

Former Merseyside Dogs Home

East Halewood

Drainage Strategy

May 2023

Project Information	
Project:	Former Merseyside Dogs Home, East Halewood
Report Title:	Drainage Strategy
Client:	BBE Developments Ltd
Instruction:	The instruction to undertake this Drainage Strategy was received from Mr Nabeil Nasr of BBE Developments Ltd
File Ref:	14506-Drainage Strategy-01

Approval Record	
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Document History		
Revision	Date	Comment
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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

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Introduction

Waterco has been commissioned to undertake a Drainage Strategy in relation to a residential development at the Former Merseyside Dogs Home, Greensbridge Lane, Halewood, L35 1QH.

From April 2015, Knowsley Council as a Lead Local Flood Authority (LLFA) is a statutory consultee for major planning applications in relation to surface water drainage, requiring that all planning applications are accompanied by a Sustainable Drainage Strategy. The aim of the Sustainable Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment.

Existing Conditions

The site covers an area of approximately 1.28ha and is located at National Grid Reference (NGR): 345615, 386610. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed May 2023) shows that the site comprises a residential property and a former dogs home with associated outbuildings, access, parking and landscaped areas. The site is bordered by Cartbridge Lane to the north, Greensbridge Lane with agricultural land beyond to the east, and Netherley Brook to the south-west. Access to the site is provided from Greensbridge Lane.

Local Topography

A topographical survey has been undertaken by Ian Strachan Ltd in January 2022. The topographical survey shows that the site slopes from 9.13 metres Above Ordnance Datum (m AOD) in the north-east to 7.67m AOD in the south-west.

Topographic levels to m AOD have also been derived from a 1m resolution Environment Agency (EA) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR levels generally reflect those shown on the topographical survey. Topographical information and LiDAR information for the site is included as Appendix B.

Ground Conditions

With reference to the British Geological Survey (BGS) online mapping (1:50,000 scale), the majority of the site is underlain by superficial deposits of Alluvium generally comprising clay, silt, sand and gravel. The north-eastern extent of the site is underlain by Devensian Till, comprising diamicton. The superficial deposits are identified as being underlain by the Wilmslow Sandstone Formation.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The closest historical BGS borehole record (BGS reference: SJ48NE18) is located 20m east of the site and is included in Appendix C together with a borehole location plan. The borehole record identifies:

- Topsoil from ground level to 0.15 metres below ground level (m.bgl);
- Sand and gravel from 0.15m.bgl to 1.01m.bgl;
- Brown clay and stone from 1.01m.bgl to 30.48m.bgl;
- Sand and gravel from 30.48m.bgl to 32.31m.bgl;
- Red sandstone from 32.21m.bgl to 152.40m.bgl.

Groundwater was observed at 22.40m.bgl.

According to the EA's Aquifer Designation data, obtained from MAGIC's online mapping [accessed April 2023], the Alluvium is classified as a Secondary A Aquifer. Secondary A Aquifers are 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The Devensian Till located in the north-eastern extent of the site is classified as a Secondary Undifferentiated Aquifer. Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

The underlying Wilmslow Sandstone Formation is described as a Principal Aquifer. Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability – meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

The EA's 'Source Protection Zones' data, obtained from MAGIC's online mapping [accessed April 2023], indicates that the southern extent of the site is located within a Zone 1 Inner Groundwater Source Protection Zone. This zone is defined by a travel time of 50-days or less from any point within the zone at, or below, the water table. Additionally, the zone has a minimum 50-metre radius. The northern extent of the site is identified within a Zone 2 Outer Groundwater Protection Zone. This zone is defined by the 400-day travel time from a point below the water table. Additionally, this zone has a minimum radius of 250 or 500 metres, depending on the size of the abstraction.

The Cranfield University 'Soilscapes' map [accessed April 2023] indicates that the site is underlain by 'Slowly permeable, seasonally wet, loamy and clayey soils.'

Local Drainage

Public sewer records have been obtained from United Utilities and are included in Appendix D. The site boundary is shown outlined in red. The United Utilities sewer records show that there is a public foul rising main immediately east of the site.

The public sewer records also show a network of public foul and surface water sewers within the residential

area west of the site and beyond Netherley Brook.

No details are currently available on the existing site drainage. It is assumed that foul flows discharge to a private treatment plant or septic tank.

Development Proposals

The proposed development is for the erection of 39no. residential properties with associated driveways, access roads and gardens. A proposed development plan is included in Appendix E.

The proposed development will include hardstanding areas in the form of buildings, access roads and parking. Hardstanding will comprise 5,790m² or 45% of the total site area. The remaining permeable, soft landscaped areas will occupy 7,010m² or 55% of the total site area. Measurements have been taken from a PDF copy of the 'Masterplan Layout' and are approximate only.

As part of the proposed development and as part of flood mitigation proposals, it is proposed to set site levels at a minimum of 8.74m AOD. Further details are provided in the Waterco Flood Risk Assessment (document reference 14506-FRA-01).

Planning Policy

The Knowsley Council Local Plan Core Strategy (adopted January 2016) contains the following policies relating to drainage:

'Policy CS24 – Managing Flood Risk

4) New development shall include flood mitigation measures, where necessary, to manage flood risk associated with or caused by the development. These measures shall be derived from the Strategic Flood Risk Assessment (SFRA), relevant FRA(s) or a local strategy for flood risk management, and:

- a) Be designed to contribute to the biodiversity of the borough unless it can be demonstrated that this would not be technically feasible;*
- b) Incorporate a Sustainable Drainage System;*
- c) Be fully described in the planning application; and*
- d) Be funded by the developer, including long term maintenance.*

5) The drainage of new development shall be designed to reduce surface water run-off rates to those associated with a green-field site by treating it at its source. The chosen method of implementation should take account of site size, ground contamination or conditions, and potential damage to adjacent buildings or sites.

10.24 – Sustainable Drainage Systems

Sustainable Drainage Systems ('SuDS') are now the expected way to manage surface water and can be used on any site. These features include green roofs, soft landscaping, permeable surfaces and/or water storage ponds. Policy CS24 will complement Part H of the Building Regulations 2010 and national legislation by requiring the use of SuDS on all sites. Further guidance on the Council's requirements concerning the use of SuDS will be set out in the 'Design Quality in New Development' or other SPD as appropriate.'

Consultation

A pre-development enquiry was submitted to United Utilities in March 2023. In their response (Appendix D), United Utilities have stated that:

'Foul Water'

Foul flow from this site will be allowed to drain into the public foul water system. Our preferred point of discharge would be to the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the waterbody located west of the proposed site. We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest

opportunity so that we can offer guidance and update our records.

Groundwater Protection

The site overlies the sandstone tock, in a Groundwater Source Protection Zone (SPZ) 1 and 2. This forms an aquifer, abstracted at depth by United Utilities for public drinking water supply at the nearby Greensbridge boreholes. The applicant should follow best practice on their use and storage of fuels, oils and chemicals to remove the risk of causing pollution during construction.

Development in SPZ1

United Utilities consider this development, taking place within SPZ1, as the most sensitive location from a groundwater protection viewpoint. Notwithstanding our strong preference for development to not take place in locations within SPZ1, if the proposed development in this location is accepted through the planning process, we draw your attention to the advice of the Environment Agency on the development in such locations 'The Environment Agency's approach to groundwater protection'.

In the event that development within SPZ1 is submitted for planning, the application must fully consider the potential pollutant risks during construction, as addressed in the Construction Environmental Management Plan (CEMP). United Utilities request to be consulted on the future development, and would expect to receive the CEMP, including Pollution Risk Assessments and Method Statements, detailing the following:

- i. Protection of surface and groundwater resources;
- ii. Best practise on the use and storage of fuels, oils and chemicals, to remove the risk of causing pollution during construction;
- iii. Traffic management on neighbouring highways and the parking of vehicles of site operatives and visitors;
- iv. Loading and unloading of plant and materials used in constructing the development;
- v. Wheel washing facilities; and
- vi. A scheme for recycling/disposing of waste resulting from demolition and construction works.

SuDS

Together with the Environment Agency, United Utilities supports the principles of sustainable drainage systems (SuDS) for new discharges. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of groundwater.

Wastewater Drainage

United Utilities support the proposal for a connection into the foul sewer network. United Utilities would not support an outfall of foul sewage to ground, from any private wastewater treatment plant given the close proximity to the abstraction well.

We would recommend the applicant follow 'The Environment Agency's approach to groundwater protection' includes the following position statements on developments within SPZ1:

G8 – Sewerage Pipework

"The Environment Agency will require the use of the highest specification pipework and designs for schemes involving new sewerage systems in SPZ1 to minimise leakage." UU recommend this includes secondary containment of the pipework, such as include clay lining sewer trenches.

Surface Water Management

The site currently comprises a residential property and a former dog's home with associated outbuildings, access, parking and landscaped areas.

The proposed development will include 5,790m² of hardstanding in the form of buildings, access roads and parking.

In order to comply with local and national drainage guidance, including the 'Non-statutory technical standards for sustainable drainage system' (March 2015), surface water runoff from the site should be restricted to the greenfield runoff rate.

Greenfield runoff rates have been estimated using the Revitalised Flood Hydrograph Model (ReFH2) method with rainfall data obtained from the FEH (Flood Estimation Handbook) web service. A summary of the greenfield runoff rates for a range of events is provided as Appendix F. The existing 1 in 1 year greenfield runoff rate for the 1.28ha development site is 6 l/s.

Attenuation Storage

In order to achieve a discharge rate of 6 l/s, attenuation storage will be required. An attenuation storage estimate is included in Appendix G. An estimated storage volume of 400m³ will be required to accommodate the 1 in 100 year plus 45% Climate Change (CC) event. The storage estimate is based on storage within a tank or pond structure, an impermeable drainage area of 5,790m², a design head of 1m and hydro-brake flow control.

The attenuation volume is provided for indicative purposes only and should be verified at the detailed design stage.

Discharge Method

Paragraph 056 of the NPPG: Flood Risk and Coastal Change sets out the following hierarchy of drainage options: into the ground (infiltration); to a surface water body; to a surface water sewer, highway drain or another drainage system; to a combined sewer.

Infiltration

The first consideration for the disposal of surface water is infiltration (soakaways and permeable surfaces).

As described above, the majority of the site is underlain by superficial deposits of Alluvium generally comprising clay, silt, sand and gravel. The north-eastern extent of the site is underlain by Devensian Till, comprising diamicton. The superficial deposits are identified as being underlain by the Wilmslow Sandstone Formation.

It is noted that site levels will be raised by up to 1m to form a minimum development platform set at 8.74m AOD and that the superficial deposits are generally impermeable in nature.

Based on the location of the site within Groundwater Source Protection Zone 1 and the impermeable nature of the underlying superficial deposits, infiltration techniques are not considered to be viable.

Watercourse

The nearest watercourse is Netherley Brook which is located immediately west of the site. Discharge to Netherley Brook, at a limited discharge rate of 6 l/s, appears to be feasible.

Based on a minimum proposed site level of 8.74m AOD, discharge by gravity to Netherley Brook (situated at approximately 6m AOD) is achievable.

Sustainable Drainage Systems

Attenuation storage should be provided in the form of sustainable drainage systems. As shown on the site layout, provision has been made for 2no. attenuation storage ponds in the southern extent of the site.

The ponds cover surface areas of 229m² and 102m² respectively. Based on 1 in 3 side slopes and a pond depth of 1.2m, resulting in a base (invert) area of 14m², the 102m² pond could provide up to 69m³ of attenuation storage. Based on 1 in 3 side slopes and a pond depth of 1.2m, resulting in a base (invert) area of 77m², the 229m² pond could provide up to 184m³ of attenuation storage. The ponds combined will therefore provide up to 253m³ of attenuation storage.

The remaining attenuation volume (up to the required 400m³) to accommodate the 1 in 100 year plus 40% CC event will be provided within oversized pipes, chambers and an attenuation storage tank (located beneath the apartment block car park) upstream of the proposed attenuation ponds. All runoff will drain via the 2no. attenuation ponds prior to discharge to Netherley Brook.

The attenuation ponds and tank will be appropriately lined to prevent discharge to the underlying aquifer and groundwater source protection zone.

Concept Surface Water Drainage Scheme

Surface water runoff will be discharged to Netherley Brook located immediately west of the site at a limited greenfield discharge rate of 6 l/s. Surface water runoff up to the 1 in 100 year plus 45% climate change allowance event will be attenuated on site. A total attenuation volume of 400m³ will be required to achieve the discharge rate and will be provided in the form of an 2no. ponds and an attenuation tank located in the southern extent of the site.

A concept drainage sketch based on discharge to Netherley Brook is included in Appendix H.

The proposed surface water drainage scheme will ensure no increase in runoff over the lifetime of the development.

Exceedance Event

Storage will be provided for the 1 in 100 year plus 45% CC event. Storm events in excess of the 1 in 100 year plus 45% CC event should be permitted to produce temporary shallow depth flooding within the access road and landscaped areas. Finished floor levels should set at a minimum of 150mm above surrounding ground levels ensuring exceedance flooding will not affect the buildings.

Surface Water Treatment

In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), residential roofs have a 'very low' pollution hazard level, with low traffic roads classified as having a 'low' pollution hazard level. Table 1 shows the pollution hazard indices for each land use.

Table 1 – Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential Roofs	Very Low	0.2	0.2	0.05
Low Traffic Roads	Low	0.5	0.4	0.4

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2

* Indices values range from 0-1.

Runoff from roofs and roads will be directed to attenuation ponds prior to discharge to Netherley Brook. Table 2 demonstrates that a pond provides sufficient treatment.

Table 2 – SuDS Mitigation Indices

Type of SuDS	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Pond	0.7	0.7	0.5

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.3

Maintenance

The proposed drainage system will be offered to United Utilities for adoption. United Utilities will then be responsible for maintenance. Should United Utilities not adopt an element of the drainage system, for example the attenuation ponds, then maintenance will be arranged through appointment of a management company.

Maintenance schedules for attenuation ponds and an attenuation tank are included in Appendix I.

Foul Drainage

Correspondence from United Utilities (Appendix D) states that:

'Foul Water

Foul flow from this site will be allowed to drain into the public foul water system. Our preferred point of discharge would be the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability. In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.'

To achieve a connection point to the 150mm diameter public foul sewer within Bridgefield Road, or to an alternative point on the gravity foul drainage network west of the site (and beyond Netherley Brook) a pumped solution and associated foul pumping station is required.

Conclusions

The proposed development is for the erection of 39no. residential properties with associated driveways, access roads and gardens.

The proposed development will include impermeable drainage area in the form of buildings, access roads and parking.

All methods of surface water discharge have been assessed. Infiltration techniques are not considered feasible due to the location of the site within Groundwater Source Protection Zone 1 and the impermeable nature of the underlying superficial deposits. Discharge of surface water to Netherley Brook, located immediately west of the site, at a limited greenfield runoff rate of 6 l/s appears to be the most practical option.

Attenuation storage will be required on site in order to restrict surface water discharge to 6 l/s. Attenuation will be provided in the form of an underground attenuation tank and 2no. ponds located in the southern extent of the site.

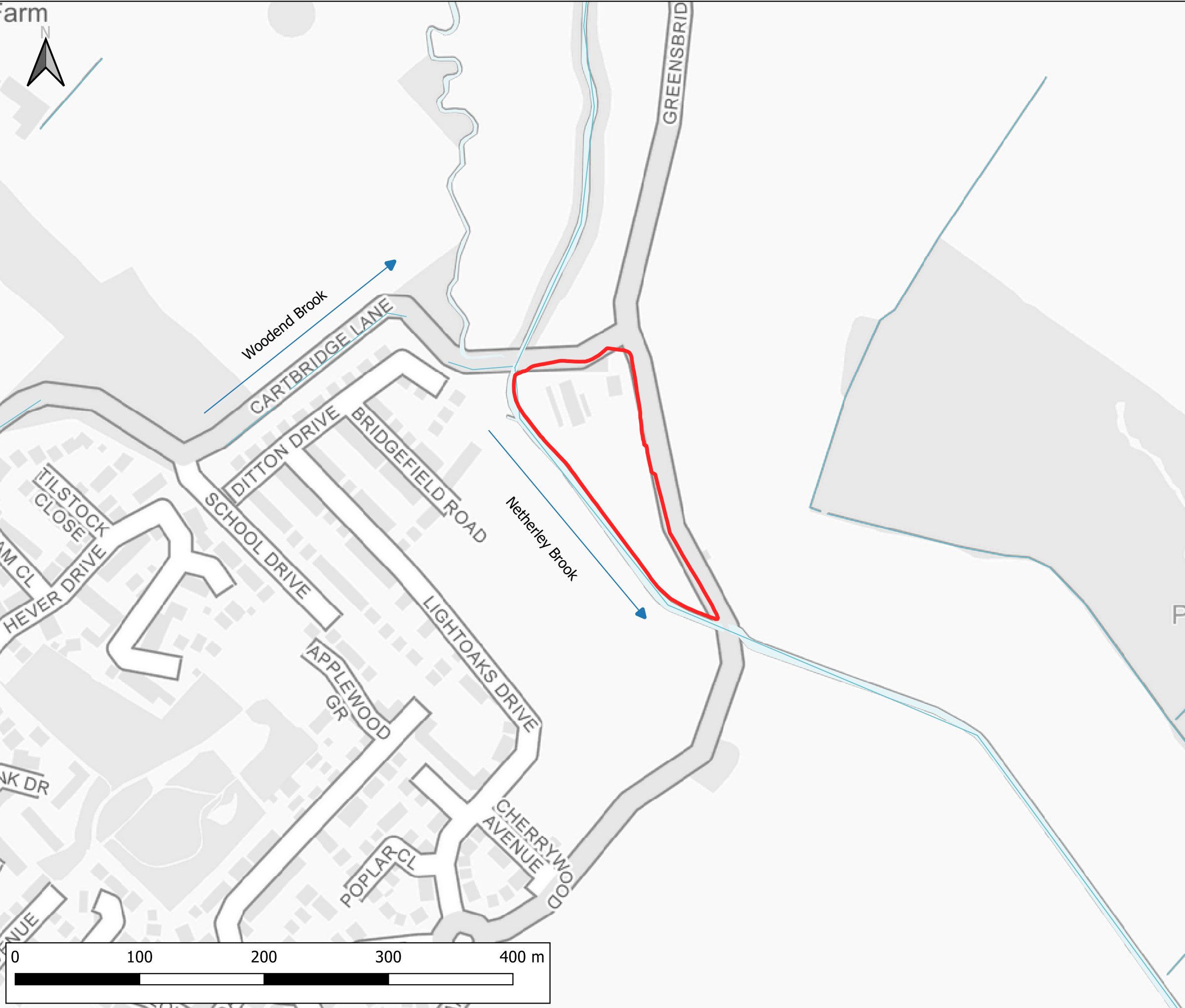
United Utilities have confirmed that foul flows can discharge to the 150mm public foul sewer in Bridgefield Road west of the site and beyond Netherley Brook. A pumped solution is required.

A Concept Designer's Risk Assessment (cDRA) has been prepared to inform future designers of any identified hazards associated with the scheme. The cDRA has been included in Appendix J.

Recommendations

1. Submit this Drainage Strategy to the Planning Authority in support of the Planning Application
2. Verify the attenuation volumes and pond sizes included in this report when undertaking detailed drainage design.

Appendix A Location Plan & Aerial Image



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies

CLIENT:

BBE Developments Ltd

www.waterco.co.uk

SCHEME:

Former Merseyside Dogs Home, East Halewood

PLOT TITLE:

Location Plan

PLOT STATUS:		FINAL		DATE:		05-01-2023	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:				
AM	AW	MW	1:3000				
PLOT NAME:						REVISION:	
14506_Location_Plan						-	



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

CLIENT:

BBE Developments Ltd

www.waterco.co.uk

SCHEME:

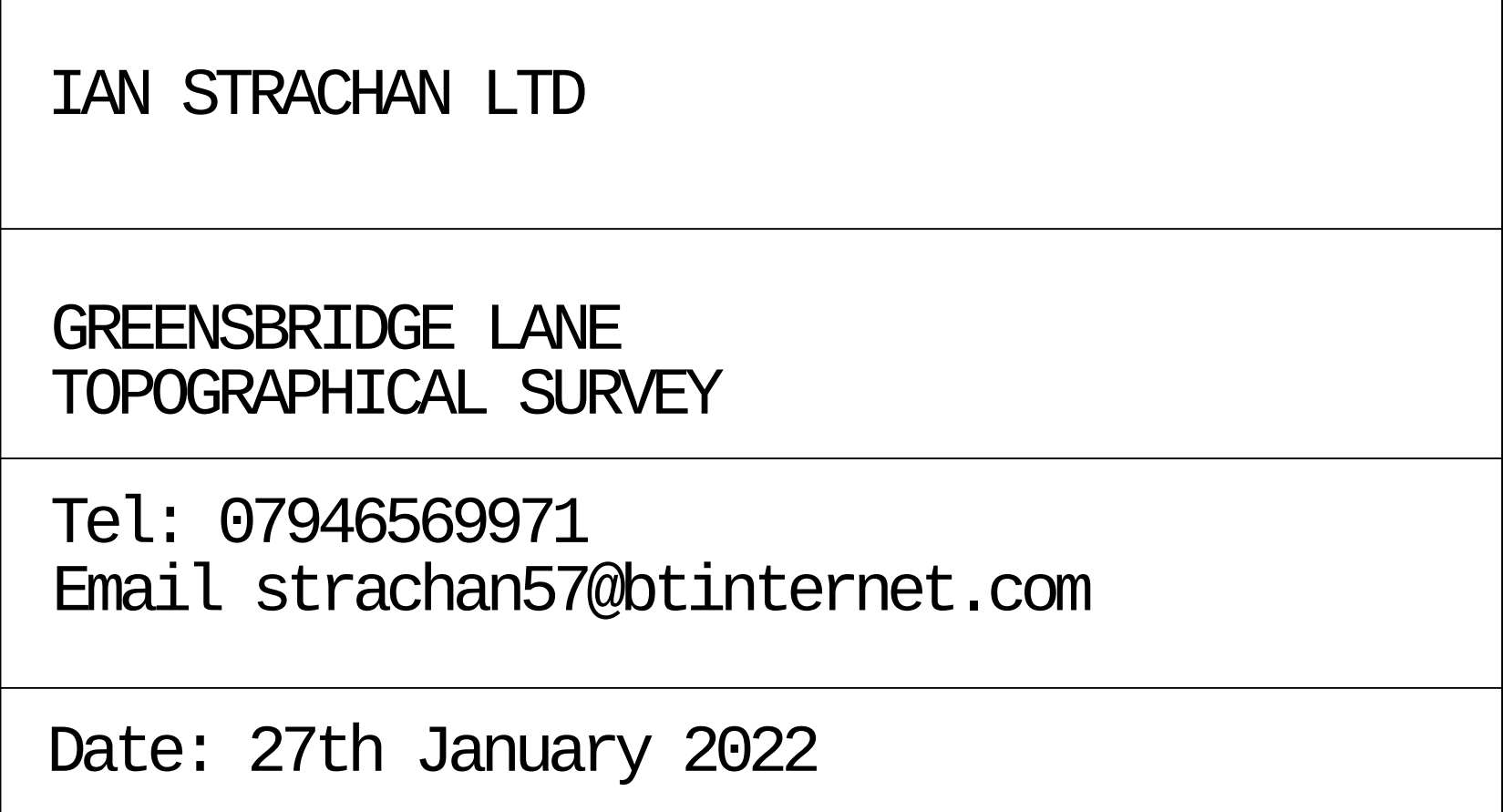
Former Merseyside Dogs Home, East Halewood

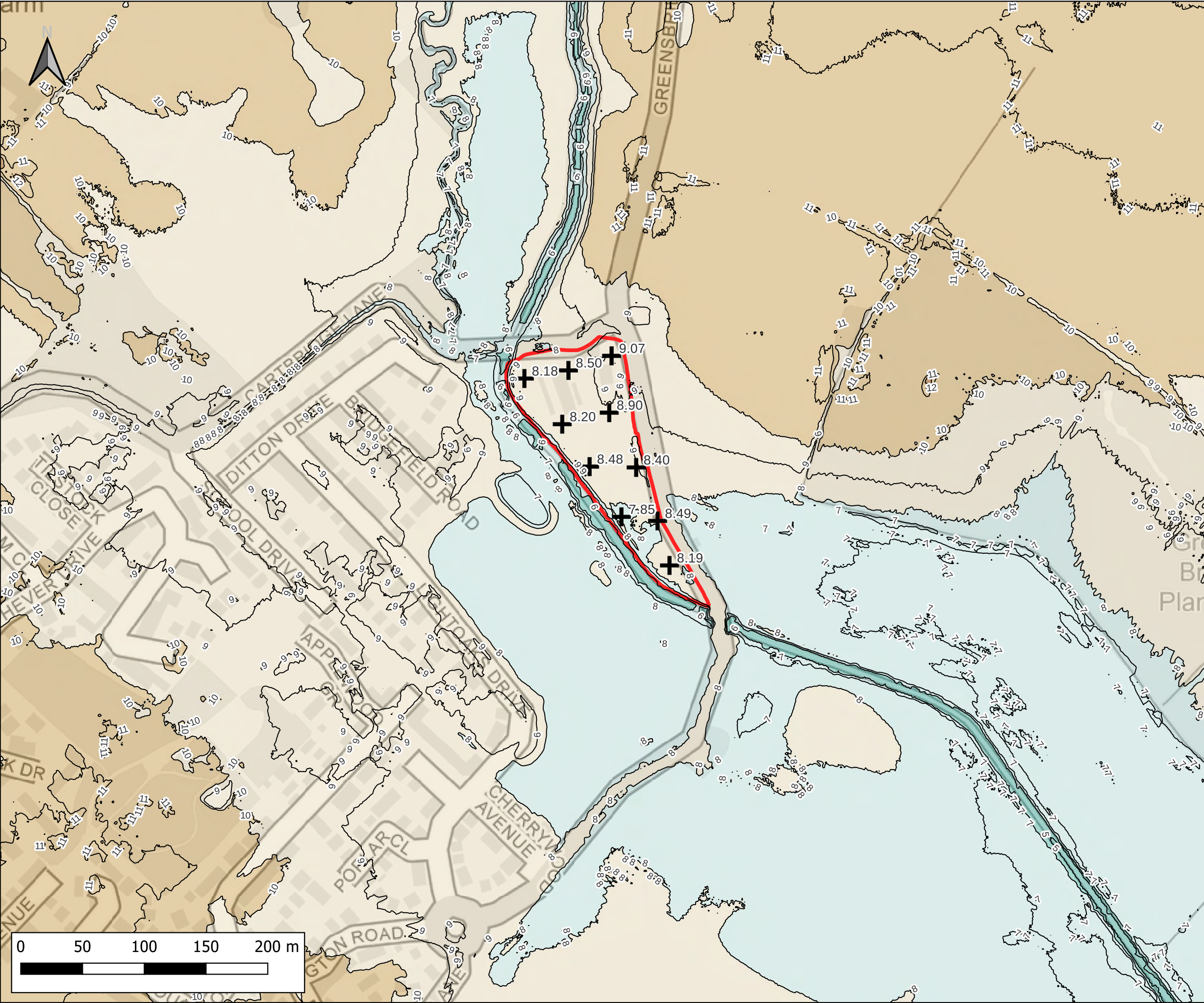
PLOT TITLE:

Aerial Plan

PLOT STATUS:		FINAL		DATE:		05-01-2023	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:				
AM	AW	MW	1:3000				
PLOT NAME:						REVISION:	
14506_Aerial_Plan						-	

Appendix B Topographical Information





Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Site Levels (m AOD)

Ground Elevations (m AOD)

	<= 6
	6 - 8
	8 - 10
	10 - 12
	> 12

CLIENT:

BBE Developments Ltd

waterco

www.waterco.co.uk

SCHEME:

Former Merseyside Dogs Home, East Halewood

PLOT TITLE:

LiDAR Plan
1m Resolution
Data from Environment Agency

PLOT STATUS:		FINAL		DATE:		05-01-2023	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:				
AM	AW	MW	1:3000				
PLOT NAME:						REVISION:	
14506_LiDAR_Plan						-	

Appendix C BGS Borehole Record



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Borehole location

CLIENT:

BBE Developments Ltd

www.waterco.co.uk

SCHEME:

Former Merseyside Dogs Home, East Halewood

PLOT TITLE:

Borehole Location Plan

PLOT STATUS:			FINAL	DATE:	11-05-2023
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DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:		
AM	AW	MW	1:1200		

PLOT NAME:				REVISION:	
14506_Borehole_Location_Plan				-	

RECORD OF WELL		For Survey use only Licence No.	
At <u>Greenbridge Lane</u>		N.12033	
Pumping station (W2)		97/69B SJ 48 NE/18	
Town or Village.....		NGR 4572 8650	
County <u>Lancashire</u>			
EXACT SITE OF WELL	Six-inch sheet..... <u>11/NE</u> Six-inch National Grid sheet.....	State whether owner, tenant, builder, contractor, consultant, etc.:—	
DELETE WHICHEVER IS INAPPLICABLE	For <u>Widnes Corporation</u>		
	Address (if different from above) <u>Carlisle St, Widnes.</u>		
	Level of ground surface above sea level (O.D.).....ft.	If well top is not at ground level, state how far } above: * below:	
	SHAFT.....ft.; diameter.....ft.; HEADINGS (please attach details—dimensions and directions)		
	BORE <u>5.00</u> ft.; diameter of bore: at top <u>24</u> in.; at bottom <u>18</u> in.		
	Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.).....		
	<u>See attached sheet.</u>		
	Water struck at depths of.....ft. below well top.		
TEST CONDITIONS	Rest level of water <u>73.5</u> ft. ^{above} well top. Suction at.....ft. Yield on..... hours' test pumping at.....galls. per.....with depression to.....ft. below well top.		
	Recovery to rest level in..... mins. * Capacity of pump.....g.p.h. Date of measurements.....		
	DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:		
NORMAL CONDITIONS	Make and/or type.....Motive power.....		
	Capacity.....galls. per hour. Suction at.....ft. below well top.		
	Amount pumped.....galls. per day. Estimated consumption.....galls. per week.		
	Well made by <u>J. Smith & Son (Cm) Ltd</u> Date of sinking <u>Nov '65</u>		
	Information from.....		
	ADDITIONAL NOTES ANALYSIS (please attach copy if available)		
		For Survey use only	
		Date Received <u>S.1.67</u>	
		Section 6	
		Pumping test	
		Observ. well	
		Recorder	
		E.R. log	
		Site marked on	
		1" map ☒ <u>18</u>	
		6" map ☒ <u>7</u> (7) (use symbol)	
		Record forwarded	
		to <u>N. West Dist</u>	
		date <u>2</u>	
		GEOLOGICAL SURVEY, WATER DIVISION SOUTH KENTON	

[illegible]

Appendix D UU Sewer Plan & Correspondence

Waterco

**Waterco
Eden Court,,
Ruthin, Denbighshire
LL15 1NJ**

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 14506-Former Merseyside Dogs Home
Our Ref: UUPS-ORD-465778
Date: 21/02/2023**

Dear Sirs

Location: Former Merseyside Dogs Home Former Dogs Home Greensbridge Lane, Halewood, L35 1QH

I acknowledge with thanks your request dated 21/02/2023 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,



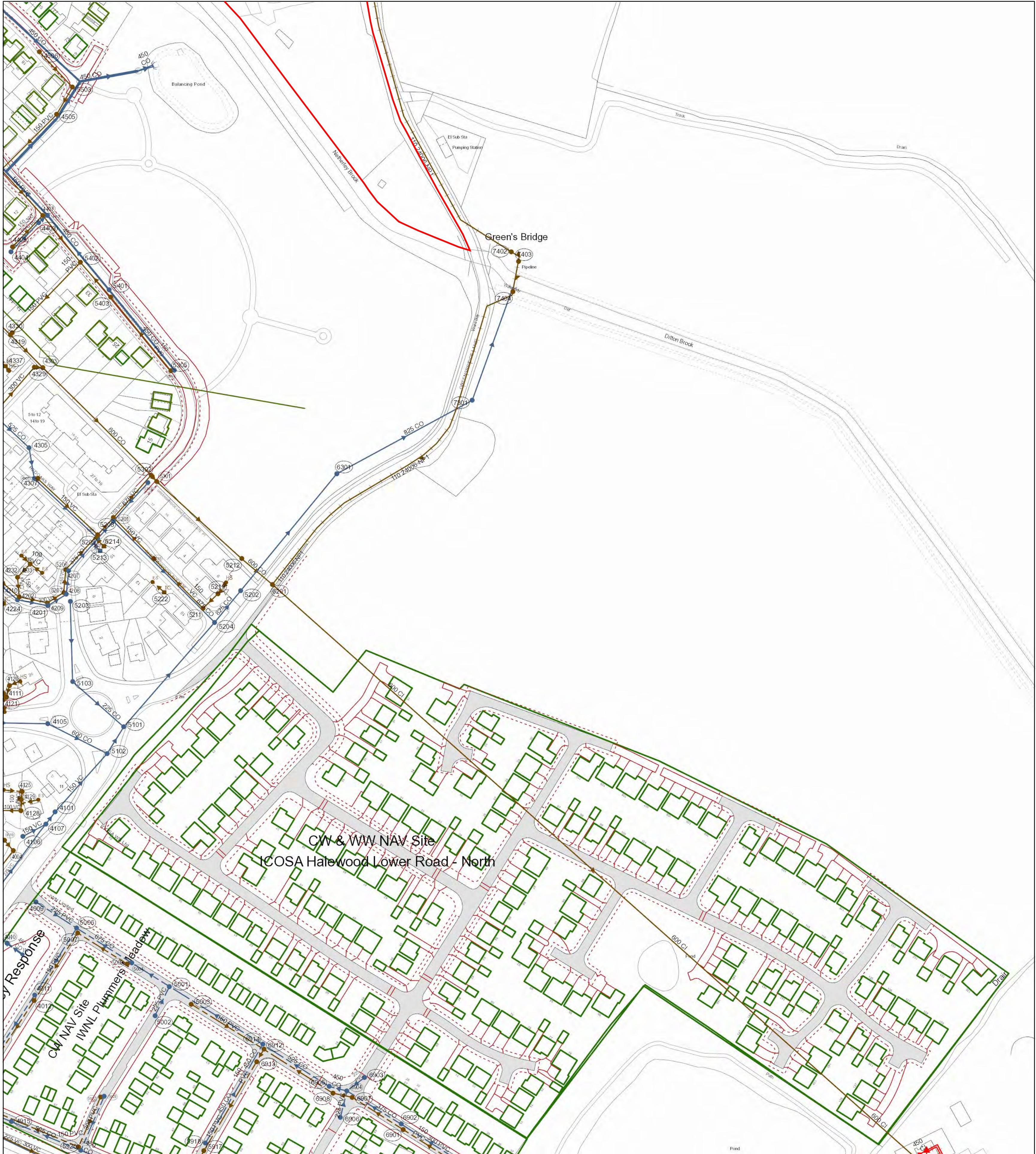
Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

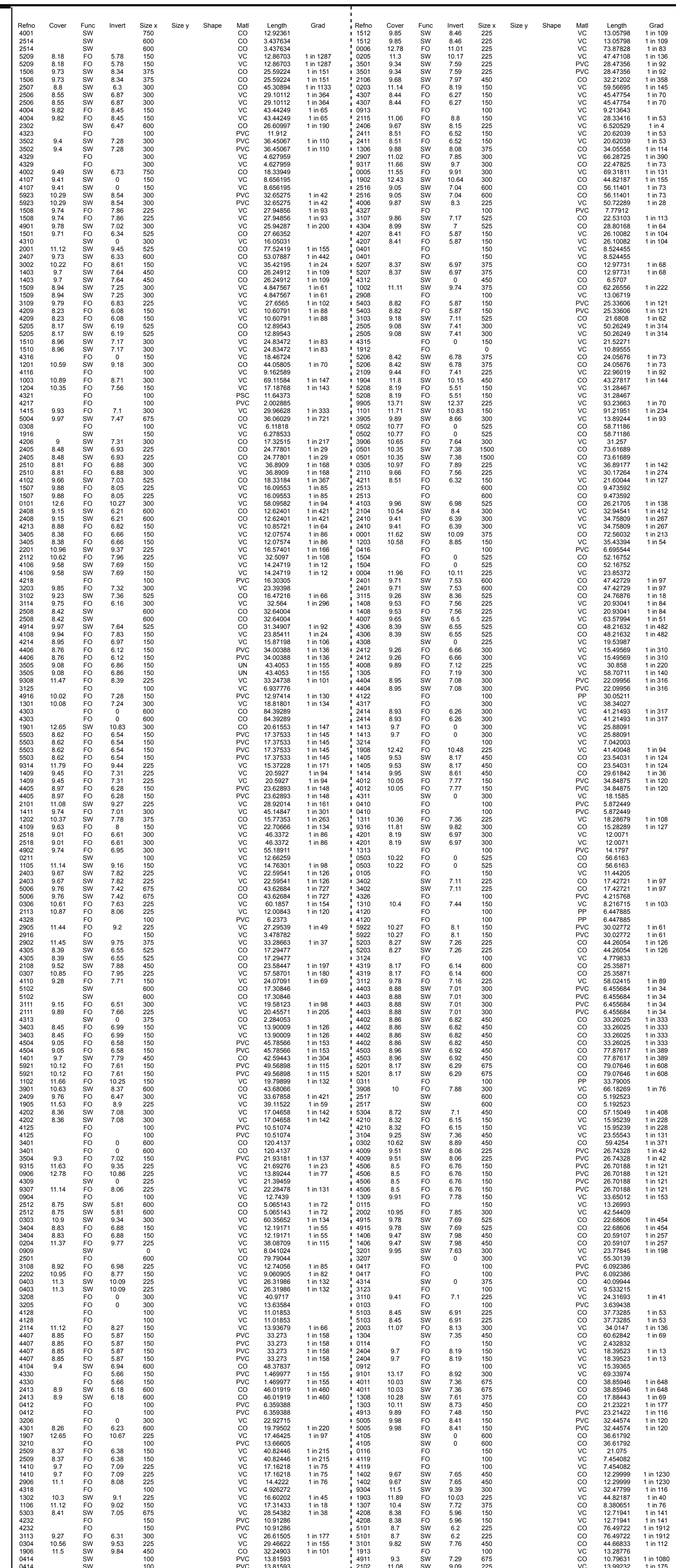
These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus)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

TERMS AND CONDITIONS:

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



Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
4305	8.39	SW	5.25	525			CO	17.29477	
4305	8.39	SW	5.25	525			CO	17.29477	
4207	8.41	FO	5.87	150			VC	26.10082	1 in 104
4207	8.41	FO	5.87	150			VC	26.10082	1 in 104
5207	8.37	SW	6.97	375			CO	12.97731	1 in 68
5207	8.37	SW	6.97	375			CO	12.97731	1 in 68
5301		FO	0	800			CO	63.49291	
5103	8.45	SW	6.91	225			CO	37.73285	1 in 53
5103	8.45	SW	6.91	225			CO	37.73285	1 in 53
5102		SW		800			CO	17.30846	
5209	8.18	FO	5.78	150			VC	12.86703	1 in 1287
5209	8.18	FO	5.78	150			VC	12.86703	1 in 1287
5403	8.82	FO	5.87	150			PVC	25.33008	1 in 121
5403	8.82	FO	5.87	150			PVC	25.33008	1 in 121
4011	10.03	SW	7.36	875			CO	38.89946	1 in 648
4011	10.03	SW	7.36	875			CO	38.89946	1 in 648
4004	8.82	FO	6.45	150			VC	43.44249	1 in 65
4004	8.82	FO	6.45	150			VC	43.44249	1 in 65
5921	10.12	FO	7.61				PVC	48.96988	1 in 115
5921	10.12	FO	7.61				PVC	48.96988	1 in 115
5206	8.42	SW	6.78	375			CO	24.06676	1 in 73
5206	8.42	SW	6.78	375			CO	24.06676	1 in 73
4329		FO		300			VC	4.627959	
4329		FO		300			VC	4.627959	
6901	8.89	FO	7.02	150			PVC	33.14046	1 in 123
6208	8.19	FO	5.51	150			VC	31.28467	
6208	8.19	FO	5.51	150			VC	31.28467	
4202	8.36	SW	7.08	300			VC	17.04658	1 in 142
4202	8.36	SW	7.08	300			VC	17.04658	1 in 142
4125		FO		150			PVC	10.51074	
4125		FO		150			PVC	10.51074	
4107	9.41	SW	0	150			VC	8.656195	
4107	9.41	SW	0	150			VC	8.656195	
5923	10.29	SW	8.54	300			PVC	32.65275	1 in 42
5923	10.29	SW	8.54	300			PVC	32.65275	1 in 42
4211	8.51	FO	6.32	150			VC	21.80044	1 in 127
5101	8.7	SW	6.2	225			VC	78.49722	1 in 1012
5101	8.7	SW	6.2	225			VC	78.49722	1 in 1012
6907	9.71	FO	7.65	150			PVC	10.9863	1 in 110
6906	9.78	SW	8.28	225			PVC	14.95989	1 in 45
5212		FO	0	800			CO	22.12266	
4128		FO		100			VC	11.01853	
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4209	8.23	FO	6.08	150			VC	10.60701	1 in 88
4209	8.23	FO	6.08	150			VC	10.60701	1 in 88
6914	9.68	SW	7.77	525			CO	60.57228	1 in 233
5205	8.17	SW	6.19	525			VC	63.57994	1 in 51
5205	8.17	SW	6.19	525			VC	63.57994	1 in 51
6904	9.81	SW	7.95	450			CO	12.85643	
4306	8.39	SW	6.55	525			CO	10.09881	1 in 101
4306	8.39	SW	6.55	525			CO	10.09881	1 in 101
6912	9.07	FO	7.18	150			PVC	48.21632	1 in 482
4104	9.4	SW	6.94	800			VC	48.21632	1 in 482
4330		FO	5.66	150			PVC	7.920933	1 in 113
4330		FO	5.66	150			PVC	7.920933	1 in 113
4301	8.26	FO	6.23	800			PVC	4.469977	1 in 155
4408	8.93	FO	6.05	150			PVC	1.469977	1 in 155
4408	8.93	FO	6.05	150			PVC	1.469977	1 in 155
4408	8.93	FO	6.05	150			PVC	1.469977	1 in 155
4408	8.93	FO	6.05	150			PVC	1.469977	1 in 155
5002	9.8	SW	8.28	225			PVC	19.79502	1 in 220
4010	9.3	SW	0				UN	23.99664	1 in 133
4010	9.3	SW	0				UN	23.99664	1 in 133
7301		SW	0	825			CO	18.01515	1 in 23
6902	9.81	SW	8.17	375			CO	0.3134949	
4404	8.95	SW	7.08	300			PVC	62.21653	
4404	8.95	SW	7.08	300			PVC	62.21653	
5302	8.42	FO	0	600			CO	35.02018	1 in 159
5917	10.24	FO	6.63	150			PVC	22.09596	1 in 316
4317		FO		300			VC	4.542448	
5920	10.07	FO	7.77	525			VC	27.3436	1 in 119
5920	10.07	FO	7.77	525			VC	27.3436	1 in 119
5303	8.41	FO	7.05	875			VC	38.34027	1 in 518
4232		FO		150			CO	41.48343	1 in 518
4232		FO		150			CO	41.48343	1 in 518
4232		FO		150			CO	41.48343	1 in 518
4232		FO		150			CO	41.48343	1 in 518
4012	10.05	FO	7.77	150			PVC	28.54362	1 in 38
4012	10.05	FO	7.77	150			PVC	28.54362	1 in 38
5004	9.97	SW	7.47	875			PVC	10.91286	
5001	9.84	SW	7.51	875			PVC	34.84875	1 in 120
6908	9.83	FO	7.55	150			PVC	36.84875	1 in 120
4201	8.19	SW	6.97	300			VC	38.00229	1 in 721
4201	8.19	SW	6.97	300			VC	38.00229	1 in 721
4201	8.19	SW	6.97	300			VC	38.00229	1 in 721
4201	8.19	SW	6.97	300			VC	38.00229	1 in 721
4106	9.58	SW	7.69	150			VC	24.50154	1 in 613
4106	9.58	SW	7.69	150			VC	24.50154	1 in 613
4106	9.58	SW	7.69	150			VC	24.50154	1 in 613
4106	9.58	SW	7.69	150			VC	24.50154	1 in 613
4120		FO		100			PP	45.14102	1 in 122
4120		FO		100			PP	45.14102	1 in 122
4120		FO		100			PP	45.14102	1 in 122
4120		FO		100			PP	45.14102	1 in 122
4307	8.44	FO	6.27	150			PP	12.0071	
4307	8.44	FO	6.27	150			PP	12.0071	
5922	10.27	FO	8.1	150			PVC	14.24719	1 in 12
5922	10.27	FO	8.1	150			PVC	14.24719	1 in 12
5203	8.27	SW	7.26	225			CO	6.447885	
5203	8.27	SW	7.26	225			CO	6.447885	
5203	8.27	SW	7.26	225			CO	6.447885	
5203	8.27	SW	7.26	225			CO	6.447885	
5005	9.08	FO	8.41	150			PVC	45.47754	1 in 70
5005	9.08	FO	8.41	150			PVC	45.47754	1 in 70
4105		SW	0	800			CO	45.47754	1 in 70
4105		SW	0	800			CO	45.47754	1 in 70
6903	9.9	SW	8.44	225			PVC	30.02772	1 in 61
4319	8.17	FO	6.14	800			CO	44.20504	1 in 126
4319	8.17	FO	6.14	800			CO	44.20504	1 in 126
6201	8.34	FO	0	600			CI	44.20504	1 in 126
4119		FO		100			VC	32.44574	1 in 120
4119		FO		100			VC	32.44574	1 in 120
4403	8.88	SW	7.01	300			PVC	36.61792	
4403	8.88	SW	7.01	300			PVC	36.61792	
4403	8.88	SW	7.01	300			PVC	36.61792	
4403	8.88	SW	7.01	300			PVC	36.61792	
4402	8.86	SW	6.82	450			CO	12.19783	1 in 25
4402	8.86	SW	6.82	450			CO	12.19783	1 in 25
4402	8.86	SW	6.82	450			CO	12.19783	1 in 25
4402	8.86	SW	6.82	450			CO	12.19783	1 in 25
4402	8.86	SW	6.82	450			CO	12.19783	1 in 25
4503	8.96	SW	6.92	450			CO	25.3871	
4503	8.96	SW	6.92	450			CO	25.3871	
5201	8.17	SW	6.29	875			CO	65.98971	
5201	8.17	SW	6.29	875			CO	65.98971	
4406	8.76	FO	6.12	150			PVC	7.454082	
4406	8.76	FO	6.12	150			PVC	7.454082	
5304	8.72	SW	7.1	450			VC	7.454082	
4208	8.38	FO	5.96	150			VC	6.455684	1 in 34
4208	8.38	FO	5.96	150			VC	6.455684	1 in 34
4208	8.38	FO	5.96	150			VC	6.455684	1 in 34
4208	8.38	FO	5.96	150			VC	6.455684	1 in 34
4210	8.32	FO	6.15	150			VC	6.455684	1 in 34
4210	8.32	FO	6.15	150			VC	6.455684	1 in 34
6905	9.88	SW	7.85	525			PVC	6.455684	1 in 34
4009	9.51	SW	8.06	225			PVC	6.455684	1 in 34
4009	9.51	SW	8.06	225			PVC	6.455684	1 in 34
4506	8.5	FO	6.76	150			PVC	33.26025	1 in 333
4506	8.5	FO	6.76	150			PVC	33.26025	1 in 333
4506	8.5	FO	6.76	150			PVC	33.26025	1 in 333
4506	8.5	FO	6.76	150			PVC	33.26025	1 in 333
4506	8.5	FO	6.76	150			PVC	33.26025	1 in 333
5401	8.78	SW	6.96	450			CO	33.26025	1 in 333
5401	8.78	SW	6.96	450			CO	33.26025	1 in 333
4304	8.89	SW	7	525			CO	33.26025	1 in 333
4915	9.78	SW	7.69	525			CO	33.26025	1 in 333
4915	9.78	SW	7.69	525			CO	33.26025	1 in 333
4501	8.78	SW	6.72	450			CO	33.26025	1 in 333
4303		FO	0	800			CO	33.26025	1 in 333
4303		FO	0	800			CO	33.26025	1 in 333
5918	10.21	SW	8.48	450			CO	33.26025	1 in 333
5918	10.21	SW							



LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:

red - combined

blue - surface water

brown - foul

purple - overflow

Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vent Column

Vortex Chamber

Penstock Chamber

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat Top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

Former Merseyside Dogs Home Former Dogs Home Greensbridge Lane, Halewood, L35 1QH

OS sheet

Number:

Scale: 1:1250

Date: 21/02/2023

Nodes: 401

Sheet: 2 of 4

Printed by: Property Searches

SJ4586SW

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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
2903	11.08	SW	8.83	600			CO	63.5378	1 in 151
4912	9.87	SW	7.3	675			CO	7.847265	1 in 785
9909		SW		100			VC	5.447254	
4204	8.72	SW	7.19	300			VC	18.6265	1 in 466
3909		SW		150			VC	9.020665	
0206		FO		100			VC	14.51646	
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
1412	9.68	FO	6.86	300			VC	9.31743	1 in 233
1412	9.68	FO	6.86	300			VC	9.31743	1 in 233
4005	9.41	FO	7.78	150			VC	46.17936	1 in 70
2107	9.77	SW	8.53	150			VC	20.75716	1 in 37
4215		FO		100			PVC	2.365518	
0104		FO		150			VC	1.345714	
4917	9.9		7.18	150			PVC	11.06765	1 in 138
2105	9.96	SW	8.32	450			VC	17.58007	1 in 50
5305	8.71	FO	6.2	150			PVC	52.50233	1 in 199
1103	11.83	FO	10.07	150			VC	73.5527	1 in 117
0102	12.2	FO	9.42	150			VC	11.31371	
4203	8.95	SW	7.15	300			VC	20.16634	
0411		FO		100			PVC	12.02898	
0309		FO		100			VC	8.562866	
4205	8.89	SW	7.23	300			CO	10.84859	1 in 274
1104	11.18	SW	9.38	150			VC	11.42247	1 in 57
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
0003	11.74	SW	10.44	225			VC	10	1 in 45
4010	9.3	SW		0			UN	0.3134949	
4010	9.3	SW		0			UN	0.3134949	
0202	11.16	SW	8.55	375			CO	58.10222	1 in 124
3215		FO		100			VC	7.453626	
2515	8.86	FO	6.07	300			VC	8.91056	1 in 36
2515	8.86	FO	6.07	300			VC	8.91056	1 in 36
0418		FO		100			PVC	9.61046	
0418		FO		100			PVC	9.61046	
5920	10.07	SW	7.77	525			CO	41.46343	1 in 518
5920	10.07	SW	7.77	525			CO	41.46343	1 in 518
4101		SW		150			VC	43.11309	
4101		SW		150			VC	43.11309	
9303	11.15	SW	9.11	450			CO	28.02014	1 in 434
0407	11.45	FO	8.04	225			VC	19.59644	1 in 131
0405	11.49	SW	9.77	225			VC	19.51063	1 in 27
0312		FO		100			PVC	13.04244	
0406	11.55	FO	8.28	225			VC	14.42156	1 in 60
0427		FO		150			PP	5.919054	
0404	11.95	SW	9.89	225			VC	16.9657	1 in 134
0301	10.96	SW	9.05	450			CO	34.27251	1 in 214
2103	10.91	SW	9.01	300			VC	14.68628	1 in 24
3604	10.11	SW		600			CO	58.0517	
4302		FO		300			VC	41.24809	
0201	10.69	SW	9.17	150			VC	16.32548	1 in 26
1407	9.71	SW	7.9	450			CO	14.09638	1 in 56
1407	9.71	SW	7.9	450			CO	14.09638	1 in 56
4121		FO		100			PP	10.2813	
4121		FO		100			PP	10.2813	
4505	8.63	FO	6.42	150			PVC	43.32678	1 in 144
4505	8.63	FO	6.42	150			PVC	43.32678	1 in 144
4505	8.63	FO	6.42	150			PVC	43.32678	1 in 144
4505	8.63	FO	6.42	150			PVC	43.32678	1 in 144
0002	12.79	SW		225			VC	67.62396	
3202	9.41	SW	7.97	225			VC	56.26823	1 in 165
2301		FO	6.77	300			PVC	24.90345	1 in 63
4253		FO		100			PVC	10.10223	
4233		FO		100			PVC	10.10223	
2504	8.76	SW	5.85	1800			CO	194.118	1 in 9706
2504	8.76	SW	5.85	1800			CO	194.118	1 in 9706
1004		FO		100			VC	16.76295	
3204		FO		300			VC	22.85443	
0408	10.18	SW	8.85	225			VC	23.99679	1 in 61
0408	10.18	SW	8.85	225			VC	23.99679	1 in 61
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264
0903	12.75	SW	10.99	300			CO	15.26434	1 in 127
4501	8.78	SW	6.72	450			CO	64.83264	1 in 381
5007	9.76	FO	8.14	150			PVC	44.45329	1 in 120
5007	9.76	FO	8.14	150			PVC	44.45329	1 in 120
4216		FO		150			PVC	15.60732	
4324		FO		100			PVC	9.475545	
5402	8.69	FO	5.66	150			PVC	54.16966	1 in 150
5402	8.69	FO	5.66	150			PVC	54.16966	1 in 150
9804	13.73	FO	11.95	225			VC	77.20416	1 in 64
3001	10.22	SW	8.77	150			VC	39.62807	1 in 30
4117		FO		100			VC	15.25306	
4212	8.72	FO	6.65	150			VC	20.63444	1 in 63
3106	9.5	SW	6.76	525			CO	26.55386	1 in 63
3105	9.71	SW	7.22	300			VC	22.85412	1 in 50
3907	10.49	FO		300			VC	42.78649	
1511	8.95	FO	7.04	300			VC	26.60199	1 in 168
1511	8.95	FO	7.04	300			VC	26.60199	1 in 168
5210	8.33	FO	5.76	150			VC	31.51038	1 in 126
4903	9.86	SW	8.52	300			VC	20.12461	1 in 63
0007	12.21	SW	10.4	150			VC	32.24991	1 in 191
0409	10.14	FO	8.34	225			VC	20.48137	1 in 71
0409	10.14	FO	8.34	225			VC	20.48137	1 in 71

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
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Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:

red - combined

blue - surface water

brown - foul

purple - overflow

Manhole

Head of System

Extent of Survey

Rodding Eye

Inlet

Discharge Point

Vortex

Penstock

Washout Chamber

Valve

Air Valve

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Side Entry Manhole

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Catchpit

Valve Chamber

Vortex Chamber

Penstock Chamber

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat Top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culvert

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

Former Merseyside Dogs Home Former Dogs Home

Greensbridge Lane,

Halewood,

L35 1QH

OS sheet Number: SJ4586SW

Scale: 1:1250

Date: 21/02/2023

Nodes: 97

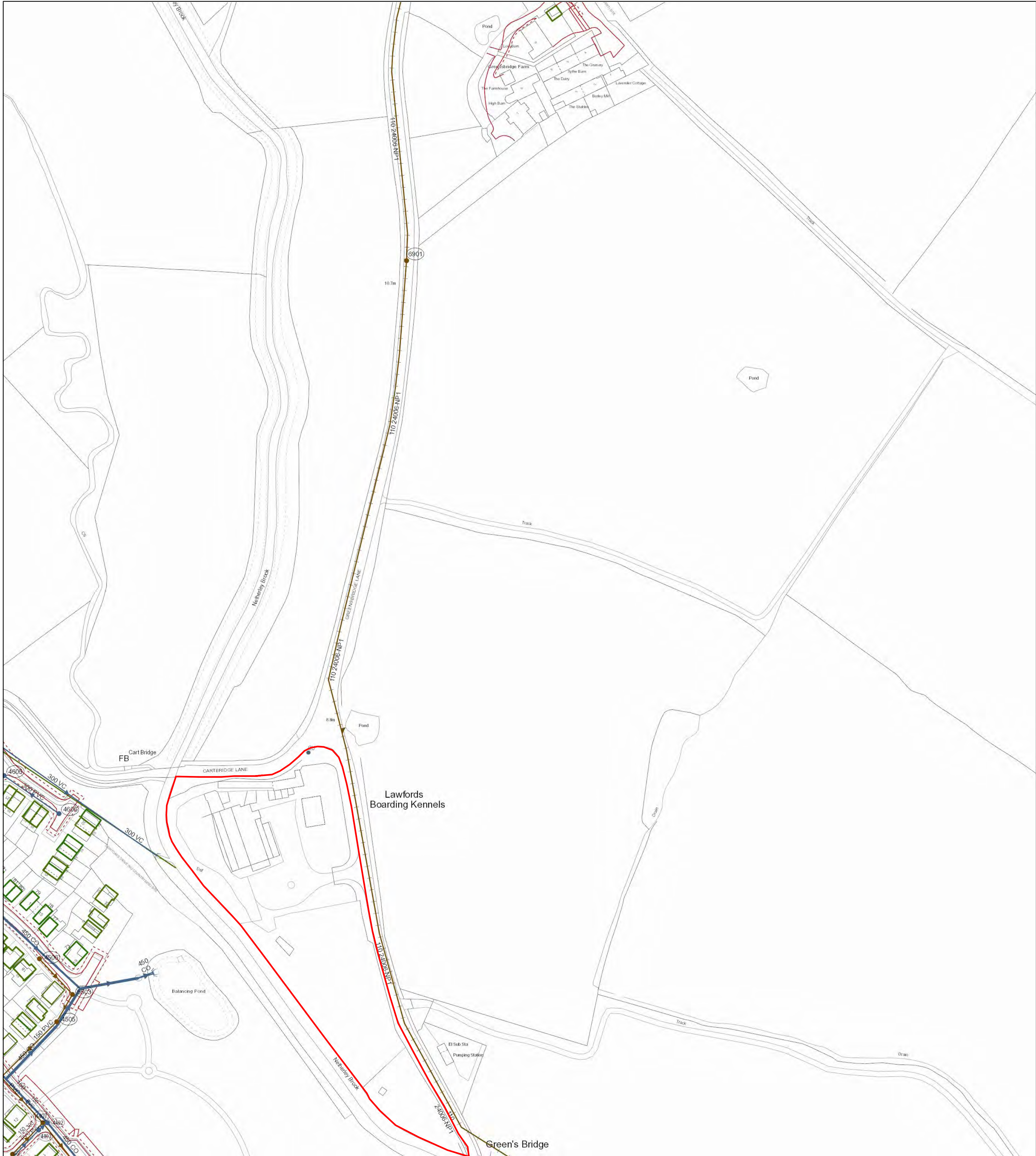
Sheet: 2 of 4

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SEWER RECORDS

United Utilities

Water for the North West

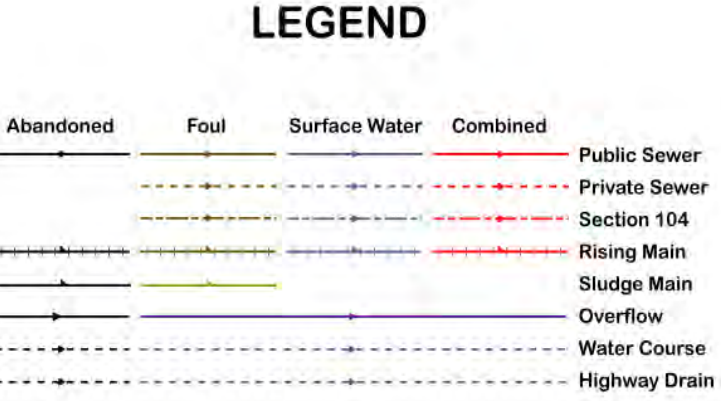


The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
4406	8.76	FO	6.12	150			PVC	34.00388	1 in 136
4406	8.76	FO	6.12	150			PVC	34.00388	1 in 136
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4605	9.09	SW	7.18	450			CO	39.37052	1 in 394
4605	9.09	SW	7.18	450			CO	39.37052	1 in 394
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4503	8.96	SW	6.92	450			PVC	22.59556	1 in 316
4503	8.96	SW	6.92	450			PVC	22.59556	1 in 316
4404	8.95	SW	7.08	300			PVC	22.59556	1 in 316
4404	8.95	SW	7.08	300			PVC	22.59556	1 in 316
4501	8.78	SW	6.72	450			CO	64.52004	1 in 381
4501	8.78	SW	6.72	450			CO	64.52004	1 in 381
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
4606	9.12	SW	7.42	300			PVC	36.69215	1 in 408
4606	9.12	SW	7.42	300			PVC	36.69215	1 in 408
4406	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133

Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
4406	8.76	FO	6.12	150			PVC	34.00388	1 in 136
4406	8.76	FO	6.12	150			PVC	34.00388	1 in 136
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
5503	8.62	FO	6.94	150			PVC	17.37533	1 in 145
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158
4605	9.09	SW	7.18	450			CO	39.37052	1 in 394
4605	9.09	SW	7.18	450			CO	39.37052	1 in 394
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4403	8.88	SW	7.01	300			PVC	6.455664	1 in 34
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4506	8.5	FO	6.76	150			PVC	26.70188	1 in 121
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4402	8.86	SW	6.82	450			CO	33.26025	1 in 333
4503	8.96	SW	6.92	450			PVC	22.59556	1 in 316
4503	8.96	SW	6.92	450			PVC	22.59556	1 in 316
4404	8.95	SW	7.08	300			PVC	22.59556	1 in 316
4404	8.95	SW	7.08	300			PVC	22.59556	1 in 316
4501	8.78	SW	6.72	450			CO	64.52004	1 in 381
4501	8.78	SW	6.72	450			CO	64.52004	1 in 381
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
5401	8.78	SW	6.96	450			CO	53.41724	1 in 382
4606	9.12	SW	7.42	300			PVC	36.69215	1 in 408
4606	9.12	SW	7.42	300			PVC	36.69215	1 in 408
4406	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133
4408	8.93	FO	6.05	150			PVC	23.99664	1 in 133



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

- Manhole
- Head of System
- Extent of Survey
- Rodding Eye
- Inlet
- Discharge Point
- Vortex
- Penstock
- Washout Chamber
- Valve
- Air Valve
- Non Return Valve
- Soakaway
- Gully
- Cascade
- Flow Meter
- Hatch Box
- Oil Interceptor
- Summit
- Drop Shaft
- Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- Inspection Chamber
- Bifurcation Chamber
- Lamp Hole
- T Junction / Saddle
- Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- Network Storage Tank
- Sewer Overflow
- Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- Control Kiosk
- Change of Characteristic

MANHOLE FUNCTION
FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE
CI Circular
EG Egg
OV Oval
FT Flat Top
RE Rectangular
SQ Square
TR Trapezoidal
AR Arch
BA Barrel
HO HorseShoe
UN Unspecified

SEWER MATERIAL
AC Asbestos Cement
BR Brick
PE Polyethylene
RP Reinforced Plastic Matrix
CO Concrete
CSB Concrete Segment Bolted
CSU Concrete Segment Unbolted
CC Concrete Box Culvert
PSC Plastic / Steel Composite
GRC Glass Reinforced Plastic
DI Ductile Iron
PVC Polyvinyl Chloride
CI Cast Iron
SI Spun Iron
ST Steel
VC Vitrified Clay
PP Polypropylene
PF Pitch Fibre
MAC Masonry, Coursed
MAR Masonry, Random
U Unspecified

Address or Site Reference:

Former Merseyside Dogs Home Former Dogs Home
Greensbridge Lane,
Halewood,
L35 1QH

OS sheet Number: SJ4586NE
Scale: 1:1250 Date: 21/02/2023
Nodes: 41
Sheet: 3 of 4

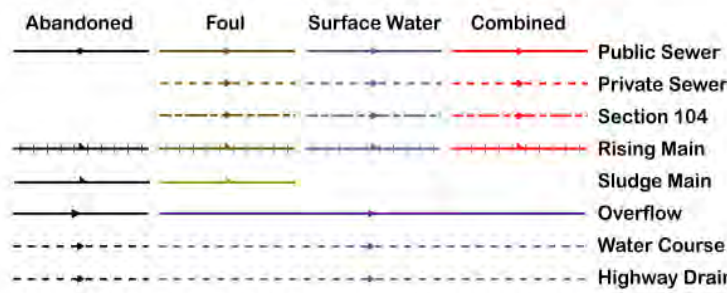
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The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual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

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Part No.	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad	Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
0414	FO			SW	100		PVC	13.81593											
2501	FO			SW	600		CO	79.79044											
2502	8.81	FO		SW	600		CO	98.60311											
2502	8.81	FO		SW	600		CO	98.60311											
1512	9.85	SW	8.46	225			PVC	13.05798	1 in 109										
1512	9.85	SW	8.46	225			VC	13.05798	1 in 109										
0403	11.3	SW	10.09	225			VC	26.31866	1 in 132										
0403	11.3	SW	10.09	225			VC	26.31866	1 in 132										
3501	9.34	SW	7.56	225			PVC	28.47356	1 in 82										
3501	9.34	SW	7.56	225			PVC	28.47356	1 in 82										
2511	9.04	SW	6.79	300			VC	16.2009											
3403	8.45	FO	6.99	150			VC	13.90009	1 in 126										
3403	8.45	FO	6.99	150			VC	13.90009	1 in 126										
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158										
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158										
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158										
4407	8.85	FO	5.87	150			PVC	33.273	1 in 158										
4504	9.05	FO	6.58	150			PVC	45.78566	1 in 153										
4504	9.05	FO	6.58	150			PVC	45.78566	1 in 153										
1401	9.7	SW	7.79	450			CO	42.59443	1 in 304										
1407	9.71	SW	7.9	450			CO	14.09938	1 in 56										
1407	9.71	SW	7.9	450			CO	14.09938	1 in 56										
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144										
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144										
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144										
4505	8.63	FO	6.42	150			PVC	43.30878	1 in 144										
2413	8.9	SW	6.18	600			CO	46.01919	1 in 400										
2413	8.9	SW	6.18	600			CO	46.01919	1 in 400										
2409	9.76	FO	6.47	700			VC	33.67658	1 in 421										
4607	9.33	FO	7.6	150			PVC	23.62613	1 in 149										
0412	FO						PVC	6.29338											
0412	FO						PVC	6.29338											
3401	FO						VC	120.4137											
3401	FO						VC	120.4137											
3504	9.3	FO	7.02	150			PVC	21.93181	1 in 137										
2411	8.51	FO	6.52	150			VC	20.62039	1 in 53										
2411	8.51	FO	6.52	150			VC	20.62039	1 in 53										
2504	9.76	SW	5.85	1800			CO	19.118	1 in 8706										
2504	9.76	SW	5.85	1800			VC	19.118	1 in 8706										
2509	9.37	FO	6.38	150			VC	40.62446	1 in 215										
2509	9.37	FO	6.38	150			VC	40.62446	1 in 215										
1410	9.7	FO	7.09	225			VC	17.16218	1 in 75										
1410	9.7	FO	7.09	225			VC	17.16218	1 in 75										
4608	9.16	FO	7.44	100			PVC	62.02014	1 in 148										
4601	8.44	SW	6.34	1000			CO	5.984953											
4608	10.18	SW	8.85	225			VC	23.95679	1 in 61										
4608	10.18	SW	8.85	225			VC	23.95679	1 in 61										
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264										
2402	9.74	FO	6.8	300			VC	36.93039	1 in 264										
2516	9.05	SW	7.04	600			CO	56.11401	1 in 73										
2516	9.05	SW	7.04	600			CO	56.11401	1 in 73										
2512	8.75	SW	5.81	600			CO	5.065143	1 in 72										
3404	8.83	FO	6.88	150			VC	12.19171	1 in 85										
3404	8.83	FO	6.88	150			VC	12.19171	1 in 85										
2407	9.73	SW	6.93	225			VC	53.07867	1 in 442										
2405	8.48	SW	6.93	225			CO	24.77801	1 in 29										
2405	8.48	SW	6.93	225			CO	24.77801	1 in 29										
1403	9.7	SW	7.64	450			CO	26.24912	1 in 109										
1403	9.7	SW	7.64	450			CO	26.24912	1 in 109										
1509	9.84	SW	7.25	300			VC	4.847587	1 in 61										
1509	9.84	SW	7.25	300			VC	4.847587	1 in 61										
2514	SW						VC	3.437634											
2514	SW						VC	3.437634											
2510	8.81	FO	6.88	300			VC	36.8609	1 in 168										
2510	8.81	FO	6.88	300			VC	36.8609	1 in 168										
1507	9.88	FO	8.05	225			VC	16.09553	1 in 85										
1507	9.88	FO	8.05	225			VC	16.09553	1 in 85										
1506	9.73	SW	8.34	375			VC	25.59224	1 in 151										
1506	9.73	SW	8.34	375			VC	25.59224	1 in 151										
1507	8.8	SW	6.3	300			CO	45.30884	1 in 133										
2506	9.55	SW	6.87	300			VC	29.10112	1 in 364										
2506	9.55	SW	6.87	300			VC	29.10112	1 in 364										
2408	9.15	SW	6.21	600			CO	12.62401	1 in 421										
2408	9.15	SW	6.21	600			CO	12.62401	1 in 421										
3405	8.38	FO	6.66	150			VC	12.07574	1 in 86										
3405	8.38	FO	6.66	150			VC	12.07574	1 in 86										
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145										
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145										
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145										
5503	8.62	FO	6.54	150			PVC	17.37533	1 in 145										
2501	10.35	SW	8.63	1000			CO	159.1623	1 in 1708										
3502	9.4	SW	7.28	300			PVC	36.45067	1 in 83										
3502	9.4	SW	7.28	300			PVC	36.45067	1 in 83										
1510	8.96	SW	7.17	300			VC	24.83472	1 in 63										
1510	8.96	SW	7.17	300			VC	24.83472	1 in 63										
1901	10.62	SW	6.77	1000			CO	155.1533	1 in 1193										
1409	9.45	FO	7.31	225			VC	41.95048											
1409	9.45	FO	7.31	225			VC	29.9227	1 in 94										
4405	9.97	FO	6.28	150			PVC	23.62893	1 in 148										
4405	9.97	FO	6.28	150			PVC	23.62893	1 in 148										
1505	FO						VC	41.63357											
1411	9.74	FO	7.01	300			VC	45.14847	1 in 301										
3503	8.9	SW	6.95	450			VC	32.69185	1 in 363										
2508	8.42	SW	6.00				CO	32.64004											
2508	8.42	SW	6.00				CO	32.64004											
0901	FO						VC	90.98352											
2518	9.01	FO	6.61	300			VC	46.3372	1 in 86										
2518	9.01	FO	6.61	300			VC	46.3372	1 in 86										
4603	9.15	SW	6.86	450			VC	55.5374	1 in 307										
1508	9.74	FO	7.86	225			VC	27.94856	1 in 83										
1508	9.74	FO	7.86	225			VC	27.94856	1 in 83										
1502	9.85	SW	0	1500			CO	31.00114											
2403	9.67	SW	7.																

LEGEND



All point assets follow the standard colour convention:

brown - foul **purple** - overflow

- | | | | |
|---|------------------|---|--------------------------|
|  | Manhole |  | Side Entry Manhole |
|  | Head of System |  | Outfall |
|  | Extent of Survey |  | Screen Chamber |
|  | Roding Eye |  | Inspection Chamber |
|  | Inlet |  | Bifurcation Chamber |
|  | Discharge Point |  | Lamp Hole |
|  | Vortex |  | T Junction / Saddle |
|  | Penstock |  | Catchpit |
|  | Washout Chamber |  | Valve Chamber |
|  | Valve |  | Vent Column |
|  | Air Valve |  | Vortex Chamber |
|  | Non Return Valve |  | Penstock Chamber |
|  | Soakaway |  | Network Storage Tank |
|  | Gully |  | Sewer Overflow |
|  | Cascade |  | Ww Treatment Works |
|  | Flow Meter |  | Ww Pumping Station |
|  | Hatch Box |  | Septic Tank |
|  | Oil Interceptor |  | Control Kiosk |
|  | Summit |  | Change of Characteristic |
|  | Drop Shaft | | |
|  | Orifice Plate | | |

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GR	Glass Reinforced Plastic
DI	Ductile Iron
PVC	Polyvinyl Chloride
CI	Cast Iron
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
PP	Polypropylene
PF	Pitch Fibre
MAC	Masonry, Coursed
MAR	Masonry, Random
U	Unspecified

Address or Site Reference:

Former Merseyside Dogs Home Former Dogs Home
Greensbridge Lane,
Halewood,
L35 1QH

OS sheet SJ4586NW
Number:
Scale: 1:1250 Date: 21/02/2023
Nodes: 200
Sheet: 4 of 4

Printed by: Property Searches

SEWER RECORDS



Adam McCulloch

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: Tuesday, March 14, 2023 11:40 AM
To: Adam McCulloch <adam.mcculloch@waterco.co.uk>
Subject: RE: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Hi Adam

Further to my previous email, please see below comments from our Geotechnical department:

Groundwater Protection

ADVISORY - The site overlies the sandstone rock, in a Groundwater Source Protection Zone (SPZ) 1 and 2. This forms an aquifer, abstracted at depth by United Utilities for public drinking water supply at the nearby Greensbridge boreholes. The applicant should follow best practice on their use and storage of fuels, oils and chemicals to remove the risk of causing pollution during construction.

Development in SPZ1

United Utilities consider this development, taking place within SPZ1, as the most sensitive location from a groundwater protection viewpoint. Notwithstanding our strong preference for development to not take place in locations within SPZ1, if the proposed development in this location is accepted through the planning process, we draw your attention to the advice of the Environment Agency on development in such locations 'The Environment Agency's approach to groundwater protection'. The document is available at:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

In the event that development within SPZ 1 is submitted for planning, the application must fully consider the potential pollutant risks during construction, as addressed in the Construction Environmental Management Plan (CEMP). United Utilities request to be consulted on the future development, and would expect to receive the CEMP, including Pollution Risk Assessments and Method Statements, detailing the following:

- i. Protection of surface and groundwater resources;
- ii. Best practise on the use and storage of fuels, oils and chemicals, to remove the risk of causing pollution during construction;
- iii. Traffic management on neighbouring highways and the parking of vehicles of site operatives and visitors;
- iv. loading and unloading of plant and materials;
- v. storage of plant and materials used in constructing the development;
- vi. wheel washing facilities; and
- vii. a scheme for recycling/disposing of waste resulting from demolition and construction works.

SuDS

Together with the Environment Agency, United Utilities supports the principles of sustainable drainage systems (SuDS) for new discharges. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of groundwater.

Discharge of clean roof water to ground

The discharge of clean roof water to ground is acceptable both within and outside SPZ1, provided that all roof water down-pipes are sealed against pollutants entering the system from surface run-off, effluent disposal or other forms of discharge.

The method of discharge must not create new pathways for pollutants to groundwater or mobilise contaminants already in the ground. No permit is required, if the above criteria can be met.

Please note that infiltration of surface water flows to ground, via methods such as soakaways, may not be suitable for use on this site, due to the presence of superficial clays impeding drainage.

Wastewater Drainage

United Utilities support the proposal for a connection into the foul sewer network. United Utilities would not support an outfall of foul sewage to ground, from any private wastewater treatment plant given the close proximity to the abstraction well.

We would recommend the applicant follow 'The Environment Agency's approach to groundwater protection' includes the following position statements on developments within SPZ1:

G8 - Sewerage pipework

"The Environment Agency will require the use of the highest specification pipework and designs for schemes involving new sewerage systems in SPZ1 to minimise leakage." UU recommend this includes secondary containment of the pipework, such as include clay lining sewer trenches.

G2 - Sewage effluent discharges inside SPZ1

"Inside SPZ1 all sewage effluent discharges to ground must have an environmental permit. All permit applications will be considered on the basis of risk assessment and the appropriateness of the discharge with respect to the local environmental setting. For new discharges you should contact the Environment Agency to discuss whether or not it is likely to grant a permit."

Kind regards



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----- Original Message -----

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 28/02/2023 10:58

To: adam.mcculloch@waterco.co.uk

Subject: RE: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Good morning Adam,

Pre Development Enquiry for: Former dogs home, Greenbridge Lane, Halewood UU Reference Number : 03662784

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water system.

Our preferred point of discharge would be to the 150mm diameter public foul water sewer within Bridgefield road located to the west of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

1. into the ground (infiltration);
2. to a surface waterbody;
3. to a surface water sewer or highway drain;
4. to a combined sewer.

For guidance, The [North West SuDS Pro-Forma](#) provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the waterbody located west of the proposed site.

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox

(SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/>

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

SuDS

If your development proposal incorporates any SuDS component(s) which interact with a sewer network you plan on offering for adoption to United Utilities; contact should be made with our technical team at your earliest convenience, please complete the 'Section 104 pre-application form : ' and include as much relevant detail as you can. These discussions can help prevent delays later in the development process.

[Section 104 Pre application form \(1b\)](#)

As per the sewerage sector guidance, all SuDS should be designed in accordance with the standards within the Design & construction guidance & the CIRIA SuDS manual (C753)

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

<https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/>

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

<https://www.water.org.uk/sewerage-sector-guidance-approved-documents/>

Many thanks and kind regards,



Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
unitedutilities.com

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----- Original Message -----

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 23/02/2023 13:01

To: adam.mcculloch@waterco.co.uk

Subject: 03662784 Former Dogs Home Greensbridge Lane Halewood L35 1QH

Dear Adam

PRE DEVELOPMENT APPLICATION AT: – UU Ref03662784

Please accept this email as receipt of your application received on 23.2.2023 for the above development. This has now been logged on our system and the job reference is 03662784 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Nicola Pilkington for technical assessment. You will receive their response within 8 working days.

Kind regards Jill



Jill Ellis
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Direct Tel: 01925 233 064
Tel: 0345 072 6067
unitedutilities.com

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Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry <https://www.unitedutilities.com/builders-developers/> or you can email us at WastewaterDeveloperServices@uuplc.co.uk

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Appendix E Proposed Development Plan



Greensbridge Lane 531

ARCHITECTURAL EMPORIUM Ltd
EMAIL: mail@architectural-emporium.co.uk
WEB: www.architectural-emporium.co.uk
ADDRESS: 13 Hope St, Liverpool, L1 9BQ
PHONE: +44 (0)151 363 0000



- North Point



Key:

Site Boundary



Proposed location for Sub Station nearby existing roads as per M&E advice

ATTENUATION STORAGE
- c. 153 sqm tank beneath apartment block shared open car park

Indicative position of existing power post as per Scottish Power Electricity Infrastructure records

ATTENUATION STORAGE
- c. 229 and c. 102 sqm attenuation ponds to the south-east of the site. Ponds offset 2 meters from assumed underground powerline as per Scottish Power Electricity Infrastructure records

Indicative position of high level power line cables as per Scottish Power Electricity Infrastructure records

RESIDENTIAL UNITS:

Type	Description	Bedrooms	GIFA		NO.
T01	Terrace	2	c.70sqm	c.753sq ft	11
T02 A	Semi Detached	3	c.89sqm	c.958sq ft	10
T02 B	Semi Detached	3	c.89sqm	c.958sq ft	8
T03	Detached	3	c.106sqm	c.1141sq ft	4
APT	Apartment	1	c.53.5sqm	c.576sq ft	6
TOTAL					39

Note: All areas stated do not include garages. Integral or otherwise

Rev*: First Issue

FOR: PLANNING
CHECKED BY: LC | DRAWN BY: AK
SCALE: 1:1000
PAPER SIZE: A3
JOB: GREENSBRIDGE LANE 531

2.010_Rev*

FIRST ISSUE: 24.03.23
MASTERPLAN LAYOUT

Appendix F ReFH2 Greenfield Runoff Rates

DOCUMENT VERIFICATION RECORD	
Project:	14506 – Former Merseyside Dogs Home, Halewood
Client:	BBE Developments Ltd
Report Title:	14506-Drainage Strategy-01
Date:	12/04/23

DOCUMENT REVIEW & APPROVAL	
Author:	Adam McCulloch
Checker:	Aled Williams BSc (Hons) MCIWEM C.WEM
Approver:	Mike Wellington BEng (Hons) MSc CEng Cenv FICE FCIWEM C.WEM IMaPS MAPM

ReFH2 RUNOFF RATES*	
Return Period (Years)	As-rural Peak Flow (l/s)
1	6.05
2	6.75
5	9.20
10	11.05
30	14.47
50	16.44
75	18.31
100	19.83
200	24.29
1000	38.10

*Runoff Rates printed from the ReFH Flood Modelling software package

Appendix G MicroDrainage Attenuation Storage Estimate

Waterco Ltd					Page 1																																																																																																																									
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240 min Summer	19.785	0.0	457.5	240																																																																																																																										
360 min Summer	14.379	0.0	498.6	360																																																																																																																										
480 min Summer	11.410	0.0	527.3	478																																																																																																																										
600 min Summer	9.519	0.0	549.7	524																																																																																																																										
720 min Summer	8.202	0.0	568.2	586																																																																																																																										
960 min Summer	6.480	0.0	598.1	712																																																																																																																										
1440 min Summer	4.653	0.0	642.9	982																																																																																																																										
2160 min Summer	3.354	0.0	698.8	1404																																																																																																																										
2880 min Summer	2.671	0.0	742.0	1816																																																																																																																										
4320 min Summer	1.958	0.0	815.4	2548																																																																																																																										
5760 min Summer	1.584	0.0	880.1	3232																																																																																																																										
7200 min Summer	1.351	0.0	938.8	3896																																																																																																																										
8640 min Summer	1.193	0.0	994.1	4584																																																																																																																										
10080 min Summer	1.077	0.0	1047.1	5248																																																																																																																										
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Date 24/03/2023 File		Designed by AM Checked by AW			
XP Solutions		Source Control 2020.1.3			
Summary of Results for 100 year Return Period (+45%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Winter	9.486	0.486	6.0	196.7	O K
30 min Winter	9.632	0.632	6.0	256.1	O K
60 min Winter	9.776	0.776	6.0	314.4	Flood Risk
120 min Winter	9.885	0.885	6.0	358.5	Flood Risk
180 min Winter	9.940	0.940	6.0	380.6	Flood Risk
240 min Winter	9.969	0.969	6.0	392.5	Flood Risk
360 min Winter	9.988	0.988	6.0	400.3	Flood Risk
480 min Winter	9.980	0.980	6.0	396.7	Flood Risk
600 min Winter	9.958	0.958	6.0	388.1	Flood Risk
720 min Winter	9.931	0.931	6.0	377.2	Flood Risk
960 min Winter	9.885	0.885	6.0	358.3	Flood Risk
1440 min Winter	9.789	0.789	6.0	319.4	Flood Risk
2160 min Winter	9.639	0.639	6.0	258.8	O K
2880 min Winter	9.487	0.487	6.0	197.2	O K
4320 min Winter	9.285	0.285	6.0	115.3	O K
5760 min Winter	9.176	0.176	5.7	71.3	O K
7200 min Winter	9.127	0.127	5.4	51.5	O K
8640 min Winter	9.112	0.112	4.8	45.4	O K
10080 min Winter	9.102	0.102	4.3	41.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Winter	138.620	0.0	198.3	16	
30 min Winter	91.120	0.0	260.4	31	
60 min Winter	57.015	0.0	329.9	62	
120 min Winter	33.720	0.0	390.1	120	
180 min Winter	24.721	0.0	428.9	178	
240 min Winter	19.785	0.0	457.5	236	
360 min Winter	14.379	0.0	498.6	350	
480 min Winter	11.410	0.0	527.3	458	
600 min Winter	9.519	0.0	549.7	564	
720 min Winter	8.202	0.0	568.2	650	
960 min Winter	6.480	0.0	598.1	742	
1440 min Winter	4.653	0.0	643.0	1052	
2160 min Winter	3.354	0.0	698.8	1516	
2880 min Winter	2.671	0.0	742.0	1876	
4320 min Winter	1.958	0.0	815.5	2552	
5760 min Winter	1.584	0.0	880.1	3176	
7200 min Winter	1.351	0.0	938.8	3744	
8640 min Winter	1.193	0.0	994.1	4464	
10080 min Winter	1.077	0.0	1047.3	5144	
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XP Solutions Source Control 2020.1.3		

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 345627 386568 SJ 45627 86568	
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.579

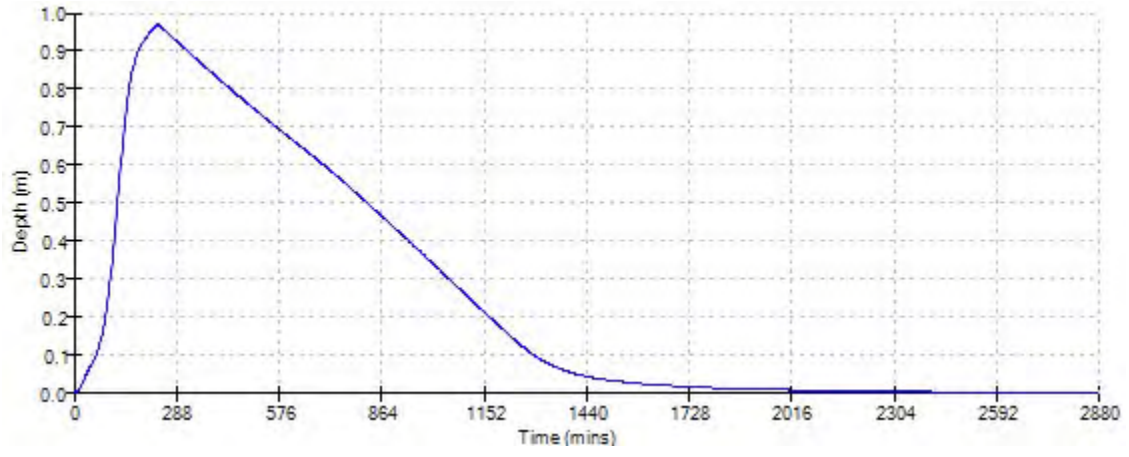
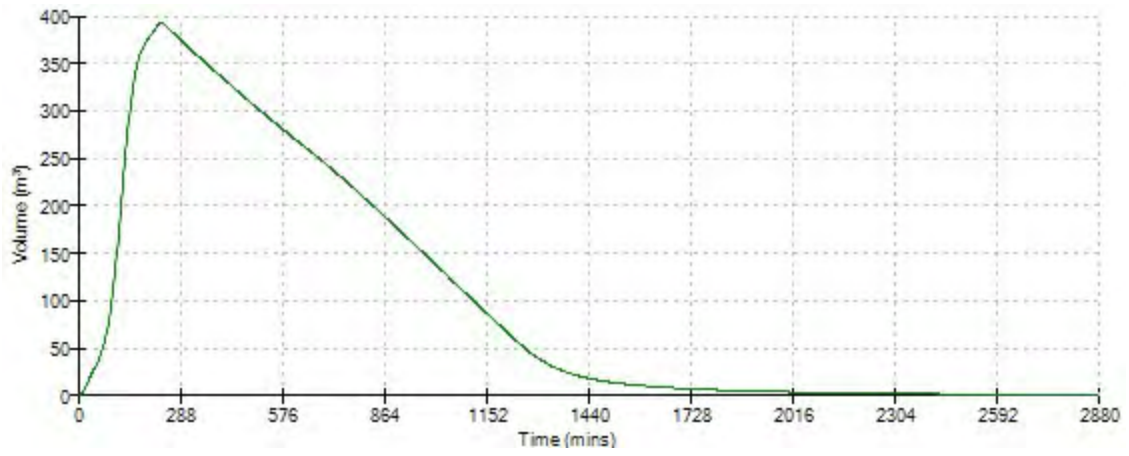
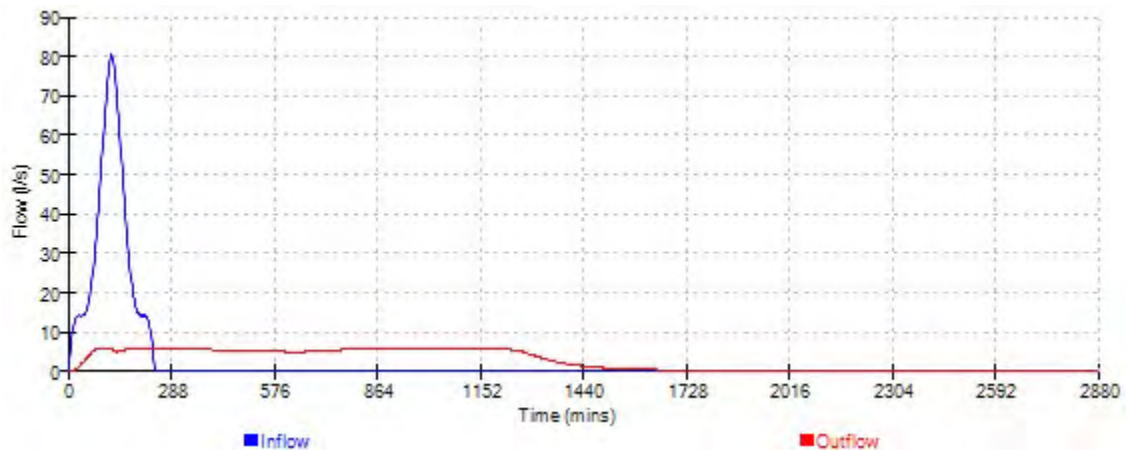
Time (mins)	Area
From:	To: (ha)
0	1 0.579

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Eden Court Lon Parcwr Business Park Denbighshire LL15 1NJ	Former Dogs Home Halewood																																																																																										
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Model Details Storage is Online Cover Level (m) 10.000 Tank or Pond Structure Invert Level (m) 9.000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>405.0</td><td>1.000</td><td>405.0</td></tr></tbody></table> Hydro-Brake® Optimum Outflow Control Unit Reference MD-SHE-0115-6000-1000-6000 Design Head (m)1.000 Design Flow (l/s)6.0 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)115 Invert Level (m)8.995 Minimum Outlet Pipe Diameter (mm)150 Suggested Manhole Diameter (mm)1200 <table><thead><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr></thead><tbody><tr><td>Design Point (Calculated)</td><td>1.000</td><td>6.0</td></tr><tr><td>Flush-Flo™</td><td>0.298</td><td>6.0</td></tr><tr><td>Kick-Flo®</td><td>0.647</td><td>4.9</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>5.2</td></tr></tbody></table> The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><thead><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr></thead><tbody><tr><td>0.100</td><td>4.0</td><td>1.600</td><td>7.5</td><td>5.000</td><td>12.8</td></tr><tr><td>0.200</td><td>5.8</td><td>1.800</td><td>7.9</td><td>5.500</td><td>13.4</td></tr><tr><td>0.300</td><td>6.0</td><td>2.000</td><td>8.3</td><td>6.000</td><td>14.0</td></tr><tr><td>0.400</td><td>5.9</td><td>2.200</td><td>8.7</td><td>6.500</td><td>14.5</td></tr><tr><td>0.500</td><td>5.7</td><td>2.400</td><td>9.0</td><td>7.000</td><td>15.0</td></tr><tr><td>0.600</td><td>5.3</td><td>2.600</td><td>9.4</td><td>7.500</td><td>15.5</td></tr><tr><td>0.800</td><td>5.4</td><td>3.000</td><td>10.0</td><td>8.000</td><td>16.0</td></tr><tr><td>1.000</td><td>6.0</td><td>3.500</td><td>10.8</td><td>8.500</td><td>16.5</td></tr><tr><td>1.200</td><td>6.5</td><td>4.000</td><td>11.5</td><td>9.000</td><td>17.0</td></tr><tr><td>1.400</td><td>7.0</td><td>4.500</td><td>12.2</td><td>9.500</td><td>17.4</td></tr></tbody></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	405.0	1.000	405.0	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	6.0	Flush-Flo™	0.298	6.0	Kick-Flo®	0.647	4.9	Mean Flow over Head Range	-	5.2	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	4.0	1.600	7.5	5.000	12.8	0.200	5.8	1.800	7.9	5.500	13.4	0.300	6.0	2.000	8.3	6.000	14.0	0.400	5.9	2.200	8.7	6.500	14.5	0.500	5.7	2.400	9.0	7.000	15.0	0.600	5.3	2.600	9.4	7.500	15.5	0.800	5.4	3.000	10.0	8.000	16.0	1.000	6.0	3.500	10.8	8.500	16.5	1.200	6.5	4.000	11.5	9.000	17.0	1.400	7.0	4.500	12.2	9.500	17.4
Depth (m)	Area (m²)	Depth (m)	Area (m²)																																																																																								
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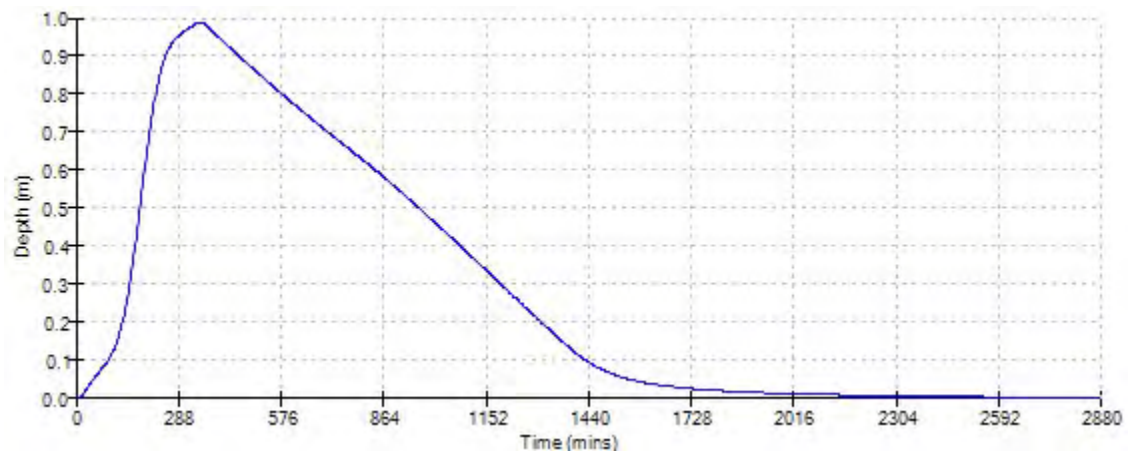
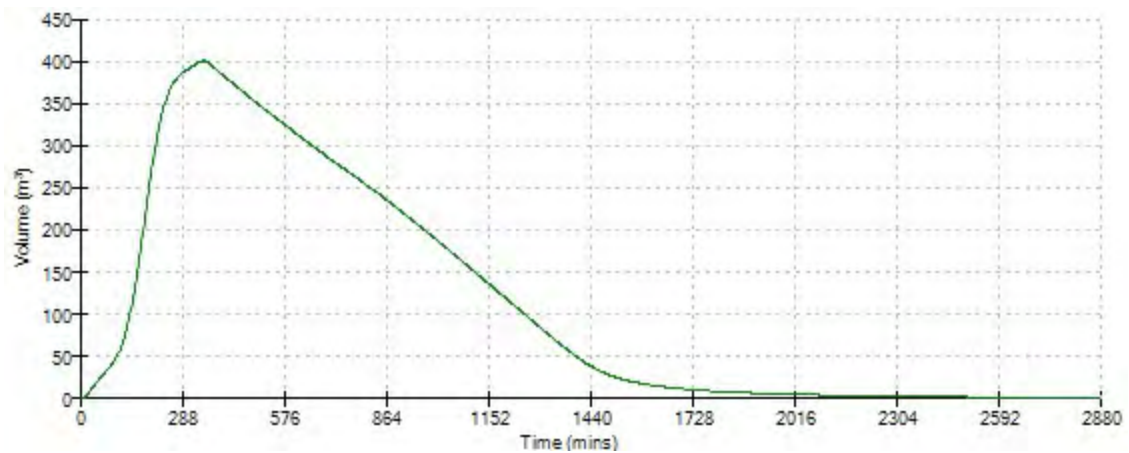
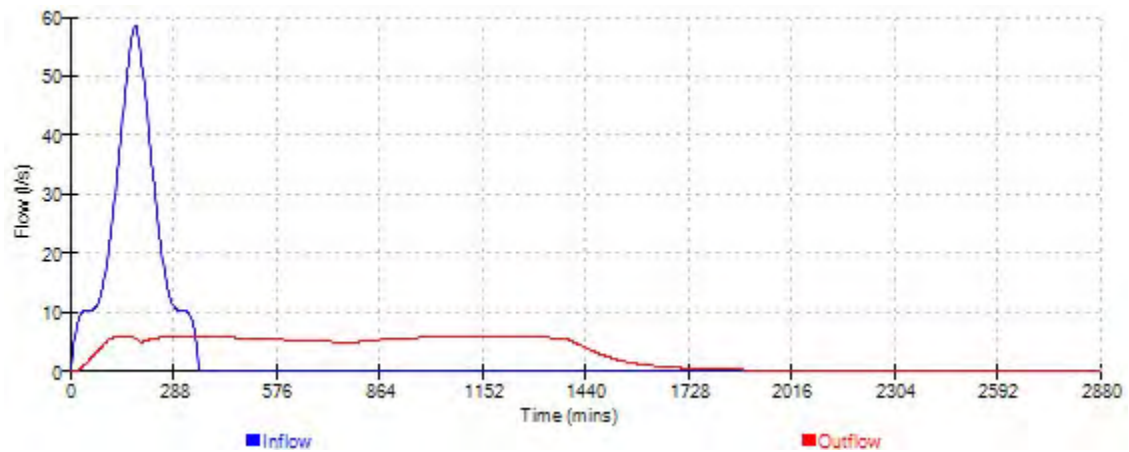
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Event: 240 min Winter



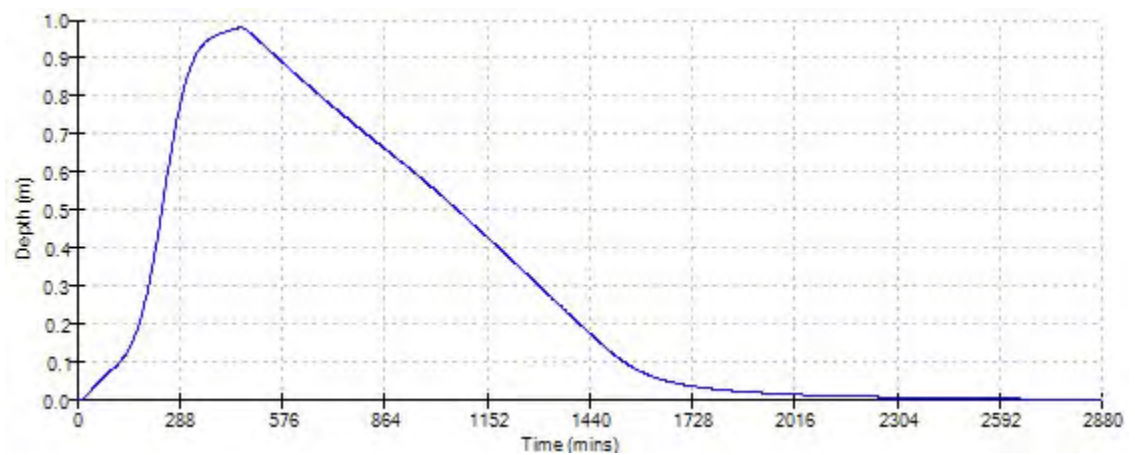
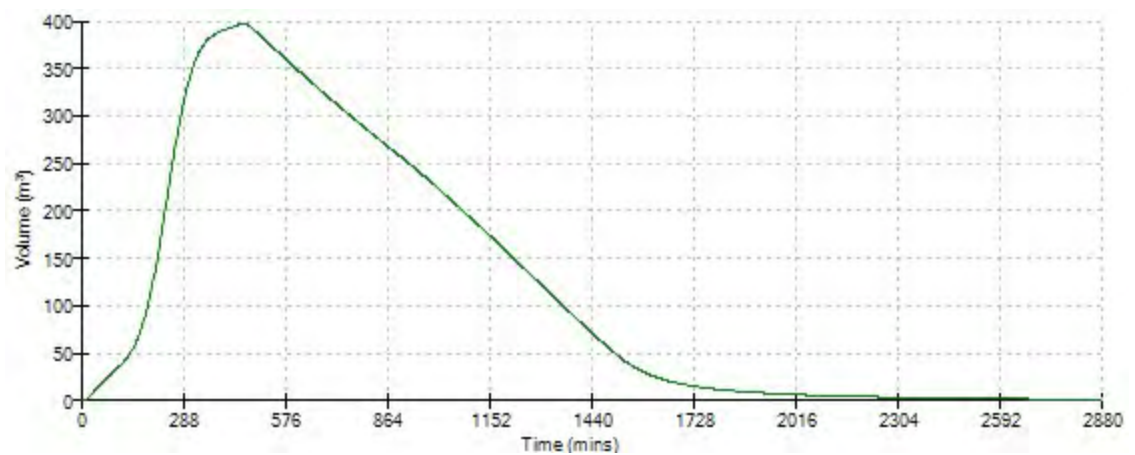
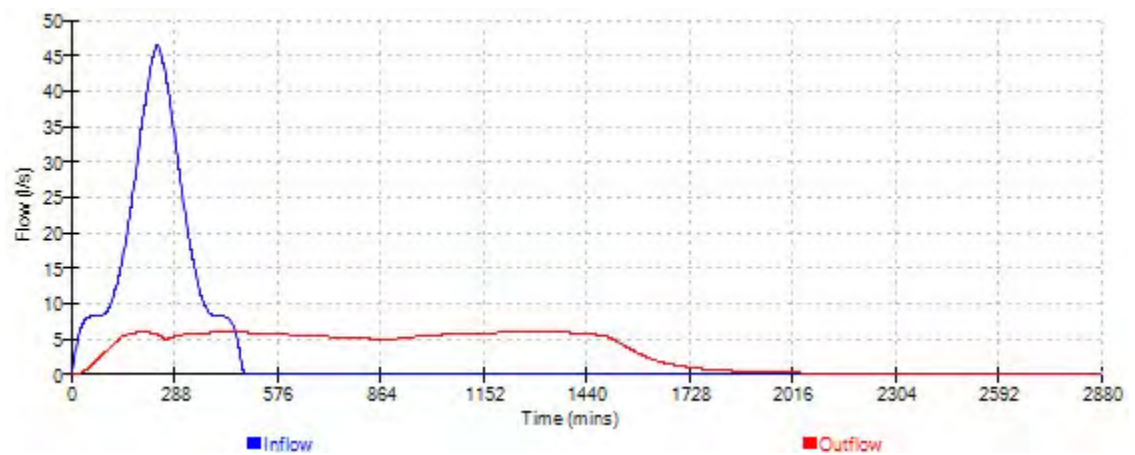
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Event: 360 min Winter

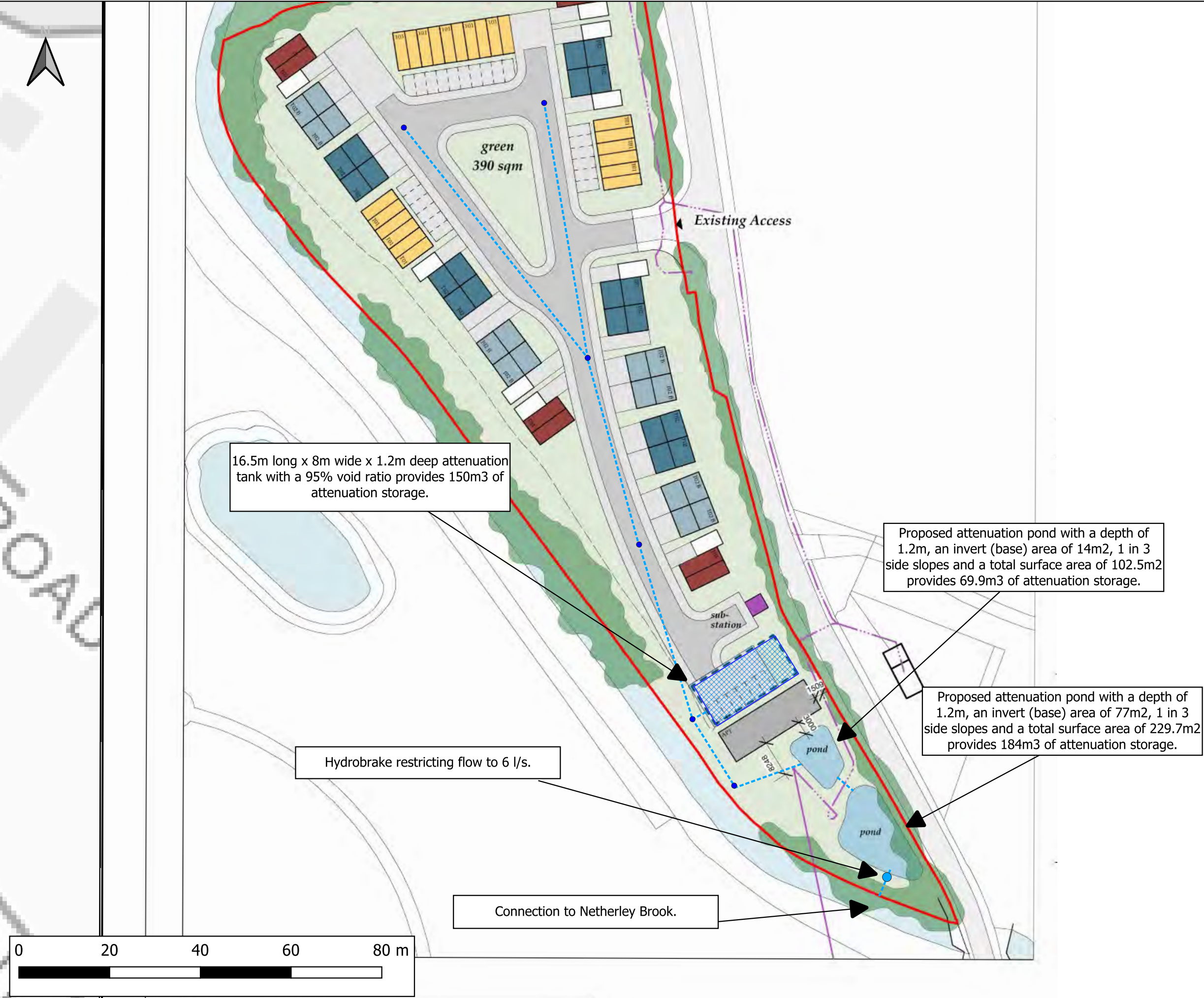


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Event: 480 min Winter



Appendix H Concept Drainage Sketch



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Attenuation Tank
- Pond
- Surface Water Drain
- Flow Control Chamber
- Surface Water Inspection Chamber

CLIENT:
BBE Developments Ltd

waterco
www.waterco.co.uk

SCHEME:
Former Merseyside Dogs Home, East Halewood

PLOT TITLE:
Concept Drainage Sketch

PLOT STATUS: FINAL		DATE: 05-05-2023
DRAWN: AM	CHECKED: AW	APPROVED: MW
PLOT NAME: 14506_Concept_Drainage_Sketch		REVISION: -

PLOT SCALE AT A3:
1:800

Appendix I Maintenance Schedules

Operation and Maintenance Requirements for Ponds and Wetlands

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season), or as required
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage, and / or physical damage.	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options.	Half yearly
	Check any mechanical devices e.g. penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Remove sediment from any forebay	Every 1 – 5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, e.g. 25-50 years
Remedial actions	Repair erosion or other damage	As required
	Replant where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate of Inlets, outlets and overflows	As required

Ref. Table 23.1 CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Attenuation Storage Tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas 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

Ref. Table 21.3, CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Appendix J Concept Designers Risk Assessment (cDRA)

Project: Former Merseyside Dogs Home, Halewood
Client: BBE Developments
Report Reference: 14506-Drainage Strategy-01

Project No: 14506

Prepared by:	Adam McCulloch	Date:	16/04/2023
Checked by:	Aled Williams	Date:	27/04/2023
Reviewed by:	Mike Wellington	Date:	01/05/2023

Requirement:

The Construction (Design and Management) Regulations 2015 (CDM 2015) place an obligation on the Designer to take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under CDM. The Designer has undertaken this assessment to identify any extra-ordinary risks, or those that would not be expected on this particular project by an experienced and competent Contractor. The aim is to avoid needless paperwork and bureaucracy and ensure the assessment is project specific, relevant and proportionate to the risk.

DRA Summary

Each of the following risk areas has been considered using the question below. Is a risk present which is considered to be **extra-ordinary or unexpected** in this instance?

If **YES** - A detailed risk assessment is required at design stage

If **UNKNOWN** - Insufficient information has been provided at concept design stage and the risks are unknown. Further consideration must be given at design stage(s)

If **NO** - No further action is required.

Hazard Ref.	Risk Areas	YES, UNKNOWN or NO	Comments
1	Ground Conditions	Unknown	To be confirmed at detailed design stage
2	Hazardous Environment	Unknown	To be confirmed at detailed design stage
3	Existing Working Environment	Unknown	To be confirmed at detailed design stage
4	Existing Services	Yes	Overhead electricity cable crossing southern extent of site
5	Proximity to Other Structure(s)	Unknown	To be confirmed at detailed design stage
6	Near Waterbody / flood risk	Yes	Netherley Brook located immediatley west of the site
7	Proximity to Other Activities	Unknown	To be confirmed at detailed design stage
8	Sequence of Construction	Unknown	To be confirmed at detailed design stage
9	Access	Unknown	Access provided from Greensbridge Lane
10	Interfaces	Unknown	To be confirmed at detailed design stage
11	Confined Space Working	Unknown	To be confirmed at detailed design stage
12	Maintenance Considerations	Unknown	To be confirmed at detailed design stage
13	Working at Height	Unknown	To be confirmed at detailed design stage
14	Steep Slopes	No	To be confirmed at detailed design stage
15	Demolition / Refurbishment / Repair	Yes	Demolition of existing Dogs home and dwelling
16	Welfare	Unknown	To be confirmed at detailed design stage
17	Occupational Health	Unknown	To be confirmed at detailed design stage
18	Environmental Issues	Yes	GPZ further consideration to be iundertaken at detailed design stage
19	Other Significant Hazards not Identified Above	Unknown	To be confirmed at detailed design stage
20	Residual Risk to Future Users	Unknown	To be confirmed at detailed design stage