



HBL ASSOCIATES LTD
DRAINAGE MAINTENANCE

For
SAW MILLS,
ALBION ROAD, NEW MILLS

On Behalf Of
Treville Properties

HBL Ref: 8492-HBL-00-XX-RP-D-0001

REV: P03



Project checking level required:

CHECKING LEVEL KEY:

- 1 – Checked by Originator
- 2 – Checked by another engineer
- 3 – Full arithmetical & theoretical check

Rev	Date	Details	Prepared By	Reviewed By
P01	Oct'21	Information	ES	HL
P02	Jul'22	Information	ES	LM
P03	May'23	Updated in line with revised plan P05	ES	LM

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The information presented in this document and all conclusions drawn are based on statistical data and are for guidance purposes only. The report does not guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of the water levels, flow rates and associated probabilities.

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1. INTRODUCTION

- 1.1 The proposed drainage system for the residential development at Saw Mills, Albion Road, New Mills adopts a series of measures to control/reduce the rate of storm water discharge and the quality of the water in line with current practice.
- 1.2 It is important that the drainage system is maintained to ensure that all elements including the SuDS components operate effectively for their lifetime.
- 1.3 This drainage maintenance plan will be incorporated within the Operation and Maintenance (O&M) manual for the site and should be accessible to those who are responsible and undertake maintenance.
- 1.4 This document should be read in conjunction with the site drainage drawings.

2. OPERATION AND MAINTENANCE REQUIREMENTS - GENERAL OBJECTIVES.

- 2.1 Maintenance of systems during construction and for agreed period after the development is complete will be the responsibility of the developer.
- 2.2 The developer should take all possible measures to prevent debris of any kind entering the drainage system.
- 2.3 Any specialist or proprietary products that have been specified, should be installed in accordance with the manufacturer's design and details and should be issued by the manufacturer with specific maintenance regime, which should be included within the Operation and Maintenance Manual for the site.
- 2.4 The developer will keep records of maintenance activities, silt removal operations. This information can be used to make modification to the ongoing maintenance plan which will be adopted by homeowners and Private Maintenance Company accordingly.
- 2.5 Requirements for ongoing maintenance of the drainage network within each individual unit should form part of the Operation and Maintenance Manual and will be undertaken by the owners.
- 2.6 Requirements for ongoing maintenance of the shared private drainage network elements within the development should form part of the Operation and Maintenance Manual for the site and should be undertaken by the Building Management Company. Management Company details to follow.
- 2.7 Requirements for ongoing maintenance of the existing public sewers remain responsibility of the United Utilities.

3. OVERVIEW OF MAINTENANCE

- 3.1 All drainage systems, whether piped systems or SuDS require regular maintenance, therefore a suitable maintenance strategy should be adopted to ensure that the drainage network is cleaned regularly, and the routine maintenance and cleansing regime undertaken is documented.
- 3.2 The maintenance of the SuDS system at the development should be included alongside other regular maintenance tasks and is assumed will be the responsibility of an on-site facility maintenance team.
- 3.3 A copy of final construction drainage layout (as built Drainage Plan based on post construction CCTV surveys) and detailed maintenance schedule should be provided within the Operation and Maintenance (O&M) manual for the site and should be accessible to those who undertake maintenance.
- 3.4 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- 3.5 If any areas of significant sediment deposition are identified following major storm events, a post event clean-up operation may be required including removal of litter, vegetation, sewerage debris and any larger objects.
- 3.6 Long-term management practices should include monthly sweeping of external paved areas to remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.
- 3.7 During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris and litter.
- 3.8 The table below gives an overview of typical maintenance tasks and the frequency with which they need to be undertaken.

Table 1: Drainage Systems - Typical Maintenance Tasks

DRAINAGE SYSTEMS - TYPICAL MAINTENANCE TASKS		
ACTIVITY	INDICATIVE FREQUENCY	TYPICAL TASKS
Establishment Maintenance.	Initial one-off requirement particularly for planting establishment, design specific.	- Weeding, - Watering.
Regular Maintenance.	Monthly to annually (For typical care of SuDS components).	- General inspection of inlets, outlets, control structures, suds components, - Litter and debris removal, - Grass cutting, weed and invasive plant control, - Shrub management (including pruning), - Shoreline vegetation management, - Aquatic vegetation management.
Occasional Maintenance.	Annually (Dependent on the design).	- Sediment management - Vegetation replacement, - Vacuum sweeping and brushing.
Remedial Maintenance.	As required (tasks to repair problems due to damage).	- Structure rehabilitation/ repair, - Infiltration surface reconditioning.

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- 3.9 Table 2 below gives an overview of typical key SuDS components operation and maintenance activities that will be or may be required.

Table 2: Typical key SuDS components operation and maintenance activities

TYPICAL KEY SuDS COMPONENTS OPERATION AND MAINTENANCE ACTIVITIES – Ciria C753													
OPERATION AND MAINTENANCE ACTIVITY	SuDS COMPONENTS												
	Pond	Wetland	Detention basin	Infiltration basin	Soakaway	Infiltration trench	Filter drain	Modular storage	Pervious pavement	Swale/bioretention/trees	Filter strip	Green roofs	Proprietary treatment systems
Regular maintenance													
Inspection													
Litter and debris removal													
Grass cutting													
Weed and invasive plant control													
Shrub management (including pruning)													
Shoreline vegetation management													
Aquatic vegetation management													
Occasional maintenance													
Sediment management ¹													
Vegetation replacement													
Vacuum sweeping and brushing													
Remedial maintenance													
Structure rehabilitation/repair													
Infiltration surface reconditioning													

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Key:

-  Will be required
-  May be required

Notes: ¹ Sediment should be collected and managed in pre-treatment systems, upstream if the main device.

4. SITE DRAINAGE COMPONENTS

4.1 The following components have been included within the drainage design for the proposed development:

- Inlets, outlets, gratings, drainage channels and gullies,
- Pipes,
- Access points - Inspection chambers, manholes,
- Infiltration tank,
- Permeable surfaces,
- Land drains,
- Filter drains,
- Bioretention systems, raingardens,
- Proprietary systems.

Inlets, outlets, gratings, drainage channels and gullies

- 4.2 Inlets and outlets to be inspected monthly for damage, blockage, and silt accumulation. Remove all debris and silt from apron where present. Strim 1m area around structure where in grass or sweep to ensure unrestricted access.
- 4.3 Gratings – inspect monthly to check for damage, blockages, and silt accumulation. Remove all debris and silt from apron below grating where present. Evaluate requirements to rod, jet pipe run at each inspection and annually after leaf fall. Strim 1m area around structure where in grass.
- 4.4 Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned using a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.
- 4.5 Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.
- 4.6 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated area such as the car park channels.

Table 3: Inlets, outlets, gratings, drainage channels and gullies - Typical Maintenance

INLETS, OUTLETS, GRATINGS, DRAINAGE CHANNELS AND GULLIES – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Monitoring (to be undertaken more frequently within the first year of operation and adjusted as required).	Initial Inspection.	Half yearly and after large storms.
Regular inspection/ maintenance.	Litter/debris removal.	Monthly or as required.
	Inspect and remove vegetation/weed growth near channel runs.	Monthly or as required.
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving.	Every 3 months, 24-48 hours after large storm.
Remedial Maintenance.	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

Pipes

- 4.7 Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. All manufacturer's products data sheets and recommendations should be included within the Operation and Maintenance (O&M) manual for the site and should be accessible to those who undertake maintenance.
- 4.8 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.
- 4.9 Access for maintenance is provided through access chambers and manholes.
- 4.10 Regular inspection and maintenance is important to identify areas which may have been obstructed and may not be functioning correctly.

Table 4: Pipes - Typical Maintenance

PIPES – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Monitoring (to be undertaken more frequently within the first year of operation and adjusted as required).	Initial Inspection should be as part of the post construction CCTV survey.	Post construction CCTV survey.
Regular inspection/maintenance.	Inspect for evidence of poor operation by assessing water level in access chambers. If required, take remedial action.	Every 3 months, 24-48 hours after large storm.
Remedial Maintenance.	Rod through poorly performing pipe runs as initial remediation.	As required.
	If poor performance continuous jet and CCTV survey.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue, location, pipe material.	As required.

Access points - inspection chambers and manholes

- 4.11 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.
- 4.12 Inspect monthly and after major storms during year 1 to check for damage and blockages.
- 4.13 Annual inspection after leaf fall thereafter removing all accumulated debris and silt. Check control tubes flow freely.
- 4.14 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access.

Silt traps and sump units

- 4.15 Maintenance to be undertaken strictly according to manufacturer's specification and details. As a general guide, the following typical maintenance schedule is presented within table below:

Table 5: Silt Traps and sump units - Typical Maintenance

SILT TRAPS – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Routine maintenance.	Inspection	Monthly.
	Litre/debris removal.	Monthly or as required.
Occasional Maintenance.	Sediment removal - Silt baskets, catchpits should be emptied and/or filters changed.	6 monthly or as required.
Remedial Maintenance.	Repair (as a result of damage).	As required.

Infiltration structure

- 4.16 Regular inspection and maintenance are important for the effective operation of attenuation tanks as designed. As the feature is buried, a regular inspection regime is very important to ensure the correct functionality of the surface water drainage network.
- 4.17 Maintenance to be undertaken strictly according to manufacturer's specification and details. As a general guide, the following typical maintenance schedule is presented within table below:

Table 6: Infiltration Tanks - Typical Maintenance

INFILTRATION STRUCTURE – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Regular Maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection chamber and inside of the infiltration structure. If required, take remedial action.	Annually (or as required after large storm)
	Remove debris from catchment surfaces (where it may cause risks to performance), cleaning of gutters any filters on downpipes.	Annually (or as required after large storm)
	Trimming any roots that may be causing blockages.	Annually or as required.
	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.
Occasional Maintenance	Remove sediment from pre-treatment structures and/ or internal forebays, floor of inspection chamber and inside of tank.	Annually, or as required based on inspections.
Remedial Maintenance	Repair/rehabilitate inlets, outlet, overflows, and vents.	As required.
	Reconstruct infiltration tank if performance deteriorates or failure occurs. Replacement of clogged geotextile (will require reconstruction of infiltration tanks).	As required.
Monitoring.	Inspect/check all inlets, outlets, vents, and overflows to ensure that they are in good condition and operating as designed.	Annually.
	Inspect silt traps and note rate of sediment accumulation.	Monthly in the first year and the annually.
	Check infiltration tank to ensure emptying is accruing.	Annually (or as required after large storm)
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required.

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Permeable surfaces

- 4.18 Many of the specific maintenance activities for permeable surfaces can be undertaken as part of the general site cleaning contract.
- 4.19 A routine management and maintenance programme to keep the surface in good condition and free of debris and weed growth, will help to sustain the porosity, quality, and longevity of the system.
- 4.20 The SuDS Manual indicates that sweeping once per year is sufficient for most sites, however the sweeping frequency should be adjusted to suit site specific conditions and should also be informed by annual inspection reports.
- 4.21 Maintenance to be undertaken strictly according to paving manufacturer's specification and details. As a general guide, the following typical maintenance schedule is presented within table below:

Table 8: Permeable Surfaces - typical Maintenance

PERMEABLE SURFACES - TYPICAL MAINTENANCE		
MAINTENANCE	REQUIRED ACTION	TYPICAL FREQUENCY
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 - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediments.
Occasional Maintenance.	Stabilise and mow contributing and advancement areas.	As required.
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than	As required – once per year on less frequently used pavements.
Remedial Actions.	Remediate any landscaping which through vegetation maintenance or soil slip, has been raised to within 50 mm 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 or 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, 48h after large storms in first six months.
	Inspect silt accumulation rates and establish appropriate brushing	Annually.
	Monitor inspection chambers.	Annually.

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Land drains

4.22 Access for maintenance has been provided through access chambers and rodding points. Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the land drains and the upstream/downstream chambers.

Table 9: Land drains

LAND DRAINS – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including incoming channel outlet boxes.	Half yearly and after large storms.
Regular Maintenance/Inspection.	Litter/debris removal.	Monthly or as required
	Remove sediment from pre-treatment structures.	Monthly or as required
Remedial Action	Replace geotextiles and clean and replace filter media, if clogging occurs. Terram 1000 typical design life is 25 years.	As required.
	Excavate trench walls to expose clean soils if infiltration performance reduces to unacceptable levels.	As required.

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Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.

Filter drains

- 4.23 Many of the specific maintenance activities for filter drains can be undertaken as part of the general site cleaning contract.
- 4.24 A routine management and maintenance programme to keep the surface in good condition and free of debris and weed growth, will help to sustain the porosity, quality, and longevity of the system.
- 4.25 As a general guide, the following typical maintenance schedule is presented within table below:

Table 10. Filter drains - Typical Maintenance

FILTER DRAINS – TYPICAL MAINTENANCE		
MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
Regular maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices.	Monthly or as required.
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage.	Monthly
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation and establish appropriate silt removal frequencies.	Six monthly
	Remove sediment from pre-treatment devices.	Six monthly, or as required
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (e.g. NJUG, 2007 or BS 3998:2010).	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium.	Five yearly, or as required
	Clear perforated pipework of blockages.	As required

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Bioretention systems, raingardens

- 4.26 Bioretention system will require regular maintenance to ensure continuing operation to the design performance standards.
- 4.27 Maintenance plans and schedules will be developed during the detailed design phase. As a general guide, the following typical maintenance schedule is presented within table below:

Table 11. Bioretention systems, raingardens – Typical Maintenance

BIORETENTION SYSTEMS, RAINGARDENS – TYPICAL MAINTENANCE		
MAINTENANCE	REQUIRED ACTION	TYPICAL FREQUENCY
Regular Inspections.	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance necessary.	Quarterly.
	Check operation of underdrains by inspection of flows after rain.	Annually.
	Assess plants for disease infection, poor growth, invasive species etc, and replace as necessary.	Quarterly.
Occasional maintenance.	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or aesthetic reasons).
	Replace any plants to maintain planting density.	As required.
	Remove sediment, litter, and debris build-up from around inlets or from forebays.	Quarterly to biannually.
Remedial maintenance.	Infill any holes or scour in the filter medium, improve erosion protection if required.	As required.
	Repair minor accumulations of silt by raking away surface, mulch, scarifying surface or medium and replacing mulch.	As required.
	Remove and replace filter medium and vegetation above.	As required but likely to be > 20 years.

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Proprietary systems

- 4.28 Proprietary systems will require regular maintenance to ensure continuing operation to the design performance standards.
- 4.29 Maintenance to be undertaken strictly according to manufacturer's specification and details.
- 4.30 As a general guide, an example of operation and maintenance requirements for proprietary treatment system is presented within the table below:

Table 12. Proprietary systems – Typical Maintenance

PROPRIETARY SYSTEMS – TYPICAL MAINTENANCE		
MAINTENANCE	REQUIRED ACTION	TYPICAL FREQUENCY
Routine maintenance.	Remove litter and debris and inspect for sediment, oil, and grease accumulation.	Six monthly.
	Change the filter media.	As recommended by manufacturer.
	Remove sediment, oil, grease and floatable.	As necessary - indicated by system inspections or immediately following significant spill.
Remedial Actions.	Replace malfunctioning parts or structures.	As required.
Monitoring.	Inspect for evidence of poor operation.	Six monthly.
	Inspect filter media and establish appropriate replacement frequencies.	Six monthly.
	Inspect sediment accumulation rates and establish appropriate removal frequencies.	Monthly during first half year of operation, then every six months.

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APPENDIX 1 – PROPOSED DRAINAGE STRATEGY PLAN
8492-HBL-XX-XX-DR-D-0404 (P05).

APPENDIX 2 – UU SEWER RECORDS

**Peter Mason Associates
Goodyear Business Park
New Street
Mawdesley, Near Ormskirk
Lancashire
L40 2QP**

FAO: Steve Douglas

Dear Sirs

Location: FORMER SAWMILLS ALBION ROAD NEW MILLS HIGH PEAK SK22 3JP

I acknowledge with thanks your request dated 17/03/16 for information on the location of our services.

Please find enclosed plans showing the approximate position of our 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 - Wastewater & Water Distribution Plans which are shown overleaf.

I also attach United Utilities' General Condition and Information sheets regarding United Utilities wastewater network and water distribution apparatus, which details contact numbers for additional services (i.e. new supplies, connections, diversions) which we are unable to deal with at this office. You should ensure that the Condition and Information sheets are made available to anyone carrying out any works which may affect our apparatus.

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 telephone us on 0370 7510101.

Yours Faithfully,



Sue McManus
Operations Manager
Property Searches

United Utilities Water Limited

Property Searches
Ground Floor Grasmere House
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Your Ref: PMA170316
Our Ref: 14/ 1187122
Date: 22/3/2016

TERMS AND CONDITIONS - WASTERWATER & 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:

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.

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.

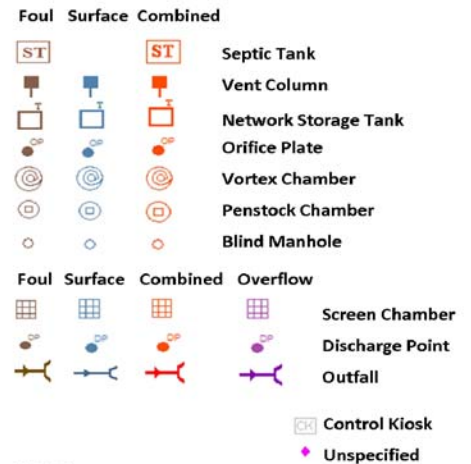
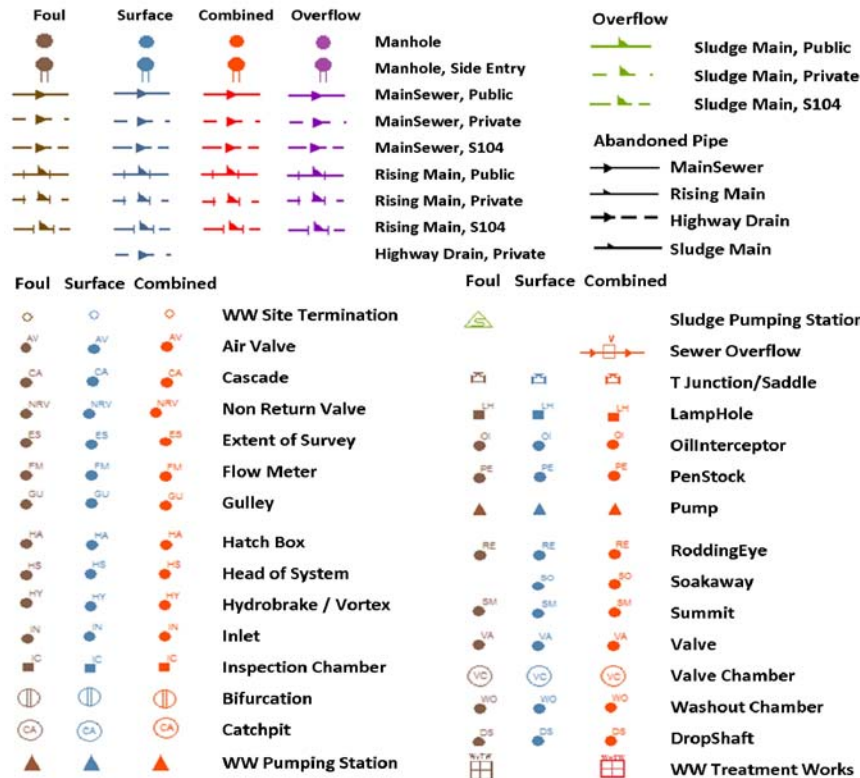
Surface water sewers coloured blue on our drawings are intended only to carry uncontaminated surface water (e.g. rainfall from roofs, etc) and they usually discharge into local watercourses. It is important for the protection of the environment and water quality that only uncontaminated surface water 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

WASTE WATER SYMBOLOGY



Legend	
MANHOLE FUNCTION	SEWER SHAPE
FO Foul	CI Circular
SW Surface Water	EG Egg
CO Combined	OV Oval
OV Overflow	FT Flat Top
	RE Rectangular
	SQ Square
	TR Trapezoidal
	AR Arch
	BA Barrel
	HO HorseShoe
	UN Unspecified
SEWER MATERIAL	
AC Asbestos Cement	DI Ductile Iron
BR Brick	VC Vitrified Clay
CO Concrete	PP Polypropylene
CSB Concrete Segment	PF Pitched Fibre
CSU Concrete Segment	MA Masonry, Coursed
CC Concrete Box Culverted	MA Masonry, Random
PSC Plastic / Steel	RP Reinforced Plastic
GR Glass Reinforced	CI Cast Iron
GRP Glass Reinforced	SI Spun Iron
PVC Polyvinyl Chloride	ST Steel
PE Polyethylene	U Unspecified

CLEAN WATER SYMBOLOGY

PIPE WORK



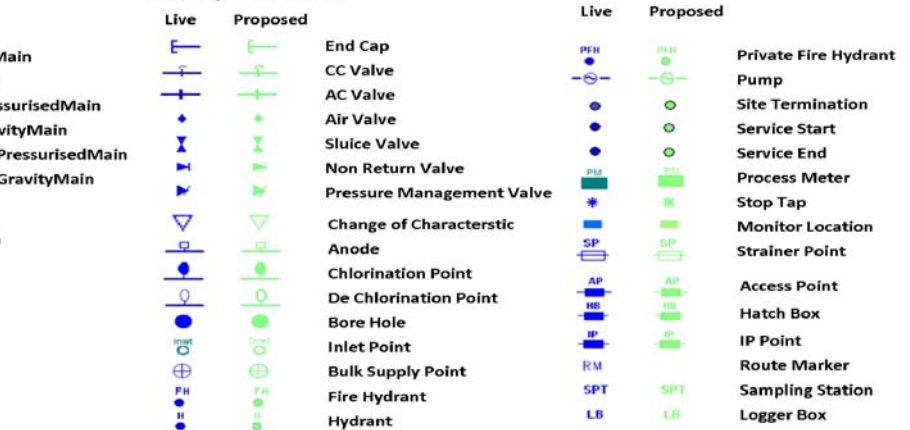
ABANDONED PIPE



PROPERTY TYPES



NODES/FURNITURES



Legend	
MATERIAL TYPES	LINING TYPES
AC ASBESTOS CEMENT	CL CEMENT LINING
CI CAST IRON	TB TAR OR BITUMEN
CU COPPER	ERL EPOXY RESIN
CO CONCRETE	
DI DUCTILE IRON	INSERTION TYPES
GI GALVANISED IRON	DD DIE DRAWN
GR GREY IRON	DR DIRECTIONAL DRILLING
OT OTHERS	MO MOLING
PB LEAD	PI PIPELINE
PV UPVC	SL SLIP LINED
SI SPUN IRON	
ST STEEL	
UN UNKNOWN	
PE POLYETHYLENE	

