

## DRAINAGE STRATEGY

### Proposed Residential Development Bleachcroft Way, Barnsley

Reference	RWO/DS/Y19071.200
Date	March 2021
Version	2

4 Park Place  
Leeds  
LS1 2RU

Tel: +44 (0)113 5323500  
info@rwo.group  
www.rwo.group



---

## CONTENTS

### Confidentiality Statement

### Document History

1.0	Executive Summary	1
2.0	Introduction	2
3.0	The Site	2
4.0	Existing Drainage	3
5.0	Proposed Development	3
6.0	Surface and Foul Water Drainage	4
7.0	Conclusions	7

## APPENDICES

Appendix A	Site Location Plan	8
Appendix B	Topographic Survey	10
Appendix C	Yorkshire Water Pre-development Enquiry	11
Appendix D	Proposed Site Plan	12
Appendix E	LLFA Correspondence	13

---

## Confidentiality Statement

This report is addressed to and may be relied upon by the following:

Harron Homes Limited  
Temple Point  
Colton House  
Bullerthorpe Lane  
Leeds  
LS15 9JL

This report has been prepared for the sole use and reliance of the above-named parties. This report shall not be relied upon or transferred to any other parties without the express written authorisation of RWO Group. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

## Document History

VERSION	PURPOSE/DESCRIPTION	DATE
1	First Issue	09.03.2020
2	Updated to suit latest site proposals	24.03.2021

---

## 1.0 EXECUTIVE SUMMARY

This assessment has looked at the implications of a proposed residential development in relation to foul- and surface water drainage.

Infiltration has been deemed unsuitable due to the ground conditions and testing which has been undertaken, as noted in section 6.0 of this report.

It is proposed to discharge surface water from the site at a rate of 16.52 litres/second, equivalent to the existing greenfield runoff rate for the site. This has been approved by Barnsley Metropolitan Borough Council's Lead Local Flood Authority (BMBC LLFA). It is proposed to discharge 5.0 litres/second into the existing 600mm diameter sewer and 11.52 litres/second into the existing watercourse, Dob Sike,

Surface water attenuation will be provided to attenuate flows in excess of the restricted discharge rate.

Foul water is proposed to discharge into the existing 225mm diameter sewer within Bleachcroft Way, in accordance with the Yorkshire Water Pre-development Enquiry (PDE).

Any potential impact of the development can be adequately addressed by strategic drainage design.

## 2.0 INTRODUCTION

RWO Group (RWO) has been instructed by Harron Homes Ltd to prepare a Drainage Strategy report to support a planning application for a proposed residential development at land off Bleachcroft Way, Barnsley.

## 3.0 THE SITE

The site is located off Bleachcroft Way, Barnsley, circa 3km south east of Barnsley town centre. The centre of the site has an approximate grid reference of 437311, 405079. The approximate postcode of the site is S70 3PD.

The site is bounded to the north by existing commercial development off Bleachcroft Way; to the west by a railway line; to the east the disused Barnsley Canal and to the south Dob Sike, a minor watercourse flowing from west to east. Dob Sike is a designated ordinary watercourse.

The site is approximately 9.7 hectares (ha) and is currently undeveloped greenfield land, consisting of mainly rough grassland with shrubs and trees.

The site is irregular shaped with access from Bleachcroft Way and has a fall from west to east towards the disused canal. Figure 1 below shows an aerial image of the site.

A site location plan is included within Appendix A and a topographical survey within Appendix B.



Figure 1 – Site location (Red line indicates the approximate extents)

---

## 4.0 EXISTING DRAINAGE

A Yorkshire Water public sewer record plan is included within Appendix C which identifies the following public sewers within the immediate vicinity of the site:

- 225mm diameter foul- and surface water sewers within the road on Bleachcroft Way, to the north of the development site.
- 600mm diameter surface water sewer along the northeast corner of the site

The topographic survey provided in Appendix B identifies a series of manholes and gullies within Thornton Road, adjacent to the northern boundary line. The identified manhole covers confirm the presence of the existing sewer as noted above.

The closest surface water feature comprises a watercourse, Dob Sike, running along the southeast site boundary flowing in an easterly direction.

## 5.0 PROPOSED DEVELOPMENT

The proposed development is currently scrubland consisting of rough grassland with shrubs and trees. It is proposed to develop the site for residential purposes which will consist of 230 dwellings, along with associated roads, drainage- and site infrastructure.

Surface water run-off from the development will be conveyed from west to east, following the same route as Dob Sike, based on the topographical survey. There is circa 20m of fall from west to east.

A proposed site layout plan is included within Appendix D.

## 6.0 SURFACE AND FOUL WATER DRAINAGE

The proposed site drainage will comprise of a separate surface- and foul water drainage system. The following summarises the requirements for the discharge of surface- and foul water from the site.

### Sustainable Urban Drainage Systems (SUDS)

Lithos Consulting have undertaken an intrusive site investigation (report reference 3361, December 2019), which included soakaway testing in accordance with BRE Digest 365. The results indicate that whilst some infiltration was feasible it was outside of the acceptable tolerances –see excerpt from Lithos report below:

Drainage	Two soakaway tests were undertaken in SA1 and SA2. Soakaways only drained away by 0.07m (SA1) and 0.04m (SA2) in 3 hours of testing. Inferred infiltration rates were calculated by Dunelm of $6.02 \times 10^{-7} \text{m/s}$ (SA1) and $3.41 \times 10^{-7} \text{m/s}$ (SA2).
----------	---

**Figure 2 – Lithos report BRE365 test results extract**

Based on the testing, the discharge of surface water into the ground via soil infiltration will not be suitable for the site.

Sustainable Drainage System (SuDS) may be used in conjunction with conventional drainage systems to improve water quality as well as manage surface water discharge.

The following audit has been carried out relating to suitability of SUD's systems:

Drainage Method	Description/Suitability	Proposal/Feasibility
1. Infiltration.	Unsuitable due to existing ground conditions.	Not applicable.
2. Ponds and wetlands.	Suitable.	Applicable.
3. Infiltration basins.	Unsuitable due to existing ground conditions.	Not applicable.
4. Detention basins.	Suitable.	Applicable.
5. Swale.	May be utilised convey water/improve water quality.	Applicable.
6. French/filter drain.	May be utilised convey water/improve water quality.	Applicable.
7. Pervious/permeable pavement.	May be used with a tanked impermeable membrane liner.	Applicable.
8. Geocellular Systems/Tank systems.	May be used as surface water attenuation.	Applicable.
9. Oversized pipes.	May be used as surface water attenuation.	Applicable.
10. Box culverts.	May be used as surface water attenuation.	Applicable.
11. Purpose designed tanks.	May be used as surface water attenuation.	Applicable.

## Surface Water Drainage

The disposal of surface water shall be designed in accordance with the Requirement H3 of Building Regulations 2010. This establishes a preferred hierarchy for surface water disposal. Discharge to one of the following should be considered, listed in order of priority:

- Soakaway / infiltration system,
- Local watercourse,
- Public surface water sewer / highway drain
- Public combined sewer

In accordance with the surface water hierarchy soil infiltration is not suitable for the site as stated in Section 6.0 of this report. Surface water flows currently discharge into the Dob Sike watercourse based on the topography, with some very minor levels of infiltration occurring. It is proposed to discharge surface water flows from the development into the existing watercourse.

As the site is undeveloped and considered greenfield, any proposed surface water flows would need to be discharged at greenfield runoff rate. A calculation has been undertaken using the H R Wallingford tool which indicates a greenfield runoff rate ( $Q_{bar}$ ) for the site of 16.52 litres/second. The runoff rate has been approved by Barnsley Metropolitan Borough Council's Lead Local Flood Authority (BMBC LLFA); a copy of the correspondence—along with the greenfield runoff calculation—is provided within Appendix E.

It is proposed to discharge the northern section of the site at 5.0 litres/second into the existing 600mm diameter surface water sewer, located at the northeast corner of the site. This is due to the insufficient cover depth to achieve a gravity connection to Dob Sike. The remainder of the site is proposed to discharge at 11.52 litres/second into Dob Syke.

As surface water discharge from the site will be restricted, on-site surface water attenuation will be required. An initial calculation of the approximate volumes of attenuation using the 'Quick Storage Estimate' element of Windes MicroDrainage is provided below:

## Attenuation Volumes

### Storage Design Parameters

- $M5-60 = 19.000$
- Ratio  $R = 0.356$

### North catchment

- Restricted discharge rate = **5.0** litres/second.
- Proposed Impermeable area = 0.48 ha
- 1:30 Year Return Period = between 110m<sup>3</sup> and 168 m<sup>3</sup>
- 1:100 Year Return Period (+30% cc) = between 227 m<sup>3</sup> and 326 m<sup>3</sup>

### South catchment

- Restricted discharge rate = **11.52** litres/second.
- Proposed Impermeable area = 3.58 Ha
- 1:30 Year Return Period = between 1244m<sup>3</sup> and 1822 m<sup>3</sup>
- 1:100 Year Return Period (+30% cc) = between 2416 m<sup>3</sup> and 3360 m<sup>3</sup>

---

The proposed on-site drainage system shall be designed in accordance with the requirements of Code for Adoption and shall demonstrate that:

- No surcharge of pipes occurs in the 1 in 2-year rainfall event.
- No surface flooding occurs in 1 in 30-year rainfall event.
- No flooding to buildings and adjacent properties occurs in 1 in 100-year rainfall event (including an allowance of 30% for the effects of future climate change), as defined in the National Planning Policy Framework.

### **Foul Water Drainage**

A pre-development enquiry (PDE) response has been received from Yorkshire Water (YW) who advises foul water from the proposed development should discharge into the existing 225mm diameter foul water sewer within Bleachcroft Way. A copy of the PDE is included within Appendix G.

Foul water disposal shall be in accordance with the Building Regulations Part H “Drainage and Water Disposal”.

The connection to the public sewer network will need to be carried out under a Section 106 agreement with YW.

## 7.0 CONCLUSIONS

This assessment has looked at the implications of a proposed residential development in relation to foul- and surface water drainage.

Infiltration has been deemed unsuitable due to the ground conditions and testing which has been undertaken, as noted in section 6.0 of this report.

It is proposed to discharge surface water from the site at a rate of 16.52 litres/second, equivalent to the existing greenfield runoff rate for the site. This has been approved by Barnsley Metropolitan Borough Council's Lead Local Flood Authority (BMBC LLFA). It is proposed to discharge 5.0 litres/second into the existing 600mm diameter sewer and 11.52 litres/second into the existing watercourse, Dob Sike,

Surface water attenuation will be provided to attenuate flows in excess of the restricted discharge rate.

Foul water is proposed to discharge into the existing 225mm diameter sewer within Bleachcroft Way, in accordance with the Yorkshire Water Pre-development Enquiry (PDE).



**Ross Oakley**  
For and behalf of RWO Group  
March 2021

---

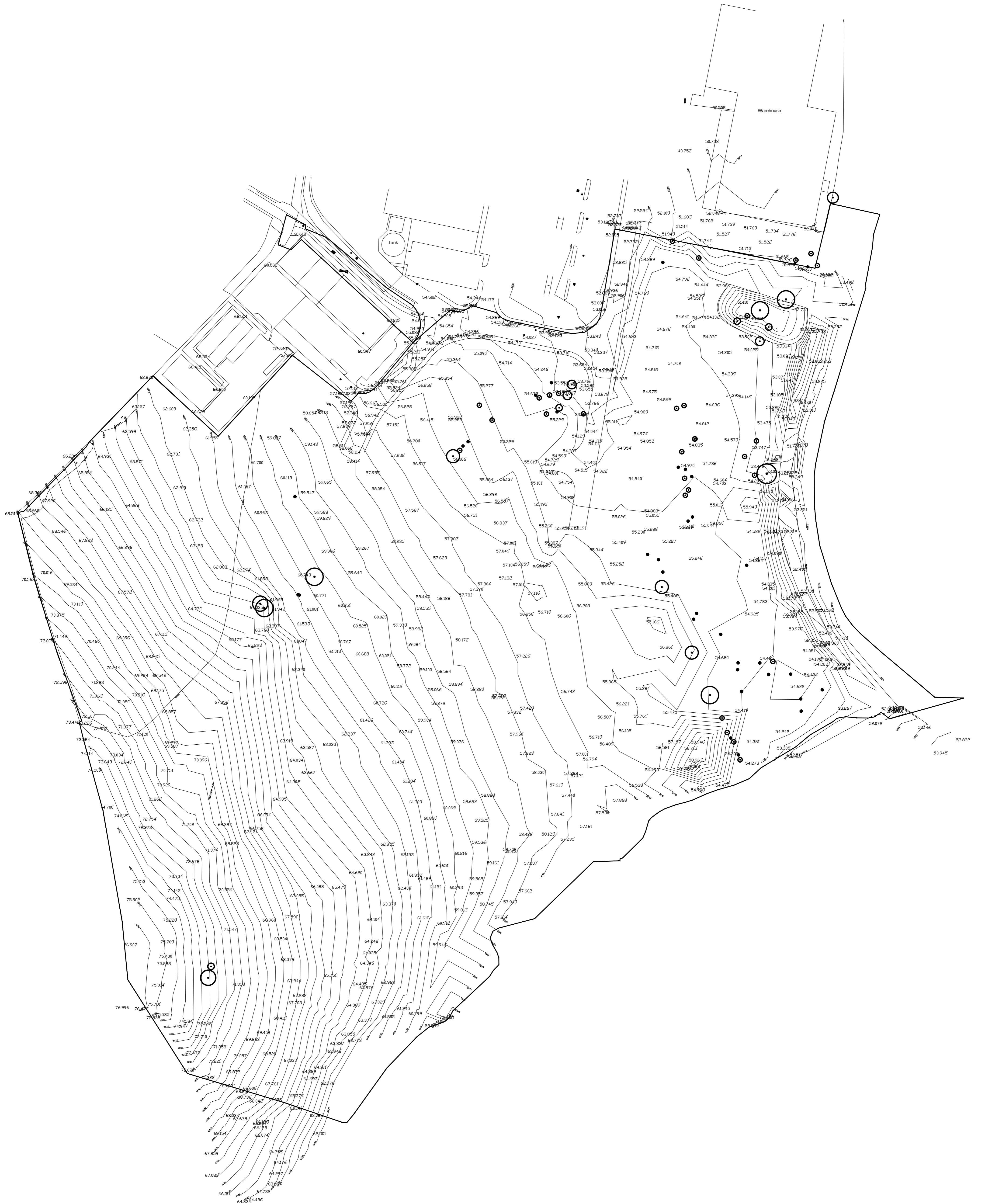
## Appendix A Site Location Plan

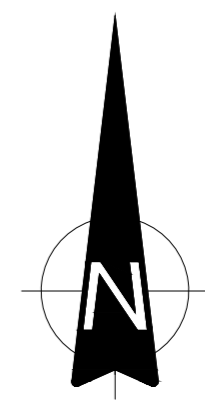


Location Map	
Site	Bleachcroft Way, Barnsley
Client	Harron Homes Ltd
Job Number	Y19071
Scale	NTS

---

## Appendix B      Topographic Survey





4241100	4241100	4241100	4241100
4241101	4241101	4241101	4241101
4241102	4241102	4241102	4241102
4241103	4241103	4241103	4241103
4241104	4241104	4241104	4241104
4241105	4241105	4241105	4241105
4241106	4241106	4241106	4241106
4241107	4241107	4241107	4241107
4241108	4241108	4241108	4241108
4241109	4241109	4241109	4241109
4241110	4241110	4241110	4241110
4241111	4241111	4241111	4241111
4241112	4241112	4241112	4241112
4241113	4241113	4241113	4241113
4241114	4241114	4241114	4241114
4241115	4241115	4241115	4241115
4241116	4241116	4241116	4241116
4241117	4241117	4241117	4241117
4241118	4241118	4241118	4241118
4241119	4241119	4241119	4241119
4241120	4241120	4241120	4241120
4241121	4241121	4241121	4241121
4241122	4241122	4241122	4241122
4241123	4241123	4241123	4241123
4241124	4241124	4241124	4241124
4241125	4241125	4241125	4241125
4241126	4241126	4241126	4241126
4241127	4241127	4241127	4241127
4241128	4241128	4241128	4241128
4241129	4241129	4241129	4241129
4241130	4241130	4241130	4241130
4241131	4241131	4241131	4241131
4241132	4241132	4241132	4241132
4241133	4241133	4241133	4241133
4241134	4241134	4241134	4241134
4241135	4241135	4241135	4241135
4241136	4241136	4241136	4241136
4241137	4241137	4241137	4241137
4241138	4241138	4241138	4241138
4241139	4241139	4241139	4241139
4241140	4241140	4241140	4241140
4241141	4241141	4241141	4241141
4241142	4241142	4241142	4241142
4241143	4241143	4241143	4241143
4241144	4241144	4241144	4241144
4241145	4241145	4241145	4241145
4241146	4241146	4241146	4241146
4241147	4241147	4241147	4241147
4241148	4241148	4241148	4241148
4241149	4241149	4241149	4241149
4241150	4241150	4241150	4241150

**KEY FOR UNDERGROUND SERVICES**

Water	Blue
Gas	Red
Electricity	Black
Telephony	Green
Other	Yellow

**ABBREVIATION KEY**

MH	Manhole
GU	Gully
FH	Fire Hydrant
CATV	Cable Television Point
WM	Water Meter
WSV	Water Stop Valve
GSV	Gas Stop Valve
RE	Rodding Eye
GU	Gully
FH	Fire Hydrant
CATV	Cable Television Point
WM	Water Meter
WSV	Water Stop Valve
GSV	Gas Stop Valve
RE	Rodding Eye



SYMBOL LEGEND	LINE TYPE LEGEND
⊕	Borehole
⊙	Benchmark
●	Bollard
⊙	Bus Stop
⊕	Electricity Pole
⊕	Fence Post
⊕	Gas Stop Valve
⊕	Gate Post
⊕	Gas Marker
⊕	Gully Drain
⊕	Electric Inspection Cover
⊕	Kerb Outlet
⊕	Litter Bin
⊕	BT Inspection chamber
⊕	Lamp Post
⊕	Manhole Point
⊕	MH Triangular
⊕	MH Square
⊕	MH Round
⊕	Marker Post
⊕	Pylon
⊕	Rodding Eye
⊕	BT Exchange Box
⊕	Sign Post
⊕	Spot Height
⊕	Eave Level
⊕	Ridge Level
⊕	Site
⊕	Survey Station
⊕	Traffic Camera
⊕	Telephone Box
⊕	Trail Pole
⊕	Telegraph Pole
⊕	Deciduous Tree
⊕	Road Sign
⊕	GATE
⊕	Fire Hydrant
⊕	Water Meter
⊕	Litter Bin
⊕	CATV Inspection Chamber
⊕	Water Stop Valve
⊕	Water Stop Valve

ABBREVIATIONS	ABBREVIATIONS CONTINUED
LP	Lamp Post
TR	Telegraph Pole
EP	Electricity Pole
SP	Sign Post
TS	Traffic Sign
BS	Bus Stop
GM	Gas Marker
MH	Manhole
GU	Gully
FH	Fire Hydrant
CATV	Cable Television Point
WM	Water Meter
WSV	Water Stop Valve
GSV	Gas Stop Valve
RE	Rodding Eye
GU	Gully
FH	Fire Hydrant
CATV	Cable Television Point
WM	Water Meter
WSV	Water Stop Valve
GSV	Gas Stop Valve
RE	Rodding Eye

SURVEY CARRIED OUT USING GPS - BASED ON OSGB 36 SCALE FACTOR OF 1 - GRID SET AT 25m

THIS SURVEY SHOWS PHYSICAL SITE BOUNDARIES ONLY. CONFIRMATION OF LEGAL OWNERSHIP BOUNDARIES SHOULD BE OBTAINED BY REFERENCE TO THE H.M. LAND REGISTRY TITLE PLAN. EVERY EFFORT IS MADE TO IDENTIFY ALL VISIBLE ABOVE GROUND FEATURES. HOWEVER, IT SHOULD BE BORNE IN MIND THAT THERE MAY BE ITEMS OBSCURED AT THE TIME OF SURVEY.

THE PLAN SCALE IS FOR GUIDANCE ONLY. DO NOT SCALE DIRECTLY. IF IN DOUBT, PLEASE ASK.

THE CONTRACTOR IS TO CHECK AND VERIFY ALL BUILDING AND SITE DIMENSIONS, LEVELS AND SEWER INVERT LEVELS AT CONNECTION POINTS BEFORE WORK STARTS. SHOULD THERE BE ANY CONFLICT BETWEEN THE DETAILS INDICATED ON THIS DRAWING AND THOSE INDICATED ON OTHER DRAWINGS, THE ENGINEER SHOULD BE INFORMED PRIOR TO CONSTRUCTION ON SITE.

REV.	DESCRIPTION	DATE

**PD SITE SURVEYS**

**1 ISLINGTON DRIVE  
BESSACARR  
DONCASTER  
DN4 6FA**

M - 07515 381674  
E - peter.dickinson29@gmail.com

CLIENT

**HARRON HOMES**

**COLTON HOUSE,  
TEMPLE POINT  
BULLERTHORPE LANE  
LEEDS  
LS15 9JL**

JOB TITLE

**BLEACHCROFT WAY**

DRAWING TITLE

**UTILITY TRACE SITE SURVEY**

DRAWN	SIGNATURE	DATE	STATUS
JP		15/03/2020	FOR COMMENT <input type="checkbox"/>
APPROVED	SIGNATURE	DATE	FOR APPROVAL <input type="checkbox"/>
PD		15/03/2020	DRAFT <input type="checkbox"/>
			FINAL <input checked="" type="checkbox"/>
SCALE	SHEET	DRAWING NO.	REVISION
1:1000	A1	0826-004	~

---

## Appendix C Yorkshire Water Pre-development Enquiry



YorkshireWater

Mr J Mortimer  
Harron Homes  
Colton House  
Temple Point  
Bullerthorpe Lane  
Leeds  
West Yorkshire  
LS15 9JL

Yorkshire Water Services  
Developer Services  
Sewerage Technical Team  
PO BOX 52  
Bradford  
BD3 7AY

Tel: 0345 120 8482  
Fax: (01274) 372 834

[jacobmortimer@harronhomes.co.uk](mailto:jacobmortimer@harronhomes.co.uk)

Email:  
[technical.sewerage@yorkshirewater.co.uk](mailto:technical.sewerage@yorkshirewater.co.uk)

Your Ref: 10117994  
Our Ref: W000786

For telephone enquiries ring:  
Chris Roberts on 0345 120 8482

2nd February 2020

Dear Mr Mortimer,

**Bleachcroft Way, Barnsley, S70 3PD - Pre-Planning Sewerage Enquiry T710269 (RESIDENTIAL)**

Thank you for your recent enquiry. Our charge of £164.00 (plus VAT) will be added to your account with us, reference HAH044. You will receive an invoice for your account in due course.

Please find enclosed a complimentary extract from the Statutory Sewer Map which indicates the recorded position of the public sewers. Please note that as of October 2011 and the private to public sewer transfer, there are many uncharted Yorkshire Water assets currently not shown on our records. The following comments reflect our view, with regard to the public sewer network only, based on a 'desk top' study of the site and are valid for a maximum period of twelve months.

Development of the site should take place with separate systems for foul and surface water drainage. The separate systems should extend to the points of discharge to be agreed.

**Foul Water**

Foul water domestic waste should discharge to the 225 mm diameter public foul sewer recorded in Bleachcroft Way, at a point to the north of the site.

**Surface Water**

Surface water may discharge to the 600 mm diameter public surface water sewer recorded to the north east of the site.

The surface water discharge from the site to be restricted to not greater than 5 (five) litres/second. This permission is not an acceptance in respect to any planning conditions imposed under the Grant of Planning Permission.

Please note further restrictions on surface water disposal from the site may be imposed by other parties. You are strongly advised to seek advice/comments from the Environment Agency/Land Drainage Authority/Internal Drainage Board, with regard to surface water disposal from the site.

**Other Observations**

Any new connection to an existing public sewer will require the prior approval of Yorkshire Water. You may obtain an application form from our website ([www.yorkshirewater.com](http://www.yorkshirewater.com)) or by telephoning 0345 120 84 82.





YorkshireWater

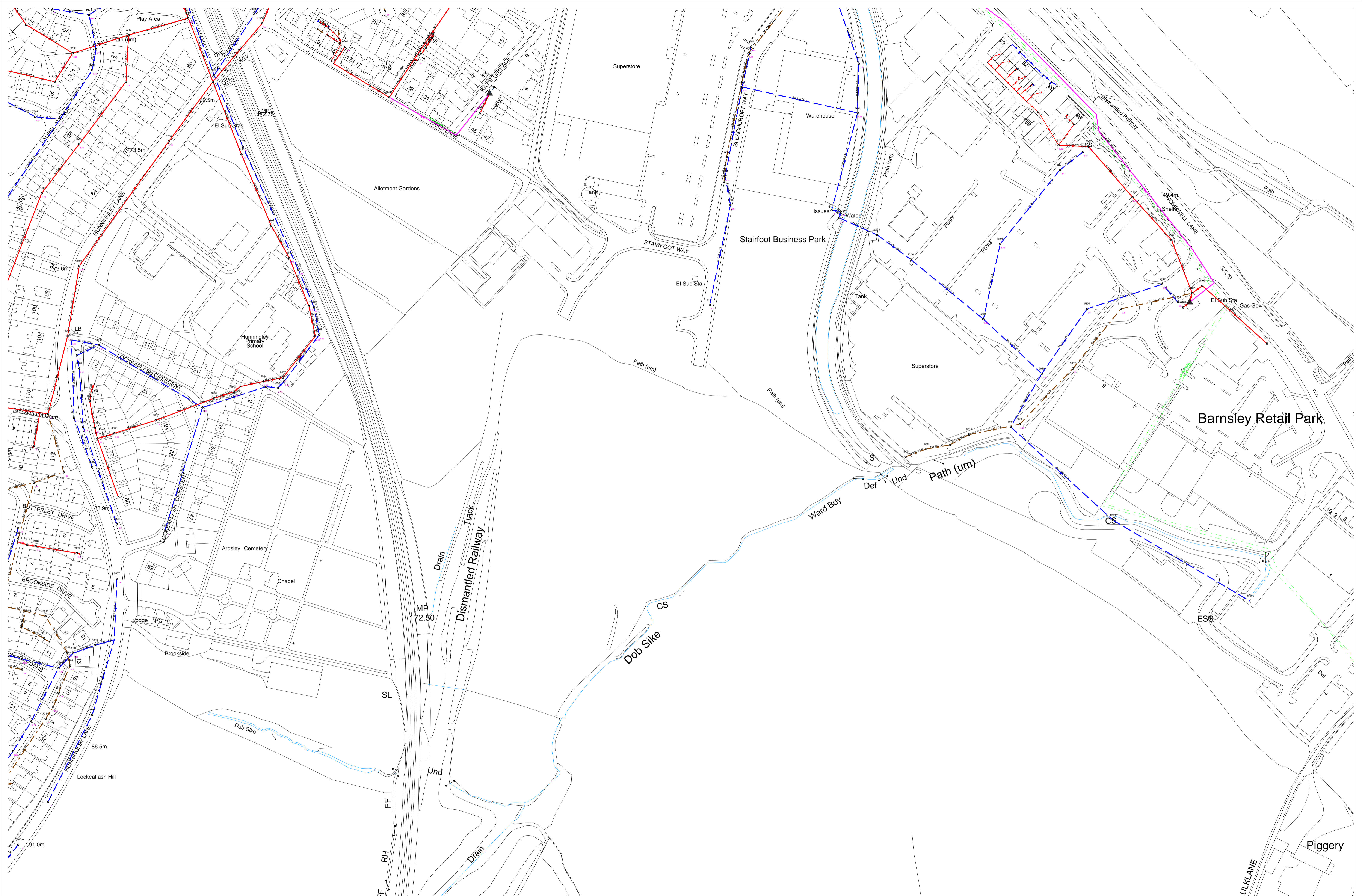
An off-site foul and surface water sewer may be required which may be provided by the developer and considered for adoption under Section 104 of the Water Industry Act 1991. Please telephone 0345 120 84 82 for advice on sewer adoptions. Alternatively, the developer may in certain circumstances be able to requisition off-site sewers under Section 98 of the Water Industry Act 1991 for which an application must be made in writing. For further information, please telephone 0345 120 84 82.

Prospectively adoptable sewers and pumping stations must be designed and constructed in accordance with the WRc publication "Sewers for Adoption - a design and construction guide for developers" 6th Edition as supplemented by Yorkshire Water's requirements, pursuant to an agreement under Section 104 of the Water Industry Act 1991. An application to enter into a Section 104 agreement must be made in writing prior to any works commencing on site. Please contact our Developer Services Team (telephone 0345 120 84 82) for further information.

All the above comments are based upon the information and records available at the present time. The information contained in this letter together with that shown on any extract from the Statutory Sewer Map that may be enclosed is believed to be correct and is supplied in good faith. Please note that capacity in the public sewer network is not reserved for specific future development. It is used up on a 'first come, first served' basis. You should visit the site and establish the line and level of any public sewers affecting your proposals before the commencement of any design work.

Yours sincerely

**Chris Roberts**  
Development Services Technician



UPN: Undefined	Originator: C ROBERTS, YorMap, 87 2582	437113 : 404878	Map Name : SE3604NE Yorkshire Water, PO Box 500, Hallifax Road, Bradford BD6 2LZ Contact Name : YorMap Advisor C ROBERTS Contact Tel : 87 2582	Title Notes <small>(C) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HM Government 2020. All rights reserved. Ordnance Survey Licence number 100022432</small>	<b>Partial Key</b> Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS	<small>This plan is furnished as a general guide only and no warranty is to be considered in green or red. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connections are shown.</small> Date Req : 02/02/2020, 09:19:56 Date Gen : 02/02/2020, 09:20:17 Source : Sewer Network Enquiry
----------------	--	-----------------	---	---	---	--

---

## Appendix D Proposed Site Plan

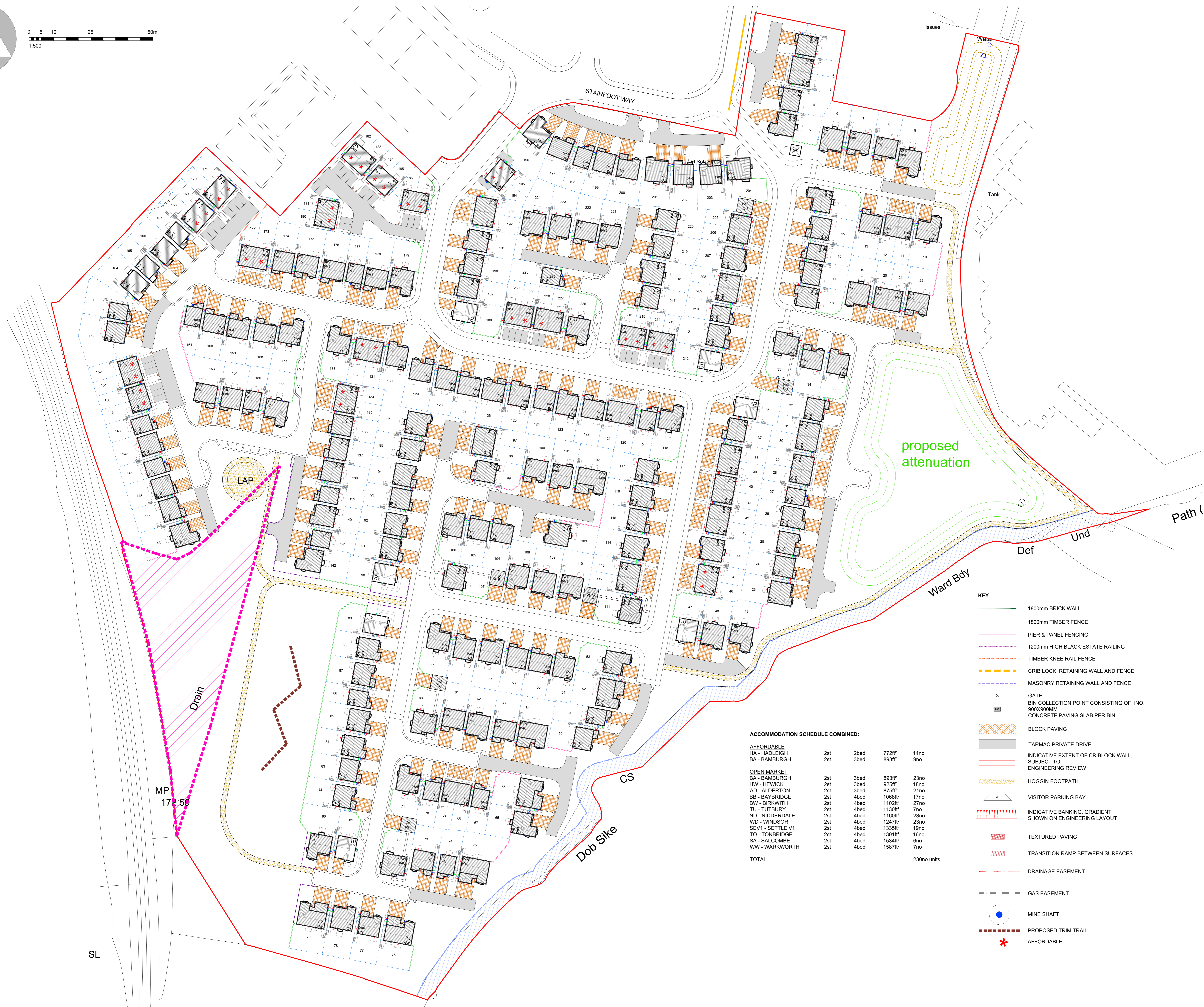


0 5 10 25 50m  
1:500

Notes

1. Do not scale from this drawing. All dimensions must be checked on site prior to the commencement of any fabrication or building works. Where applicable, dimensions and details are to be read in conjunction with specialist consultants' drawings and/or other specifications; any disparity is to be brought to the attention of the office & clarification sought before proceeding.

2. Any dimensions shown on this drawing are in (millimetres/metres)



ACCOMMODATION SCHEDULE COMBINED:

<b>AFFORDABLE</b>				
HA - HADLEIGH	2st	2bed	772ft <sup>2</sup>	14no
BA - BAMBURGH	2st	3bed	893ft <sup>2</sup>	9no
<b>OPEN MARKET</b>				
BA - BAMBURGH	2st	3bed	893ft <sup>2</sup>	23no
HW - HEWICK	2st	3bed	925ft <sup>2</sup>	18no
AD - ALBERTON	2st	3bed	875ft <sup>2</sup>	21no
BB - BAYBRIDGE	2st	4bed	1068ft <sup>2</sup>	17no
BW - BIRKWITH	2st	4bed	1102ft <sup>2</sup>	27no
TU - TUTBURY	2st	4bed	1130ft <sup>2</sup>	7no
ND - NIDDERDALE	2st	4bed	1160ft <sup>2</sup>	23no
WD - WINDSOR	2st	4bed	1247ft <sup>2</sup>	23no
SEV1 - SETTLE V1	2st	4bed	1335ft <sup>2</sup>	19no
TO - TONBRIDGE	2st	4bed	1391ft <sup>2</sup>	16no
SA - SALCOMBE	2st	4bed	1534ft <sup>2</sup>	6no
WW - WARKWORTH	2st	4bed	1567ft <sup>2</sup>	7no
<b>TOTAL</b>				<b>230no units</b>

KEY

- 1800mm BRICK WALL
- 1800mm TIMBER FENCE
- PIER & PANEL FENCING
- 1200mm HIGH BLACK ESTATE RAILING
- TIMBER KNEE RAIL FENCE
- CRIB LOCK RETAINING WALL AND FENCE
- MASONRY RETAINING WALL AND FENCE
- GATE
- BIN COLLECTION POINT CONSISTING OF 1NO. 900X900MM CONCRETE PAVING SLAB PER BIN
- BLOCK PAVING
- TARMAC PRIVATE DRIVE
- INDICATIVE EXTENT OF CRIBLOCK WALL, SUBJECT TO ENGINEERING REVIEW
- HOGGIN FOOTPATH
- VISITOR PARKING BAY
- INDICATIVE BANKING, GRADIENT SHOWN ON ENGINEERING LAYOUT
- TEXTURED PAVING
- TRANSITION RAMP BETWEEN SURFACES
- DRAINAGE EASEMENT
- GAS EASEMENT
- MINE SHAFT
- PROPOSED TRIM TRAIL
- AFFORDABLE

Revisions

**HARRON HOMES**  
 Harron Homes Limited  
 Unit 1 Cliffe Park  
 Bruntcliffe Road  
 Morley  
 Leeds  
 LS27 0RY  
 Tel: 0113 204 4670  
 Fax: 0113 204 4677  
 Web: www.harronhomes.co.uk

Status: FEASIBILITY

Project: BLEACHCROFT WAY, BARNSELEY

Title: PROPOSED SITE LAYOUT

Drawn: JFE Date: 11/12/2020  
 Checked: CHECKED Scale @ A0: 1:500  
 Job no: 498 Drg No: PL-001 Rev.#

---

## Appendix E      LLFA Correspondence

## Andrew Fairburn

---

**From:** Atkins , Wayne <WayneAtkins@barnsley.gov.uk>  
**Sent:** 27 February 2020 09:55  
**To:** Andrew Fairburn  
**Subject:** RE: Y19071 - Bleachcroft Way - Barnsley

Hi Andrew,

Yes it's still me!

I can confirm that a discharge rate of 1.62 litre/second/hectare to Dob Sike from the proposed development site is acceptable to BMBC as Lead Local Flood Authority.

Regards

Wayne Atkins  
Principal Engineer – Asset Management  
Environment & Transport  
Place Directorate  
Barnsley Metropolitan Borough Council

Telephone: 01226 772182

E-mail: [wayneatkins@barnsley.gov.uk](mailto:wayneatkins@barnsley.gov.uk)

---

**From:** Andrew Fairburn <afairburn@rwo.group>  
**Sent:** 25 February 2020 17:51  
**To:** Atkins , Wayne <WayneAtkins@barnsley.gov.uk>  
**Cc:** Wayne Moses <waynemoses@harronhomes.co.uk>  
**Subject:** Y19071 - Bleachcroft Way - Barnsley

Wayne

I hope you are well and trust you still within the drainage section? If not could you pass the following query onto the relevant person.

We are looking at the drainage strategy for a site at Bleachcroft Way (location plan below) and note a watercourse Dob Sike passing along the sites southern boundary, this being the obviously location to discharge surface water.

We have undertaken a greenfield runoff calculation which indicates a runoff rate of 1.62 litre/second/hectare (calculation attached).

I would be grateful if you could confirm by return it is acceptable to discharge surface water at a greenfield rate of 1.62 litre/second/hectare to Dob Sike.

Any queries, then please get in touch



Regards

Andrew Fairburn

Director

Mob: +44 (0)7496 111048

Tel: +44 (0)113 5323500

Email: [afairburn@rwo.group](mailto:afairburn@rwo.group)

Web: <http://www.rwo.group/>

**RWO North East**

**t: +44 (0)191 258 5632**

**a: 19-20 Brenkley Way, Newcastle upon Tyne, NE13 6DS**

**RWO Yorkshire**

**t: +44 (0)113 532 3500**

**a: 4 Park Place, Leeds, LS1 2RU**



*Privileged/Confidential information may be contained in this Email and any files transmitted with it. If you are not the intended recipient you should not retain, copy or use this Email for any purpose or disclose all or part of its contents to any person. If you have received this Email in error please notify the sender immediately and delete this Email from your system. WARNING: RWO Associates Ltd have taken reasonable precautions to ensure no viruses or other malicious software are present, but cannot accept responsibility for any loss or damage arising from*

Calculated by:

Site name:

Site location:

**Site Details**

Latitude:

Longitude:

Reference:

Date:

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

**Runoff estimation approach**

**Site characteristics**

Total site area (ha):

**Methodology**

Q<sub>BAR</sub> estimation method:

SPR estimation method:

**Soil characteristics**

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

**Hydrological characteristics**

	Default	Edited
SAAR (mm):	633	633
Hydrological region:	3	3
Growth curve factor 1 year:	0.86	0.86
Growth curve factor 30 years:	1.75	1.75
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

**Notes**
**(1) Is Q<sub>BAR</sub> < 2.0 l/s/ha?**

When Q<sub>BAR</sub> is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

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

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

**(3) Is SPR/SPRHOST ≤ 0.3?**

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

**Greenfield runoff rates**

	Default	Edited
Q <sub>BAR</sub> (l/s):	16.52	16.52
1 in 1 year (l/s):	14.21	14.21
1 in 30 years (l/s):	28.92	28.92
1 in 100 year (l/s):	34.37	34.37
1 in 200 years (l/s):	39.16	39.16

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

---

4 Park Place  
Leeds  
LS1 2RU

Tel: +44 (0)113 5323500  
[info@rwo.group](mailto:info@rwo.group)  
[www.rwo.group](http://www.rwo.group)

