

Drainage Strategy Report

SPAR Store
Littleborough

PN0051-PEL-DS-01

16.12.22

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Project No: PN0051

Date: December 2022

Revision	Purpose	Date
1.0	First Issue.	11.11.22
1.1	UU Pre-Development enquiry added.	01.12.22
1.2	Drainage updated to latest architectural layout.	16.12.22

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1. INTRODUCTION

The following proposal outlines the foul and storm water drainage management system proposed for a new convenience store, customer car park and associated infrastructure.

The proposed site is accessible from Smithy Bridge Road, adjacent to the northern border of the proposed development. The site is surrounded by residential properties to the east, south and west with business premises to the north across Smithy Bridge Road.

The site is approximately 0.146 ha (1460m²) in size and is considered brownfield and currently comprises a former mechanical workshop.

The existing buildings are to be demolished to facilitate the construction of the new store.

The site falls steeply to the West with ground levels approximately between 167.00 AOD to 164.700m AOD.

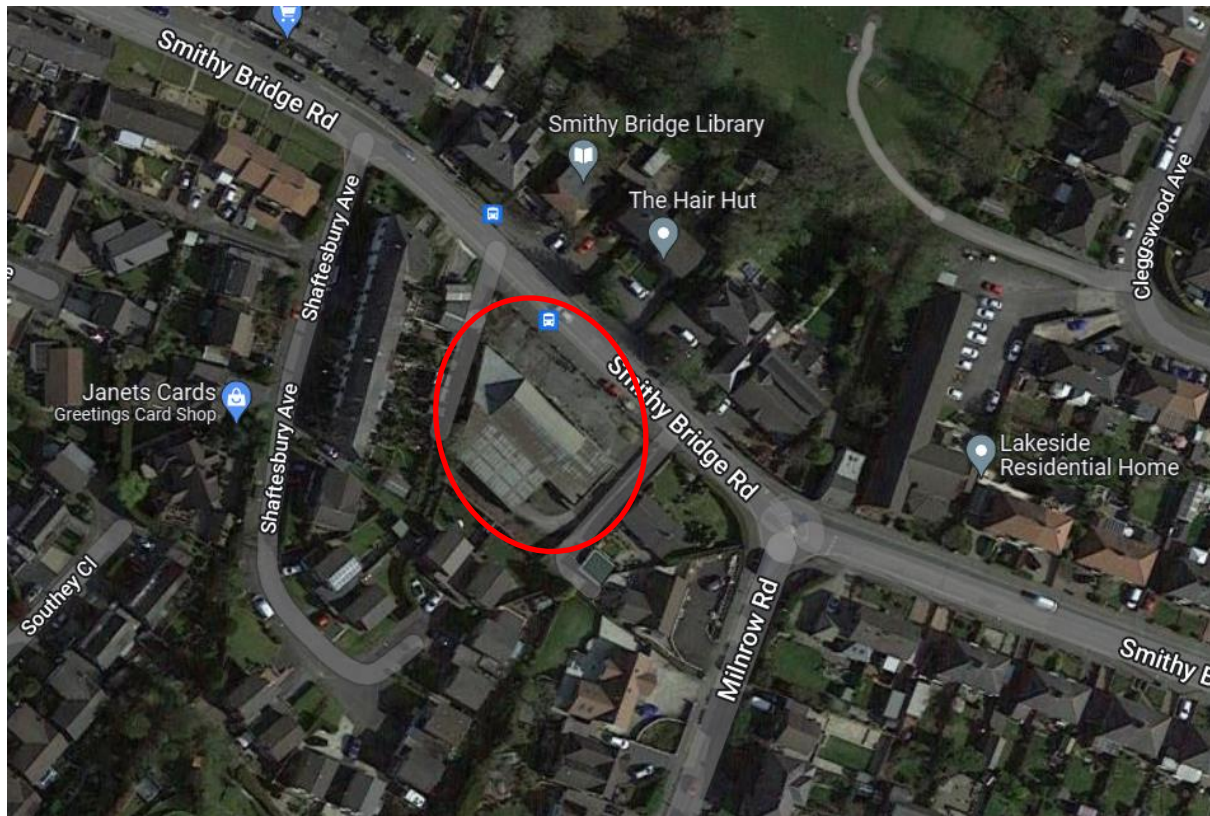


Figure. 1 Site Location

2. DRAINAGE DESIGN PROPOSALS

3.1 Design Parameters

Accordingly, Pluviam Environmental has reviewed the information provided and considered an approach based on previous experience of similar sites and current SuDS guidance provided in:

- National Planning Policy Framework (NPPF 25)
- Bury Rochdale and Oldham Strategic Flood Risk Assessment
- CIRIA report C753 (2016); The SUDS manual
- CIRIA report C680 (2008); Structural design of modular geocellular drainage tanks
- CIRIA Report C724 (2013) Creating water sensitive places-scoping the potential for water sensitive urban design in the UK
- BS 8582:2013, Code of practice for surface water management for development sites
- BS EN 752:2017, Drain and sewer systems outside buildings.
- BS EN 12056-3:2000: Gravity drainage systems inside buildings- Part 3: Roof drainage, layout and design

3.2 Sustainable Drainage Systems

The NPPF requires that surface water arising from a developed site should as far as practicable be managed in a sustainable manner to mimic the surface water flows arising from the site prior to re-development. Opportunities to reduce the surface water run-off and the associated flood risk should be identified and climate change should be taken into account. Building Regulations (Part H), NPPF and Environment Agency advice notes require the consideration of sustainable drainage techniques based on a hierarchical approach to the management of surface water, with the emphasis on the use of Source Control techniques and a treatment train as the preferred option.

Surface water flows should be designed to discharge to:

1. Infiltration based systems e.g. soakaways / porous pavements etc.
2. Watercourses
3. Surface water sewers
4. Combined water sewers

Discharge via infiltration

Where possible, infiltration should be incorporated into the final design of the drainage. Infiltration should be the first consideration for drainage outfall.

It should be noted that the BGS notes Till as the superficial deposits. Boreholes on site show Clay as the underlying strata to depth, see Appendix A. Therefore, it is unlikely that discharge via infiltration is likely to be possible.

Discharge via a watercourse

There are no watercourses close to the development site to allow connection. The closest watercourse is Rochdale Canal, approximately 400m from the development.

Discharge to surface water sewer

There is no separate surface water sewer close to the development to allow collection of site discharge.

Discharge to combined sewer

For the purposes of this report, it is assumed that the site will discharge to the combined sewer network unless percolation test prove that infiltration is possible. However, this is unlikely due to the presence of Clays on site.

3.3 Engineering Challenges

The key engineering challenges for this site from a drainage design perspective are:

- Managing the 100 year storm event with 40% added to peak flows for climate change;
- Treatment of surface water runoff;
- Attenuation and discharge into the local combined sewer at 3 l/s.

3.4 Stormwater Calculation Inputs

The SuDS system is designed to store and attenuate below ground a 100yr return period storm event plus an additional 40% for climate change.

Location:	Littleborough
FSR Data	
M5-60 rainfall depth:	19.000
Rainfall ratio, r:	0.32

Impermeable Catchment area

0.13 ha

Storm Event:

100 years

Climate Change Factor:

40%

3. OVERVIEW OF DRAINAGE PROPOSALS

4.1 Outline Design

The SuDS design is based on achieving source control and treatment of the run-off from the proposed new retail store, car park and hardstanding areas.

The proposed drainage shall discharge to the combined sewer adjacent to site and running within Smithy Bridge Road (levels to be confirmed).

The collected hardstanding area shall be collected in Permaceptor petrol interception gullies for treatment at source prior to discharging into a geocellular attenuation tank.

The building roofs shall discharge to the southwest of the site and will discharge into a new surface water piped drainage network. The collected discharge flows into the geocellular attenuation tank.

The outfall from the geocellular attenuation tank will discharge via a flow control chamber, incorporating a suitably sized Hydrobrake device. The outfall to the United Utilities combined sewer manhole adjacent to site will be restricted 3 l/s during the 1in100+40% climate change storm event.

The foul water network collects the bin store and the interior pop-up connections with discharge direct to the existing combined sewer manhole adjacent to site.

The drainage systems will work under gravity principles, levels to be confirmed.

The location of all access and demarcation chambers shall be coordinated with the architectural layouts and positioned to provide sufficient access for maintenance and aesthetically acceptable.

Please refer to: PEL outline layout drawing PN0051-PEL-XX-XX-DR-Y-0001, Appendix D, for proposed foul and surface water drainage layout and details. The outline surface water calculations completed in Causeway can be found in Appendix E.

The United Utilities Pre-Development enquiry can be found in Appendix F.

4.2 Surface Water Treatment Components

This section has been incorporated to provide evidence in relation to how the water quality from the site will be managed to ensure that the levels of contamination are within the guidelines set out within the Water Framework Directive (WFD).

It is proposed to incorporate an engineered drainage system which incorporates treatment and source control.

4.2.1 Catchpit Inspection Chambers

Catchpit inspection chambers are a traditional SuDS device that reduces the velocity of the flow of stormwater flowing through the chamber to allow the settling of detritus and silts in the pit at the bottom of the inspection chamber.

4.2.2 Linear Drainage Channels

The Linear channel system is typically used for the collection of run-off from surfaces of car parks, access road or similar. As siltation develops in the channel and sump outlets this traps oil within the contaminated silt in an aerobic environment and is then subject to biodegradation.

4.2.3 Permaceptor

The Permaceptor functions as a combined run-off collection, silt/oil interceptor and treatment feature within the Permavoid system. It is designed to be used with conventional road/yard gullies and is ideally laid with zero gradient to prevent the development of lateral velocities. Its initial function is to 'still' sheet run-off from each sub-catchment and to encourage silt deposition. The outlet discharges via a weir and baffle component that separates oils and prevents the effluent and silt from reaching the rest of the drainage system.

4.2.4 Modular Plastic Geocellular Units (Polystorm)

Polystorm (PSM1a) is a 1000 x 500 x 400mm deep modular interlocking plastic geocellular unit system designed for use as a subterranean drainage storage component and has a high compressive strength (610kN/m²) and a high void ratio (95%) to achieve highly efficient water storage capacity.

Polystorm inspect is a 1000 x 500 x 400mm deep modular interlocking plastic geocellular unit incorporating a tunnel along the length of a fully installed Polystorm structure to enable access for inspection and maintenance. It has a high compressive strength (440kN/m²) and a high void ratio (94%) to achieve highly efficient water storage capacity.

4.2.4 Permatex 300 SuDS Geotextile

The Permatex 300 SuDS geotextile is a heavy duty, non-woven, needle punched polypropylene geotextile designed to protect and separate sub base layers. It comprises a three-layer composite scrim reinforced with low elongation. The geotextile should be laid continuously around the Polystorm Attenuation tank, 300mm joint lapping is recommended.

4.2.5 Impermeable Geomembrane

An impermeable robust and heavy duty liner that is resistant to puncture used to form water tight sustainable drainage systems. Jointing shall be formed using fusion or extrusion bead welding in accordance with manufacturing recommendations.

4. MAINTENANCE

We would recommend that Pre-handover inspections and cleaning of all, rainwater inlet, flow control and overflow chambers is carried out.

Routine Inspection

Routine inspection should include:

- Quarterly inspections of back inlet gullies and inspection chambers
- quarterly inspections of inspection chambers.
- quarterly inspections of linear gullies.
- Yearly inspection of geocellular attenuation tank.

Routine maintenance

The following routine maintenance procedures are recommended:

- Remove silt/debris from back inlet gullies and yard gullies as required.
- Remove silt/debris from inspection chambers as required.
- Remove silt/debris from linear drainage channels as required.
- Remove siltation from attenuation tank via low flow high volume pressure jetting.
- Records of inspections and maintenance undertaken should be kept by the client.

Management of maintenance to be undertaken by the site owner.

5. CONCLUSION

The proposed SuDS design meets the requirements of the CIRIA SuDS Manual C753.

The system is designed to collect, treat, and attenuate the rainwater runoff from the new impermeable areas and discharge into the existing combined drainage system, should infiltration prove unfeasible.

The proposed surface water drainage system combines existing conventional drainage principles and products along with source control techniques and components.

Appendix A

Site Investigation – Borehole Extracts



11 The Mending Rooms
Sunny Bank Mills
Town St., Farsley, LS28 5UJ
0113 257 5397

Borehole Log

Borehole No.

WS1

Sheet 1 of 1

Project Name:	Lake Garage, Littleborough	Project No.	0566	Co-ords:		Hole Type	WS
Location:	Littleborough	Level:		Scale	1:50	Logged By	
Client:	Lincolnshire Coop	Dates:	03/11/2020				

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	PID	PID=0	0.15 0.20 0.30			TARMAC.	1
								MADE GROUND: Grey sandy clayey gravel fill.	
		0.80	PID	PID=0				SAND: Brown/orange SAND. Damp.	
		1.10	PID	PID=0				GRAVEL: Yellow/brown cobbly sandy gravel of fine, weathered, brittle shale. Cobbles and gravels of sandstone.	
					1.20			End of Borehole at 1.20m	2
									3
									4
									5
									6
									7
									8
									9
									10

Remarks	Refused at 1.2m on obstruction.
---------	---------------------------------



11 The Mending Rooms
Sunny Bank Mills
Town St., Farsley, LS28 5UJ
0113 257 5397

Borehole Log

Location Details:
Southern corner of the site.

Borehole No.
WS2
Sheet 1 of 1

Project Name:
Lake Garage, Littleborough

Project No.
0566

Co-ords:

Hole Type
WS

Location:
Littleborough

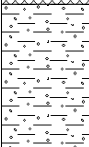
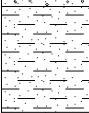
Level:

Scale
1:50

Client:
Lincolnshire Coop

Dates:
03/11/2020

Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			TARMAC.	
		0.30	PID	PID=0	0.25			MADE GROUND: Grey sandy clayey gravel fill. MADE GROUND: Soft to firm gravelly clay. Gravels of red brick and occasional coal fragments.	
		0.80	PID	PID=0	0.85			CLAY: Soft to firm grey/brown slightly gravelly CLAY. Gravels are rounded of pebbles. Occasional coal fragments.	1
		1.20	PID	PID=0					
		1.80	PID	PID=0	1.80			GRAVEL: Grey slightly silty slightly clayey very sandy GRAVEL. Gravels of pebbles and siltstone. Wet.	2
		2.20	PID	PID=0	2.20			CLAY: Soft to firm very sandy slightly gravelly CLAY. Damp.	
		2.80	PID	PID=0	2.90			End of Borehole at 2.90m	3
								4	
								5	
								6	
								7	
								8	
								9	
								10	

Remarks

Refused at 2.9m on siltstone. Some groundwater noted at the bottom.

		11 The Mending Rooms Sunny Bank Mills Town St., Farsley, LS28 5UJ 0113 257 5397		Borehole Log			Borehole No. WS3	
		Location Details:		Directly south of the dismantled AST to the rear of the garage.			Sheet 1 of 1	
Project Name: Lake Garage, Littleborough		Project No. 0566		Co-ords:			Hole Type WS	
Location: Littleborough				Level:			Scale 1:50	
Client: Lincolnshire Coop				Dates: 03/11/2020			Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			TARMAC.	1
					0.20			MADE GROUND: Grey sandy clayey gravel fill.	
					0.40			MADE GROUND: Firm brown/red gravelly CLAY.	
								Gravels of red brick.	
								CLAY: Soft to firm plastic dark grey CLAY.	
					0.80			CLAY: Soft plastic light grey CLAY.	
					1.20			GRAVEL: Grey slightly silty slightly clayey very sandy GRAVEL. Gravels of pebbles and silstone. Wet.	
					1.80				
					1.90				
					2.10			CLAY: Soft to firm grey very sandy silty CLAY.	
			2.30						
			2.50			GRAVEL: Grey/brown loose silty clayey sandy GRAVEL.			
			2.60			SAND: Brown SAND. Wet.			
			3.30			CLAY: Firm brown slightly sandy CLAY.			
			3.50			End of Borehole at 3.50m			
								4	
								5	
								6	
								7	
								8	
								9	
								10	

Remarks
 Refused at 3.5m on stiff clay.

Borehole Log

Borehole No.

WS4

Sheet 1 of 1

Project Name: Lake Garage, Littleborough

Project No.	0566
-------------	------

Near former SB4 location. Eastern corner of the maintenance garage.

Co-ords:

Hole Type	WS
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Location: Littleborough

Level:

Scale
1:50

Client: Lincolnshire Coop

Dates: 03/11/2020

Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.30	PID	PID=0	0.10 0.20 0.25		 TARMAC.	MADE GROUND: Dark grey/black sandy gravel fill. MADE GROUND: Red brick and sandstone cobble. CLAY: Soft to firm grey/orange/brown CLAY with occasional fragments of coal and siltstone gravels.	1	
		0.80	PID	PID=0						
		1.30	PID	PID=0						
		1.80	PID	PID=0	1.80 1.90		 SILT: Grey slightly clayey SILT. Damp.	SAND: Brown SAND with occasional shale fragments. Wet.	2	
		2.30	PID	PID=0						
					2.50		 CLAY: Soft to firm brown sandy CLAY with occasional siltstone gravels.	3		
			3.50		End of Borehole at 3.50m	4				
								5		
								6		
								7		
								8		
								9		
								10		

Remarks

Refused at 3.5m in clay.

Borehole Log

Borehole No.

WS5

Sheet 1 of 1

Project Name: Lake Garage, Littleborough

Project No.
0566

Co-ords:

Hole Type	WS
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Location: Littleborough

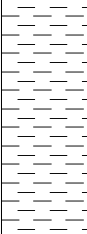
Level:

Scale
1:50

Client: Lincolnshire Coop

Dates: 03/11/2020

Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	PID	PID=0	0.10 0.20 0.40			TARMAC.	1 —
								MADE GROUND: Grey sandy clayey gravel fill.	
								MADE GROUND: Red brick crush.	
								CLAY: Stiff grey/orange/brown CLAY with occasional sandstone cobbles. Becoming more competent with depth.	
		0.80	PID	PID=0				2 —	
		1.20	PID	PID=0				3 —	
		1.80	PID	PID=0	2.00			4 —	
								5 —	
								6 —	
								7 —	
								8 —	
								9 —	
								10 —	
				</					

Remarks

Refused at 2.0m in clay.

		11 The Mending Rooms Sunny Bank Mills Town St., Farsley, LS28 5UJ 0113 257 5397		Borehole Log			Borehole No. WS6	
				Location Details: West of an old tank farm area.			Sheet 1 of 1	
Project Name: Lake Garage, Littleborough		Project No. 0566		Co-ords:			Hole Type WS	
Location: Littleborough					Level:			Scale 1:50
Client: Lincolnshire Coop					Dates: 03/11/2020			Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10			TARMAC.	
					0.20			MADE GROUND: Dark grey/black sandy gravel fill.	
					0.35			TARMAC.	
					0.60			MADE GROUND: Soft to firm, grey/orange/brown	
								CLAY with red brick and sandstone gravels.	
								CLAY: Soft to very stiff brown CLAY with coal fragments.	
					2.80			End of Borehole at 2.80m	

Remarks
 Refused at 2.8m in clay. Two layers of tarmac.

		11 The Mending Rooms Sunny Bank Mills Town St., Farsley, LS28 5UJ 0113 257 5397		Borehole Log			Borehole No. WS7		
		Location Details:		North of an old tank farm.			Sheet 1 of 1		
Project Name: Lake Garage, Littleborough		Project No. 0566		Co-ords:			Hole Type WS		
Location: Littleborough					Level:			Scale 1:50	
Client: Lincolnshire Coop					Dates: 03/11/2020			Logged By	
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10		            	TARMAC.	
					0.20			MADE GROUND: Beige/red/dark brown gravel crush of sandstone, brick and mixed lithologies.	
	0.30	PID	PID=0		0.40			CLAY: Grey beige sandy CLAY.	
	0.80	PID	PID=0		0.50			CLAY: Soft grey CLAY with occasional wood fragments.	
	1.20	PID	PID=0					CLAY: Soft to firm, brown CLAY with occasional coal fragments and sandstone gravels.	1
1.80	PID	PID=0					2		
2.90	PID	PID=0		2.90			End of Borehole at 2.90m	3	
								4	
								5	
								6	
								7	
								8	
								9	
								10	
Remarks Refused at 2.9m in clay.									

Appendix B

United Utilities Sewer Record Map

Pluviam Environmental Limited

kemp House
160 City Road,
London, Shropshire
EC1V 2NX

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: New Store
Our Ref: UUPS-ORD-446077
Date: 10/11/2022

Dear Sirs

Location: 138 SMITHY BRIDGE ROAD, LITTLEBOROUGH, OL15 0BQ

I acknowledge with thanks your request dated 09/11/2022 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

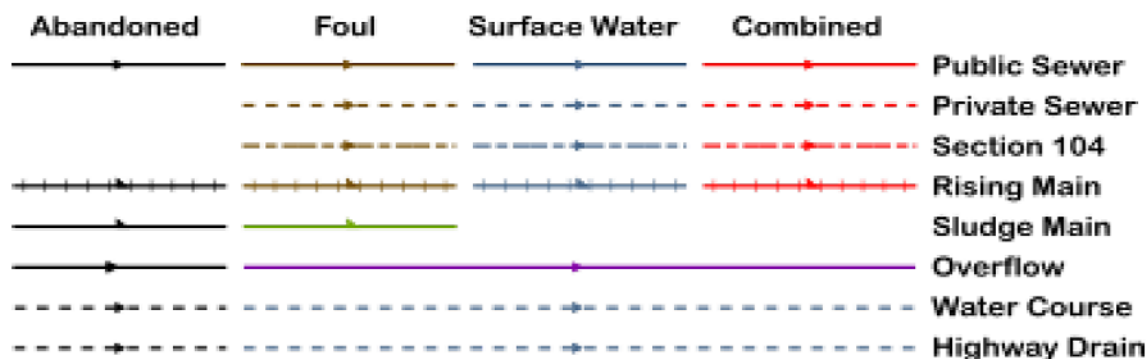
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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.

Wastewater Symbolology



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

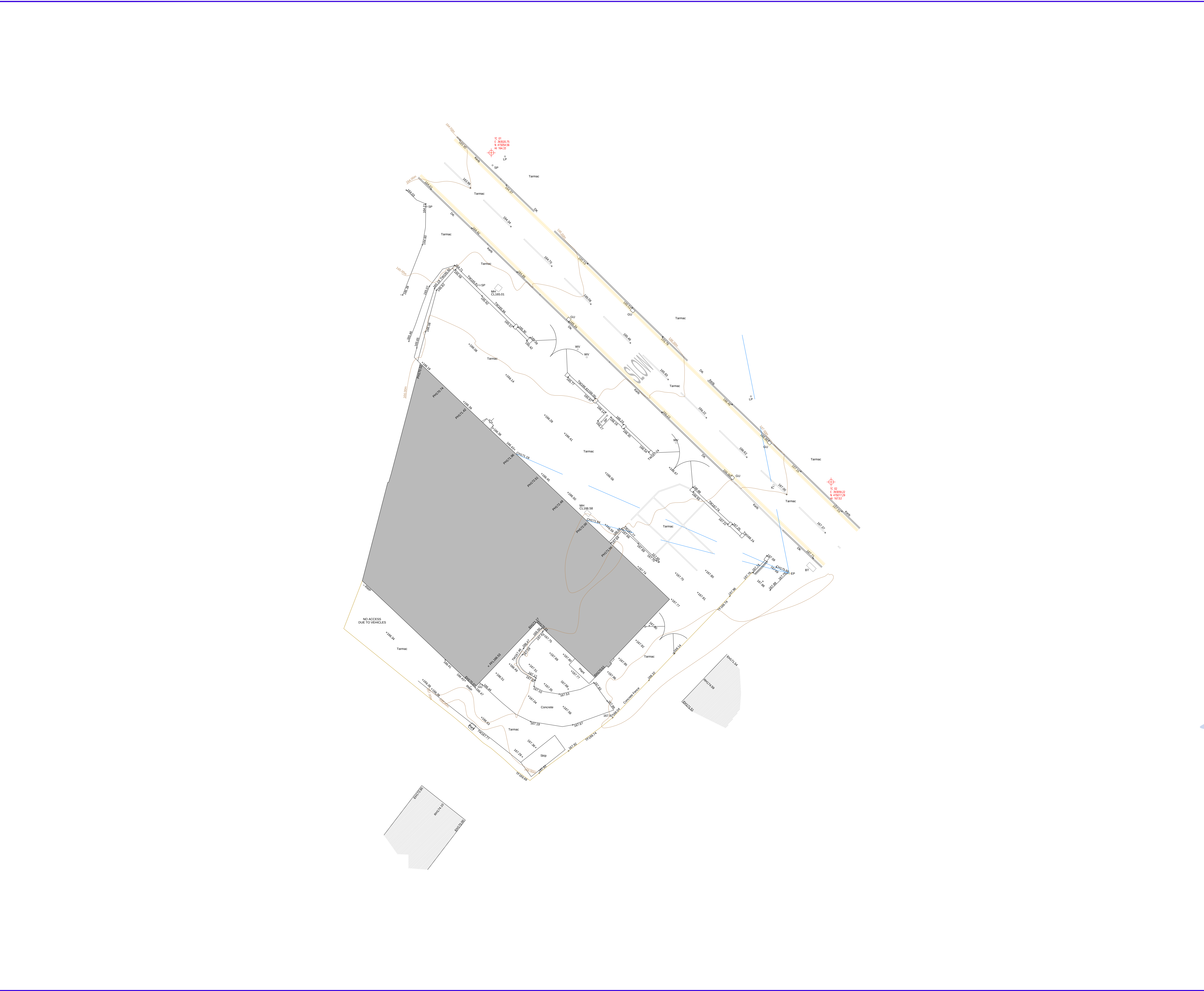
Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock 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	
Drop Shaft	Change of Characteristic
Orifice Plate	



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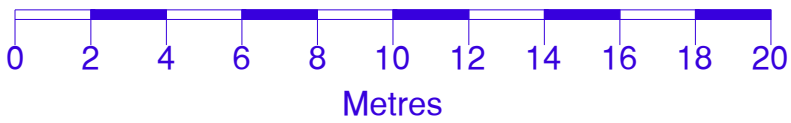
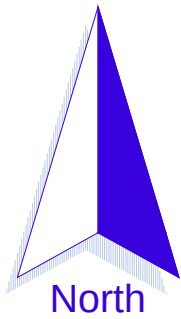
Appendix C

Topographical Survey



Notes

All Dimensions to be checked on site. Walls shown on plans are not to be assumed to be solid & should be checked for thickness, construction, load bearing capacity & stability.



ABBREVIATIONS

- CL Cover Level
- CH Cable Height
- DK Drop Kerb
- EH Eaves Height
- EP Electric Pole
- FFL Finished Floor Level
- GU Gully
- LP Lamp Post
- MH Man Hole
- PH Parapet Height
- RH Ridge/Roof Height
- RWP Rain Water Pipe
- SP Sign Post
- TF Top of Fence
- TW Top of Wall
- WV Water Valve

NOTE

All levels and coordinates relate to OSGB36 using GNSS data.
Levels defining edge of carriageway are observed at channel (bottom of kerb).

Rev.0 Description. Issued



2 Berkshire Close | Wilpshire | Blackburn | Lancashire | BB1 9NG
tel 01254 614055 fax 01254 209754 e-mail sales@tricadsolutions.co.uk

Site Address

Lake Garage, Smithy Bridge Road
Littleborough, OL15 0BQ

Project Description

Existing Site Survey

Drawing Title

Site Survey

Scale	Date	Drawn By
1:200@A1	20/07/2016	SN

Drawing Number

TRI-1773-01

Appendix D

Proposed Outline Drainage Layout and Details

Appendix E

Outline Causeway Hydraulic Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	19.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.320	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)		Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Depth/Area 1	0.130	164.900	-8.696	76.514	2.200

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.320	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
10	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node Depth/Area 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	162.700	Product Number	CTL-SHE-0064-2000-1200-2000
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node Depth/Area 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	162.700
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	55.0	0.0	1.200	55.0	0.0	1.210	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	Depth/Area 1	90	162.885	0.185	5.9	10.4031	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
120 minute winter	Depth/Area 1	Hydro-Brake®	1.7	16.5

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	Depth/Area 1	144	163.101	0.401	8.2	22.5265	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
180 minute winter	Depth/Area 1	Hydro-Brake®	1.8	34.0

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	Depth/Area 1	172	163.268	0.568	10.5	31.8998	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
180 minute winter	Depth/Area 1	Hydro-Brake®	1.8	37.9

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Depth/Area 1	228	163.501	0.801	11.2	44.9855	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
240 minute winter	Depth/Area 1	Hydro-Brake®	1.8	42.2

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	Depth/Area 1	232	163.902	1.202	15.7	67.5151	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
240 minute winter	Depth/Area 1	Hydro-Brake®	2.0	48.2

Appendix F

United Utilities Pre-Development Enquiry

John Roberts

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 28 November 2022 10:22
To: John Roberts
Subject: Pre Development Enquiry for: Spar Store Former Garage Smithy Bridge Road Littleborough OL15 0BQ UU Reference Number : 03091198

Follow Up Flag: Follow up
Flag Status: Flagged

Good Morning

Pre Development Enquiry for: Spar Store Former Garage Smithy Bridge Road Littleborough OL15 0BQ UU Reference Number : 03091198

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/combined sewer system.

Our preferred point of discharge would be to the 300mm diameter public combined sewer within Smithy Bridge Road located to the North 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.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 300mm diameter public combined sewer within Smithy Bridge Road located North of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

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.

Please be aware that any proposed diversion may require modelling. This process may take up to 6 months in order to reach an acceptable design.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

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

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,



Gary Jaundrell

Assistant Developer Engineer
Developer Services & Metering
Customer Services
T: 07388 715 589
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

Coronavirus

Prevent the spread



Wash your
hands



Disinfect
common surfaces



Practise social
distancing



FEVER +
COUGH

Stay home if you
have symptoms

[Click for our message to customers](#)

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

From: John Roberts [john@pluviamenvironmental.co.uk]

Sent: 21/11/2022 13:29

To: wastewaterdeveloperservices@uuplc.co.uk

Subject: Automatic reply: 03091198 Spar Store Former Garage Smithy Bridge Road Littleborough OL15 0BQ

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I am currently away from office, returning 18th November.



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