **'More Vulnerable'** classification. This will be used when identifying if a Sequential Test and an Exception Test is required.

3. Relevant Standards and Policies

This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development. That also includes all the latest regional and local planning policy guidance specifically applicable to the proposed development.

3.1 The National Planning Policy Framework (NPPF)

The latest National Planning Policy framework (NPPF) was published on 20th July 2021. The NPPF is supported by technical guidance set out within the Planning Practice Guidance for Flood Risk and Drainage, including the classification of the site vulnerability and the requirement to do an Exception Test in relation to the Flood Zone and Vulnerability Classification.

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible should reduce flood risk overall.

It advises that where new development is necessary in areas of higher risk, flood mitigation resilience and resistance measures should be incorporated which can include but not limited to a higher finished floor level, installing flood boards and moving electrical points above. The developments upstream of the proposed development should also be taken into the consideration of flood risk.

The NPPF's flood risk advice is all set out in Chapter 14 of the Framework document, meeting the challenge of climate change, flooding and coastal change.

3.2 Flood and Water Management Act 2010

The Flood and Water Management Act 2010 received Royal Assent on 8th April 2010. This Act provides duties on the Environment Agency, Local Authorities, Developers and other bodies to manage flood risks. The Act has significant planning and design implications for Developers.

It should be noted that these standards and procedures are being reviewed by the respective regulatory bodies and third parties against the requirements imposed by the Flood and Water Management Act 2010. The advice and recommendations provided may change when associated regulations have been issued in order to implement the full scope of the Act.

3.3 Manchester City Council Core Strategy Development Plan

The Manchester City Council's Core Strategy Development Plan document (adopted on 11th July 2012) includes the main policy regarding Flood Risk.

Policy EN 14: Flood Risk states the following:

"In line with the risk-based sequential approach contained within PPS25, development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the Manchester-Salford-Trafford Strategic Flood Risk Assessment (SFRA).

In addition to the requirements for site-specific Flood Risk Assessments (FRAs) set out in PPS25, an appropriate FRA will also be required for all development proposals including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA.

All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SUDS) and the appropriate use of Green Infrastructure Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach / rates will be required.

The City of Manchester contains many sections of rivers which are culverted or 'hidden' where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposal should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure."

3.4 Manchester City Council Strategic Flood Risk Assessment

The Manchester City Council's Strategic Flood Risk Assessment provides maps of flood zones, flood extents and other relevant maps and highlights the requirement and procedures for the Sequential and where necessary the Exception Tests. This will be used in order to progress through this report.

4. Description of Study Area

The proposed development is located within a Flood Zone 1 area as per the Environmental Agency's Flood Zone Map. Figure 4.1 shows the proposed development in terms of Flood Zone 2 and 3 using ArcGIS layers from the Environmental Agency.

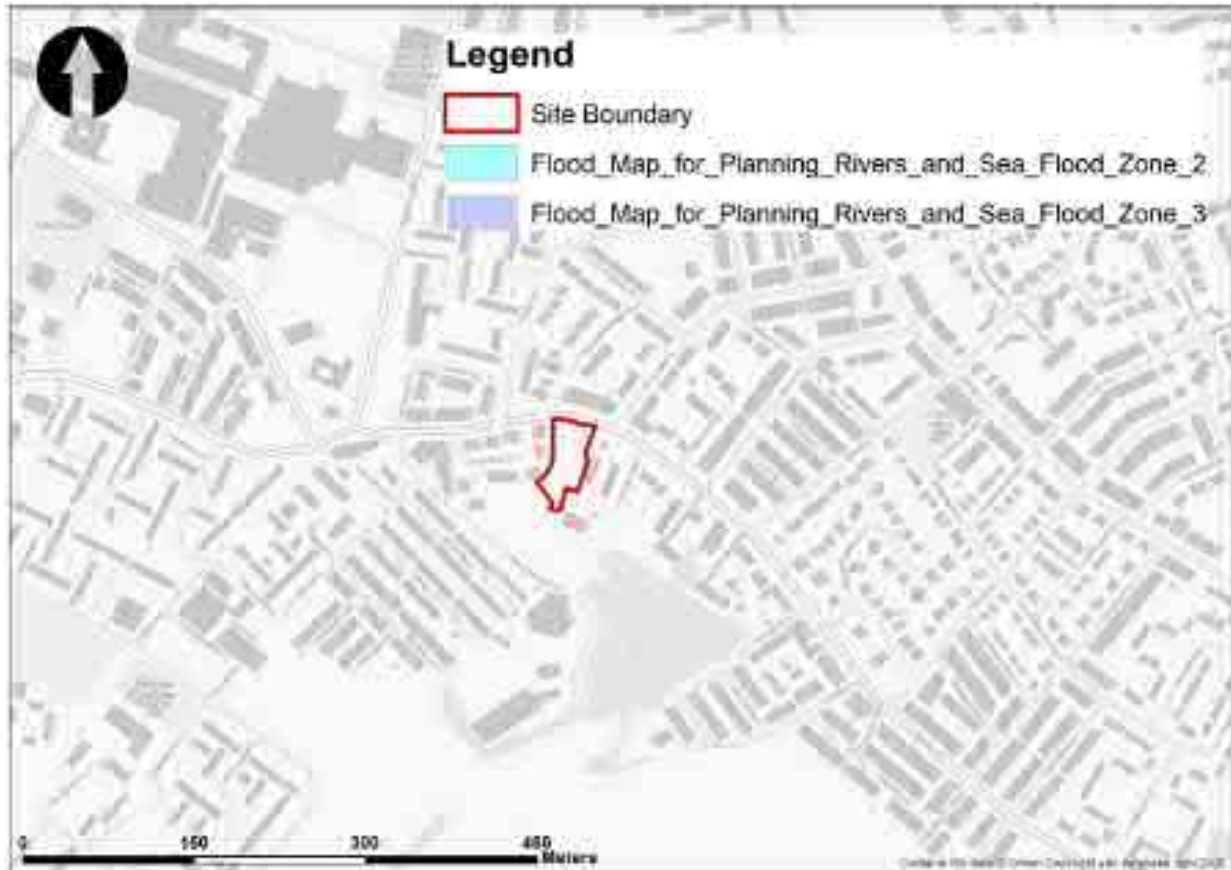


Figure 4.1: Flood Zone Area (Source: ArcGIS Layer from the EA)

In terms of the risk of flooding from Surface Water and the River/Seas, the proposed development is at a very low risk of river/sea flooding and a low risk of surface water flooding as shown below in Figures 4.2 and 4.3. Depths under low, medium and high risk of surface water flooding are shown in Figures 4.4 to 4.6. It is to be noted that the proposed development building is being proposed within the lowest risk area within the site, to the eastern boundary.



Figure 4.2: Extent of Flooding from River or the Seas (Source: ArcGIS Layer from the EA)



Figure 4.3: Extent of Flooding from Surface Water (Source: ArcGIS Layer from the EA)

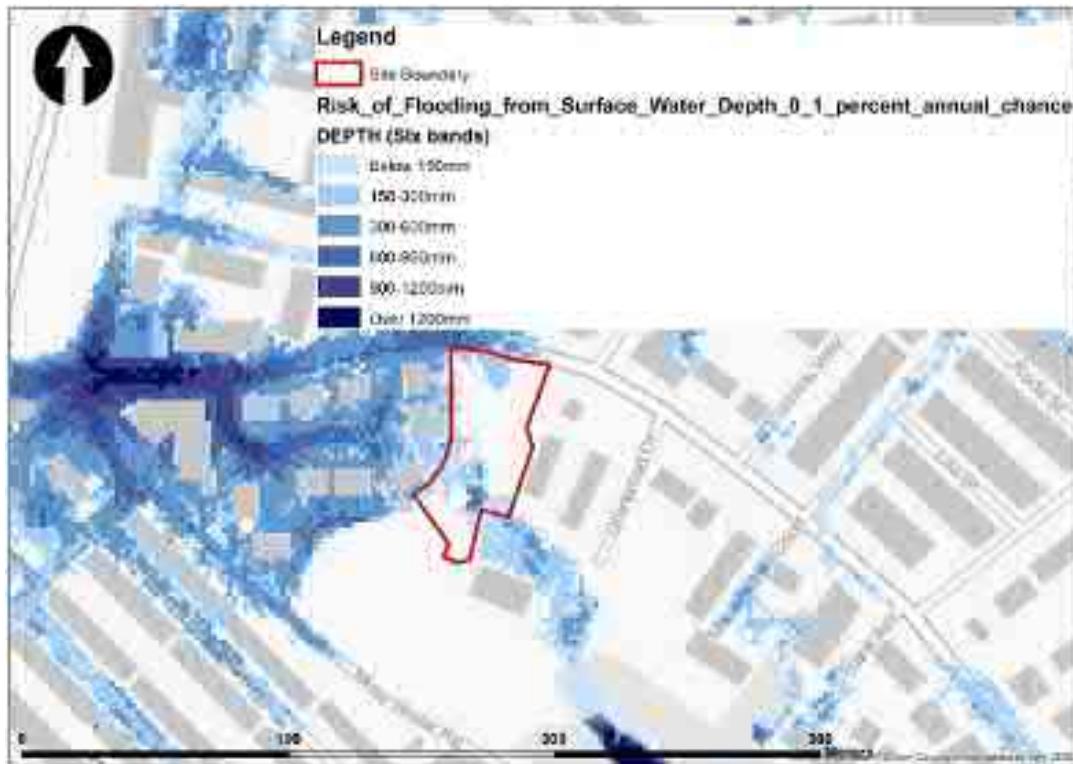


Figure 4.4: Depth of Surface Water – Low Risk of Flooding (Source: ArcGIS Layer from the EA)

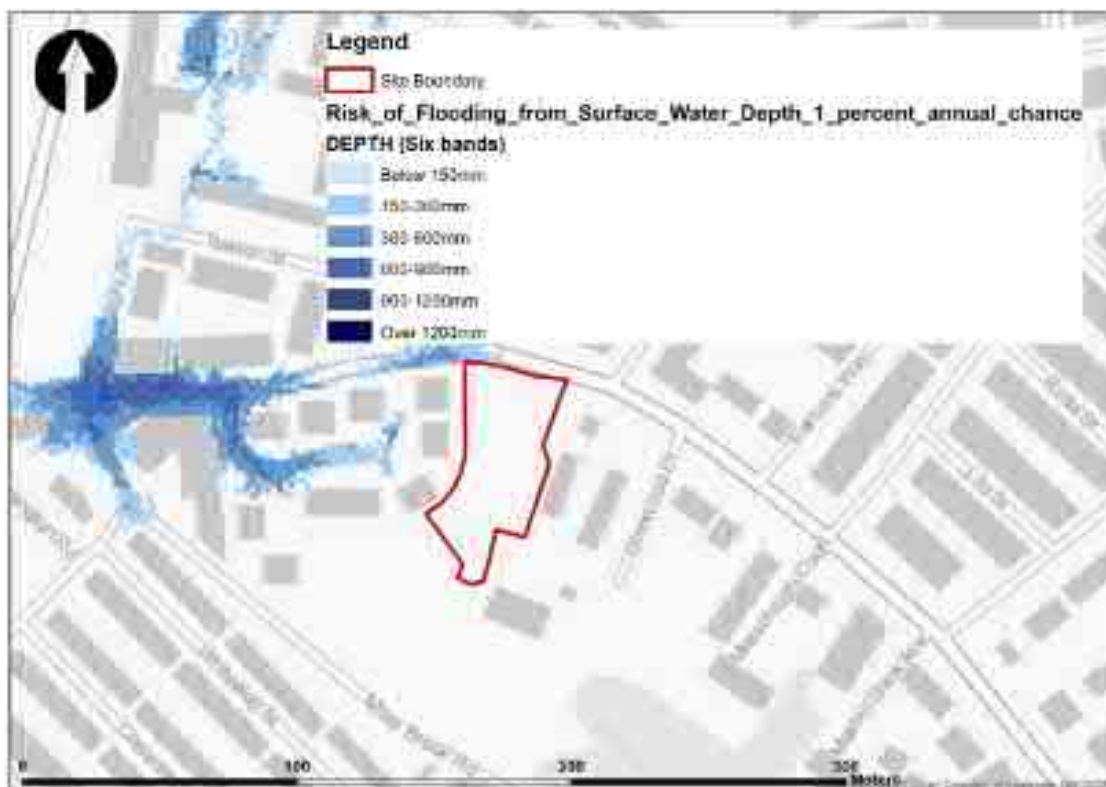


Figure 4.5: Depth of Surface Water – Medium Risk of Flooding (Source: ArcGIS Layer from the EA)

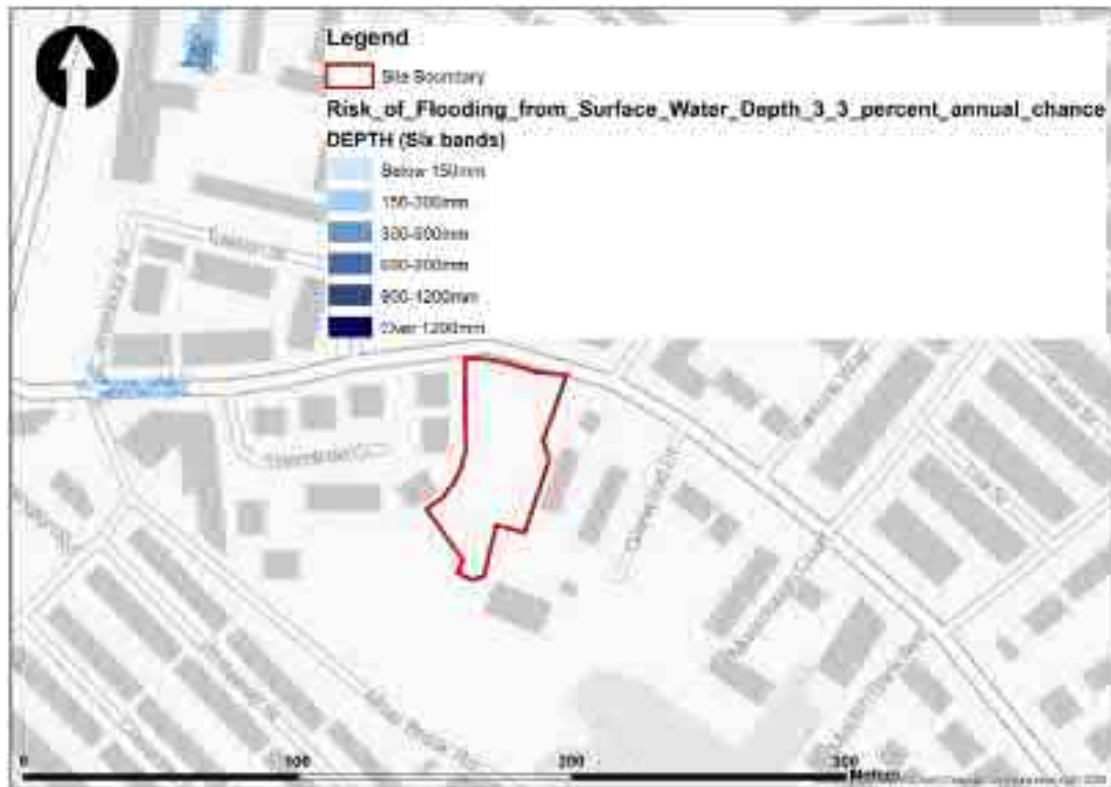


Figure 4.6: Depth of Surface Water – High Risk of Flooding (Source: ArcGIS Layer from the EA)

The nearest EA Statutory Main River is a watercourse connecting to the Moston Brook. The watercourse is approximately 65m south-east of the site, with Moston Brook located approximately 250m south-east of the site.

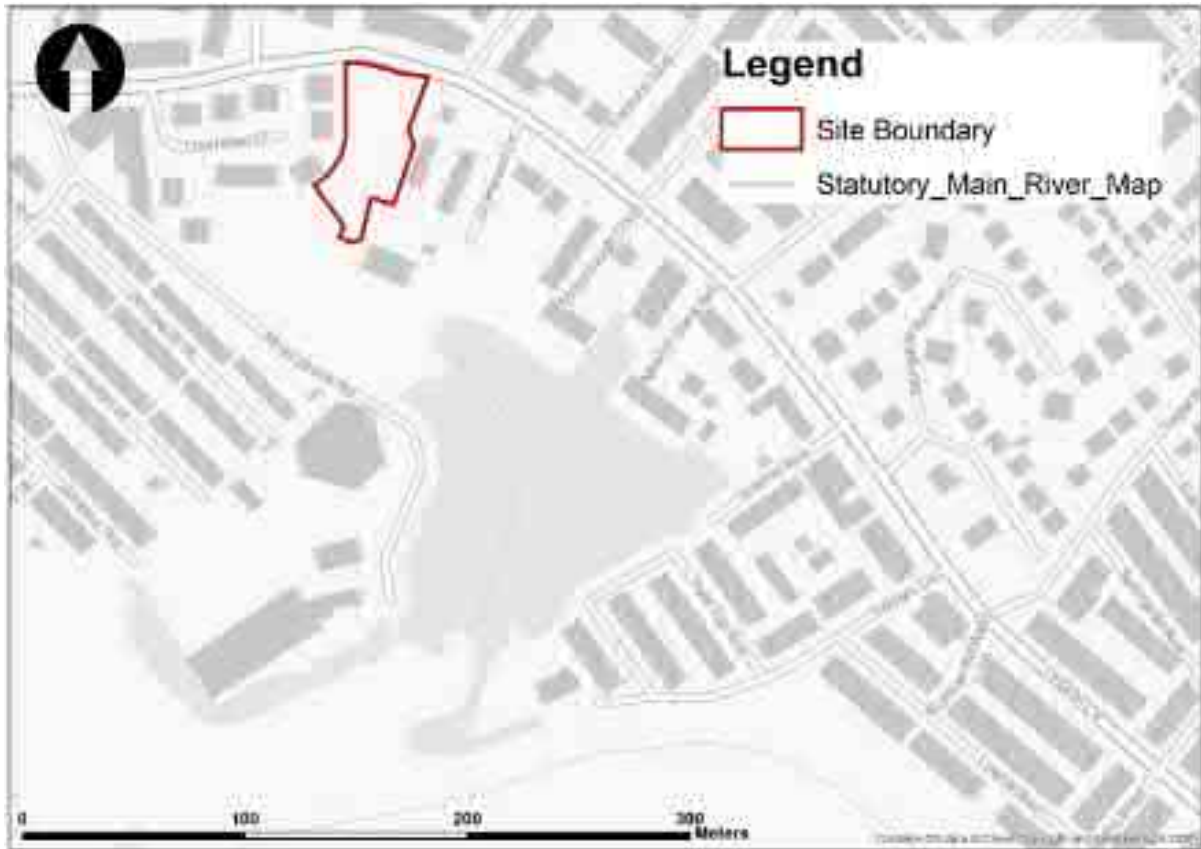


Figure 4.7: EA Watercourses (Source: ArcGIS Layer from the EA)

The proposed development is at an average height 73.00 AOD. The BGS geology maps indicate bedrock geology of Manchester Marls Formation – Mudstone with superficial deposits of Till, Devensian - Diamicton.

As per the Environment Agency, there has been no recorded flooding as can be seen in Figure 4.8.

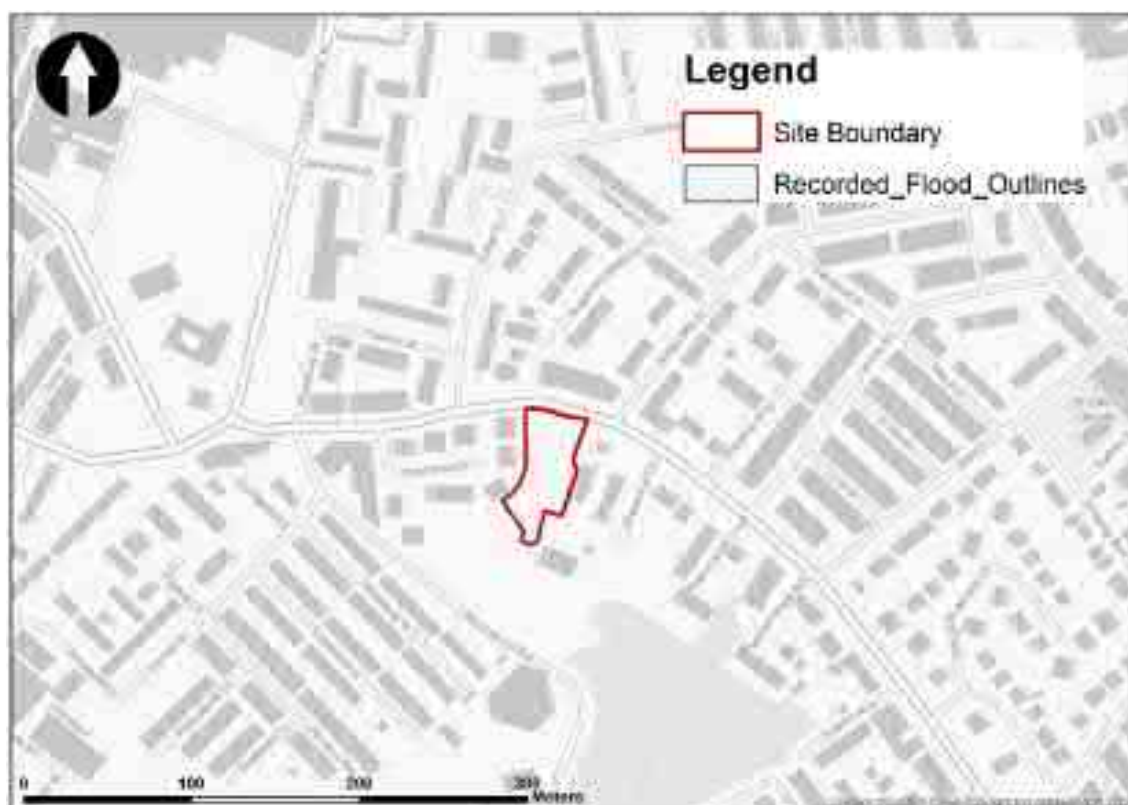


Figure 4.8: EA Recorded Flood Outlines (Source: ArcGIS Layer from the EA)

5. Assessment Of Flood Risk

5.1 Fluvial (River/Sea Flooding) Flood Risk

Information relating to flood risk at the site has been obtained via the Environmental Agency's online flood mapping tool and GIS layer. Figure 4.2 in Section 4 shows the extent of flooding from the river or the seas.

It can be seen that the extent of flooding from the river or the seas is very low risk. The site is far enough to be protected from the river/sea flooding.

On the basis that the proposed levels are at or above the existing levels, the Fluvial Flood Risk [River Flooding] will remain very low to the development site.

5.2 Pluvial (Surface Water) Flood Risk

Pluvial flooding is defined as flooding resulting from rainfall-generated overland flow before runoff enters any watercourse or sewer.

It is usually associated with high-intensity rainfall events but can also occur with low-intensity rainfall or melting snow where the ground is saturated, frozen, developed or otherwise has low permeability resulting in overland flow and ponding in depressions in the topography. Large catchment areas are particularly prone to this type of flooding.

The Environmental Agency Flood Maps show the site has a low risk of surface water flooding.

The proposed new development will be served by a new surface water drainage network and has been designed to accommodate surface water flows within the site for up to and including the 100 year plus 40% climate change storm event.

5.3 Flooding from Other Sources

Non-natural or artificial sources of flooding can include reservoirs, lakes and canals etc.

There is also a risk of reservoirs as per the Environment Agency. However the risk of reservoirs flooding is only present alongside flooding from rivers or the seas.

5.4 Sequential Test

Manchester City Council proposes all new developments to be placed within the lowest risk areas (Flood Zone 1) and to only place developments within Flood Zone 2 and 3 with adequate analysis and mitigation measures.

The site is located within a Flood Zone 1 with a very low risk of river/sea flooding and a low risk of surface water flooding. The site therefore passes the Sequential Test.

6. Management of Flood Risk

This section will explain how the proposed development will reduce the flood risk within the site and within the surrounding areas of the site.

6.1 Residual Risk

The primary residual risk that would remain at the site would be the drainage of surface water. Flood Mitigation and Management details will be given in Section 6.3. However, other residual risks remain such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system; failure of a reservoir; or a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

In order to further reduce the risk of surface water flooding within the proposed development, Sustainable Urban Drainage Systems would need to be installed to either safely discharge the surface water or to temporarily store the surface water for future use or discharge. This can be in the form but are not limited to, permeable paving, green roofs or rainwater harvesting.

6.2 Exception Test

The National Planning Policy Framework sets out the different conditions in terms of the vulnerability of the development and the flood zone and accordingly sets out the requirements to do an Exception Test. The table below describes the conditions required for an Exception Test.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

Key: ✓ Development is appropriate.
✗ Development should not be permitted.

As mentioned in Section 2.3, the proposed development would fall onto the 'More Vulnerable' classification. With the proposed development site being located within a Flood Zone 1, an Exception Test is not required, and the proposed development is appropriate.

7. Flood Mitigation/Management Measures and Evacuation Plan

As the proposed development includes the construction of 28no. flats, defence infrastructure is required to be in place such as a Raised Finished Floor Level, and the installation of Flood Boards/Doors to prevent any flooding from entering the development within the ground floor.

As per the Surface Water Flood Depth Maps above, the highest depth of flooding within the site is between 600mm-900mm from the ground surface. It is therefore recommended to increase the Raised Finished Floor Level of the base of the proposed development to at least 900mm from the ground.

It can be seen that the site is at a higher level compared to other properties around the area. This can be seen through the depth maps as the flood depths away from the site are higher. This therefore suggests the natural flow of surface water will fall away from the site and into either the east or the west of the site.

Electrical connection and socket points are encouraged to be placed above the floor on the walls to prevent any damage to the development or the residents.

Flood boards/doors can help in preventing water from entering the houses or in the worst case in each room. This also prevents any damage from occurring within the houses.

As stated in Section 6.1, SuDS can help in reducing the effect of flooding within the site and also upstream of the development site. Storage of surface water for future use or a controlled discharge of surface water are implemented in the reduction of flooding upstream of the proposed development.

Although outside of the Flood Alert area, it is highly recommended for the users of the proposed development to sign up to the Environment Agency's Flood Alert service in order to receive alerts and information regarding any future flood alerts.

The evacuation plan would consist of the residents evacuating the proposed development site once the Flood Alert has been received. All residents would need to be aware of the Flood Alert System and sign up for the alerts upon using the proposed development. If the most severe warning appears, residents would have to call 999 if in immediate danger.

All Flood Doors need to be fully closed to prevent any water from entering into the development.

Residents on the ground floor would have to then travel east along Church Lane where flooding is less likely to occur due to the lower river and surface water flooding. Alternatively, residents can temporarily move up stay on the highest point of the proposed development (roof) until rescue services arrive. Residents on the first floor and above will need to stay within their flats.

8. Surface Water Management

8.1 National Planning Policy Framework

The National Planning Policy Framework 2021 (NPPF) and accompanying Planning Practice Guidance indicate surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management.

Consideration should therefore firstly be given to using sustainable urban drainage (SuDS) techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run-off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. Approved document Part H of the Building Regulations (2010) sets out a hierarchy for the disposal of surface water which encourages a SuDS approach, as detailed above.

8.2 Climate Change

There are indications that the climate in the UK is changing significantly and it is widely believed that the nature of climate change will vary greatly by region. Current expert opinion indicates the likelihood that future climate change would produce more frequent short duration and high-intensity rainfall events with the addition of more frequent periods of long duration rainfall.

The Environment Agency has highlighted the climate change allowance for all proposed developments as described in Section 7.2 which will need to be used for all future surface water runoff calculations.

8.3 Small and Urban Catchment Climate Change Growth

The table below highlights the potential climate change expected in the future.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

As this development is for residential use, **a climate change growth factor of 40% is proposed** to be used for the surface water runoff calculations to consider worst-case scenarios for surface water flooding.

8.4 Existing Public and Private Sewers

There is an existing United Utilities Public Combined Sewer under Church Lane. There are other combined sewers serving other properties on Church Lane and nearby Hiller Street and Kingscliffe Street.

There are public surface water sewers. However, these are located under Thorntree Close and Parsons Way. Those public surface water sewers eventually connect with the respective foul sewers into the combined sewers on Church Lane.

There is also a United Utilities private/S104 surface water sewer running beyond the southern boundary of the proposed development site. This private/S104 sewer discharges into the watercourse to the south-east of the site.

8.5 Methods of Surface Water Management

As set out in Part H of the Building Regulations and the NPPF, there are four methods that have been reviewed for the management and discharge of surface water for the site which are detailed below; these may be applied individually or collectively to form a complete strategy. They should be applied in the order of priority as listed:

- Discharge via infiltration;
- Discharge via watercourse;
- Discharge via public surface water sewer; and
- Discharge via a combined sewer.

Discharge via Infiltration

The first consideration for the disposal of surface water is via an infiltration (soakaway) system. The bedrock geology within the site is not suitable as it indicates a possible impeded drainage of surface water. This is most severe during winter conditions where ground conditions become very wet and cannot absorb more water.

Therefore, a discharge via infiltration is not possible

Discharge via Watercourse

The next consideration for the disposal of surface water is via a watercourse. There are no nearby watercourses and therefore it is not possible to discharge via a watercourse.

Discharge via Public Surface Water sewer

The next discharge method of surface water is via a public surface water system. There are no public surface water sewers within close vicinity of the proposed development site.

There is a private/S104 sewer running beyond the southern boundary of the site. As stated above, this discharges into the watercourse to the south-east of the site.

In order to prevent any flooding in other nearby areas, it would not be suitable to discharge surface water into the private drain and therefore into the watercourse, where the highest flood depths are known to be.

Therefore, a discharge via a public surface water sewer is not possible.

Discharge via a Combined Sewer

The last method of discharge of surface water is via a combined sewer. This is possible as there is a combined sewer running under Church Lane and nearby areas.

8.6 Proposed Surface Water Discharge Strategy

As stated in Section 7.5, the only method of discharging surface water is towards United Utilities Combined Sewer.

As the site is currently tarmacked, it suggests the site has been used previously and is considered to be a brownfield site

The aim of the site is to discharge the surface water into the combined sewer at the lowest rate possible. This in assist with not meting the 50% betterment rate from the existing to the propsoed discharge rates, but to eventually reduce it to or below the greenfield run-off rate.

The greenfield run-of rate calculation can be found in Appendix C.

The proposed surface water discharge rate is 1.5 l/s under all flood events upto and including the 1 in 100 flood event with 40% Climate Change.

In order to achieve the discharge rate of 1.5 l/s, attenuation storage has been modelled and claulated within the design. A flow control (Hydrobrake) is also included at the last surface water manhole prior to joining the combined sewer.

Appendix C includes the drawings and calculations of the surface water discharge.

9. Foul Water and Combined Water Drainage Proposal

Based on the Discharge Unit Method, the proposed development will generate a peak foul flow of 7.23 l/s.

Therefore, with the 1.5 l/s of surface water discharge, the total combined discharge rate would be 8.73 l/s.

10. SuDS Appraisal and Proposed SuDS for Development

10.1 SuDS- General

Appropriately designed, constructed and maintained, SuDS are more sustainable than conventional drainage systems. Their benefits in general terms are summarised below.

SuDS can:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding;
- Encourage natural groundwater re-charge;
- Reduce pollutant concentrations in storm water;
- Provide habitats for wildlife.

10.2 SuDS Appraisal

There are many site-specific factors which will influence the choice of any single or combination of SuDS device used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial;
- Whether the underlying ground is contaminated. If so, infiltration systems (soakaways) will most probably not be permitted;
- Whether the underlying ground is permeable enough for infiltration systems (soakaways) to be considered;
- Whether the groundwater levels are deep enough for infiltration systems (soakaways) to be considered;
- Whether the site is steeply sloping and its general topography;
- The availability of space inside the development for each potential SuDS facility;

Health and Safety aspects should the development be likely to be inhabited or used by children.

SuDS which will be appropriate to the proposed development will be stated in Section 8.4.

10.3 Types of SuDS with Respect to Proposed Development

As part of the design for this development, SuDS have been incorporated wherever practicably feasible. Based on local and regional policy, where there is a net increase in impermeable area, at least one 'at source' SuDS measure is to be provided to assist with reducing the volume of run-off.

The primary SuDS element proposed for this development is outlined below:

10.3.1 Permeable Paving

Permeable paving allows rainwater to infiltrate through a hard-standing surface into an underlying storage/filtration sub-base layer. The water can then either soak into the ground beneath the paving via a permeable geotextile or migrate through the permeable sub-base into a separate infiltration device (soakaway), or a piped drainage network where the construction will be underlain by an impermeable geomembrane. In addition to providing a degree of surface water attenuation, permeable paving systems are also efficient at removal urban pollutants such as hydrocarbons making them ideal for use in car park areas, access roads and driveways.

As per the Understanding Permeable Paving Edition 6 by Interpave, there are three systems to discharge surface water from the permeable paving surface.

'System C' within the Understanding Permeable Paving Edition 6 document is a permeable paving system used when the ground is not suitable for infiltration. Below is a description of 'System C' from the Understanding Permeable Paving Edition 6 by Interpave with a Figure of the permeable paving construction:

'System C – No Infiltration - where the existing subgrade (ground) permeability is poor or contains pollutants, or where treated water will be harvested for re-use, irrigation or amenity, System C allows for the complete capture of the water. It uses an impermeable, flexible membrane placed on top of the subgrade (ground) level and up the sides of the permeable sub-base to effectively form a storage tank. Outlet pipes are constructed through the impermeable membrane to transmit the water to other drainage devices, such as swales, ponds, watercourses or sewers or for re-use. Importantly, the outlet pipes are designed to restrict flow so that water is temporarily stored within the pavement and discharge slowed. System C is particularly suitable for contaminated sites, as it prevents pollutants from being washed further down into the subgrade (ground) where they could reach groundwater.'

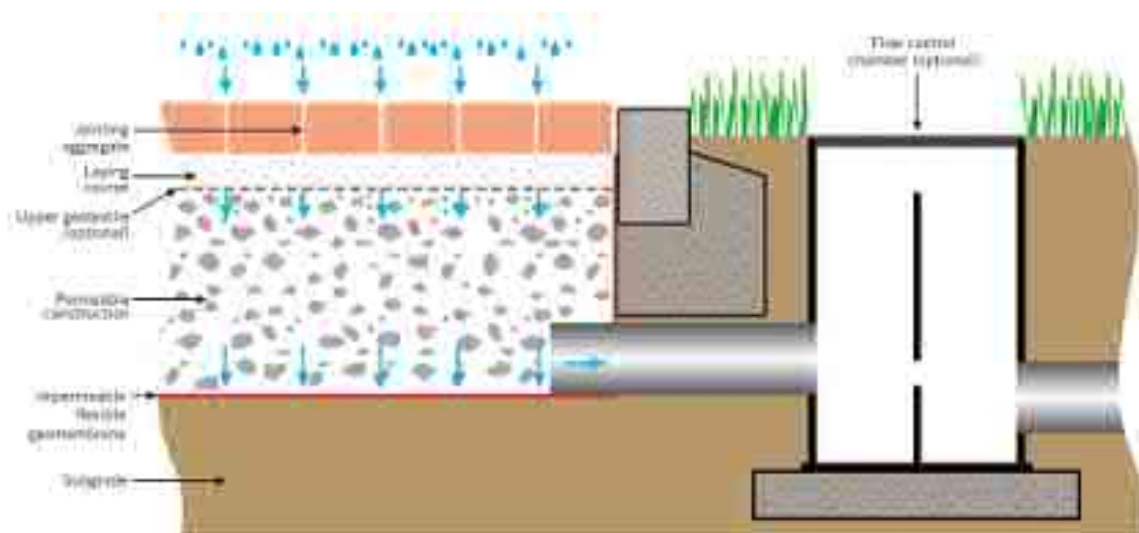


Figure 8.1: 'System C' Permeable Paving solution (Source: Understanding Permeable Paving Edition 6 - Interpave)

The permeable paving for the proposed development will include a 150mm diameter filter pipe with a catchpit at the end which will help discharge the surface water into the appropriate inspection chamber/catchpit.

The permeable paving will be used for the access areas and car-parking.

10.3.2 Hydro International Stormcell

Hydro International Stormcells have been included within the Drainage Design in order to temporarily store surface water from the impermeable areas of the site, mainly the permeable paving and the proposed development building.

A total volumetric storage of 98.84m³ has been provided as part of the design.

10.3.3 Water Butts

Water Butts can store surface water and then be reused for general purposes such as gardening or cleaning.

11. Maintenance

The maintenance of the drainage system within the proposed development site will be managed by the owner of the proposed development. All maintenance operations should be carried out in accordance with the manufacturer's recommendations and maintenance guidances.

Surface Water Drains

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on the structure of drains and clearing of dirt and slit within the drains.	Removing the dirt/silt as required and if required to restructure/replace the drains to optimise operation.	Take action as required

System Inlets

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on drainage rainwater pipes inlets, inspection chambers, filter pipe and catchpit for dirt/silt and blockages	Removing the dirt/silt/blockages as required to ensure continued operation and to prevent dirt/silt/blockages from entering the drains.	Minimum every 6 months

Other SuDS Features

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on permeable paving for dirt/silt and blockages	Removing the dirt/silt/blockages as required	Minimum every month unless action required
Conducting checks on Hydro International Stormcells for dirt/silt/blockages	Removing the dirt/silt/blockages as storage units if required	Minimum every 6 months unless action required
Conducting checks on Hydrobrake for dirt/silt/blockages	Removing the dirt/silt/blockages as storage units if required	Minimum every 6 months unless action required
Conducting checks on Water Butts for capacity	Emptying Water Butts	Minimum every 1 months unless water butts are full under rain.

12. Summary

The proposed development site is located within Flood Zone 1, with a very low risk of river/sea flooding and a low risk of surface water flooding.

As per the SFRA, the proposed development site is suitable for development, the site passes the Sequential Test, and an Exception test was not required as per the NPPF due to the development being within Flood Zone 1.

The proposed development with the permeable paving areas will discharge the surface water into the United Utilities combined sewer under Church Lane. The maximum proposed discharge rate was calculated to be 1.5 l/s under all flood events upto and including the 1 in 100 flood event with 40% Climate Change.

The peak foul flow was calculated to be 7.23 l/s, with a total combined flow rate of 8.73 l/s.

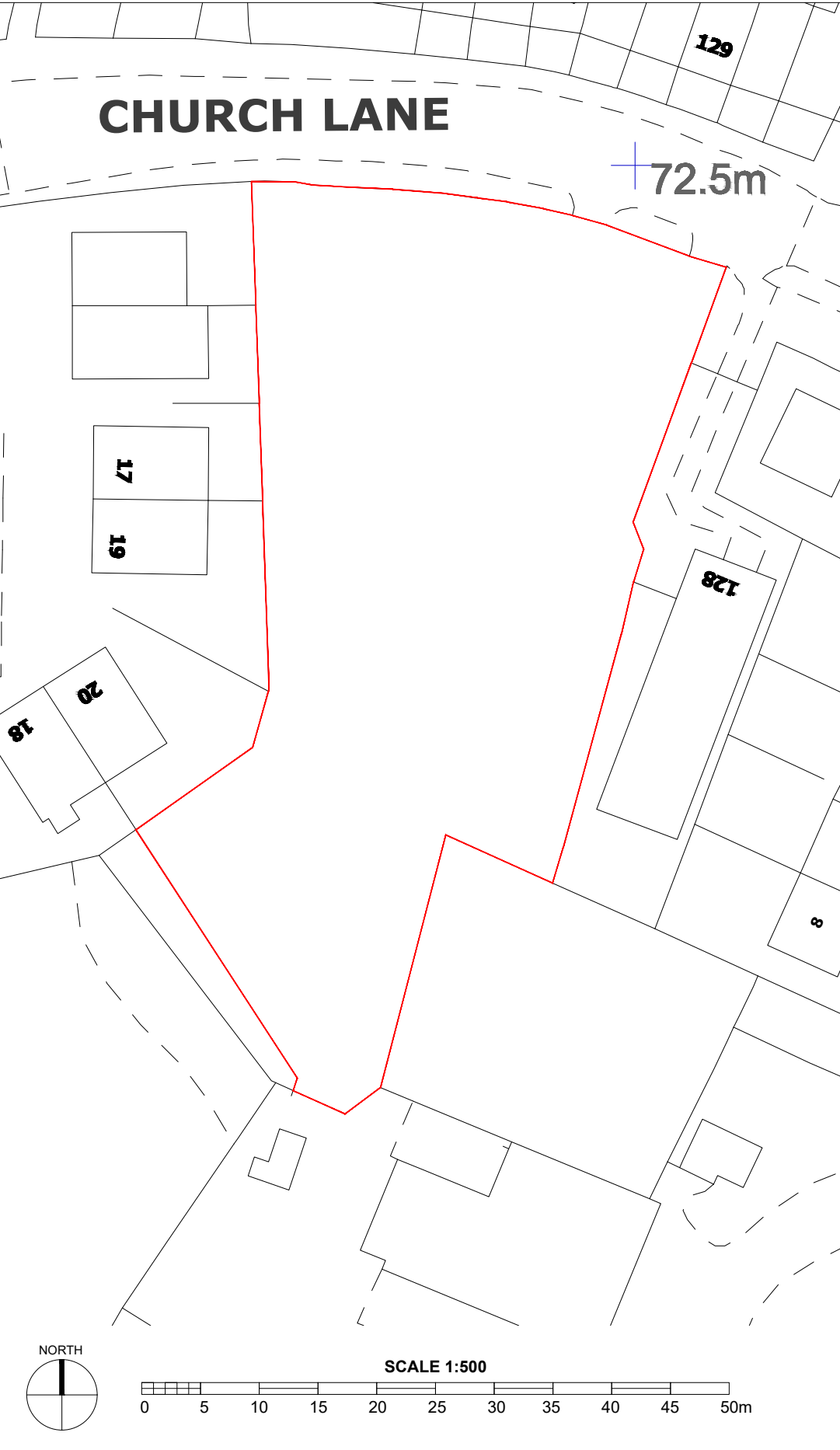
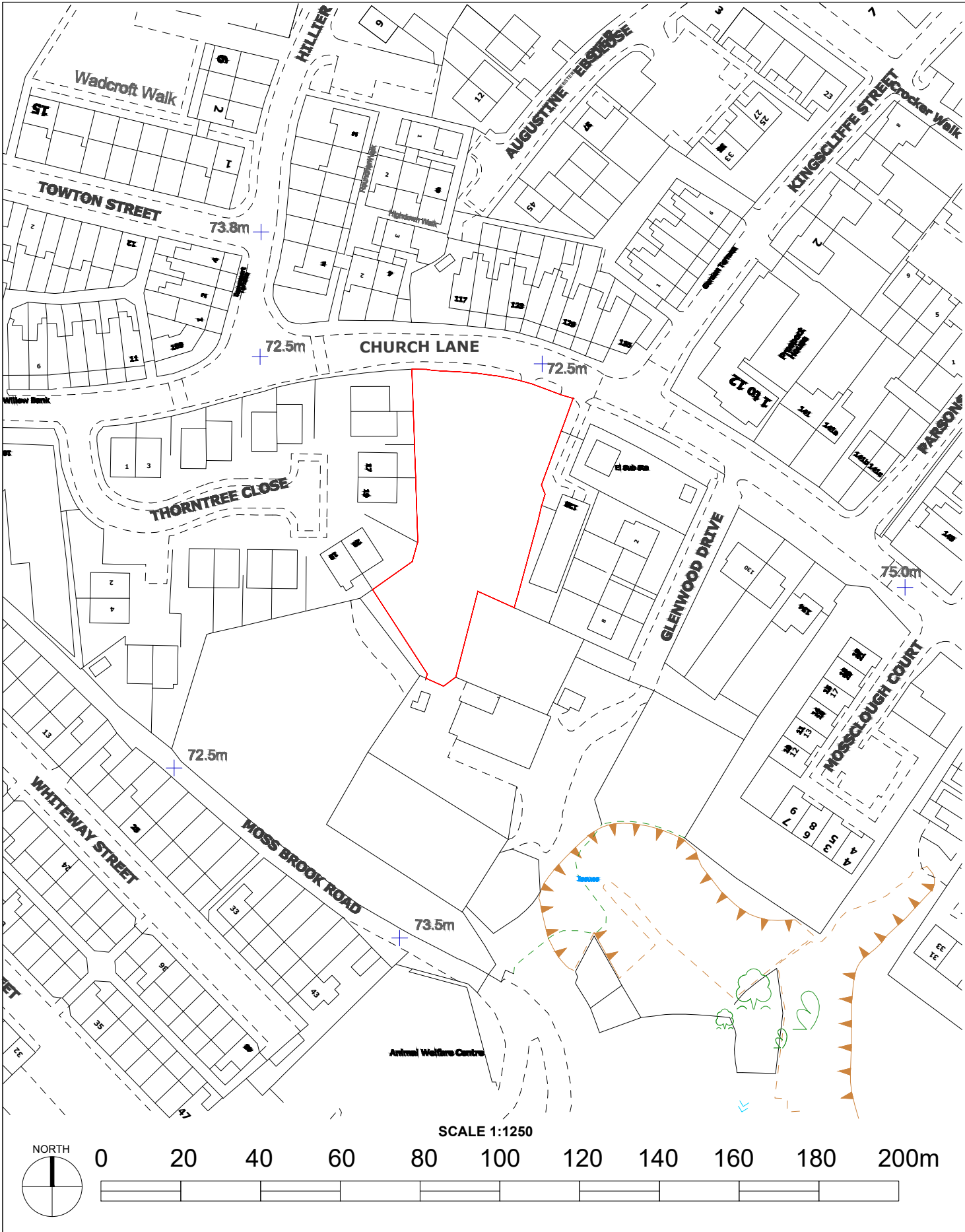
The proposed development will also include SuDS such as permeable paving, water butts and Hydro International Stormcells to store and discharge surface water at a restricted rate.

It can therefore be concluded that the proposed development meets the local and national policy.

Appendices

Appendix A: Existing and Proposed Site Plan
Appendix B: Topographical Survey
Appendix C: Drainage Layout and Calculations

Appendix A: Existing and Proposed Site Plan



Notes:
All work is to be carried out to the latest current British Standards Codes of Practice and recognised working practices.
All work and materials should comply with Health and Safety legislation.
All dimensions are in millimetres unless where explicitly shown otherwise.
The contractor should check and certify all dimensions as work proceeds and notify the agent of any discrepancies.
Do not scale off the drawings, if in doubt ask.
HAD & Co. are not liable for any work undertaken prior to Full Planning Consent and/or Building Regulations Approval.

CDM REGULATIONS 2015
The client must abide by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, the client will need to appoint (in writing) a principal designer (to plan, manage and coordinate the planning and design work) and a principal contractor (to plan, manage and coordinate the construction and ensure there are arrangements in place for managing and organising the project).

Domestic clients
The domestic client is to appoint a principal designer and a principal contractor when there is more than one contractor. If not your duties will automatically transferred to the contractor or principal contractor.
The designer can take on the duties, provided there is a written agreement between you and the designer to do so.
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Revisions List:

Title: Location and Site Plan	Drawn: HA
Client: MKenny Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A3
Drawing No: HAD3384-01	Scale: VARIES
Revision:	

FLAT SCHEDULE		
FLAT	AREA (m ²)	MINIMUM SPACE STANDARDS (m ²)
Flat 01 - 2B/3P	61.5 m ²	61 m ²
Flat 02 - 2B/3P	61.5 m ²	61 m ²
Flat 03 - 2B/3P	62 m ²	61 m ²
Flat 04 - 2B/3P	61.5 m ²	61 m ²
Flat 05 - 2B/3P	61.5 m ²	61 m ²
Flat 06 - 2B/3P	61.5 m ²	61 m ²
Flat 07 - 1B/1P	49 m ²	37 m ²

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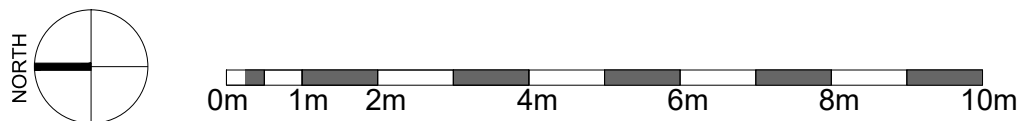
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Revisions List:

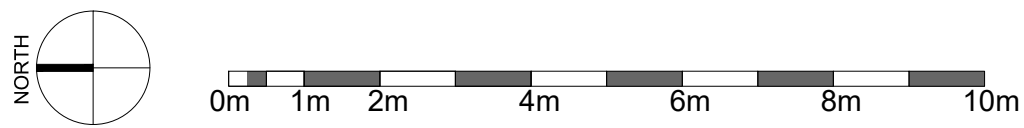
 HAD & Co. www.hadmanchester.co.uk 0161 327 2829	
Address: Land at Church Lane Moston Manchester Greater Manchester M20 4PH	
Title: Proposed Ground Floor Plan	Drawn: HA
Client: McKerr Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-02	Scale: 1:100
Revision:	

Ground Floor Plan





First Floor Plan



FLAT SCHEDULE		
FLAT	AREA (m ²)	MINIMUM SPACE STANDARDS (m ²)
Flat 08 - 2B/3P	61.5 m ²	61 m ²
Flat 09 - 2B/3P	61.5 m ²	61 m ²
Flat 10 - 2B/3P	62 m ²	61 m ²
Flat 11 - 2B/3P	61.5 m ²	61 m ²
Flat 12 - 2B/3P	61.5 m ²	61 m ²
Flat 13 - 2B/3P	65 m ²	61 m ²
Flat 14 - 2B/3P	61.5 m ²	61 m ²
Flat 15 - 1B/1P	46 m ²	37 m ²
Flat 16 - 2B/3P	65 m ²	61 m ²

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Revisions List:



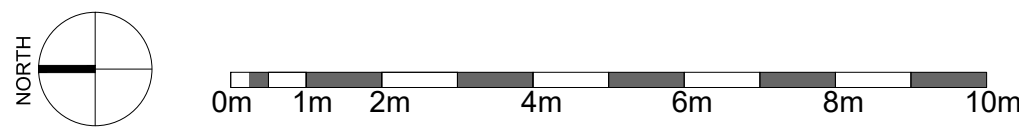
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0161 327 2529

Address: Land at Church Lane
Moston
Manchester
Greater Manchester
M20 4WH

Title: Proposed First Floor Plan	Drawn: HA
Client: McKerr Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-03	Scale: 1:100
Revision:	



Second Floor Plan



FLAT SCHEDULE		
FLAT	AREA (m ²)	MINIMUM SPACE STANDARDS (m ²)
Flat 17 - 2B/3P	61.5 m ²	61 m ²
Flat 18 - 2B/3P	61.5 m ²	61 m ²
Flat 19 - 2B/3P	62 m ²	61 m ²
Flat 20 - 2B/3P	61.5 m ²	61 m ²
Flat 21 - 2B/3P	61.5 m ²	61 m ²
Flat 22 - 2B/3P	65 m ²	61 m ²
Flat 23 - 2B/3P	61.5 m ²	61 m ²
Flat 24 - 1B/1P	46 m ²	37 m ²
Flat 25 - 2B/3P	65 m ²	61 m ²

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Revisions List:



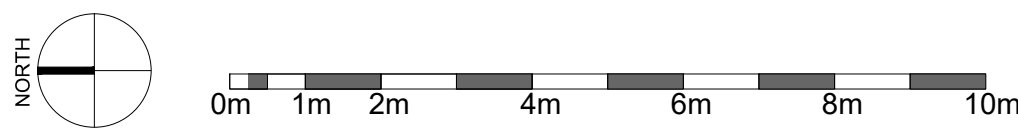
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www.hadmanchester.co.uk
0161 327 2529

Address: Land at Church Lane
Moston
Manchester
Greater Manchester
M20 4PH

Title: Proposed Second Floor Plan	Drawn: HA
Client: McKerr Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-04	Scale: 1:100
Revision:	



Third Floor Plan



FLAT SCHEDULE		
FLAT	AREA (m ²)	MINIMUM SPACE STANDARDS (m ²)
Flat 26 - 2B/3P	62 m ²	61 m ²
Flat 27 - 2B/3P	65 m ²	61 m ²
Flat 28 - 2B/3P	65 m ²	61 m ²

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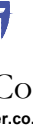
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Revisions List:

 HAD & Co. www.hadmanchester.co.uk 0161 327 2529	
Address: Land at Church Lane Moston Manchester Greater Manchester M20 4WH	
Title: Proposed Third Floor Plan	Drawn: HA
Client: McKerr Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-05	Scale: 1:100
Revision:	



Revisions List:					
 HAD & Co. www.hadmanchester.co.uk 0161 527 2529					
Address: Land at Church Lane Moston Manchester Greater Manchester M20 6PP					
Title: Proposed Roof Plan	Drawn: HA				
Client: McKenny Properties Ltd	Checked: SH				
Date: 02-02-2022	Paper: A1				
Drawing No: HAD3354-06	Scale: 1:100				
Revision:	<table border="1" style="width: 100%; height: 40px; border-collapse: collapse;"> <tr> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> <td style="width: 25%;"> </td> </tr> </table>				



North Elevation



South Elevation



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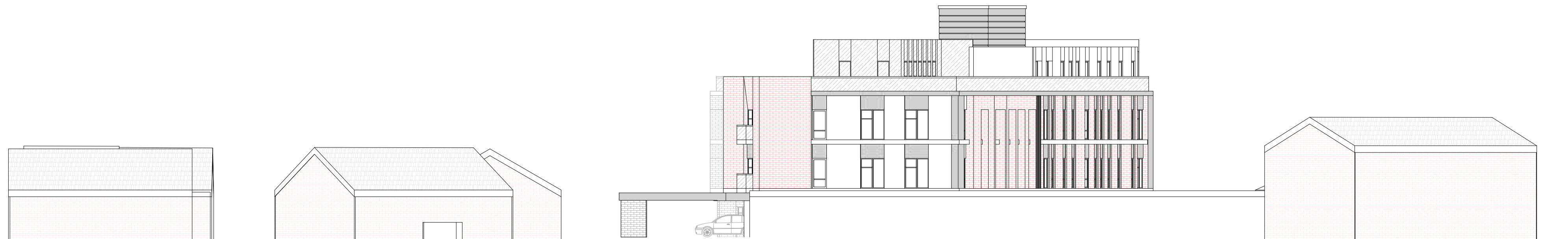
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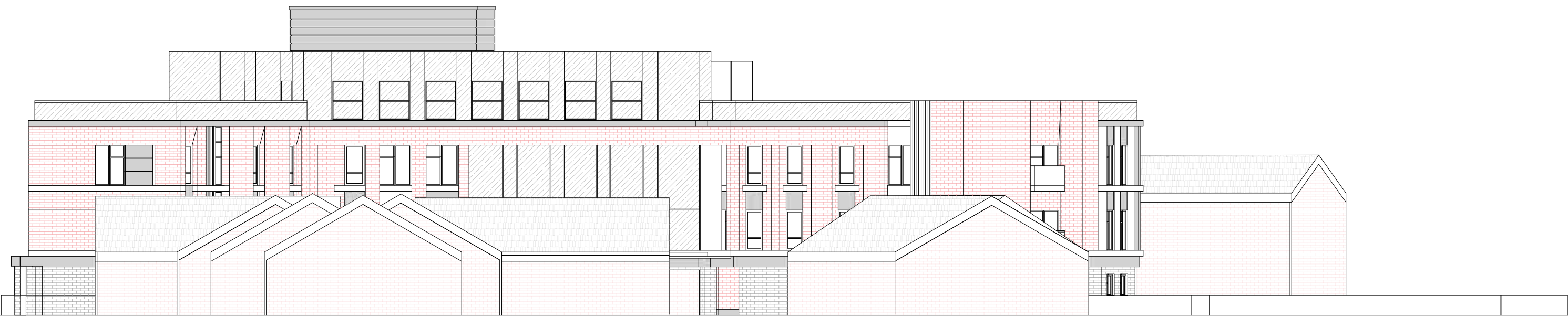
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Revisions List:

 HAD & Co. www.hadmanchester.co.uk 0161 327 2529	
Address: Land at Church Lane Moston Manchester Greater Manchester M20 4WH	
Title: Proposed Elevations	Drawn: HA
Client: McKerry Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-08	Scale: 1:100
Revision:	



South Street Scene Elevation



West Street Scene Elevation



Church Lane Street Scene (North Elevation)



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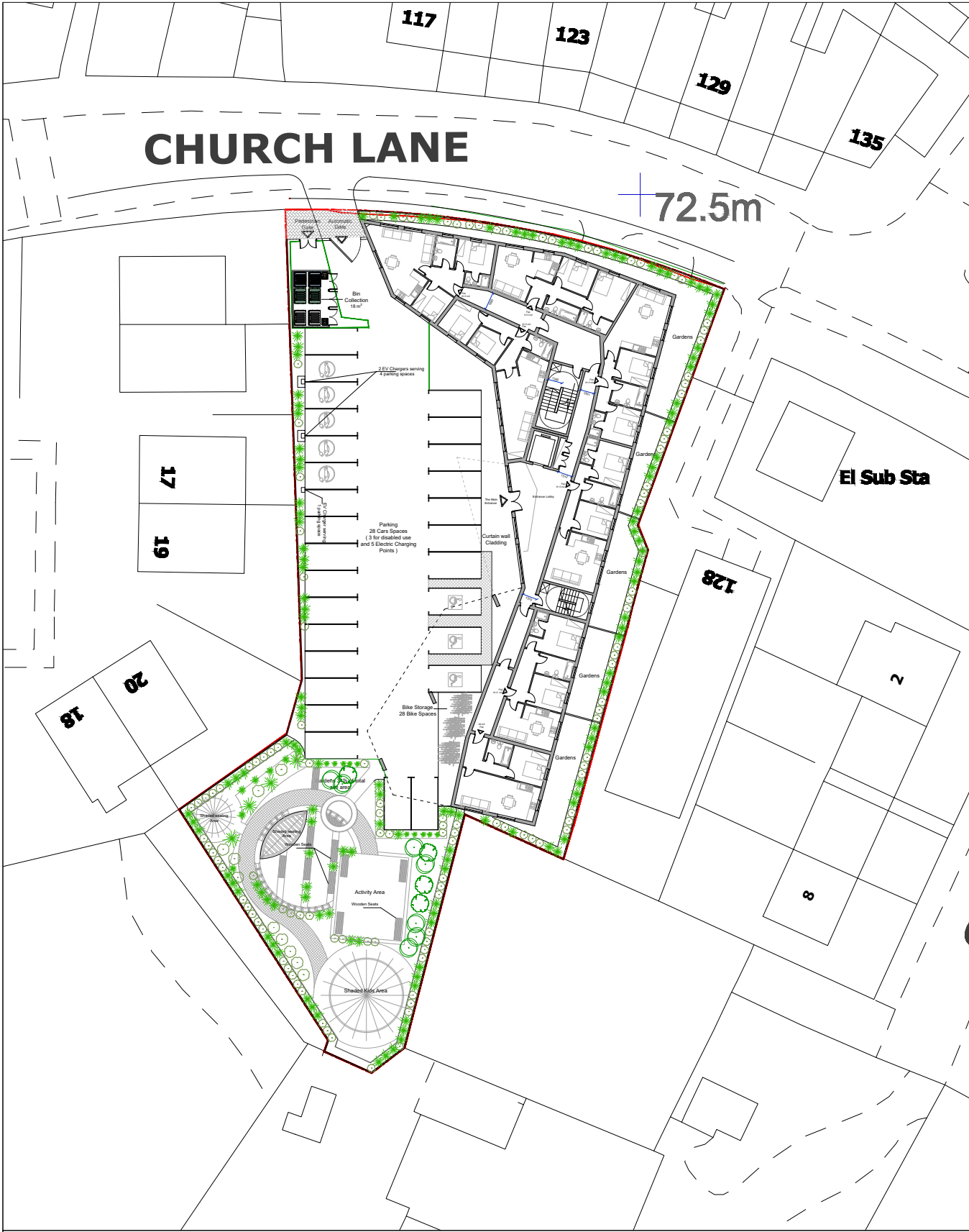
Revisions List:



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Title: Proposed Street Elevations	Drawn: HA
Client: McKerr Properties Ltd	Checked: SH
Date: 02-02-2022	Paper: A1
Drawing No: HAD0384-09	Scale: 1:200
Revision:	



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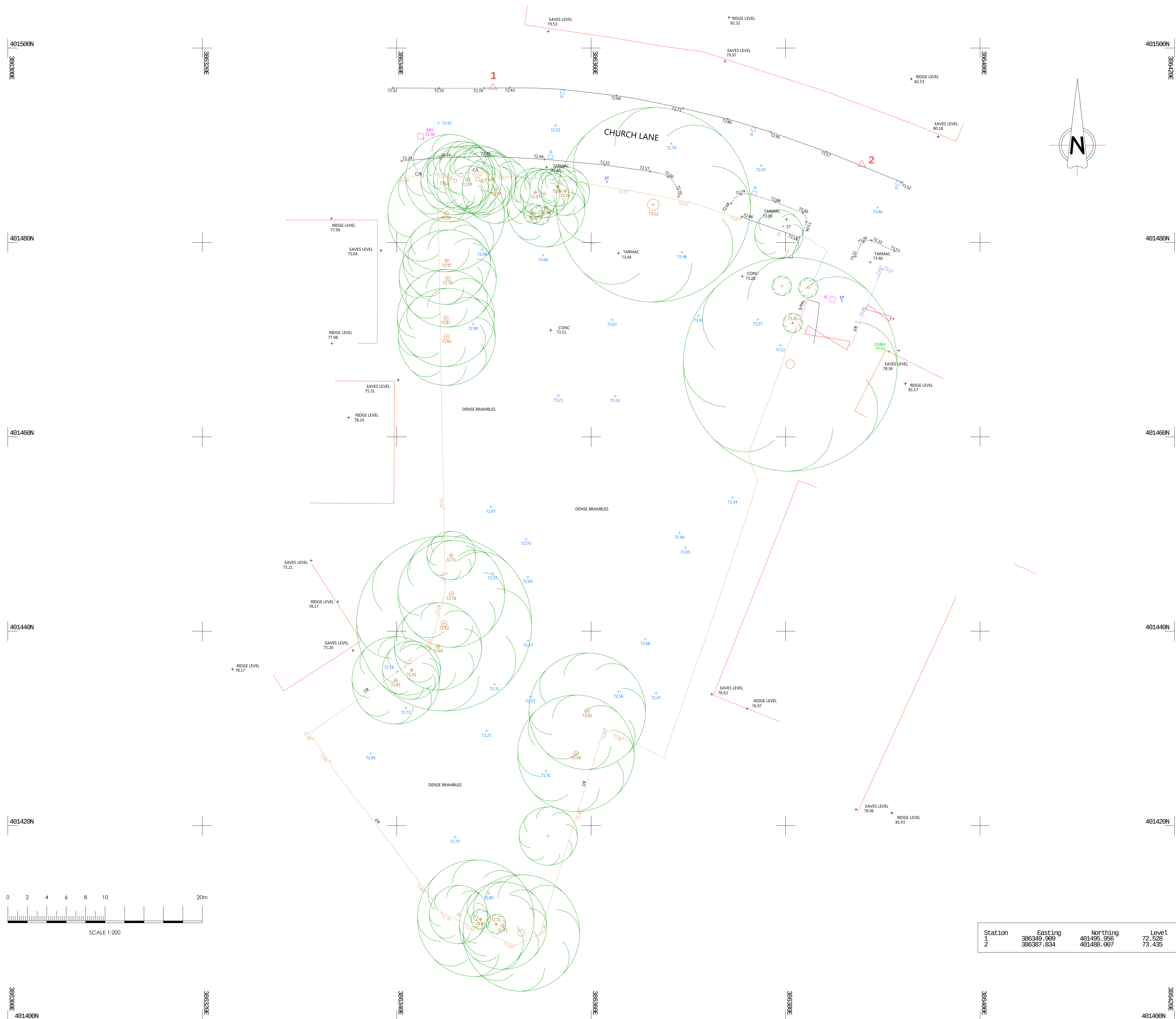
Revisions List:

Title: Proposed Site Plans		Drawn: HA	
Client: MKenny Properties Ltd		Checked: SH	
Date: 02-02-2022		Paper: A3	
Drawing No: HAD3384-10		Scale: 1:500	
Revision:			

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0161 327 2529

Address: Land at Church Lane
Moston
Manchester
Greater Manchester
M9 4WH

Appendix B: Topographical Survey



Abbreviations/Symbols (Measured Building Surveys):

C:	Window Cill Height
H:	Window Head Height
BH:	Beam Height
DH:	Door Height
COL:	Column
SVP:	Sail Vent Pipe
FL:	Floor Level
TH:	Threshold Level
	Floor to Ceiling Height
	Vaulted Ceiling

Line types

	Hedge Lines
	Drainage Runs
	Overhead Electricity Cables
	Overhead Telephone Cables

Symbols

	Tree/Bush		Glass House
	Control Station		Osbm
	Borehole		
	Trial Hole		

Abbreviations (Topographic Survey):

AB:	Air Valve
AV:	Belisha Beacon
BQ:	Electricity Box, Cables Box, Etc.
BT:	Bollard
BTC:	British Telecom Inspection Chamber
BS:	Bus Stop
BS/LP:	Bus Stop / Lamp Post
CAV:	CATV Inspection Chamber
CCV:	Closed Circuit Television
CL:	Clear Light
CPI:	Catch Pit
EP:	Earth Road
ER:	Electricity Inspection Chamber
FF:	Fire Hydrant
FG:	Fog Pole
GV:	Gas Valve
GU:	Gully
I:	Inspection Chamber
KO:	Kerb Outlet
LP:	Lamp Post
LB:	Lighting Box
LC:	Lifting Column
MK:	Marker
MHR:	Manhole
MP:	Moorling Point
MS:	Mile Stone
NYNEX:	Nynex Inspection Chamber
QJH:	Quek Kang
P:	Post
PO/IC:	Post Office Inspection Chamber
R:	Road Sign
RE:	Rodding Eye
RTW:	Retaining Wall
S/P:	Sign Post
SNP:	Street Name Plate
ST:	Stop Sign
SV:	Stop Valve
TCV:	Telephone Inspection Chamber
TSB:	Telephone Call Box
TH:	Threshold Level
TL:	Traffic Light
TP:	Telegraph Pole
TROUGH:	Trough
WD:	Water Outlet
WM:	Water Meter

Fence Descriptions:

B/W:	Barbed Wire
C/B:	Close Boarded
C/BARRIER:	Crash Barrier
C/L:	Chain Link
C/P:	Chestnut Paling
C/I:	Corrugated Iron
I/R:	Iron Railing
MISC:	Miscellaneous
P/R:	Post & Rail
P/W:	Post & Wire
P/C:	Post & Chain
S/PAL:	Steel Palisade
W/M:	Wire Mesh

Survey Notes:

Coordinates and Levels related to Ordnance Survey Datum - GPS OSG836

Revision	Date	Description



Chris Partington Land Surveyors
44a Green Lane
Sale
Cheshire
M33 5PP
t: 0161 976 1194
www.cpls.co.uk e:survey@cpls.co.uk

Client

Cheshire Homes Group

Project

Church Lane, Moston
Site Survey

Scale	1:200	Surveyed By	C G P	Date	26/03/17
Drawing No.		Checked By	CPLS	Date	27/03/17
270317CP-01		Drawn By	JBJ	Date	27/03/17

Appendix C: Drainage Layout and Calculations

Commercial Drainage and Water Enquiry

Responses to a drainage and water enquiry for commercial premises or development sites.

This document was ordered by: -

Scout Legal Services

**Unit 8a Vicarage Lane (Rear of 8 Vale View)
Bowdon
Cheshire
WA14 3BD**

Client Ref: ABS/HG/CHE24/1

FAO:

This document was produced by: -

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

Telephone 0370 7510101

**e-mail -
property.searches@uuplc.co.uk**

DX 715568 Warrington 7

The information in this document refers to: -

Property: LAND AT CHURCH LANE MANCHESTER M9

For any queries relating to this report please e-mail, write or phone our Customer Liaison Team at the above address quoting United Utilities' Reference Number: 1167799

1. Section one: Introduction

The following records were searched in compiling this report:-

The Map of Public Sewers, the Map of Waterworks, Water and Sewerage billing records, Adoption of Public Sewer records, Building Over Public Sewer records, the Register of Properties subject to Internal Foul Flooding, Adoption of Public Water Mains records, the Register of Properties subject to Poor Water Pressure and the Drinking Water Register. All of these are held by United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP.

Interpretation of Drainage and Water Enquiry

Appendix 1 of this report contains definitions of terms and expressions used in the report.

Enquiries and Responses

The records were searched by Katy Lowry for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

This search report was prepared by Katy Lowry for United Utilities who does not have, nor is likely to have, any personal or business relationship with any person involved in the sale of the property.

Appendix 2 of this report contains the terms and conditions of sale

Appendix 3 of this report contains our formal complaints procedures

Commercial Drainage and Water Search Complaint Procedure

In the event of any queries relating to this report please e-mail, write or phone our Customer Liaison Team at the address above quoting United Utilities reference. We will endeavour to resolve any telephone contact or complaint at the time of the call

Whilst we always try to resolve all complaints straightaway, if this is not possible and you are not happy with the course of action taken by us, you can ask us to escalate the issues internally or take your complaint to an independent third party.

We will listen to your complaint and do our best to deal with it immediately.

If we fail to give you a written substantive response within 5 working days Property Searches will compensate our client the original fee paid for a Property Searches Commercial Drainage and Water enquiry, regardless of the outcome of your complaint.

If it is a complex issue requiring more time, we will still get back to you within 5 days and notify you of progress and update you with the new timescales.

If we consider your complaint to be justified we will or we have made any errors that substantially change to outcome of the search we will-

- Refund your search fee
- Provide you with a revised search
- Take the necessary action within our power to put things right
- Keep you informed of any action required

If we cannot resolve your complaint or have failed to comply with the complaints procedure you can:

- Let us know and we can escalate your complaint
- Refer the issue to an independent body of your choice.

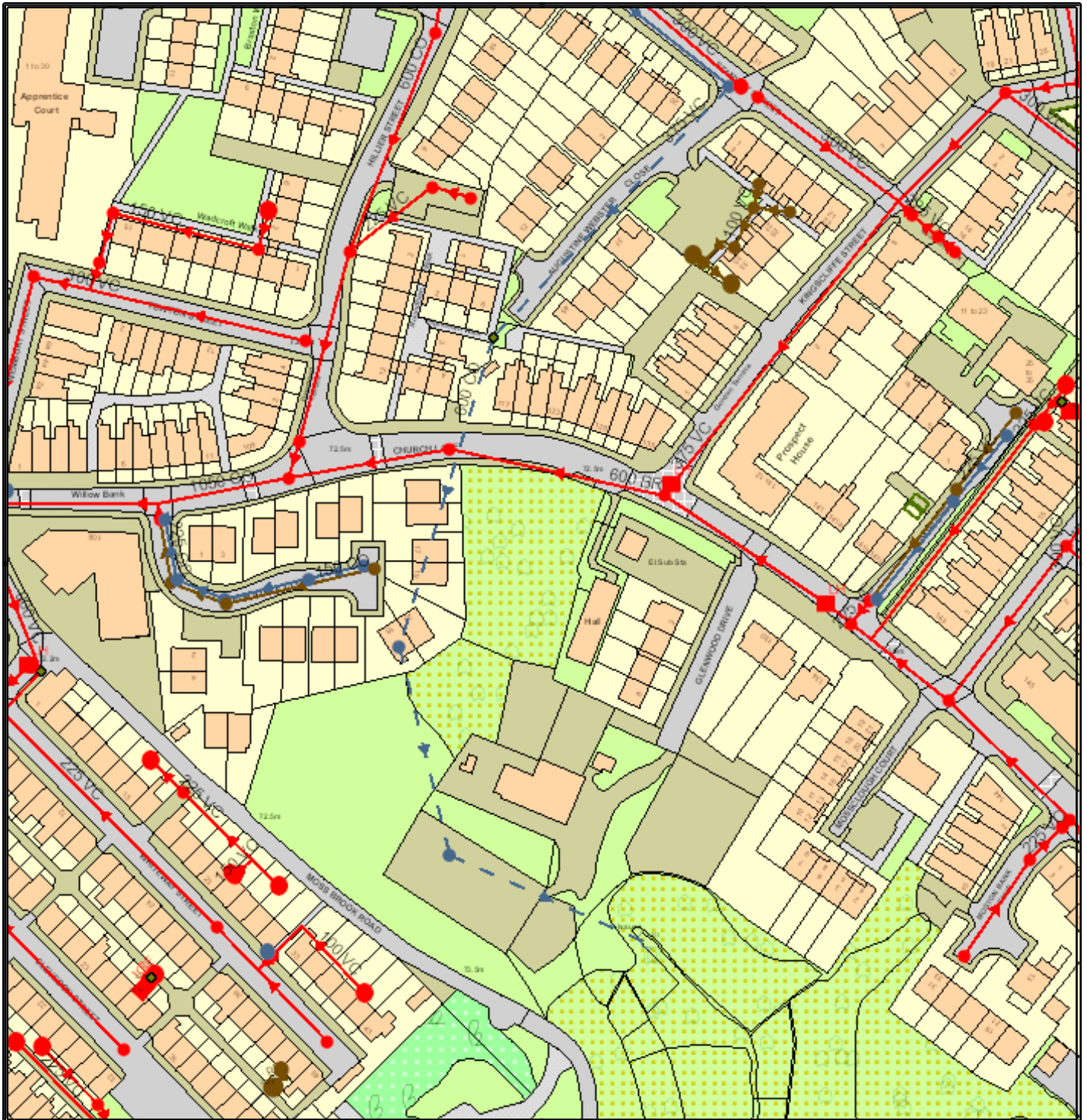
Order Summary

To help understand the implications of the Drainage and Water Enquiries Report a summary guide to the content the full report is provided below. This guide should be read in the context of and with reference to the full report and associated guidance notes.

The following 3 classifications have been used to highlight whether or not the response to a particular question is something that would normally be expected or otherwise. The classifications are intended purely as a guide to assist in the understanding of the report and do not imply that the property is fit to purchase or otherwise and this decision will rest with the prospective purchaser and their professional advisers.

- ✓ This response represents the typical situation for a property.
- ⚠ The attention of the purchaser is drawn to this response. The purchaser may wish to make further investigations into this situation.
- ✗ This response represents an uncommon situation for a property and the purchaser should carefully consider its implications.

Question	Report Schedule	Answer
1	Where relevant, please include a copy of an extract from the public sewer map.	Yes & in vicinity ✓
2	Where relevant, please include a copy of an extract from the map of waterworks.	Yes & in vicinity ✓
3	Does foul water from the property drain to a public sewer?	Plot of Land 📄
4	Does surface water from the property drain to a public sewer?	Plot of Land 📄
5	Is a surface water drainage charge payable?	No 📄
6	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	None ✓
7	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	None 📄
8	Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	Not applicable ✓
9	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	None ✓
10	Is the property, or part of the property, at risk of internal foul flooding due to overloaded public sewers?	No ✓
11	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	Yes ✓
12	Is the property connected to mains water supply?	Plot of Land 📄
13	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	No ✓
14	Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?	No ✓
15	Is the property at risk of receiving low water pressure or flow?	No ✓
16	Please include details of a water quality analysis made by the water undertaker for the water supply zone in respect of the most recent calendar year.	Standards Met ✓
17	Please include details of any departures authorised by the Secretary of State under Part 6 of the 2000 Regulations from the provisions of Part 3 of those Regulations.	No ✓
18	Please include details of the location of any water meter serving the property.	No Meter ✓
19	Who are the Sewerage and Water Undertakers for the area?	United Utilities ✓
20	Who bills the property for sewerage services?	Not Billed 📄
21	Who bills the property for water services?	Not Billed 📄
AQ 1	Is there a current trade effluent charge being levied on this property?	No ✓
AQ 2	Is there an easement affecting the property?	No ✓

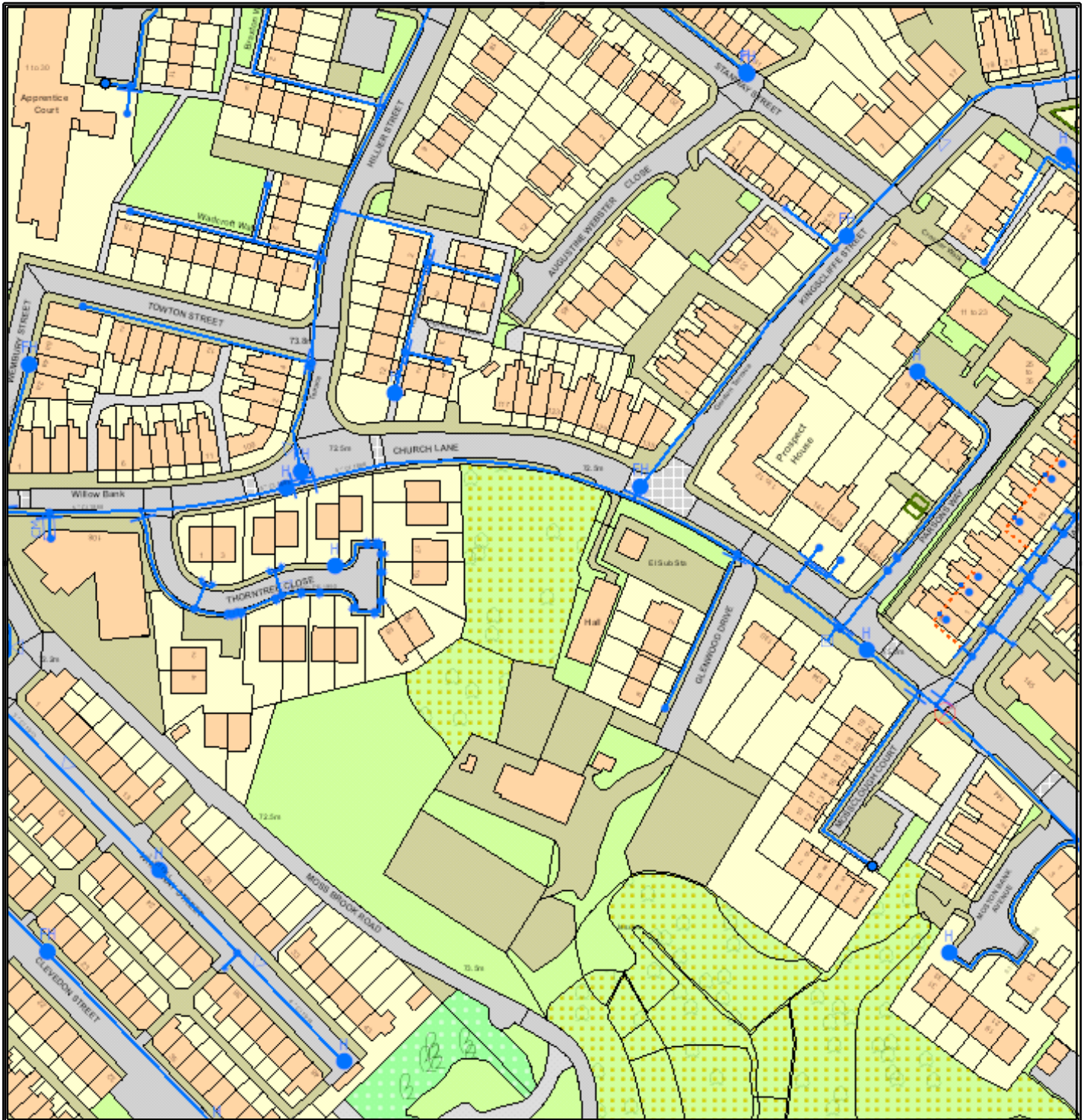
SEWER RECORD LAND AT CHURCH LANE MANCHESTER M9


The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water Limited will not accept any liability for any damage caused by the actual positions being different from those shown.

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WASTE WATER SYMBOLOGY

CLEAN WATER SYMBOLOGY

WATER RECORD LAND AT CHURCH LANE MANCHESTER M9


The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded. United Utilities Water Limited will not accept any liability for any damage caused by the actual positions being different from those shown.

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Question 1 **Where relevant, please include a copy of an extract from the public sewer map.**

Answer **A copy of an extract of the public sewer map within the vicinity of the property is included.**

Informative 1. The Water Industry Act 1991 defines Public Sewers as those which (United Utilities) have responsibility for. Other assets and rivers, water courses, ponds, culverts or highway drains may be shown for information purposes only.

2. 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.

3. The Sewerage Undertaker has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Sewerage Undertaker or its contractors needing to enter the property to carry out work.

Question 2 **Where relevant, please include a copy of an extract from the map of waterworks.**

Answer **A copy of an extract of the map of waterworks is included, showing water mains, resource mains or discharge pipes in the vicinity of the property.**

Informative The "water mains" in this context are those which are vested in and maintainable by the Water Undertaker under statute.

Assets other than public water mains may be shown on the plan, for information only.

Water Undertakers are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

If an extract of the public water main record is enclosed, it 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.

The presence of a public water main running within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 3 Does foul water from the property drain to a public sewer?

Answer **This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer.**

Informative Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system, and do not hold details of these.
The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.
If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 4 Does surface water from the property drain to a public sewer?

Answer **This enquiry appears to relate to a plot of land or a recently built property. It is recommended that drainage proposals are checked with the developer.**

Informative Sewerage Undertakers are not responsible for any private drains or sewers that connect the property to the public sewerage system and do not hold details of these.
The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.
In some cases, Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system. If on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the Sewerage Undertaker.
If surface water does not drain to the public sewerage system the property may have private facilities in the form of a soakaway or private connection to a watercourse.
If an extract from the public sewer map is enclosed, this will show known public sewers in the vicinity of the property and it should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 5 Is a surface water drainage charge payable?

Answer **Records confirm that a surface water drainage charge is not payable for the property.**

Informative Where surface water from a property does not drain to the public sewerage system no surface water drainage charges are payable.
Where surface water charges are payable but if on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the Sewerage Undertaker.

Question 6 Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?

Answer The public sewer map included indicates that there are no public sewers, disposal mains or lateral drains within the boundary of the property. However from the 1st October 2011 there may be additional public sewers, disposal mains or lateral drains which are not recorded on the public sewer map which may further prevent or restrict development of the property. If you are considering any future development at this property which may require Build over Consent, please email our Development Services Team at WastewaterDeveloperServices@uuplc.co.uk for further advice.

Informative The approximate boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.
The presence of a public sewer running within the boundary of the property may restrict further development. United Utilities has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of United Utilities or its contractors needing to enter the property to carry out work.
Sewers 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 that these details be checked with the developer, if any.
Assets other than public sewers may be shown on the copy extract, for information only.

Question 7 Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

Answer The public sewer map included indicates that there are no public sewers within 30.48 (100 feet) of a building within the boundary of the property. However from the 1st October 2011 private sewers will be transferred into public ownership and may not be recorded on the public sewer map and it is our professional opinion that there will be a public sewer within 30.48 (100 feet) of a building within the boundary of the property.

Informative From 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.
The presence of a public sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the Local Authority requiring a property to be connected to the public sewer. The measure is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
Sewers 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 that these details are checked with the developer, if any.
Assets other than public sewers may be shown on the copy extract for information only.

Question 8 **Are any sewers or lateral drains serving or which are proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?**

Answer **The property is part of an established development and is not subject to an adoption agreement.**

Informative This enquiry is of interest to purchasers of new property who will want to know whether or not the property will be linked to a public sewer.
Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities. Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.

Question 9 **Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?**

Answer **There are no records in relation to any approval or consultation about plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.**

Informative From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have granted approval or been consulted about any plans to erect a building or extension on the property over or in the vicinity of these assets.
Prior to 2003 United Utilities Water Limited had sewerage agency agreements with the local authorities therefore details of any agreements/consents or rejections may not have been forwarded on to our offices before this date.
Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.

Question 10 Is the property, or part of the property, at risk of internal foul flooding due to overloaded public sewers?

Answer **The dwelling-house is not recorded as being at risk of internal flooding due to overloaded public sewers. From the 1st October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership it is therefore possible that a property may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.**

Informative

1. A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
2. "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
3. "At Risk" properties are those that the Sewerage Undertaker is required to include in the Regulatory Register that is reported annually to the Director General of Water Services. These are defined as properties that have suffered or are likely to suffer internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Sewerage Undertaker's reporting procedure.
4. Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included in the At Risk Register.
5. Properties may be at risk of flooding but not included in the Register where flooding incidents have not been reported to the Sewerage Undertaker.
6. Public sewers are defined as those for which the Sewerage Undertaker holds statutory responsibility under the Water Industry Act 1991.
7. It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Sewerage Undertaker. This report excludes flooding from private sewers and drains and the Sewerage Undertaker makes no comment upon this matter.

Question 11 Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.

Answer **The nearest Sewage Treatment Works is 2.18 miles (3.502 km), South East of the property. The name of the Sewage Treatment Works is FAILSWORTH WWTW.**

The owner is United Utilities.

Informative

The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated i.e. the property may not necessarily drain to this works.

The Sewerage Undertaker's records were inspected to determine the nearest sewage treatment works.

It should be noted therefore that there may be a private sewage treatment works closer than the one detailed above that has not been identified. As a responsible utility operator, United Utilities Water Limited seeks to manage the impact of odour from operational sewage works on the surrounding area. This is done in accordance with the "Code of Practice on Odour Nuisance from Sewage Treatment Works" issued via the Department of Environment, Food and Rural Affairs (DEFRA). This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works. However DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic based environments. For more information visit www.unitedutilities.com.

Question 12 Is the property connected to mains water supply?

Answer **This enquiry relates to a plot of land or a recently built property. It is recommended that the water supply proposals are checked with the developer.**

Informative Details of private supplies are not kept by the Water Undertaker. The situation should be checked with the current owner of the property.

Question 13 Are there any water mains, resource mains or discharge pipes within the boundaries of the property?

Answer **The map of waterworks does not indicate any water mains, resource mains or discharge pipes within the boundaries of the property.**

Informative The boundary of the property has been determined by reference to the Ordnance Survey record. The presence of a public water main within the boundary of the property may restrict further development within it. Water Undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Water Undertaker or its contractors needing to enter the property to carry out work.

Question 14 Is any water main or service pipe serving or which is proposed to serve the property the subject of an existing adoption agreement or an application for such an agreement?

Answer **Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.**

Informative This enquiry is of interest to purchasers of new premises who will want to know whether or not the property will be linked to the mains water supply.

Question 15 Is the property at risk of receiving low water pressure or flow?

Answer **Records confirm that the property is not recorded on a register kept by the water undertaker as being at risk of receiving low water pressure or flow.**

Informative The boundary of the property has been determined by reference to the Ordnance Survey record. "Low water pressure" means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal.

Water Undertakers are required to include in the Regulatory Register that is reported annually to the Director General of Water Services properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level).

The reference level of service is a flow of 9 litres/minute at a pressure of 10 metres head on the customer's side of the main stop tap. The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap.

The reference level applies to a single property. Where more than one property is served by a common service pipe, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served.

For two properties, a flow of 18 litres/minute at a pressure of 10 metres head on the customers' side of the main stop tap is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or Institute of Plumbing Handbook.

Allowable exclusions:

The Water Undertaker is required to include in the Regulatory Register properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.

Abnormal demand:

This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Water Undertakers should exclude from the reported DG2 - (Low Pressure Register) figures properties which are affected by low pressure only on those days with the highest peak demands. During the report year Water Undertakers may exclude, for each property, up to five days of low pressure caused by peak demand.

Planned maintenance:

Water Undertakers should not report under DG2 - (Low Pressure Register) low pressures caused by planned maintenance.

It is not intended that Water Undertakers identify the number of properties affected in each instance. However, Water Undertakers must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded from DG2 - (Low Pressure Register) because of planned maintenance, are actually caused by maintenance.

One-off incidents:

This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); fire fighting and action by a third party.

However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

Low pressure incidents of short duration:

Properties affected by low pressures that only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded from the reported DG2 - (Low Pressure Register) figures.

Question 16 Please include details of a water quality analysis made by the water undertaker for the water supply zone in respect of the most recent calendar year.

Answer The analysis confirmed that all tests met the standards prescribed by the 2000 Regulations or the 2001 Regulations.

Informative

Water Undertakers have a duty to provide wholesome water that meets the standards of the Water Supply (Water Quality) Regulations 2000.

However, the occupier is responsible for any deterioration in water quality that is a result of the private distribution system (the supply pipe and the plumbing within the property) that results in the standards not being met.

In England and Wales these Regulations implement the requirements of the European Drinking Directive 98/83/EC. The 2000 Regulations impose standards for a range of parameters, which are either health based to ensure the water is safe to drink or to ensure the water is aesthetically acceptable. They also require that drinking water should not contain any element, organism or substance (whether or not a parameter) at a concentration or value which would be detrimental to public health.

Water quality is normally tested at the tap used for public consumption, usually in the kitchen.

If there are concerns that lead pipes within the property may be causing high levels of lead in your drinking water please contact your Water Undertaker. For contact details please see Question 19.

The Water Undertaker carries out a monitoring programme to establish water quality that includes random sampling from properties. It will notify the consumers of any failures to meet the water quality standards that are due to the condition or maintenance of the private distribution system.

The data collected by the Water Undertaker is subject to external review by the Drinking Water Inspectorate (DWI) and by local and health authorities. In addition to reviewing quality data the DWI also carry out audits during which any area of the Water Undertaker's operation can be examined. Further information may be found at www.dwi.gov.uk.

If you require further advice regarding these failures please see

<http://www.unitedutilities.com/Water-quality.aspx>

Question 17 Please include details of any departures authorised by the Secretary of State under Part 6 of the 2000 Regulations from the provisions of Part 3 of those Regulations.

Answer There are no such authorised departures for the water supply zone.

Informative Authorised departures are not permitted if the extent of the departure from the standard is likely to constitute a potential danger to human health.
For contact details please see Question 19.

Question 18 Please include details of the location of any water meter serving the property.

Answer Records indicate that the property is not served by a water meter.

Informative Where the property is not served by a meter and the customer wishes to consider this method of charging they should contact:

United Utilities Water Limited, PO Box 246, Warrington, WA55 1EA, Tel: 0345 072 6072,
Internet; www.unitedutilities.com

Question 19 Who are the Sewerage and Water Undertakers for the area?

Answer United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP is the sewerage undertaker for the area and United Utilities Water Limited, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP is the water undertaker for the area.

Informative Not Applicable

Question 20 Who bills the property for sewerage services?**Answer** **The property is not billed for sewerage services.****Informative** Notification of the change of occupancy on completion of sale should be made to this address.**Question 21 Who bills the property for water services?****Answer** **The property is not billed for water services.****Informative** Notification of the change of occupancy on completion of sale should be made to this address.**Question 22 What is the current basis for charging for sewerage and/or water services at the property?****Answer** **Records indicate that this enquiry relates to a plot of land or a recently built property.**

Informative Properties built before April 1990 are charged using the Rateable Value of the property. Rateable values were set by the Valuation Office and are not the same as the council tax banding for the property. In 1990 the Valuation Office stopped setting rateable values and water companies are not allowed to change them or use the council tax banding as a basis for charging for water. Therefore all new properties built after 1990 are fitted with a water meter and bills are based on the amount of water used and recorded by the meter. Water and Sewerage Undertakers' full charges are set out in their charges schemes which are available from the relevant Undertaker free of charge upon request. The Water Industry Act 1991 Section 150, The Water Resale Order 2001 provides protection for people who buy their water or sewerage services from a person or company instead of directly from a Water or Sewerage Undertaker. Details are available from the Office of Water Services (OFWAT) Web Site: www.ofwat.gov.uk.

Additional Questions

Additional Question 1 **Is there a current trade effluent charge being levied on this property?**

Answer **There is no record of a Trade Effluent charge being levied in respect of the property. To obtain a Consent contact The Regulatory Controller Trade Effluent on 0845 746 2200.**

Informative The owner/occupiers of Trade Premises do not have the right to discharge Trade Effluent to the public wastewater network. Any Trade Effluent Discharge Consent will be issued under Section 118 of the Water Industry Act 1991 and will be subject to conditions set by the Sewerage Undertaker.

Generally these conditions are to ensure:

- a) The Health and Safety of staff working within the wastewater network and at wastewater treatment plants.
- b) The apparatus of the wastewater network is not damaged.
- c) The flow of the contents of the wastewater network is not restricted.
- d) Equipment, plant, and processes at treatment works are not disrupted or damaged.
- e) Treatment of sewage sludge is not impeded and sludges are disposed of in an environmentally friendly manner.
- f) Final effluent discharge from wastewater treatment plants has no impact on the environment or prevents the receiving waters from complying with EU Directives.
- g) Potential damage to the environment via storm water overflows is minimised.

Disputes between an occupier of a Trade Premise and the Sewerage Undertaker can be referred to the Director General of Water Services (OFWAT).

Protecting Public Sewers - Discharges Section 111 of the Water Industry Act 1991, places prohibition on the discharge of the following into a public sewer, drain or a sewer that communicates with a public sewer.

- i) Any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment or disposal of its contents.
- ii) Any chemical refuse or waste steam or any liquid of temperature higher than 43.3 degrees Celsius (110 degrees Fahrenheit).
- ii) Any petroleum spirit or carbide of calcium.

On summary conviction offences under this Section carry a fine not exceeding the statutory maximum or a term of imprisonment not exceeding two years, or both.

Please note any existing consent is dependant on the business being carried out at the property and will not transfer automatically upon change of ownership.

Additional Question 2 **Is there an easement affecting the property?**

Answer **There is no record of a formal easement agreement affecting this property.**

Informative Not Applicable.

Appendix 1 - General Interpretation

1. (1) In this Schedule-

"the 1991 Act" means the Water Industry Act 1991(a);

"the 2000 Regulations" means the Water Supply (Water Quality) Regulations 2000(b);

"the 2001 Regulations" means the Water Supply (Water Quality) Regulations 2001(c);

"adoption agreement" means an agreement made or to be made under Section 51A(1) or 104(1) of the 1991 Act (d);

"bond" means a surety granted by a developer who is a party to an adoption agreement;

"bond waiver" means an agreement with a developer for the provision of a form of financial security as a substitute for a bond;

"calendar year" means the twelve months ending with 31st December;

"discharge pipe" means a pipe from which discharges are made or are to be made under Section 165(1) of the 1991 Act;

"disposal main" means (subject to Section 219(2) of the 1991 Act) any outfall pipe or other pipe which-
(a) is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and
(b) is not a public sewer;

"drain" means (subject to Section 219(2) of the 1991 Act) a drain used for the drainage of one building or any buildings or yards appurtenant to buildings within the same curtilage;

"effluent" means any liquid, including particles of matter and other substances in suspension in the liquid;

"financial year" means the twelve months ending with 31st March;

"lateral drain" means-

- (a) that part of a drain which runs from the curtilage of a building (or buildings or yards within the same curtilage) to the sewer with which the drain communicates or is to communicate; or
- (b) (if different and the context so requires) the part of a drain identified in a declaration of vesting made under Section 102 of the 1991 Act or in an agreement made under Section 104 of that Act (e);

"licensed water supplier" means a company which is the holder for the time being of a water supply licence under Section 17A(1) of the 1991 Act(f);

"maintenance period" means the period so specified in an adoption agreement as a period of time-
(a) from the date of issue of a certificate by a Sewerage Undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and
(b) until the date that private sewer or lateral drain is vested in the Sewerage Undertaker;

"map of waterworks" means the map made available under Section 198(3) of the 1991 Act (g) in relation to the information specified in subsection (1A);

"private sewer" means a pipe or pipes which drain foul or surface water, or both, from premises, and are not vested in a Sewerage Undertaker;

"public sewer" means, subject to Section 106(1A) of the 1991 Act(h), a sewer for the time being vested in a Sewerage Undertaker in its capacity as such, whether vested in that undertaker-
(a) by virtue of a scheme under Schedule 2 to the Water Act 1989(i);
(b) by virtue of a scheme under Schedule 2 to the 1991 Act (j);

- (c) under Section 179 of the 1991 Act (k); or
- (d) otherwise;

"public sewer map" means the map made available under Section 199(5) of the 1991 Act (l);

"resource main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of-

- (a) conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or
- (b) giving or taking a supply of water in bulk;

"sewerage services" includes the collection and disposal of foul and surface water and any other services which are required to be provided by a Sewerage Undertaker for the purpose of carrying out its functions;

"Sewerage Undertaker" means the company appointed to be the Sewerage Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated;

"surface water" includes water from roofs and other impermeable surfaces within the curtilage of the property;

"water main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a pipe for the time being vested in a person other than the water Undertaker, which is used or to be used by a Water Undertaker or licensed water supplier for the purpose of making a general supply of water available to customers or potential customers of the undertaker or supplier, as distinct from for the purpose of providing a supply to particular customers;

"water meter" means any apparatus for measuring or showing the volume of water supplied to, or of effluent discharged from any premises;

"water supplier" means the company supplying water in the water supply zone, whether a water undertaker or licensed water supplier;

"water supply zone" means the names and areas designated by a Water Undertaker within its area of supply that are to be its water supply zones for that year; and

"Water Undertaker" means the company appointed to be the Water Undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated.

(2) In this Schedule, references to a pipe, including references to a main, a drain or a sewer, shall include references to a tunnel or conduit which serves or is to serve as the pipe in question and to any accessories for the pipe.

(a) 1991 c. 56.

(b) S.I. 2000/3184. These Regulations apply in relation to England.

(c) S.I. 2001/3911. These Regulations apply in relation to Wales.

(d) Section 51A was inserted by Section 92(2) of the Water Act 2003 (c. 37). Section 104(1) was amended by Section 96(4) of that Act.

(e) Various amendments have been made to Sections 102 and 104 by Section 96 of the Water Act 2003.

(f) Inserted by Section 56 of and Schedule 4 to the Water Act 2003.

(g) Subsection (1A) was inserted by Section 92(5) of the Water Act 2003.

(h) Section 106(1A) was inserted by Section 99 of the Water Act 2003.

(i) 1989 c. 15.

(j) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.

(k) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.

(l) Section 199 was amended by Section 97(1) and (8) of the Water Act 2003.

Appendix 2 - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

The Customer, the Client and the Purchaser are asked to note this Agreement which govern the basis on which this drainage and water report is supplied

Definitions

'Company' means United Utilities Water Limited who produce the Report; its registered office being at Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3LP, company number 2366678.

'Order' means any request completed by the Customer requesting the Report.

'Report' means the drainage and water report prepared by the Company in respect of the Property.

'Property' means the address or location supplied by the Customer in the Order.

'Customer' means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

'Client' means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

'Purchaser' means the actual or potential purchaser of the Property including their mortgage lender.

Agreement

1.1 The Company agrees to supply the Report to the Customer and the Client subject to this Agreement. The scope and limitations of the Report are described in clause 2 of this Agreement.

Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing this Agreement to the attention of the Client and the Purchaser.

1.2 The Customer, the Client and the Purchaser agree that the placing of an Order for a Report and the subsequent provision of a copy of the Report to the Client and/ or the Purchaser indicates their acceptance of this Agreement.

The Report

Whilst the Company will use reasonable care and skill in producing the Report, it is provided to the Customer, the Client and the Purchaser on the basis that they acknowledge and agree to the following:

2.1 The information contained in the Report can change on a regular basis so the Company cannot be responsible to the Customer, the Client and the Purchaser for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as a substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and/or plans supplied by the Customer or Client or Purchaser.

2.4 The Report provides information as to the location and connection status of existing services and other information in relation to drainage and water enquiries and should not be relied on for any other purpose. The Report may contain opinions or general advice to the Customer, the Client and the Purchaser. The Company cannot ensure that any such opinion or general advice is accurate, complete or valid and therefore accepts no liability in relation thereto.

2.5 The position and depth of apparatus shown on any maps attached to the Report are approximate and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of the Company's apparatus.

Liability

3.1 The Company shall not be liable to the Client or the Purchaser for any failure defect or non-performance of its obligations arising from any failure to provide or delay in providing the Report to the extent that such failure or delay is due to an event or circumstance beyond the reasonable control of the Company including but not limited to any delay, failure of or defect in any machine, processing system or transmission link or any failure or default of a supplier or sub-contractor of the Company or any provider of any third party information except to the extent that such failure or delay is caused by the negligence of the Company.

3.2 Where a Report is requested for an address falling within a geographical area where two different companies separately provide Water and Sewerage Services, then it shall be deemed that liability for the information given by either company will remain with that company in respect of the accuracy of the information supplied.

A company supplying information which has been provided to it by another company for the purposes outlined in this agreement will therefore not be liable in any way for the accuracy of that information and will supply that information as an agent for the company from which the information was obtained.

3.2 The Report is produced for use in relation to individual commercial property transactions where the property is used solely for carrying on a trade or business, the property is intended to be developed for commercial gain or the property is not a single residential, domestic property. The Company's entire liability (except to the extent provided by clause 3.5) in respect of all causes of action arising by reason of or in connection with the Report (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) shall be limited to £2,000,000.

In any event, the Company shall not have any liability in contract, negligence or any other tort or for breach of statutory duty or otherwise in respect of any loss of profit, loss of revenue, loss of opportunity or anticipated savings, or any indirect or consequential loss or damage that may be suffered by the Customer, the Client or the Purchaser howsoever arising. The plans attached to the report are provided pursuant to the Company's statutory duty to make such plans available for inspection (notwithstanding the provisions of this clause) and attention is drawn to the notice on the plan(s) attached to the report which applies to the plan and its contents.

3.4 Where the Customer sells this Report to a Client or Purchaser under its own name or as a reseller of the Company (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) the Company shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty, restitution or otherwise at all) be liable to the Customer for any loss (whether direct, indirect or consequential loss (all three of which terms include without limitation, pure economic loss, loss of profit, loss of business, depletion of goodwill and like loss)) or damage whatsoever caused in respect of the Report or any use of the Report or reliance placed upon it and the Customer shall indemnify and keep indemnified the Company in respect of any claim by the Client or the Purchaser that the Company may incur or suffer.

3.5 Nothing in this Agreement shall exclude the Company's liability for death or personal injury arising from its negligence or for fraud.

Copyright and Confidentiality

4.1 The Customer, the Client and the Purchaser acknowledge that the Report is confidential and is intended for the personal use of the Client and the Purchaser. The copyright and any other intellectual property rights in the Report shall remain the property of the Company. No intellectual or other property rights are transferred or licensed to the Customer, the Client or the Purchaser except to the extent expressly provided herein.

4.2 The Customer or the Client or the Purchaser is entitled to make copies of the Report but may only copy Ordnance Survey mapping or data contained in or attached to the Report if they have an appropriate licence from the originating source of that mapping or data.

4.3 The Customer, The Client and the Purchaser agree (in respect of both the original and any copies made) to respect and not to alter any part of the Report including but not limited to the trademark, copyright notice or other property marking which appears on the Report.

4.4 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.5 The enquiries in the Report are protected by copyright by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Report.

4.6 The Customer, the Client and the Purchaser agree to indemnify the Company against any losses, costs, claims and damage suffered by the Company as a result of any breach by either of them of the provisions of clauses 4.1 to 4.4 inclusive.

Payment

5.1 Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay the price of the Report specified by the Company, without any set off, deduction or counterclaim.

5.2 Payment must be received in advance unless an account has been set up with the Company. In these cases, payment terms will be as agreed with the Company, but in any event any invoice must be paid within 30 days.

5.3 The Company reserves the right to increase fees on reasonable prior written notice at any time.

Appendix 2 continued - DRAINAGE AND WATER ENQUIRY (COMMERCIAL) AGREEMENT

Data Protection

6.1 We will process any personal data you provide to us in accordance with the Data Protection Act 1998. Any personal information you provide to us may be used for the purposes for which the information is provided and to assist with our debt recovery processes. We may also disclose it to other companies in the United Utilities group (being United Utilities Group PLC and its subsidiary companies) and their sub-contractors in connection with those purposes, but it will not be processed for other purposes or disclosed to other third parties without your express permission. We may also utilise any information we collect so that we are able to correctly administer, develop and improve the business and services we provide to our customers.

General

7.1 If any provision of this Agreement is or becomes invalid or unenforceable, it will be taken to be removed from the rest of this Agreement to the extent that it is invalid or unenforceable. No other provision of this Agreement shall be affected.

7.2 This Agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

7.3 Nothing in this Agreement and conditions shall in any way restrict the Customer's the Client's or the Purchaser's statutory or any other rights of access to the information contained in the Report.

7.4 This Agreement and conditions may be enforced by the Customer, the Client and the Purchaser.

7.5 Before you agree to this Agreement, please note it is your responsibility to ensure your client/customer is aware of them and that any objections are raised accordingly.

Conditions and Information regarding wastewater network

These general conditions and precautions apply to the wastewater network of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

- 1 United Utilities provides the approximate locations of its sewers according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of every sewer culvert or drain, private connections from properties to the public sewers or the particulars of any private system. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated. The records do indicate the position of the nearest known public sewer from which the likely length of private connections can be estimated together with the need for any off site drainage rights or easements.
- 2 Special requirements relative to our sewers may be indicated. United Utilities employees or its contractors will visit any site at reasonable notice to assist in the location of its underground sewers and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, or any notification required under these General Conditions, please call us on **0345 602 0406**.
- 3 Where public sewers are within a site which is to be developed and do not take any drainage from outside the area, they are from an operational viewpoint redundant. The developer must identify all redundant sewers affected by the development and apply to United Utilities in writing for these sewers to be formally closed. The developer shall bear all related costs of the physical abandonment work.
- 4 Public sewers within the site that are still live outside the area will be subject to a "Restricted Building zone". This would normally be a surface area equivalent to the depth of the sewer measured from the centre line of the sewer on either side. No construction will be permitted within that zone. The developer should also note that deep and wide rooted trees must not be planted in close proximity to live sewers. Access to public sewers must be maintained at all times and no interference to manholes will be permitted during construction work.
5. Where there is a public sewer along the line of a proposed development/building, arrangements shall be made by the developer at his cost to divert the sewer around the development. Where this is not possible and as a last resort, a "Building Over Agreement" will need to be completed under section 18 of the Building Act 1984. The developer shall design building foundations to ensure that no additional loading is transferred to the sewer and submit such details both to the Local Authority's Building Control Officer and to United Utilities for approval/acceptance. United Utilities on a rechargeable basis would normally undertake all aspects of design work associated with the diversion of any part of the operational wastewater network. For further advice please email wastewaterdeveloperservices@uuplc.co.uk
6. Where there is a non-main river watercourse/culvert passing through the site, the landowner has the responsibility of a riparian owner for the watercourse/culvert and is responsible for the maintenance of the fabric of the culvert and for all works involved in maintaining the unrestricted flow through it. Building over the watercourse/culvert is not recommended. The developer must contact the local authority before any works are carried out on the watercourse/culvert. Where it is necessary to discharge surface water from the site into the watercourse/culvert the developer shall make an assessment of the available capacity of the watercourse/culvert (based on a 1 in 50 year event) and ensure that the additional flow to be discharged into the watercourse/culvert will not cause any flooding. In appropriate cases, flooding may be prevented by on-site storage. The developer shall submit the relevant details required to substantiate his development proposals. Details of any outfall proposed shall also be submitted to the Environment Agency, PO Box 12, Richard Fairclough House, Knutsford Road, Warrington, Cheshire, WA4 1HT for their approval.
7. Where there is a main river watercourse/culvert passing through the site, the developer shall submit all proposals affecting the river to the Environment Agency at the address stated in paragraph 6 for approval/acceptance.

8. Your attention is drawn also to the following:

Private drains or sewers which may be within the site.

On 1 October 2011 all privately owned sewers and lateral drains which communicate with (that is drain to) an existing public sewer as at 1 July 2011 will become the responsibility of the sewerage undertaker. This includes private sewers upstream of pumping stations that have yet to transfer, but excludes lengths of sewer or drain that are the subject of an on-going appeal or which have been excluded from transfer as a result of an appeal or which are on or under land opted-out by a Crown body. The transfer specifically excludes sewers and lateral drains owned by a railway undertaker. Sewers upstream of such assets, however, are transferred. Such assets may not be recorded on the public sewer record currently as it was not a requirement to keep records of previously private sewers and drains.

Applications to make connections to the public sewer.

The developer must write to United Utilities requesting an application form that must be duly completed and returned. No works on the public sewer shall be carried out until a letter of consent is received from United Utilities.

Sewers for adoption If an agreement for the adoption of sewers under Section 104 of the Water Industry Act 1991 is being contemplated, a submission in accordance with "Sewers for Adoption", Seventh Edition, published by the Water Research Centre (2001) Plc, Henley Road, Medmenham, PO Box 16, Marlow, Buckinghamshire, SL7 2HD will be required, taking into consideration any departures from the general guide stipulated by United Utilities.

Further consultation with United Utilities.

Developers wishing to seek advice or clarification regarding sewer record information provided should contact United Utilities to arrange an appointment. A consultation fee may be charged, details of which will be made available at the time of making an appointment.

9. Combined sewers, foul sewers, surface water sewers, and pumped mains. These are shown separately in a range of colours or markings to distinguish them on our drawings, which are extracts from the statutory regional sewer map. A legend and key is provided on each extract for general use, although not all types of sewer will be shown on every extract.

Combined sewers shown coloured red carries both surface water and foul sewage, especially in areas where there is no separate surface water sewerage system.

Foul sewers coloured brown may also carry surface water and there may be no separate surface water system indicated in the immediate area. Both combined and foul sewers carry wastewater to our treatment works before it can safely be returned to the environment.

Surface water sewers coloured blue on our drawings are intended only to carry uncontaminated surface water (e.g. rainfall from roofs, etc) and they usually discharge into local watercourses. It is important for the protection of the environment and water quality that only uncontaminated surface water is connected to the surface water sewers. Improper connections to surface water sewers from sink wastes, washing machines and other domestic use of water can cause significant pollution of watercourses.

Pumped mains, rising mains and sludge mains will all be subject to pumping pressures and are neither suitable nor available for making new connections.

Highway drains, when included, show as blue and black dashed lines. Highway drains are not assets belonging to United Utilities and are the responsibility of local authorities.

1. For information regarding future proposals for construction of company apparatus please write to United Utilities, PO Box 453, Warrington, WA5 3QN.
2. For information regarding easements, deeds, grants or wayleaves please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3UU
Tel: 01925 731 365

Conditions and Information regarding water distribution apparatus

These general conditions and precautions apply to the water distribution system of United Utilities

Please ensure that a copy of these conditions is passed to your representative and contractor on site.

1. United Utilities provides approximate locations of its water mains or apparatus according to its records. These records are not necessarily accurate or complete nor do they normally show the positions of private service pipes from the mains to properties. Where service pipes are shown, a blue broken line indicates their approximate position. No person or company shall be relieved from liability for any damage caused by reason of the actual positions and/or depths being different from those indicated.
2. Special requirements relative to our apparatus may be indicated. United Utilities employees will visit any site at reasonable notice to assist in the location of its underground water apparatus and advise any precautions that may be required to obviate any damage. To arrange a visit or for further information regarding new supplies, connections, diversions, costing, future proposals for construction of company apparatus or any notification required under these General Conditions, please telephone us on **0345 746 2200** or write to United Utilities, PO Box 453, Warrington, WA5 3QN.
3. In order to achieve safe working conditions adjacent to any water apparatus the following should be observed;
 - (a) All water apparatus should be located by hand digging prior to the use of mechanical excavation.
 - (b) During construction work where heavy plant may have to cross the line of a water main, and the main is not under a carriageway of adequate standard of construction, crossing points should be suitably reinforced with sleepers, steel plates or a specially constructed reinforced concrete raft as necessary. These crossing points should be clearly indicated and crossing the line of the water main at other places should be prevented. United Utilities employees will advise on the type of reinforcement necessary. This is particularly important on agricultural or open land, where tilling or erosion may have significantly reduced the original cover.

(c) No explosive should be used within 32 metres of any United Utilities apparatus without prior consultation with United Utilities.

(d) Where it is proposed to carry out piling within 15 metres of any water main United Utilities should be consulted so that the affected main may be surveyed.

4. During any excavation, it is important that measures should be taken to ensure continued support for any water main:

(a) Where excavation of trenches adjacent to any water main is likely to affect its support, the main must be supported to the satisfaction of United Utilities.

(b) Where a trench is excavated crossing or parallel to the line of a water main, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the main. In special cases it may be necessary to provide permanent support to a main which has been exposed over the length of the excavation before back-filling and reinstatement is carried out. No back-filled concrete should contact the main.

5. No other apparatus should be laid over and along the line of a water main irrespective of clearance. A minimum clearance of 450 millimetres should be allowed between any plant being installed and an existing main, to facilitate maintenance and repair, whether the adjacent plant is parallel to or crossing the main. No manhole, chamber, or other obstruction should be built over or around a water main.

6. Where a water main is coated with special wrapping and the wrapping is damaged, even to a minor extent, United Utilities must be notified, and the excavation must be left open for ready access so that repairs can be made. In case of any material damage to the main itself causing leakage, or weakening of the mechanical strength of the pipe, the person or body responsible should immediately notify United Utilities in order that the necessary remedial work can be carried out. The full cost of the necessary remedial work will be charged to the person or body responsible for the damage.

1. If you propose to change existing levels over water mains you will need to inform us. We will need specific locations to be identified together with precise details as to the scale of the proposed changes to existing ground levels. Changes to existing levels may require the diversion of our apparatus at your cost. However, in certain circumstances we may wish to leave our apparatus where it is. On these occasions you will usually be required to protect our apparatus by means of a concrete raft and either raise or lower any surface boxes affected.
2. Under no circumstances should our surface boxes be either buried or left in a situation where they are raised above finished ground levels. You should reuse and re-set any surface boxes affected by your works into the new surface so that they align over the water apparatus below. You will be responsible for the cost of repairing any damage to our apparatus as a result of your works.
3. Where proposals involve resurfacing, you must notify United Utilities if your excavation will be greater than 750mm in the highway and 300mm in a footpath, verge or other location.
4. For information regarding easements, deeds, grants, licences or wayleaves, please write to United Utilities Property Solutions, Coniston Buildings, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington WA5 3UU (Tel 01925 731 365).

Tree planting restrictions over water mains

a) Poplar and willow trees have extensive root systems and should not be planted within 10 metres of any water main.

b) The following trees and those of a similar size, whether they are deciduous or evergreen, should not be planted within six metres of any water main:

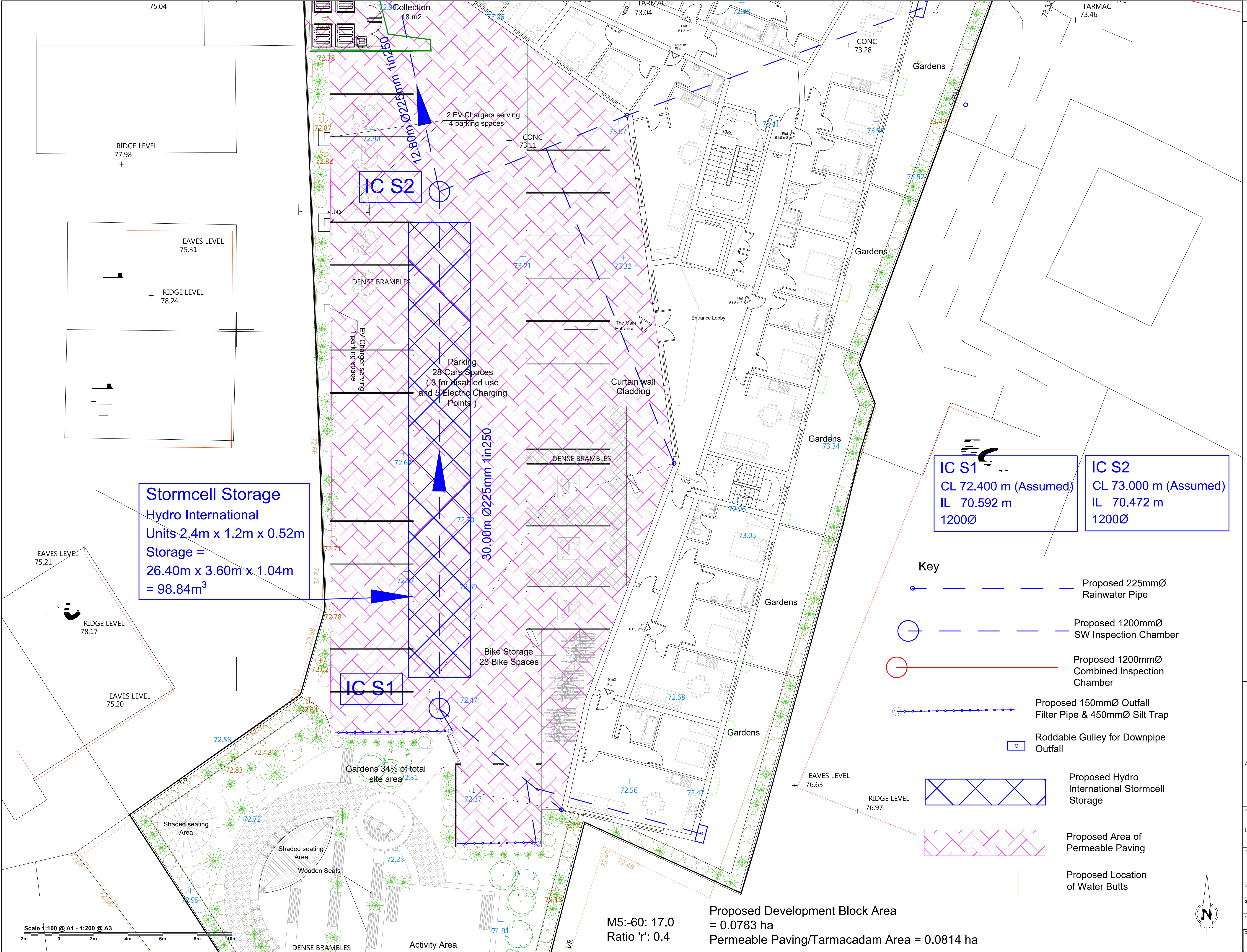
- Ash, beech, birch, elm, horse chestnut, lime, oak, sycamore;
- Apple trees and pear trees;
- Most conifers.

c) United Utilities requires access to the route of its mains at all times to inspect for leaks and carry out surveys. We recommend that no shrubs or bushes which might obstruct or interfere with our access should be planted within one metre of the centre line of any water main.

d) There may be instances when both United Utilities and the landowner will wish to plant shrubs or bushes close to the water main for screening or other purposes. The following shallow rooting shrubs would be suitable for this purpose:

- Blackthorn, broom, cotoneaster, elder;
- Hazel, laurel, privet, quickthorn, snowberry;
- Most ornamental flowering shrubs.

e) In areas where soft fruit is grown, blackcurrant, raspberries and gooseberries may be planted close to the main, provided that a path is left clear for inspection access and surveys. United Utilities can give additional advice where required in particular circumstances.



NOTES

1. The topographical survey was produced by Chris Partington Land Surveyors Reference 270317CP-01. Date 28th March 2017.
Levels are to Ordnance Survey Datum - GPS OSGB36.
AVAL Group have not undertaken, nor have been instructed to undertake, any special investigations to verify the information provided. The Principle Contractor, sub contractors and others who may need to rely on this information must ascertain its accuracy before commencing the works. AVAL Group accept no responsibility or liability for the accuracy of this information.

2. The building layout is an extract from HAD & Co PDF Drawing Ref. HAD3384-02.
This is shown for information purposes only and must not be used for setting out purposes.
AVAL Group have not undertaken, nor have been instructed to undertake, any special investigations to verify the information provided. The Principle Contractor, sub contractors and others who may need to rely on this information must ascertain its accuracy before commencing the works. AVAL Group accept no responsibility or liability for the accuracy of this information.

3. Do not scale from this drawing.

4. It is not clear if there is a surface water sewer within the south-western area of the site as the site area within the topographical survey and the Asset Search are not the same. Therefore, it is recommended to undertake an assessment before commencing any works as the Drainage Design may change depending on the findings.

5. Proposed Surface Water Discharge rate into Combined Sewer is 1.5 l/s using Hydrobrake and Hydro International Stormcell storage.

6. Regarding Connections to Existing Sewer, INVERT LEVELS ARE ASSUMED WITHIN THE DRAWING AND CALCULATIONS.

7. Do not undertake any works at the site until all construction details have been undertaken as there maybe changes required to the proposed Drainage Strategy.

Aval Consulting Group
Transportation Planning : Environmental Consultants
www.aval-group.co.uk, Email: contact@aval-group.co.uk
Company Number: 11922039

Client Name: HAD & CO

Project Title: LAND AT CHURCH LANE, MANCHESTER M9 4JW

Drawing Title: PROPOSED SURFACE WATER DRAINAGE DESIGN (PART 1)

Date: 07.06.2022	Drawn By: PR
Scale: 1:100 @ A1 1:200 @ A3	Checked: PR
Status: PLANNING	Approved: AC

Drawing No: AVAL/92002/SW/001	Rev: B
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Aval Consulting Group	AVAL Consulting Group Ltd	File: 92002 Prop SW Calc 02.pfi	Page 1
	Newhaven Enterprise Centre Denton Island Newhaven BN9 9BA	Network: Storm Network Pratheek Ramesh 07/06/2022	92002 Land at Church Lane M9 4JW Prop Surface Water Drainage Network Calculation

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
S1	0.113	5.00	72.400	1200	1.808
S2	0.047	5.00	73.000	1200	2.528
S3			72.980	1200	2.559
S4			72.940	1200	2.539
Prop_Junc			72.400		2.015

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)
S1 - S2	S1	S2	30.000	0.600	70.592	70.472	0.120	250.0	225	5.61	50.0
S2 - S3	S2	S3	12.800	0.600	70.472	70.421	0.051	250.0	225	5.87	50.0
S3 - S4	S3	S4	5.100	0.600	70.421	70.401	0.020	250.0	225	5.97	50.0
S4 - Prop_Junc	S4	Prop_Junc	4.000	0.600	70.401	70.385	0.016	250.0	225	6.05	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)
S1 - S2	0.822	32.7	20.4	1.583	2.303	0.113	0.0	129	0.866
S2 - S3	0.822	32.7	28.9	2.303	2.334	0.160	0.0	165	0.925
S3 - S4	0.822	32.7	28.9	2.334	2.314	0.160	0.0	165	0.925
S4 - Prop_Junc	0.822	32.7	28.9	2.314	1.790	0.160	0.0	165	0.925

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1 - S2	30.000	250.0	225	Circular	72.400	70.592	1.583	73.000	70.472	2.303
S2 - S3	12.800	250.0	225	Circular	73.000	70.472	2.303	72.980	70.421	2.334
S3 - S4	5.100	250.0	225	Circular	72.980	70.421	2.334	72.940	70.401	2.314
S4 - Prop_Junc	4.000	250.0	225	Circular	72.940	70.401	2.314	72.400	70.385	1.790

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1 - S2	S1	1200	Manhole	Private	S2	1200	Manhole	Private
S2 - S3	S2	1200	Manhole	Private	S3	1200	Manhole	Private
S3 - S4	S3	1200	Manhole	Private	S4	1200	Manhole	Private
S4 - Prop_Junc	S4	1200	Manhole	Private	Prop_Junc		Junction	

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	72.400	1.808	1200				
				0	S1 - S2	70.592	225
S2	73.000	2.528	1200		1 S1 - S2	70.472	225
				0	S2 - S3	70.472	225
S3	72.980	2.559	1200		1 S2 - S3	70.421	225
				0	S3 - S4	70.421	225
S4	72.940	2.539	1200		1 S3 - S4	70.401	225
				0	S4 - Prop_Junc	70.401	225
Prop_Junc	72.400	2.015		1 S4 - Prop_Junc	70.385	225	
				0			

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	17.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

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

Node S3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	70.421	Product Number	CTL-SHE-0054-2000-2500-2000
Design Depth (m)	2.500	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node S1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.860
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	47.5	0.0	0.001	47.5	47.5	1.040	47.5	47.5	1.041	0.0	47.5

Node S2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.754
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

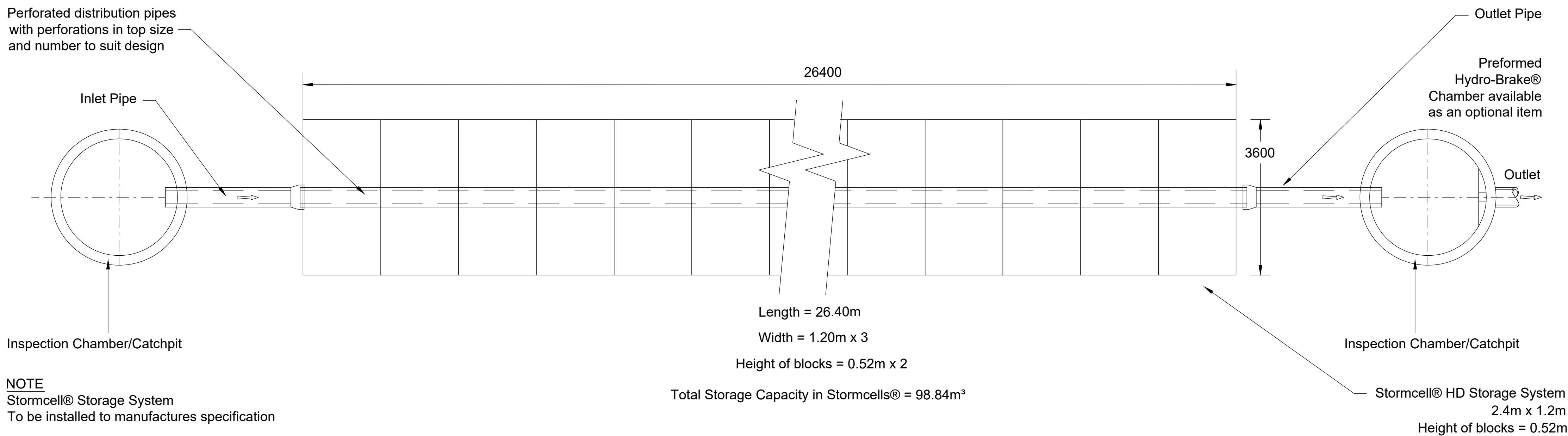
Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	47.5	0.0	0.001	47.5	47.5	1.040	47.5	47.5	1.041	0.0	47.5

Aval Consulting Group.	AVAL Consulting Group Ltd Newhaven Enterprise Centre Denton Island Newhaven BN9 9BA	File: 92002 Prop SW Calc 02.pfi Network: Storm Network Pratheek Ramesh 07/06/2022	Page 4 92002 Land at Church Lane M9 4JW Prop Surface Water Drainage Network Calculation
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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S1	352	71.795	1.203	10.1	43.5743	0.0000	SURCHARGED
360 minute winter	S2	352	71.795	1.323	7.8	48.4707	0.0000	SURCHARGED
360 minute winter	S3	352	71.795	1.374	1.5	1.5536	0.0000	SURCHARGED
360 minute winter	S4	352	70.434	0.033	1.5	0.0376	0.0000	OK
360 minute winter	Prop_Junc	352	70.416	0.031	1.5	0.0000	0.0000	OK

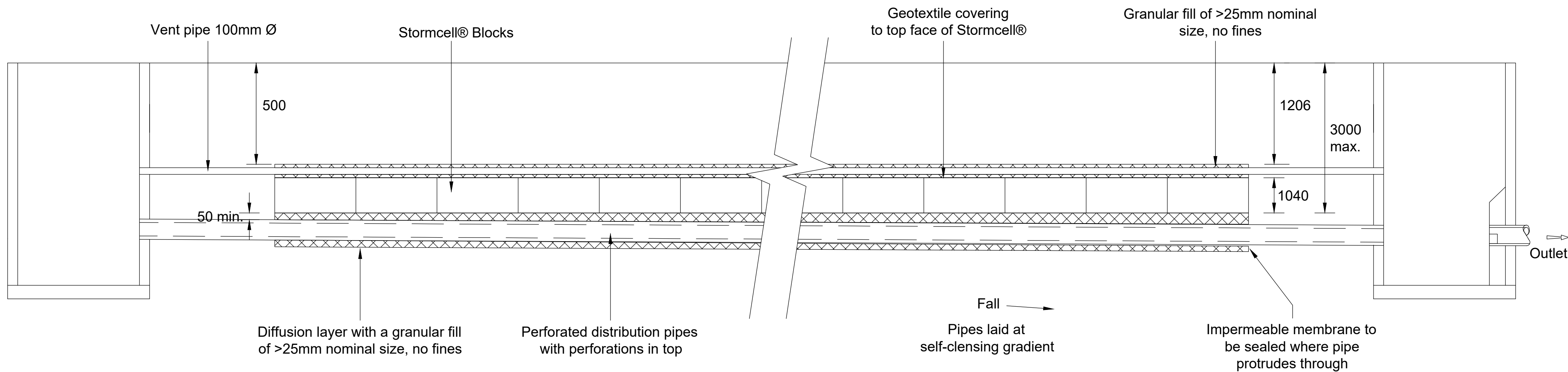
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S1	S1 - S2	S2	3.6	0.322	0.111	1.1931	
360 minute winter	S2	S2 - S3	S3	1.5	0.108	0.046	0.5091	
360 minute winter	S3	S3 - S4	S4	1.5	0.403	0.046	0.0191	
360 minute winter	S4	S4 - Prop_Junc	Prop_Junc	1.5	0.436	0.046	0.0138	47.3



NOTE
Stormcell® Storage System
To be installed to manufactures specification

Hydro International
www.hydro-int.com

Stormcell Light is for gardens
Stormcell HD for trafficked areas
Minimum 0.5m cover for car parks &
1.0m for heavy traffic



HYDRO INTERNATIONAL STORMCELL ATTENUATION SYSTEM HD FOR TRAFFICKED AREAS
TYPICAL LAYOUT ONLINE

NOTES

1. Do not scale from this drawing.
2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.
In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Aval Consultancy Group accepts no liability in the event of not being so notified and where construction work has commenced.
3. All drainage works are to be constructed in accordance with Building Regulations 2015 Edition Approved Document H or current British Standards for Drainage.

Aval Consulting Group
Transportation Planning · Environmental Consultants
www.aval-group.co.uk, Email: contact@aval-group.co.uk
Company Number: 11922039

Client Name:

Project Title:

Drawing Title:

TYPICAL CONSTRUCTION LAYOUT

Date:	-	Drawn By:	PR
Scale:	NOT TO SCALE	Checked:	AC
Status:	PLANNING	Approved:	AC

Drawing No.	Rev.
AVAL/CONS/HYDRO/STROM	A

Technical Specification

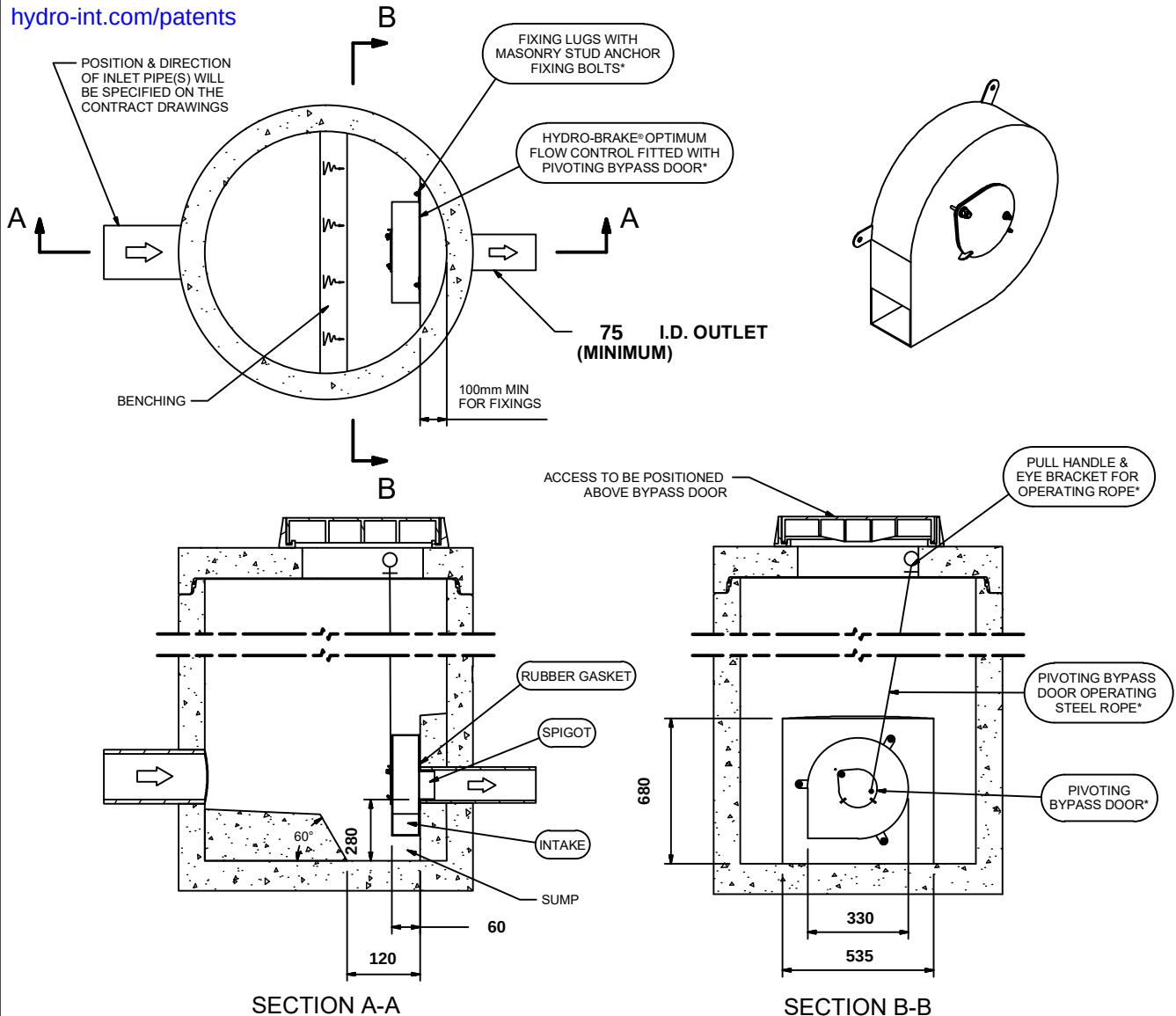
Control Point	Head (m)	Flow (l/s)
Primary Design	2.500	2.000
Flush-Flo™	0.239	1.167
Kick-Flo®	0.484	0.956
Mean Flow		1.445

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Indicative Weight: 51 kg



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IMPORTANT:

○ LIMIT OF HYDRO INTERNATIONAL SUPPLY

THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
ALL CIVIL AND INSTALLATION WORK BY OTHERS

* WHERE SUPPLIED

HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0054-2000-2500-2000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro
International

DATE	6/6/2022 12:11 PM
SITE	Land at Church Lane, M9 4JW
DESIGNER	Pratheek Ramesh
REF	92002

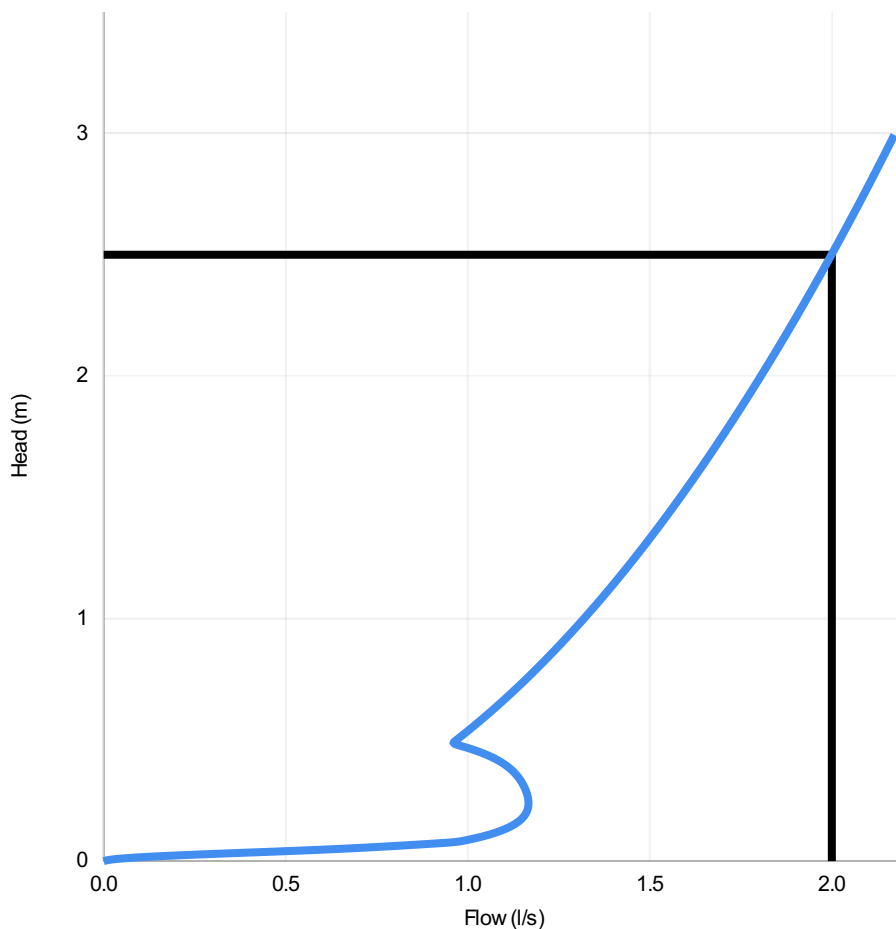
SHE-0054-2000-2500-2000
Hydro-Brake® Optimum

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	2.500	2.000
Flush-Flo	0.239	1.167
Kick-Flo®	0.484	0.956
Mean Flow		1.445



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Head (m)	Flow (l/s)
0.000	0.000
0.086	0.996
0.172	1.147
0.259	1.166
0.345	1.139
0.431	1.063
0.517	0.984
0.603	1.053
0.690	1.118
0.776	1.178
0.862	1.234
0.948	1.288
1.034	1.339
1.121	1.388
1.207	1.436
1.293	1.481
1.379	1.525
1.466	1.567
1.552	1.608
1.638	1.648
1.724	1.687
1.810	1.725
1.897	1.762
1.983	1.798
2.069	1.833
2.155	1.868
2.241	1.902
2.328	1.935
2.414	1.967
2.500	1.999

DESIGN ADVICE



The head/flow characteristics of this SHE-0054-2000-2500-2000 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

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Hydro
International

DATE	06/06/2022 12:11
Site	Land at Church Lane, M9 4JW
DESIGNER	Pratheek Ramesh
Ref	92002

SHE-0054-2000-2500-2000
Hydro-Brake Optimum®

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Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by: Pratheek Ramesh

Site name: 92002 Church Lane

Site location: Manchester M9 4JW

Site Details

Latitude: 53.50966° N

Longitude: 2.20727° W

Reference: 537810401

Date: Jun 08 2022 09:29

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): 0.1597

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics

Default

Edited

SOIL type:

4

4

HOST class:

N/A

N/A

SPR/SPRHOST:

0.47

0.47

Hydrological characteristics

Default

Edited

SAAR (mm):

942

942

Hydrological region:

10

10

Growth curve factor 1 year:

0.87

0.87

Growth curve factor 30 years:

1.7

1.7

Growth curve factor 100 years:

2.08

2.08

Growth curve factor 200 years:

2.37

2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

Default

Edited

Q_{BAR} (l/s):

1.09

1.09

1 in 1 year (l/s):

0.95

0.95

1 in 30 years (l/s):

1.86

1.86

1 in 100 year (l/s):

2.27

2.27

1 in 200 years (l/s):

2.59

2.59

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.