



Surface Water Drainage Strategy

AEG9908_M8_Manchester_05

Site Address: 27-29 Middleton Road
Manchester
M8 5DT

UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

Document Issue Record

Project: Surface Water Drainage Strategy

Prepared for: Gold Sketch Studios

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Site Location: 27-29 Middleton Road, Manchester, M8 5DT

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1. Introduction

1.1. Aegaea were commissioned by Gold Sketch Studios to undertake a Surface Water Drainage Strategy (SWDS) to facilitate a planning application for the proposed development. This report has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.

1.2. This report is intended to support a full planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

Site Overview

1.3. The site of the proposed development is 27-29 Middleton Road, Manchester, M8 5DT, (Figure 1).

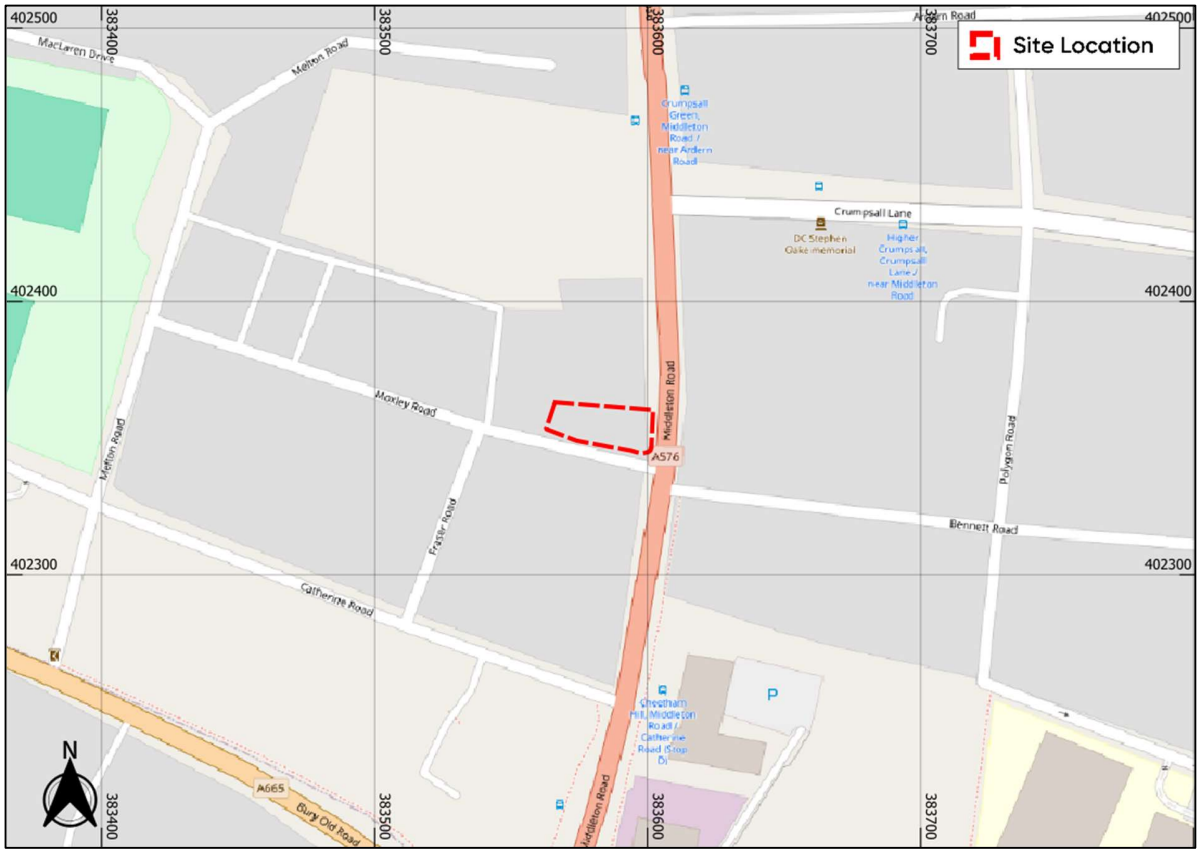


Figure 1: Site Location (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors)

1.4. The client is seeking planning permission for the demolition of the existing buildings and the erection of a new build place of worship. The development proposals will be included in this report as Appendix A.

1.5. In the absence of a topographical survey, Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to review the topography of the site (Figure 2). According to the LiDAR data the minimum ground elevation on site is approximately 81.64m Above Ordnance Datum (AOD) to approximately 82.65m AOD.

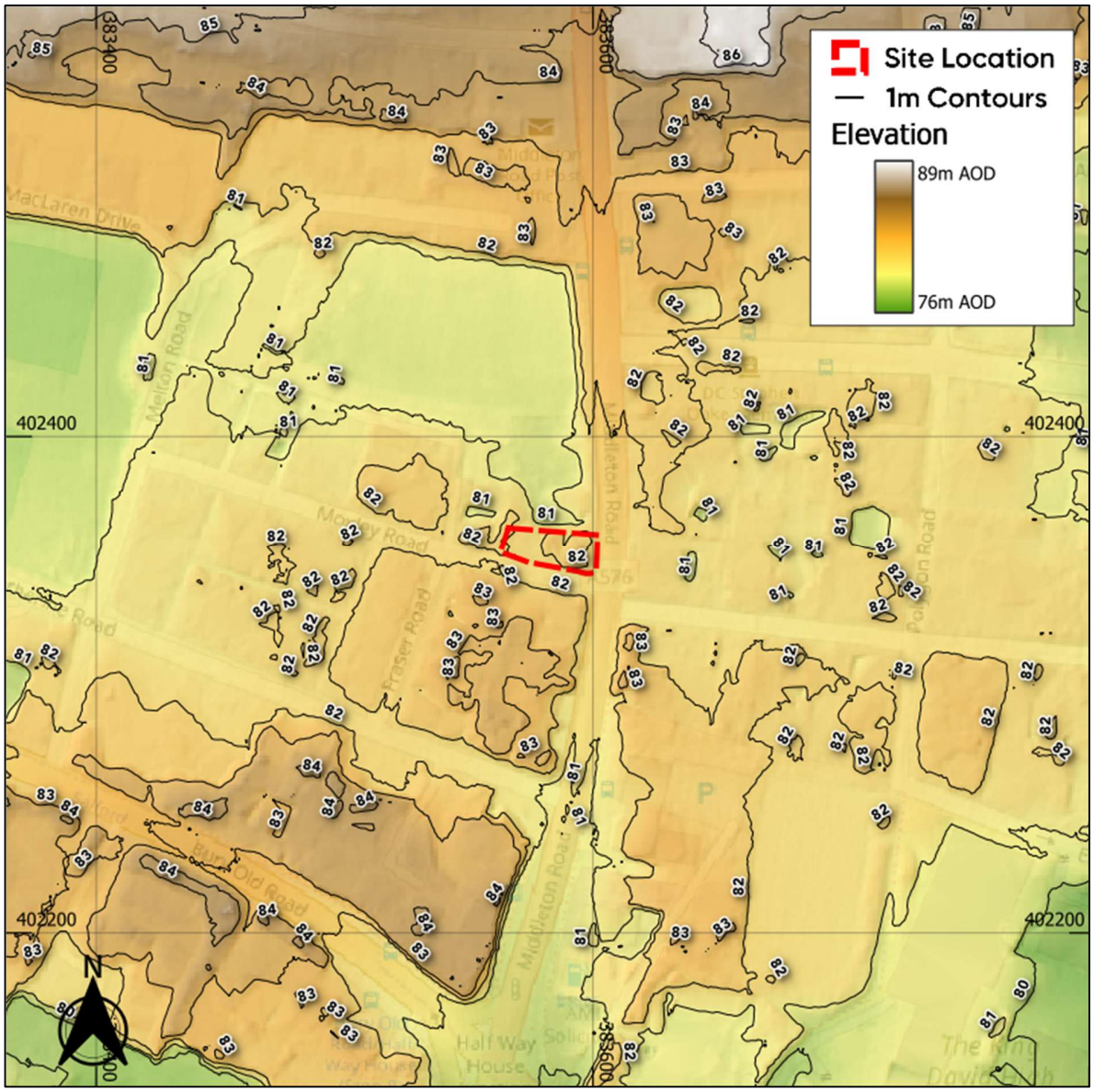


Figure 2: Site Topography (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

1.6. Manchester City Council is the Local Planning Authority (LPA) for the site and also the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Greater Manchester Merseyside and Cheshire region.

2. Planning Policy, Documents and Online Mapping

2.1. With ever-increasing urbanisation, the ability for precipitation to penetrate the hard paved surfaces to the groundwater below is inhibited. This results in increased flood risk, overstressed combined sewer infrastructure, and reduced ability to replenish aquifers. Sustainable Drainage Systems (SuDS) mitigate these issues by replicating natural processes to manage rainfall.

National Planning Policy Framework (NPPF)

2.2. The National Planning Policy Framework[1] (NPPF) (MHCLG, 2024) which includes UK Government policy on development and flood risk states:

> *181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
>
> *d) any residual risk can be safely managed; and*
>
> *e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

[1] **https://www.gov.uk/guidance/national-planning-policy-framework, last updated Dec 2024**

National Standards for SuDS

2.3. Updates to the national planning policy have defined a framework for Sustainable Drainage Systems (SuDS). The new 'National Standards for SuDS'[2] was published on June 19th, 2025, and is used to inform this drainage strategy. There are seven key standards are as follows;

- **Standard 1 Runoff Destination:** The drainage hierarchy now prioritises water re-use followed by infiltration, before discharging to watercourses and sewers.
- **Standard 2 Management of Everyday Rainfall (interception):** The design must ensure that the first 5mm of rainfall from any event is managed within the site and does not leave the boundary.
- **Standard 3 Management of Extreme Rainfall and Flooding:** The SuDS must be designed to manage runoff from all extreme rainfall events, up to and including the 1 in 100-year return period (including an allowance for climate change).
- **Standard 4 Water Quality:** The system must be designed to prevent or mitigate the risk of surface water runoff pollution using SuDS management trains.
- **Standard 5 Amenity:** The SuDS should be designed to improve the aesthetic value of the development, demonstrating multifunctional solutions where feasible.
- **Standard 6 Biodiversity:** The system should be designed to promote biodiversity using above ground SuDS where feasible.
- **Standard 7 Maintenance:** A clear plan must be provided for the long-term operation and maintenance of the SuDS to ensure it remains effective for the lifetime of the development.

Manchester Core Strategy 2024

2.4. The Local Plan prepared by the Local Planning Authority, Manchester City Council, sets out the policies for development in the local area.

[2] **https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds**

Documents and Online Mapping

2.5. The following sources of information have been reviewed for this assessment:

- National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2024)
- Planning Practice Guidance - Flood Risk and Coastal Change (Ministry of Housing, Communities and Local Government, 2022)
- Geoindex Onshore (British Geological Survey, 2024)
- Manchester Core Strategy[3] 2024
- CIRIA SuDS Manual[4] (2015)
- Soilscapes Online Soil Mapping[5]

CIRIA C753 SuDS Manual

2.6. The CIRIA SuDS manual has been used throughout this SWDS in order to determine an appropriate strategy for the proposed development. This guidance covers the planning, design, construction and maintenance of Sustainable Drainage Systems (SuDS) to assist with their effective implementation within both new and existing developments. It looks at how to maximise amenity and biodiversity benefits and deliver the key objectives of managing flood risk and water quality. There is also supporting information covering topics such as materials, landscape design, maintenance, community engagement and costs and benefits.

[3] **https://www.manchester.gov.uk/downloads/download/5672/core_strategy**
[4] **https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C753F**
[5] **https://www.landis.org.uk/soilscapes/**

3. Surface Water Drainage Strategy

Surface Water Drainage Hierarchy

3.1. In accordance with the SuDS management train approach, the use of various SuDS measures to reduce and control surface water flows have been considered in detail for the development in Table 1 overleaf.

3.2. The management of surface water has been considered in respect to the SuDS hierarchy below, as detailed in the Statutory Guidance National standards for sustainable drainage systems (SuDS) (2025).

Table 1: SuDS Drainage Hierarchy

SuDS Drainage Hierarchy				
			Suitability	**Comment**
	1.	**Collection for non-potable use**	✓	Water butts could be used beneath downpipes for landscaped areas throughout the site.
	2.	**Infiltration**	**x**	The British Geological Survey's (BGS) mapping shows superficial deposits of Glaciofluvial Deposits comprising sand and gravel underlying the site. The bedrock underlying the site is mapped as Manchester Marls Formation comprising mudstone. Online soil mapping suggests that the site is underlain by slowly permeable seasonally wet acid loamy and clayey soils. As such, infiltration is unlikely due to the mudstone geology and clayey soils. BRE365 Infiltration Tests may be required at the detailed design stage to understand if infiltration is possible on site. If infiltration is possible, this strategy should be updated to ensure SuDS are unlined and promote infiltration. **It is also important to note that in accordance with Building Regulations – infiltration SuDS (such as soakaways) must be located a minimum of 5.0m from any existing or proposed building, and 2.5m from any site boundary. It is unlikely that the space available is large enough to include a soakaway with the required easements.**
	3.	**Discharge to surface waters**	**x**	The nearest river is an EA Main River (River irk) and is located approximately 820m to the northeast of the site. Due to the distance from the site, it is not feasible to discharge surface water into a watercourse.
	4.	**Discharge to surface water sewer, highway drain or similar**	**x**	Based on United Utilities mapping there are no surface water sewers in the vicinity of the site.
	5.	**Discharge to combined sewer**	✓	On review of the SuDS drainage hierarchy, it is proposed that surface water is discharged into the combined sewer beneath Moxley Road at 2.0l/s.

3.3. On review of the SuDS drainage hierarchy, it is proposed that surface water is discharged into the combined sewer beneath Moxley Road at 2.0l/s.

3.4. It is recommended that a CCTV survey of the drainage infrastructure associated with the existing premises is carried out to inform detailed design and prior to construction of any drainage connection to understand the location, level, and condition of any surface water drainage infrastructure currently on site. Any existing connections to the combined sewer adjacent to the site will be reused.

3.5. The potential for the use of various SuDS has been considered and optimised in the design, as per Table 2 overleaf.

Table 2: SuDS Components Suitability Summary Table

SuDS Component	Description	Constraints and Opportunities	Suitable?
Infiltrating SuDS	Infiltration can contribute to reducing runoff rates and volumes while supporting baseflow and groundwater recharge processes. The suitability and infiltration rate depends on the permeability of the surrounding soils.	Infiltration is unlikely due to the mudstone geology and clayey soils on site. BRE365 Infiltration Tests may be required at the detailed design stage to understand if infiltration is possible on site. If infiltration is possible, this strategy should be updated to ensure SuDS are unlined and promote infiltration.	x
Filter Drains and Filter Strips	Filter drains are shallow trenches filled with stone gravel that create temporary subsurface storage for the attenuation, conveyance and filtration of surface water runoff. Filter strips are uniformly graded and gently sloping strips of grass or dense vegetation, designed to treat runoff from adjacent impermeable areas by promoting sedimentation, filtration and infiltration.	Filter drains proposed in the permeable paving subbase to convey surface water across the site.	✓
Permeable Pavement	Pervious surfaces can be used in combination with aggregate sub-base and/or geocellular/modular storage to attenuate and/or infiltrate runoff from surrounding surfaces and roofs. Liners can be used where ground	Permeable paving should be Type C. All surface water on site is to flow through the permeable paving to ensure all surface water is sufficiently treated.	✓

SuDS Component	Description	Constraints and Opportunities	Suitable?
	conditions are not suitable for infiltration.		
Green & Blue Roofs	Green Roofs provide areas of visual benefit, ecological value, enhanced building performance and the reduction of surface water runoff. They are generally more costly to install and maintain than conventional roofs but can provide many long-term benefits and reduce the on-site storage volumes.	There are flat roofs included as part of the proposed development, that have been proposed as green roofs	x
Rainwater Harvesting (RWH)	Rainwater Harvesting is the collection of rainwater runoff for use. It can be collected from roofs or other impermeable areas, stored, treated (where required) and then used as a supply of water for domestic, commercial and industrial properties.	Based on proposed development plans, no green spaces on site for water reuse.	x
Swales	Swales are designed to convey, treat and attenuate surface water runoff and provide aesthetic and biodiversity benefits. They can replace conventional pipework as a means of conveying runoff; however, space constraints of some sites can make it difficult incorporating them into the design.	Given the space available as part of the proposed development a new swale is deemed unnecessary. These SuDS measures are better suited to large scale developments. There would also be no space to implement such features.	x
Rills and Channels	Rills and Channels keep runoff on the surface and convey runoff along the surface to downstream SuDS components. They can be incorporated into the design to provide a visually appealing method of conveyance. They also provide effectiveness in pre-treatment removal of silts.	ACO channels (or similar) should be implemented on hardstanding surfaces with silt traps at their outlet.	x

SuDS Component	Description	Constraints and Opportunities	Suitable?
Bioretention Systems	Bioretention systems can reduce runoff rates and volumes and treat pollution through the use of engineer soils and vegetation. They are particularly effective in delivering interception but can also be an attractive landscape feature whilst providing habitat and biodiversity.	Raised planters are not required for the proposed development.	x
Retention Ponds and Wetlands	Ponds and Wetlands are features with a permanent pool of water that provide both attenuation and treatment of surface water runoff. They enhance treatment processes and have great amenity and biodiversity benefits. Often a flow control system at the outfall controls the rates of discharge for a range of water levels during storm events.	There would also be no space to implement such features.	x
Detention Basins	Detention Basins are landscaped depressions that are usually dry, except during and immediately following storm events, and can be used as a recreational or other amenity facility. They are generally appropriate to manage high volumes of surface water from larger sites, such as a neighbourhood.	There would also be no space to implement such features.	x
Geocellular Systems	Attenuation storage tanks are used to create a below-ground void space for the temporary storage of surface water before infiltration, controlled release or use. The inherent flexibility in size and shape means they can be tailored to suit the specific characteristics and requirements of any site.	A (lined) geocellular tank is proposed beneath the parking area on site.	✓

SuDS Component	Description	Constraints and Opportunities	Suitable?
Proprietary Treatment Systems	Proprietary treatment systems are manufactured products that remove specific pollutants from surface water runoff. They are especially useful where site constraints preclude the use of other methods and can be useful in reducing the maintenance requirements of downstream SuDS.	Site is generally considered a low level of pollutant risk. Additionally, permeable paving and silt traps would provide sufficient treatment without the need for proprietary treatment systems.	✓

3.6. On review of available SuDS options, taking into account the site's constraints and with reference to both national and local policy, it is proposed that the surface water runoff from the proposed development will be managed via permeable paving and discharge to existing combined sewer beneath Moxley Road.

3.7. Surface water should be discharged from the roof area and hardstanding surfaces into the permeable paving to ensure sufficient treatment is provided for all surface water on site.

3.8. All surface on site is to flow through the permeable paving prior to the geocellular tank and offsite to ensure sufficient surface water treatment. The areas draining into each permeable paving unit are no greater than 5 times the area of the permeable paving itself. For instance;

- Parking Permeable Paving: plan area: 28.75m^2, area draining into the permeable paving including the paving itself: 100m^2.
- Paving surrounding building: plan area: 160m^2, area draining into the permeable paving including the paving itself: 390m^2.

3.9. The proposed Surface Water Drainage Layout is included as Appendix B.

Infiltration Potential

3.10. The British Geological Survey's (BGS) mapping shows superficial deposits of Glaciofluvial Deposits comprising sand and gravel underlying the site. The bedrock underlying the site is mapped as Manchester Marls Formation comprising mudstone.

3.11. Online soil mapping[6] suggests that the site is underlain by slowly permeable seasonally wet acid loamy and clayey soils.

3.12. As such, infiltration is unlikely due to the mudstone geology and clayey soils.

3.13. BRE365 Infiltration Tests may be required at the detailed design stage to understand if infiltration is possible on site. If infiltration is possible, this strategy should be updated to ensure SuDS are unlined and promote infiltration.

3.14. **It is also important to note that in accordance with Building Regulations – infiltration SuDS (such as soakaways) must be located a minimum of 5.0m from any existing or proposed building, and 2.5m from any site boundary. It is unlikely that the space available is large enough to include a soakaway with the required easements.**

Nearby Watercourses

3.15. The nearest river is an EA Main River (River irk) and is located approximately 820m to the northeast of the site. Due to the distance from the site, it is not feasible to discharge surface water into a watercourse.

Public Sewers

3.16. A United Utilities Asset Plan has been included in this report as Appendix C and is reproduced below as Figure 3. The asset plans show that there is a combined sewer beneath Moxley Road.

[6] **https://www.landis.org.uk/soilscapes/**

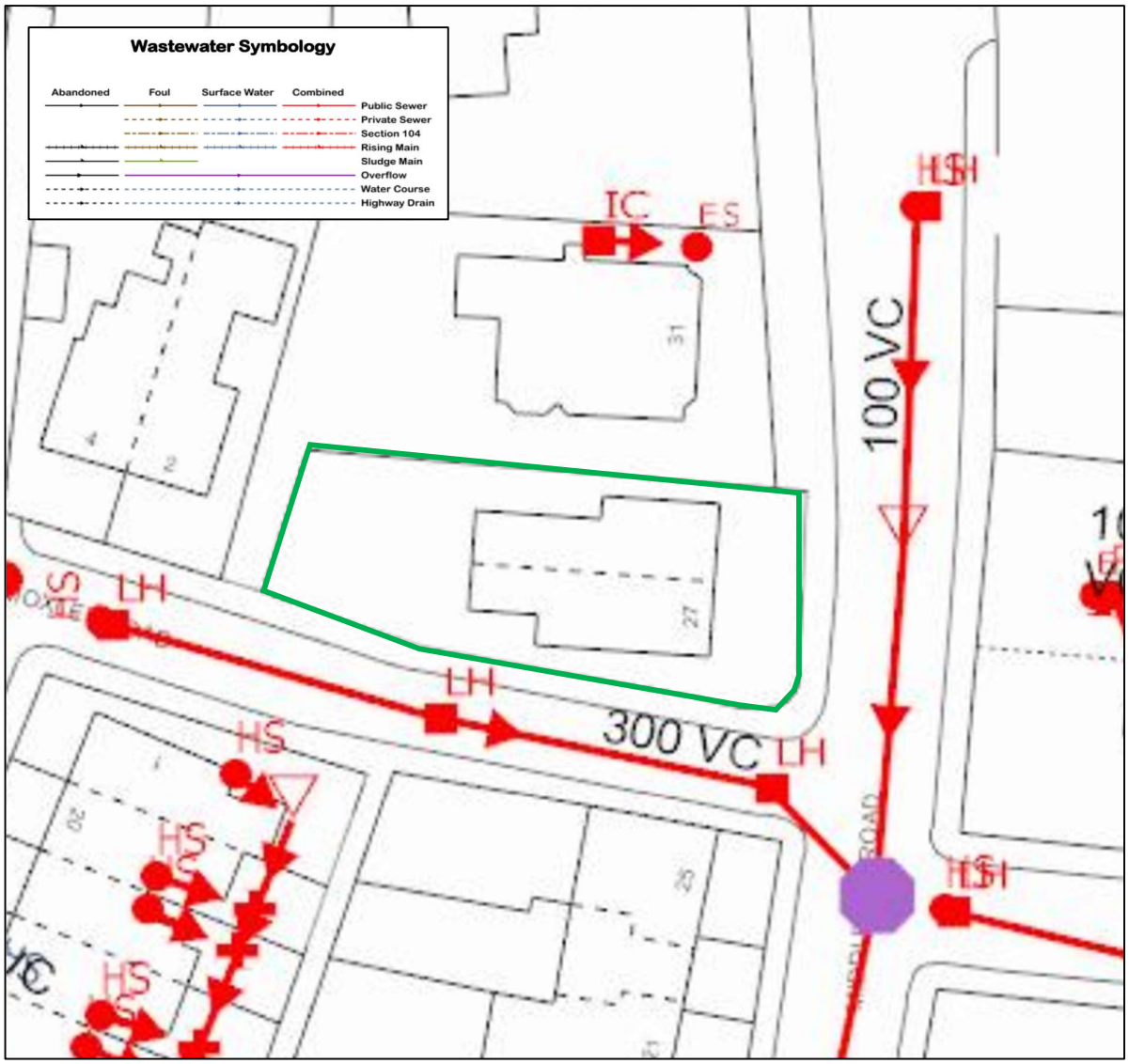


Figure 3: United Utilities Asset Plan (Source: United Utilities) (Site in Green)

3.17. It is recommended that a CCTV survey of the drainage infrastructure associated with the existing premises is carried out to inform detailed design and prior to construction of any drainage connection to understand the location, level, and condition of any surface water drainage infrastructure currently on site. Any existing connections to the combined sewer adjacent to the site will be reused.

Existing and Proposed Runoff Rate

3.18. The proposed discharge rate for the development is 2.0l/s from the whole site in accordance with United Utilities guidance the outlets will discharge at no lower than 2.0l/s to prevent the risk of blockage.

3.19. The existing site has approximately 420m^2 impermeable surfaces. The post-development impermeable surface area on site is 460m^2.

3.20. Calculations in Table 3 show the maximum unrestricted outflow rates for the existing impermeable (0.042ha) area compared to the proposed development area (0.046ha).

Table 3: Existing (unrestricted) and proposed runoff rates

Catchment	Area	1 in 2 Year	1 in 30 Year (plus 40% climate change)	1 in 100 Year (plus 45% climate change)
Existing	0.042ha	7.8/s	24l/s	31.4l/s
Proposed	0.046ha	0.6l/s	1.3l/s	2.0l/s
% Betterment	-	92%	95%	94%

3.21. Table 3 shows that restricting rates to a maximum of 2.0l/s would provide a significant betterment to the existing scenario in terms of surface water runoff.

InfoDrainage Modelling

3.22. A network model has been produced in InfoDrainage software (v2025.5).

3.23. The model comprises;

- 6no. contributing catchment area across the proposed development area representing the proposed roof area of 0.046ha. No urban creep allowance has been applied to the catchment areas as there is not space on site to increase impermeable surfaces.
- 2no. Permeable Paving Units;
    - Paving surrounding building: Plan area of 113.4m^2, subbase depth of 250mm (clean crushed stone subbase with 30% porosity, 8.565m^3 storage provided. Taking flows from the roof areas and the paving itself (total inflow area of 370m^2). Fit with a 100mm outlet pipe.
    - Parking area: Plan area of 28.75m^2, subbase depth of 400mm (clean crushed stone subbase with 30% porosity, 3.448m^3 storage provided. Taking flows from the parking area and the paving itself (total inflow area of 100m^2). Fit with a 75mm orifice outlet.
- 1no. geocellular storage tanks
    - Geocellular Tank 1: 27.2m^2 plan area, 0.8m height, 95% porosity and a total storage volume of 21.939m^3. Tank to be fit with a 34mm orifice flow (or similar) restricting discharge to a maximum of 2.0l/s.

3.24. The Environment Agency Peak Rainfall Climate Change Allowance guidance was reviewed and subsequently the DEFRA Peak Rainfall Allowances Map was assessed to determine appropriate climate change allowances to inform the surface water drainage strategy. The upper end allowances for the Irwell Management Catchment have been used for both the 1% and 3.3% annual exceedance probability events for the 2070s epoch (2061 to 2125 – 45% and 40% respectively for the 1% and 3.3% events).

3.25. The system is designed to manage runoff from up to and including the 1 in 100 (+45% allowance for climate change) storm event.

3.26. Table 4 summarises the simulation criteria for the InfoDrainage model.

Table 4: Simulation Criteria

Catchment Area Simulation Parameters	
Rainfall Data	FEH22
Total Area	0.046 Ha (no urban creep allowance is included in this analysis as there is minimal space within the site for urban creep)
Return Periods	2, 30, 30+40% for climate change, 100, 100 +45% for Climate Change. Summer and Winter
Storm Durations	15, 30, 60, 120, 240, 360, 480, 600, 720, 960, 1440, minute
Volumetric Runoff Coefficient	1.0 (summer and winter storms)
Percentage Impervious	100%
Time of Concentration	5 minutes

3.27. The full calculation outputs can be found in Appendix D of this report although the 1in100year +45% climate change results have been summarised below:

- The maximum flow rate into the combined water sewer would be 2.0l/s for the critical storm event (120 minute summer).
- The maximum depth in the 0.8m deep geocellular storage unit would be 0.795m for the critical storm event (120 minute summer).
- The maximum depth in the 250mm permeable paving subbase (Permeable Paving Surrounding Building) would be 224mm for the critical storm event (30 minute summer).
- The maximum depth in the 400mm permeable paving subbase (Parking Permeable Paving) would be 369mm for the critical storm event (60 minute summer).
- No flooding is observed in the critical storm event based on the InfoDrainage model.

3.28. As such, these results indicate that the runoff from the proposed development could be accommodated within a drainage system of the approximate size modelled, with surface water runoff restricted to 2.0l/s.

Water Quality

Pollution Hazard Indices

3.29. Runoff from the proposed roof areas is considered low contamination risk and does not usually warrant any significant treatment. According to the SuDS Manual Table 26.2[7], roofs have a low pollution hazard level with hazard indices for Total Suspended Solids, Metals, and Hydrocarbons of 0.2, 0.2, and 0.05, respectively. The car park is considered a 'low trafficked road' and has a low pollution hazard level with hazard indices for Total Suspended Solids, Metals, and Hydrocarbons of 0.5, 0.4, and 0.4, respectively (as shown in Table 5).

Table 5: Pollutant Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Proposed roof Areas	Very Low	0.2	0.2	0.05
Low Trafficked Roads	Low	0.5	0.4	0.4

SuDS Mitigation Indices

3.30. According to the CIRIA SuDS Manual Table 26.3 the mitigation indices for permeable paving for total suspended solids, metals and hydrocarbons is 0.7, 0.6, and 0.7 respectively (Table 6). As such, all areas should drain via permeable paving to ensure sufficient treatment.

Table 6: Pollution Mitigation Indices

SuDS Feature	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.5

Maintenance

3.31. Table 7 presents details regarding the maintenance requirements for the proposed SuDS included as part of the development, taken from the CIRIA C753 The SuDS manual. Each manufacturer will have bespoke requirements however the below should be used as a guide.

[7] **https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C753**

All SuDS are to be maintained by the property owner; the name of the property owner is to be provided at the next stage of design.

Table 7: Specific SuDS Maintenance Requirements (Source: CIRIA SuDS Manual)

Maintenance Schedule	Required Action	Typical Frequency
Geocellular Storage		
Regular Maintenance	Inspect and identify any area that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial Actions	Repair/ rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/ check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required
Permeable Paving		
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations
Occasional Maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphospate applied directly into the weeks by an applicator rather than a sprayer	As required
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required

	Rehabilitation of surface and upper structure by remedial sweeping	Every 10 to 15 years as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48hr after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Designing for Exceedance

3.32. Exceedance events are those greater than the design rainfall event, i.e. greater than the 100 year rainfall event plus 45% increase for climate change.

3.33. Periods of exceedance occur when the rate of surface water runoff exceeds the drainage system capacity. Conveyance beneath ground cannot, generally, be economically or sustainably constructed to the scale required for the most extreme rainfall events. This may result, on occasion, in the surface water runoff exceeding the capacity of the drainage network, with excess water (exceedance flow) being conveyed above ground.

3.34. For situations where extreme rainfall intensity exceeds inlet capacities, or for extreme storm events exceeding the design flood event considered for drainage design, exceedance flows should flow away from the buildings on site into the highway drainage systems.

4. Conclusions

4.1. This SWDS has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at 27-29 Middleton Road, Manchester, M8 5DT. It has been written to support a planning application and prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.

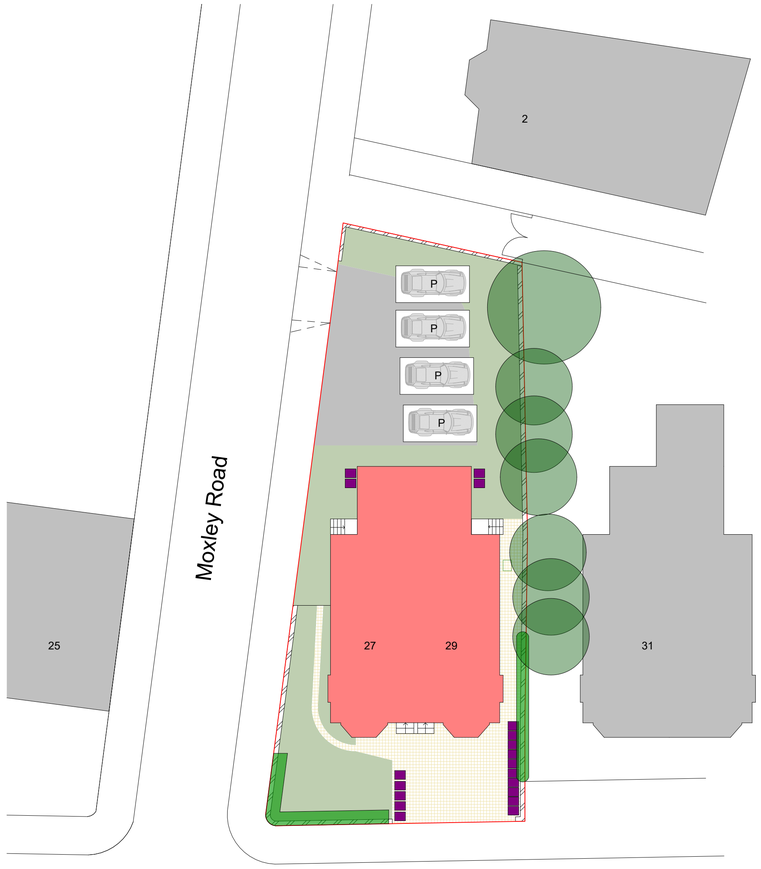
4.2. The full calculation outputs can be found in Appendix D of this report although the 1in100year +45% climate change results have been summarised below:

- The maximum flow rate into the combined water sewer would be 2.0l/s for the critical storm event (120 minute summer).
- The maximum depth in the 0.8m deep geocellular storage unit would be 0.795m for the critical storm event (120 minute summer).
- The maximum depth in the 250mm permeable paving subbase (Permeable Paving Surrounding Building) would be 224mm for the critical storm event (30 minute summer).
- The maximum depth in the 400mm permeable paving subbase (Parking Permeable Paving) would be 369mm for the critical storm event (60 minute summer).
- No flooding is observed in the critical storm event based on the InfoDrainage model.

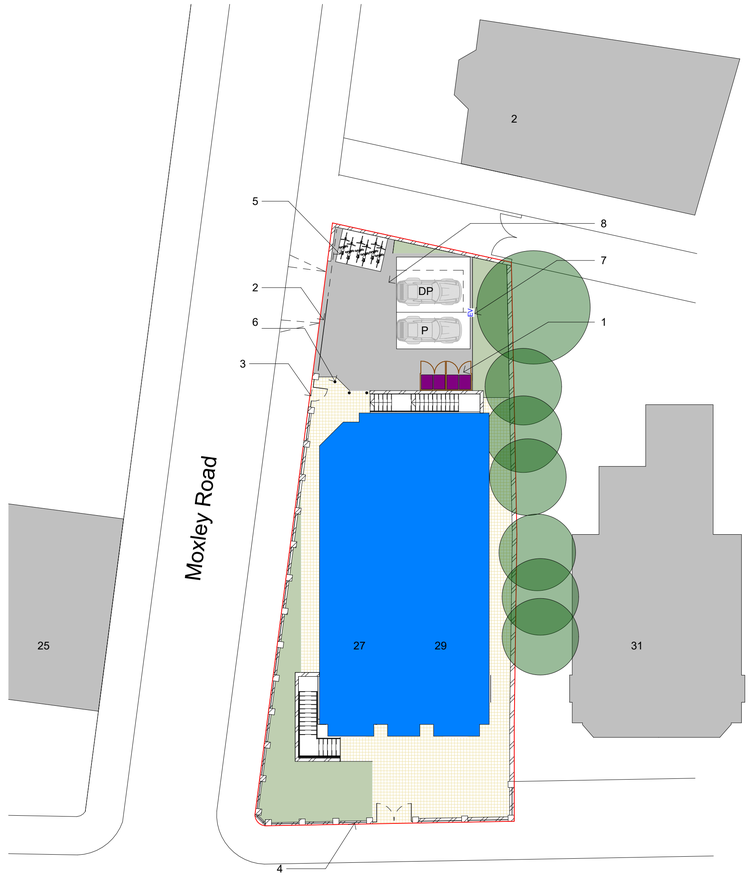
4.3. As such, these results indicate that the runoff from the proposed development could be accommodated within a drainage system of the approximate size modelled, with surface water runoff restricted to 2.0l/s.

4.4. This Surface Water Drainage Strategy should be submitted as part of the planning application to satisfy the requirements under NPPF.

Appendix A - Development Proposals



1 Site - Exisitng
1 : 200



2 Site - Proposed
1 : 200

Site Key

- Grass
- Paving Stones
- Driveway
- Timber Fencing
- Brickwork
- Hedges
- Trees
- P — Parking
- Existing Building
- Proposed Building
- 240 L Bins
- Steel Bollard
- Existing Dropped Curb
- EV — Electrical Vehicle charging point (See Below)



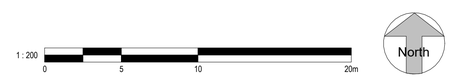
EV Product Information:

Pod Point PP-A-210051-1 Freestanding
Mount for Solo 3 EV Chargers

1 - 4x240 Litre waste bins located inside wooden bin store
2 - Sliding gate to provide secure parking
3 - New metal pedestrian gate and fencing
4 - New Brick wall, pillar and fencing to archive 1800mm in height
5 - Cycle shelter for 6No bikes
6 - Dome topped steel ballads
7 - 1No electrical vehicle parking spaces with 1No Disabled parking space. (See Specification)
8 - Parking surface to be laid with permable paving slabs

Landscaping Notes:

Grass areas to be re laid where needed.
All Hard landscapping surfaces to be permeable paving



No.	Description	Date	Initial

PROJECT
27-29 Middleton Road

TITLE
Site - Existing & Proposed

STATUS
DESIGN

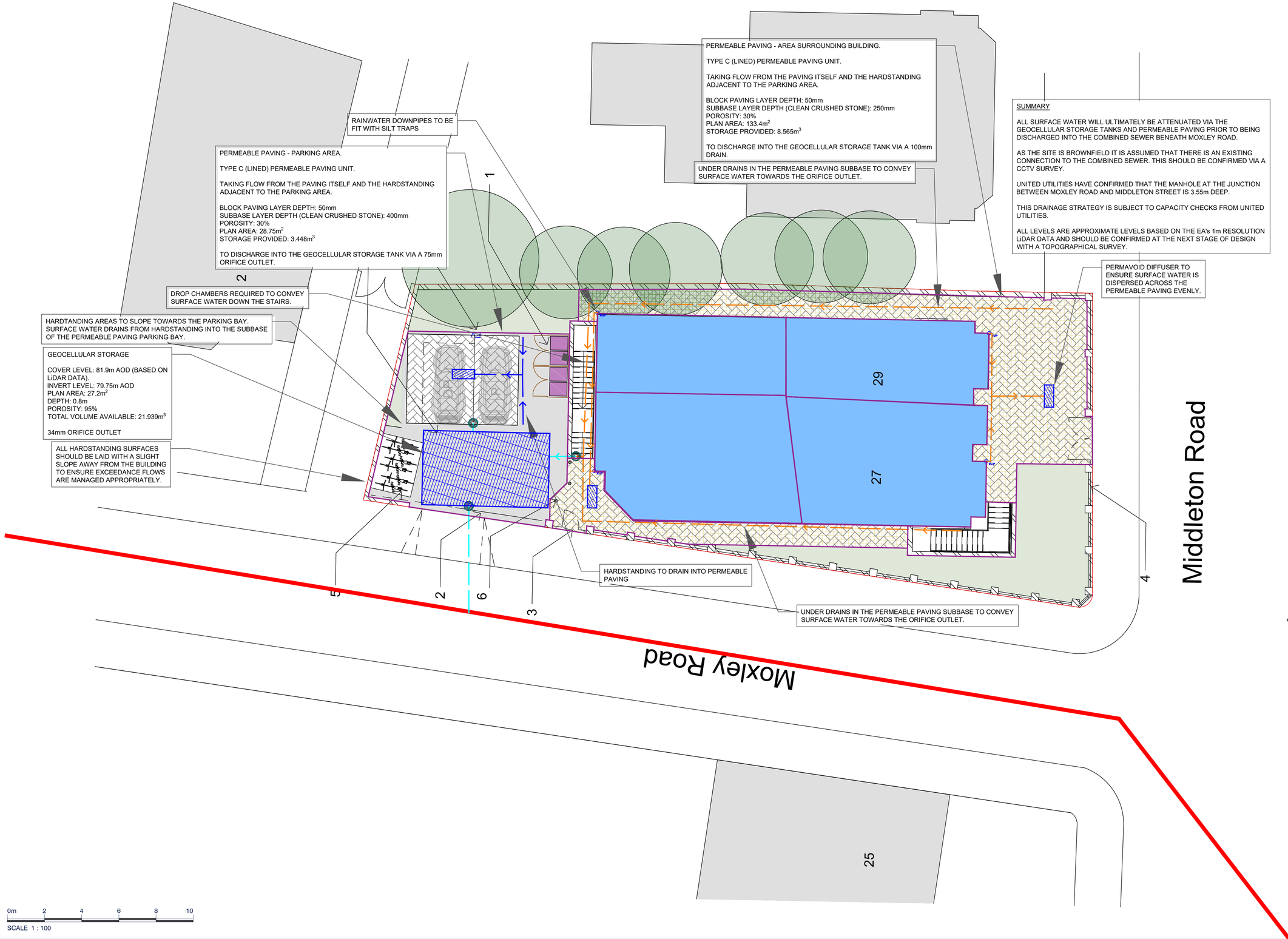
DRAWN BY	DATE	SCALE (@ A1)
CB	22/12/2025	As indicated

PROJECT NUMBER	DRAWING NUMBER	REV
GSS24118.12	502	

GOLD SKETCH
S T U D I O S
www.goldsketch.co.uk info@goldsketch.co.uk 0161 792 9595

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Appendix B - Surface Water Drainage Layout



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IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR, WORKING WHERE APPROPRIATE TO AN APPROVED METHOD STATEMENT.

DRAFT

LEGEND

- FILTER DRAIN
- ACO-DRAIN
- PROPOSED SURFACE WATER DRAIN
- PUBLIC COMBINED SEWER
- ORIFICE FLOW CONTROL
- SURFACE WATER MANHOLE
- GEOCELLULAR STORAGE TANK
- RAINWATER PIPE
- EXCEEDANCE FLOW
- PERMAVOID DIFFUSER
- PERMEABLE PAVING
- CATCHMENT AREA

Rev	Date	Description	By
1.02	02/04/2026	SURFACE WATER DRAINAGE LAYOUT	JA

Client
GOLD SKETCH STUDIOS

Project
SURFACE WATER DRAINAGE LAYOUT

Title
27-29 MIDDLETON ROAD, MANCHESTER, M8 5DT

Project No.	Drawing No.	Revision
AEG9908	DR01	1.02

Drawn	Checked	Approved	Date	Scale @ A1
JA	DMC	OH	02/04/2026	1:100

Drawing Status
FOR PLANNING ONLY

aegaea
water, civils and environment

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Appendix C - United Utilities Asset Plans

United Utilities
Water for the North West

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: 9908
Our Ref: UUPS-ORD-702689
Date: 22/01/2026

Aegaea

66
Swaledale Road,
Warminster,
BA12 8FJ

FAO:

Dear Sirs

Location: 27 MIDDLETON ROAD, MANCHESTER, M8 5DT

I acknowledge with thanks your request dated 20/01/2026 for information on the location of our services.

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

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

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

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

If you have any queries regarding this matter please contact us .

Yours Faithfully,

[redacted]

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

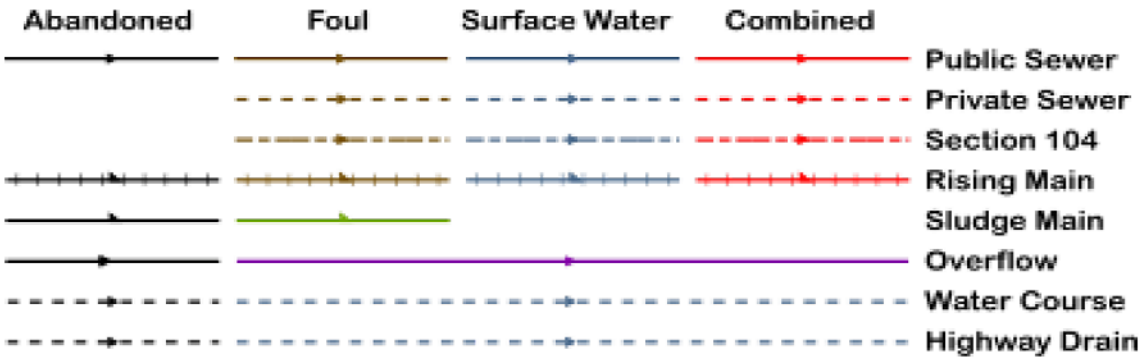
TERMS AND CONDITIONS:

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

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

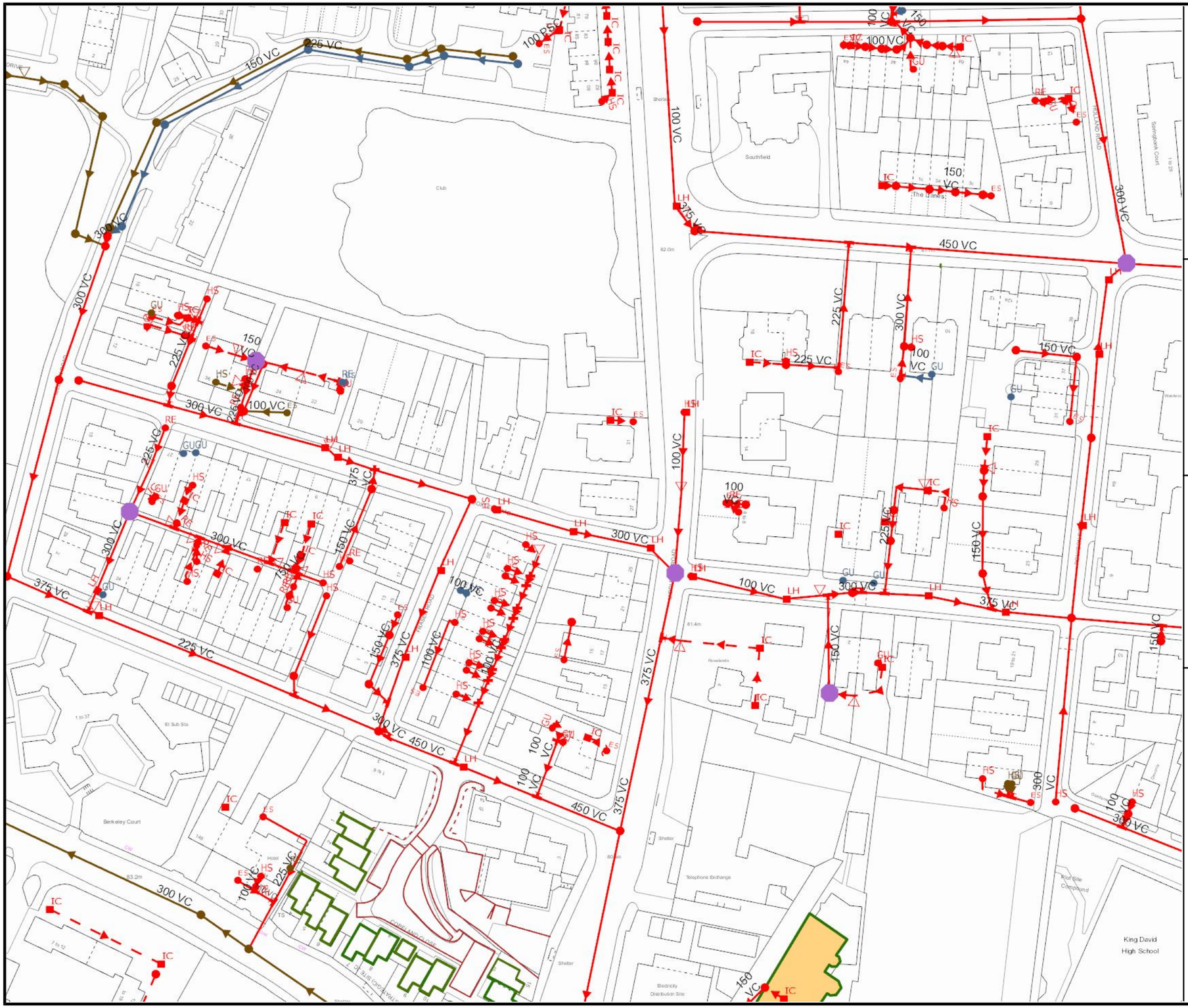
United Utilities
Water for the North West

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- VC Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic



United Utilities

Water for the North West

SEWER RECORDS

Address or Site Reference

27 MIDDLETON ROAD,
MANCHESTER,
M8 5DT

Scale: 1:1250

Date: 22/01/2026

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Appendix D - InfoDrainage Results

Brownfield

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Aegaea			

Catchment Area

Type : Catchment Area

Area (ha)	0.042

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: Aegaea		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area			Time of Concentration	0.042	100	0	100	0.042
TOTAL		**0.0**		**0.042**				**0.042**

AEG9908_M8_Manchester_05:	Date:		
27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Designed by: JA	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address: Aegaea		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Aegaea			

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 2 years: +0 %: 15 mins: Summer	0.04	7.8	3.534

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Aegaea			

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 30 years: +0 %: 15 mins: Summer	0.04	17.1	7.722

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Aegaea			

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 100 years: +0 %: 15 mins: Summer	0.04	21.7	9.774

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Aegaea		

FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 30 years: +40 %: 15 mins: Summer	0.04	24.0	10.809

AEG9908_M8_Manchester_05: 27-29 Middleton Road, Manchester, M8 5DT Brownfield Calculations Gold Sketch Studios	Date: 05/02/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Aegaea			

FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Catchment Area	FEH: 100 years: +45 %: 15 mins: Summer	0.04	31.4	14.172

Proposed

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Aegaea		



Hardstanding

Type : Catchment Area

Area (ha)	0.009

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	0.750
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Roof Catchment 4

Type : Catchment Area

Area (ha)	0.005

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Roof catchment 3

Type : Catchment Area

Area (ha)	0.007

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Roof Catchment 2

Type : Catchment Area

Area (ha)	0.004

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Roof Catchment 1

Type : Catchment Area

Area (ha)	0.007

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Paving

Type : Catchment Area

Area (ha)	0.014

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	1.000
Winter Volumetric Runoff	1.000
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Aegaea		



Permeable Paving Surrounding Building

Type : Porous Paving

Dimensions

Exceedance Level (m)	81.100
Depth (m)	0.300
Base Level (m)	80.800
Paving Layer Depth (mm)	50
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	10.650
Long. Slope (1:X)	10000.00
Width (m)	10.650
Total Volume (m³)	8.565

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Paving
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Roof Catchment 4
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Lateral Inflow
Incoming Item(s)	Roof Catchment 2
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Lateral Inflow
Incoming Item(s)	Roof catchment 3
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)

Inlet Type	Lateral Inflow
Incoming Item(s)	Roof Catchment 1
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (1)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	500.0

Parking Permeable Paving Type : Porous Paving

Dimensions

Exceedance Level (m)	81.816
Depth (m)	0.450
Base Level (m)	81.366
Paving Layer Depth (mm)	50
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	5.360
Long. Slope (1:X)	2000.00
Width (m)	5.360
Total Volume (m³)	3.448

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Hardstanding
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Orifice
Diameter (m)	0.075
Coefficient of Discharge	0.600
Invert Level (m)	81.366

Advanced

Conductivity (m/hr)	500.0

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Aegaea			



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	81.817
Depth (m)	0.800
Base Level (m)	79.750
Number of Crates Long	10
Number of Crates Wide	17
Number of Crates High	2
Porosity (%)	95
Crate Length (m)	0.4
Crate Width (m)	0.4
Crate Height (m)	0.4
Total Volume (m³)	21.939

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Pipe
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Orifice
Diameter (m)	0.034
Coefficient of Discharge	0.600
Invert Level (m)	79.750

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: Aegaea		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Hardstanding	Parking Permeable Paving		Time of Concentration	0.009	100	0	100	0.009
Paving	Permeable Paving Surrounding Building		Time of Concentration	0.014	100	0	100	0.014
Roof Catchment 1	Permeable Paving Surrounding Building		Time of Concentration	0.007	100	0	100	0.007
Roof Catchment 2	Permeable Paving Surrounding Building		Time of Concentration	0.004	100	0	100	0.004
Roof catchment 3	Permeable Paving Surrounding Building		Time of Concentration	0.007	100	0	100	0.007
Roof Catchment 4	Permeable Paving Surrounding Building		Time of Concentration	0.005	100	0	100	0.005
TOTAL		**0.0**		**0.046**				**0.046**

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address: Aegaea			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH

Type: FEH

Site Location	GB 383589 402355 SD 83589 02355
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	0.000
30.0	40.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Permeable Paving Surrounding Building	FEH: 2 years: +0 %: 60 mins: Summer	80.866	80.827	0.065	0.027	4.1	1.722	0.000	3.3	0.000	4.722	79.898	OK
Cellular Storage	FEH: 2 years: +0 %: 240 mins: Summer	79.928	79.928	0.178	0.178	2.4	4.600	0.000	0.9	0.000	10.375	79.031	OK
Parking Permeable Paving	FEH: 2 years: +0 %: 120 mins: Summer	81.479	81.430	0.111	0.064	0.8	0.749	0.000	0.4	0.000	1.527	78.286	OK

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FEH: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Permeable Paving Surrounding Building	FEH: 30 years: +0 %: 30 mins: Summer	80.921	80.843	0.120	0.043	10.4	3.077	0.000	7.8	0.000	8.383	64.077	OK
Cellular Storage	FEH: 30 years: +0 %: 120 mins: Summer	80.140	80.140	0.390	0.390	6.6	10.085	0.000	1.4	0.000	13.238	54.030	OK
Parking Permeable Paving	FEH: 30 years: +0 %: 60 mins: Summer	81.573	81.515	0.205	0.149	2.2	1.523	0.000	0.9	0.000	2.494	55.826	OK

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
	Designed by: JA	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FEH: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Permeable Paving Surrounding Building	FEH: 100 years: +0 %: 30 mins: Summer	80.952	80.849	0.151	0.049	13.3	3.786	0.000	10.1	0.000	10.849	55.802	OK
Cellular Storage	FEH: 100 years: +0 %: 120 mins: Summer	80.265	80.265	0.515	0.515	7.9	13.318	0.000	1.6	0.000	15.788	39.296	OK
Parking Permeable Paving	FEH: 100 years: +0 %: 60 mins: Summer	81.625	81.567	0.257	0.202	2.9	1.976	0.000	1.1	0.000	3.261	42.690	OK

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026		
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Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FEH: 30 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Permeable Paving Surrounding Building	FEH: 30 years: +40 %: 30 mins: Summer	80.966	80.851	0.165	0.051	14.5	4.098	0.000	10.9	0.000	12.005	52.159	OK
Cellular Storage	FEH: 30 years: +40 %: 240 mins: Summer	80.332	80.332	0.582	0.582	6.5	15.034	0.000	1.7	0.000	27.343	31.473	OK
Parking Permeable Paving	FEH: 30 years: +40 %: 60 mins: Summer	81.646	81.589	0.278	0.223	3.1	2.158	0.000	1.2	0.000	3.558	37.416	OK

Gold Sketch Studios: AEG9908_M8_Manchester_05 27-29 Middleton Road, Manchester, M8 5DT Surface Water Drainage Layout	Date: 02/04/2026			
	Designed by: JA	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea			

FEH: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Permeable Paving Surrounding Building	FEH: 100 years: +45 %: 30 mins: Summer	81.025	80.861	0.224	0.061	19.2	5.308	0.000	14.0	0.000	16.131	38.027	OK
Cellular Storage	FEH: 100 years: +45 %: 120 mins: Summer	80.545	80.545	0.795	0.795	11.2	20.546	0.000	2.0	0.000	20.522	6.352	OK
Parking Permeable Paving	FEH: 100 years: +45 %: 60 mins: Summer	81.737	81.685	0.369	0.319	4.2	2.962	0.000	1.4	0.000	4.838	14.072	OK