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Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Charlotte Turner
Site name:	Pheasant Oak Farm
Site location:	Balsall Common

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.

Site Details

Latitude:	52.38206° N
Longitude:	1.63026° W
Reference:	2358583370
Date:	Jun 28 2022 11:31

Runoff estimation approach FEH Statistical

Site characteristics

Total site area (ha):	12.67

Methodology

Q_{MED} estimation method:	Calculate from BFI and SAAR
BFI and SPR method:	Specify BFI manually
HOST class:	N/A
BFI / BFIHOST:	0.418
Q_{MED} (l/s):	
Q_{BAR} / Q_{MED} factor:	1.12

Hydrological characteristics	Default	Edited
SAAR (mm):	691	691
Hydrological region:	4	4
Growth curve factor 1 year:	0.83	0.83
Growth curve factor 30 years:	2	2
Growth curve factor 100 years:	2.57	2.57
Growth curve factor 200 years:	3.04	3.04

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} 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_{BAR} (l/s):		50.9
1 in 1 year (l/s):		42.25
1 in 30 years (l/s):		101.8
1 in 100 year (l/s):		130.81
1 in 200 years (l/s):		154.73

Appendix H Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Catchment A1	0.400	5.00	124.500	23.686	92.960	1.000
Catchment A2	0.600	5.00	125.000	48.715	84.942	0.800
Catchment D	1.200	5.00	125.500	48.344	59.889	1.000
Catchment E	0.280	5.00	126.000	10.134	75.541	1.000
Catchment F	0.600	5.00	123.000	38.460	26.853	1.500
Catchment G	1.230	5.00	126.000	17.439	42.370	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Catchment A2	Catchment A1	45.000	0.012	124.200	123.500	0.700	64.3	300	5.41	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.848	130.7	81.3	0.500	0.700	0.600	0.0	171	1.949

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	45.000	64.3	300	Circular	125.000	124.200	0.500	124.500	123.500	0.700

Link	US Node	Node Type	DS Node	Node Type
1.000	Catchment A2	Junction	Catchment A1	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Catchment A1	23.686	92.960	124.500	1.000	1	1.000	123.500	300
Catchment A2	48.715	84.942	125.000	0.800	0	1.000	124.200	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Catchment D	48.344	59.889	125.500	1.000	◦			
Catchment E	10.134	75.541	126.000	1.000	◦			
Catchment F	38.460	26.853	123.000	1.500	◦			
Catchment G	17.439	42.370	126.000	1.000	◦			

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
30	0	0	0
30	35	0	0
100	0	0	0
100	40	0	0
100	40	10	0

Node Catchment A1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	123.500	Product Number	CTL-SHE-0126-6700-0700-6700
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.7	Min Node Diameter (mm)	1200

Node Catchment A2 Online Orifice Control

Flap Valve	x	Invert Level (m)	124.200	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.075		

Node Catchment D Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	124.500	Product Number	CTL-SHE-0136-8000-0700-8000
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.0	Min Node Diameter (mm)	1200

Node Catchment E Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	125.000	Product Number	CTL-SHE-0070-1900-0700-1900
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	1.9	Min Node Diameter (mm)	1200

Node Catchment F Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	121.500	Product Number	CTL-SHE-0092-4000-1200-4000
Design Depth (m)	1.200	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	4.0	Min Node Diameter (mm)	1200

Node Catchment G Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	125.000	Product Number	CTL-SHE-0137-8200-0700-8200
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.2	Min Node Diameter (mm)	1200

Node Catchment A1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	123.500
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)
0.000	450.0	0.0	1.000	930.0	0.0

Node Catchment A2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	124.200
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)
0.000	640.0	0.0	0.800	920.0	0.0

Node Catchment D Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	124.500
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)
0.000	1070.0	0.0	1.000	2640.0	0.0

Node Catchment E Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	125.000
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)
0.000	90.0	0.0	1.000	640.0	0.0

Node Catchment F Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	121.500
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)
0.000	190.0	0.0	1.500	680.0	0.0

Node Catchment G Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	125.000
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)
0.000	1130.0	0.0	1.000	1600.0	0.0

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Catchment A1	690	123.799	0.299	16.2	158.1678	0.0000	OK
480 minute winter	Catchment A2	368	124.466	0.266	23.8	186.8251	0.0000	OK
600 minute winter	Catchment D	480	124.801	0.301	40.1	399.6595	0.0000	OK
480 minute winter	Catchment E	456	125.411	0.411	11.1	85.7474	0.0000	OK
360 minute winter	Catchment F	344	122.122	0.622	29.4	186.2632	0.0000	OK
480 minute winter	Catchment G	448	125.332	0.332	48.7	409.2523	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
720 minute winter	Catchment A1	Hydro-Brake®		6.7	282.9
480 minute winter	Catchment A2	Orifice	Catchment A1	5.6	
600 minute winter	Catchment D	Hydro-Brake®		8.0	301.6
480 minute winter	Catchment E	Hydro-Brake®		1.9	68.0
360 minute winter	Catchment F	Hydro-Brake®		4.0	121.1
480 minute winter	Catchment G	Hydro-Brake®		8.2	270.1

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Catchment A1	960	123.959	0.459	18.0	260.7424	0.0000	OK
600 minute winter	Catchment A2	465	124.562	0.362	27.0	259.8759	0.0000	SURCHARGED
600 minute winter	Catchment D	570	124.913	0.413	54.1	585.0677	0.0000	OK
480 minute winter	Catchment E	464	125.533	0.533	15.0	128.8945	0.0000	OK
600 minute winter	Catchment F	585	122.341	0.841	27.0	281.8943	0.0000	OK
600 minute winter	Catchment G	585	125.476	0.476	55.4	603.3970	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	Catchment A1	Hydro-Brake®		6.7	350.2
600 minute winter	Catchment A2	Orifice	Catchment A1	6.7	
600 minute winter	Catchment D	Hydro-Brake®		8.0	306.7
480 minute winter	Catchment E	Hydro-Brake®		1.9	66.5
600 minute winter	Catchment F	Hydro-Brake®		4.0	155.8
600 minute winter	Catchment G	Hydro-Brake®		8.2	306.8

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Catchment A1	960	123.937	0.437	17.5	246.0490	0.0000	OK
480 minute winter	Catchment A2	376	124.556	0.356	31.6	255.0076	0.0000	SURCHARGED
600 minute winter	Catchment D	570	124.903	0.403	52.9	569.0613	0.0000	OK
480 minute winter	Catchment E	464	125.525	0.525	14.7	125.9707	0.0000	OK
480 minute winter	Catchment F	464	122.327	0.827	31.6	275.3278	0.0000	OK
600 minute winter	Catchment G	570	125.464	0.464	54.3	586.3091	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	Catchment A1	Hydro-Brake®		6.7	351.9
480 minute winter	Catchment A2	Orifice	Catchment A1	6.6	
600 minute winter	Catchment D	Hydro-Brake®		8.0	306.7
480 minute winter	Catchment E	Hydro-Brake®		1.9	66.2
480 minute winter	Catchment F	Hydro-Brake®		4.0	134.2
600 minute winter	Catchment G	Hydro-Brake®		8.2	308.1

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Catchment A1	1440	124.165	0.665	18.5	410.6669	0.0000	OK
480 minute winter	Catchment A2	400	124.698	0.498	44.2	369.7946	0.0000	SURCHARGED
720 minute winter	Catchment D	705	125.066	0.566	64.6	871.4787	0.0000	OK
600 minute winter	Catchment E	585	125.678	0.678	17.3	191.0087	0.0000	OK
600 minute winter	Catchment F	585	122.601	1.101	37.0	415.7810	0.0000	OK
720 minute winter	Catchment G	690	125.674	0.674	66.2	885.0366	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Catchment A1	Hydro-Brake®		6.7	506.2
480 minute winter	Catchment A2	Orifice	Catchment A1	8.0	
720 minute winter	Catchment D	Hydro-Brake®		8.0	344.6
600 minute winter	Catchment E	Hydro-Brake®		1.9	84.3
600 minute winter	Catchment F	Hydro-Brake®		4.0	171.8
720 minute winter	Catchment G	Hydro-Brake®		8.2	369.5

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Catchment A1	1470	124.233	0.733	20.2	464.9193	0.0000	OK
480 minute winter	Catchment A2	440	124.747	0.547	48.6	411.5037	0.0000	FLOOD RISK
720 minute winter	Catchment D	705	125.117	0.617	71.1	974.4062	0.0000	OK
720 minute winter	Catchment E	705	125.726	0.726	16.6	214.7934	0.0000	OK
720 minute winter	Catchment F	705	122.689	1.189	35.5	467.5336	0.0000	OK
720 minute winter	Catchment G	705	125.742	0.742	72.8	988.5171	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Catchment A1	Hydro-Brake®		6.8	525.9
480 minute winter	Catchment A2	Orifice	Catchment A1	8.4	
720 minute winter	Catchment D	Hydro-Brake®		8.0	356.5
720 minute winter	Catchment E	Hydro-Brake®		1.9	98.6
720 minute winter	Catchment F	Hydro-Brake®		4.0	201.7
720 minute winter	Catchment G	Hydro-Brake®		8.4	385.3

Appendix I Severn Trent Water Developer Enquiry

From:	Network Solutions
To:	Phoebe Ryding
Cc:	Dave Woolley; Charlotte Turner
Subject:	RE: [PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726
Date:	05 October 2022 14:49:07
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png A3L_Sewer_Tabular - Hob Lane, Balsall Common, Coventry 1057726 (2).pdf

ST Classification: OFFICIAL PERSONAL

Hi Pheobe,

Please see a copy of the OS maps, you can see Meadow Farm is shown behind 1 Waste Lane. I believe that the unmarked property next to 1 Waste Lane is the farm in question.

As you will also note the sw sewer on Waste Lane has little information associated with it I cannot advise what rate we can accept, I'd suggest that we raise this with the sewer modellers when we have a greater understanding of the area of land that will discharge into it. Our preference would always be for the flows to discharge directly to a watercourse instead of our sewers.

Kind regards,

Pierce Meguer
Senior Evaluation Technician
Network Solutions
Developer Services

Network.Solutions@severntrent.co.uk

For further information on guidance and applications please follow the link below:
https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/

We have listened to our customers and local communities and Severn Trent have made a pledge to transform and protect the health of our Rivers, for more information please follow the link below:
https://www.stwater.co.uk/get-river-positive/our-river-pledges/

WONDERFUL ON TAP

SEVERN TRENT

From: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Sent: 23 September 2022 15:39
To: Network Solutions <Network.Solutions@severntrent.co.uk>

Cc: Dave Woolley <dave.woolley@pja.co.uk>; Charlotte Turner <Charlotte.turner@pja.co.uk>
Subject: RE: [PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

Hi Pierce,

Thanks for your response.

Given the stage in the current planning process, we do not have an exact quantum of development draining to each sewer. As part of our FRA, we will outline that this information should be made available to you as soon as available.

Please can you provide the co-ordinates of Meadow Farm (apologies, we can't see it on Google mapping) where you are proposing we undertake a sewer requisition to so we can understand any constraints with this? You note that you could accept some flows into the manhole identified on Waste Lane, we would like to understand what discharge rate would be acceptable for surface water into this sewer at the location identified?

Many thanks,
Phoebe

PJA
transport • engineering • placemaking

Phoebe Ryding
Senior Flood Risk and Drainage Engineer
T. 0121 387 7961 M. 07872 858452
Park Point, High Street, Longbridge, Birmingham, B31 2UQ, UK
www.pja.co.uk

From: Network Solutions <Network.Solutions@severntrent.co.uk>
Sent: 23 September 2022 10:59
To: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Cc: Dave Woolley <dave.woolley@pja.co.uk>; Charlotte Turner <Charlotte.turner@pja.co.uk>
Subject: RE: [PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

ST Classification: OFFICIAL PERSONAL

Good morning Pheobe,

I hope you're well.

Apologies for the slight delay getting back to you.

We would be willing to consider a gravity connection to the sewers off Waste Lane however, tis network outfalls to a small capacity pumping station and as such it is anticipated that this would have a detrimental effect. It would be beneficial if you could provide an anticipated number of properties that would connect to this network so we can inform our consultants of the flow rate when we raise the modelling request. Please note, our preferred connection point to the sewer on Waste Lane would be at manhole SP25760402 as the network to the east suffers from large volumes of surface water run off and is known to flood at particular storm periods.

With regards to the surface water proposals, in theory we could accept some flows into the surface water network on waste Lane at manhole SP24769305 but we anticipate that the proposed flow rate of 11.2l/s will have a prejudicial effect on the network and as such we would recommend that you requisition a sewer to the ditch course at the rear of Meadow Farm, where the public network outfalls too. The reason we know that the network cannot accept the additional volume of sw at this discharge rate is due to a number of properties around the network reporting flooding from out network.

Kind regards,

Pierce Meguer
Senior Evaluation Technician
Network Solutions
Developer Services

Network.Solutions@severntrent.co.uk

For further information on guidance and applications please follow the link below:
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https://www.stwater.co.uk/get-river-positive/our-river-pledges/

WONDERFUL ON TAP

SEVERN TRENT

From: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Sent: 13 September 2022 11:35
To: Network Solutions <Network.Solutions@severntrent.co.uk>
Cc: Dave Woolley <dave.woolley@pja.co.uk>; Charlotte Turner <Charlotte.turner@pja.co.uk>
Subject: RE:[PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

Hi Pierce,

Thanks for your response.

We have a number of queries with regards to the developer enquiry.

Foul water

The north of the Site will **not** drain under gravity to the sewer in Hob Lane.

Whilst we appreciate that Site levels mean a large proportion of the Site can drain to this point and we will endeavour to drain as much as reasonably possible to this sewer, the Site levels crest through the centre of the Site. As such, to avoid a pumping station being utilised on Site and the additional maintenance that will go with this for Severn Trent Water in the future, we would like to propose a connection to the north of the Site at Waste Lane for the area of land at the north of the Site, which based on existing Site levels should be viable under gravity but would not be able to drain north.

Surface Water

I am not sure all the details got provided to you in my email requesting the developer enquiry, given your request for infiltration testing which we have already provided to you and has found to be unfeasible. Please find this information re-attached for reference.

We are proposing to discharge surface water into the existing ditch to the east of the Site, where feasible however based on the Site topography not all of the Site cand drain to the ditch and the west of the Site will need to discharge surface water flows to the Severn Trent Water network in the north-west of the Site at the QBar greenfield discharge rate of 7l/s. Please see attached surface water drainage strategy plan. We have followed the drainage hierarchy as far as reasonably possible and therefore require a connection as shown into the Severn Trent Water sewer. This information will be submitted to support any future planning application for the Site.

If you have any queries or a phone call would help, feel free to reach out.

Kind regards,
Phoebe

PJA
transport • engineering • placemaking

Phoebe Ryding
Senior Flood Risk and Drainage Engineer
T. 0121 387 7961 M. 07872 858452
Park Point, High Street, Longbridge, Birmingham, B31 2UQ, UK
www.pja.co.uk

Sign up here to receive news from PJA

From: Network Solutions <Network.Solutions@severntrent.co.uk>
Sent: 13 September 2022 10:30
To: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Subject: DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

ST Classification: UNMARKED

Hi Phoebe,

I hope you're well.

Please find attached below our Developer Enquiry response letter, along with a sewer record extract and supplementary guidance notes with regard to the above site.

If you have any further queries with regard to our response, please do not hesitate to contact us on the number / email address mentioned below. Please refrain from sending responses to a certain individual directly. Our email address below will ensure that your response is logged and tracked for a response. When responding, please quote our reference number above in all return correspondence.

Kind regards,

Pierce Meguer
Senior Evaluation Technician
Network Solutions
Developer Services

Network.Solutions@severntrent.co.uk

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https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/

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https://www.stwater.co.uk/get-river-positive/our-river-pledges/

WONDERFUL ON TAP

SEVERN TRENT

Severn Trent Plc (registered number 2366619) and Severn Trent Water Limited (registered number 2366686) (together the "Companies") are both limited companies registered in England

& Wales with their registered office at Severn Trent Centre, 2 St John's Street, Coventry, CV1 2LZ This email (which includes any files attached to it) is not contractually binding on its own, is intended solely for the named recipient and may contain CONFIDENTIAL, legally privileged or trade secret information protected by law. If you have received this message in error please delete it and notify us immediately by telephoning +44 2477715000. If you are not the intended recipient you must not use, disclose, distribute, reproduce, retransmit, retain or rely on any information contained in this email. Please note the Companies reserve the right to monitor email communicationsin accordance with applicable law and regulations. To the extent permitted by law, neither the Companies or any of their subsidiaries, nor any employee, director or officer thereof, accepts any liability whatsoever in relation to this email including liability arising from any external breach of security or confidentiality or for virus infection or for statements made by the sender as these are not necessarily made on behalf of the Companies. Reduce waste! Please consider the environment before printing this email

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WONDERFUL ON TAP

13th September 2022

PJA Civil Engineering Limited
Park Point
High Street
Longbridge
Birmingham
B31 2UQ

F.A.O: phoebe.ryding@pja.co.uk

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

Tel: 07976 449091
www.stwater.co.uk

Email:
Network.Solutions@SevernTrent.co.uk

Our ref: 1057726

Dear Pheobe,

Proposed Development: 220 residential properties at Hob Lane, Balsall Common, Coventry

X: 425218 / Y: 276125

I refer to your 'Development Enquiry Request' in respect of the above named site. Please find enclosed the sewer records that are included in the fee together with the Supplementary Guidance Notes (SGN) which refer to surface water disposal from development sites.

Protective Strip

Having viewed our statutory sewer records, they demonstrate there are no public sewers within the site.

Due to a change in legislation on 1 October 2011, there may be former private sewers on the site which have transferred to the responsibility of Severn Trent Water Ltd, which are not shown on the statutory sewer records, but are located in your client's land. These sewers would also have protective strips that we will not allow to be built over. If such sewers are identified to be present on the site, please contact us for further guidance.

A protected strip is an area, over and to either side of the sewer on which no buildings or other permanent or temporary structures are permitted. The minimum dimension of a protected strip is 5 metres (2.5 metres either side of the centre line of the sewer) but will be wider for larger/deeper sewers. Dimensions of protected strips are given in Sewer Sector Guidance, and you may be required to obtain

easements on our behalf. Please note, we will also take into account whether Building Regulations have been observed.

Foul Water Drainage

Severn Trent Water would prefer if one point of connection is used for the entire site. It is anticipated that the majority of the site can discharge too the 150mm foul water sewer on Hob Lane at manhole SP25752900.

These flows would then travel downstream before discharging into the Hob Lane foul water pumping station. Due to the reported surcharging and flooding in and around the pumping station we anticipate that a growth scheme will need to be promoted to accommodate the development. In order to determine the level of the works required to accommodate the site modelling will be required.

In a change to our previous process, we no longer charge developers for the hydraulic modelling service. We will liaise with you over time with regards to the outcome of our investigations and any impact that may have on the planning status, occupation, or phasing of the site. However, while we can provide a brief summary of our findings if you need us to, we will no longer provide the full external capacity assessment report.

From the application you have submitted, I am assuming that the development has not been granted planning approval. Please inform us as and when planning has progressed as this will help determine how quick we carry out the modelling exercise. In the meantime, the site will be added to our modelling tracker and reviewed regularly until the site can be progressed for sewer modelling. I would therefore be grateful if you would forward as soon as possible the following details:

- Proposed submission of your Planning Application
- Confirmation whether a pumped solution is required (please provide pump rate and frequency, if available)
- Proposed planned start and completion date
- Any phasing details of the proposed development
- Planned occupation date

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If these are found to be

unsuitable, satisfactory evidence will need to be submitted. The evidence should be either percolation test results or by the submission of a statement from the SI consultant (extract or a supplementary letter).

Subject to above Severn Trent Water expects all surface water from the development to be drained in a sustainable way to the nearest watercourse or land drainage channel, subject to the developer discussing all aspects of the developments surface water drainage with the Local Lead Flood Authority (LLFA). Any discharge rate to a watercourse or drainage ditch will be determined by the LLFA / EA.

The surface water network on Windmill Lane does not have the capacity to accommodate the flows. As such a direct connection to the watercourse should be explored. The OS data shows that there are multiple watercourse, ditch courses and pond around the site, all should be considered as suitable points of discharge.

New Connections

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will need to submit a Section 106 application form. Our Developer Services department are responsible for handling all new connections enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 7076600 or download from www.stwater.co.uk.

Please quote the above reference in any future correspondence (including e-mails) with STW Limited. Please note that Developer Enquiry responses are only valid for 6 months from the date of this letter.

Yours sincerely,

Pierce Meguer
Network Solutions
Developer Services

From:	Network Solutions
To:	Phoebe Ryding
Cc:	Dave Woolley; Charlotte Turner
Subject:	RE: [PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726
Date:	23 September 2022 10:59:37
Attachments:	image002.png image003.png image004.png image005.png image006.png image007.png

ST Classification: OFFICIAL PERSONAL

Good morning Pheobe,

I hope you're well.

Apologies for the slight delay getting back to you.

We would be willing to consider a gravity connection to the sewers off Waste Lane however, tis network outfalls to a small capacity pumping station and as such it is anticipated that this would have a detrimental effect. It would be beneficial if you could provide an anticipated number of properties that would connect to this network so we can inform our consultants of the flow rate when we raise the modelling request. Please note, our preferred connection point to the sewer on Waste Lane would be at manhole SP25760402 as the network to the east suffers from large volumes of surface water run off and is known to flood at particular storm periods.

With regards to the surface water proposals, in theory we could accept some flows into the surface water network on waste Lane at manhole SP24769305 but we anticipate that the proposed flow rate of 11.2l/s will have a prejudicial effect on the network and as such we would recommend that you requisition a sewer to the ditch course at the rear of Meadow Farm, where the public network outfalls too. The reason we know that the network cannot accept the additional volume of sw at this discharge rate is due to a number of properties around the network reporting flooding from out network.

Kind regards,

Pierce Meguer
Senior Evaluation Technician
Network Solutions
Developer Services

Network.Solutions@severntrent.co.uk

For further information on guidance and applications please follow the link below:
https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/

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https://www.stwater.co.uk/get-river-positive/our-river-pledges/

WONDERFUL ON TAP

From: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Sent: 13 September 2022 11:35
To: Network Solutions <Network.Solutions@severntrent.co.uk>
Cc: Dave Woolley <dave.woolley@pja.co.uk>; Charlotte Turner <Charlotte.turner@pja.co.uk>
Subject: RE:[PJA: 05655] DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

Hi Pierce,

Thanks for your response.

We have a number of queries with regards to the developer enquiry.

Foul water

The north of the Site will **not** drain under gravity to the sewer in Hob Lane.

Whilst we appreciate that Site levels mean a large proportion of the Site can drain to this point and we will endeavour to drain as much as reasonably possible to this sewer, the Site levels crest through the centre of the Site. As such, to avoid a pumping station being utilised on Site and the additional maintenance that will go with this for Severn Trent Water in the future, we would like to propose a connection to the north of the Site at Waste Lane for the area of land at the north of the Site, which based on existing Site levels should be viable under gravity but would not be able to drain north.

Surface Water

I am not sure all the details got provided to you in my email requesting the developer enquiry, given your request for infiltration testing which we have already provided to you and has found to be unfeasible. Please find this information re-attached for reference.

We are proposing to discharge surface water into the existing ditch to the east of the Site, where feasible however based on the Site topography not all of the Site cand drain to the ditch and the west of the Site will need to discharge surface water flows to the Severn Trent Water network in the north-west of the Site at the QBar greenfield discharge rate of 7l/s. Please see attached surface water drainage strategy plan. We have followed the drainage hierarchy as far as reasonably possible and therefore require a connection as shown into the Severn Trent Water sewer. This information will be submitted to support any future planning application for the Site.

If you have any queries or a phone call would help, feel free to reach out.

Kind regards,
Phoebe

Phoebe Ryding
Senior Flood Risk and Drainage Engineer
T. 0121 387 7961 M. 07872 858452
Park Point, High Street, Longbridge, Birmingham, B31 2UQ, UK
www.pja.co.uk
Sign up here to receive news from PJA

From: Network Solutions <Network.Solutions@severntrent.co.uk>
Sent: 13 September 2022 10:30
To: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Subject: DEV (S) Hob Lane, Balsall Common, Coventry - 1057726

ST Classification: UNMARKED

Hi Phoebe,

I hope you're well.

Please find attached below our Developer Enquiry response letter, along with a sewer record extract and supplementary guidance notes with regard to the above site.

If you have any further queries with regard to our response, please do not hesitate to contact us on the number / email address mentioned below. Please refrain from sending responses to a certain individual directly. Our email address below will ensure that your response is logged and tracked for a response. When responding, please quote our reference number above in all return correspondence.

Kind regards,

Pierce Meguer
Senior Evaluation Technician
Network Solutions
Developer Services

Network.Solutions@severntrent.co.uk

For further information on guidance and applications please follow the link below:
https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/

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Appendix J Pre-Application Correspondence

From:	Krylova, Anastasia (Managed Growth and Communities Directorate - Solihull MBC)
To:	Phoebe Ryding
Cc:	Charlotte Turner
Subject:	[PJA: 05655-B] Pheasant Oak Farm - LLFA
Date:	12 July 2022 16:36:18
Attachments:	image004.png image005.png image006.png image007.png image008.png image009.png image010.png

Hi Phoebe,

Thank you for getting in touch.

We are aware of a highway flooding incident on Waste Lane in June 2012 downstream of the site. You may find it helpful to view the surface water flood risk mapping for the area produced by the Environment Agency on https://www.gov.uk/check-long-term-flood-risk and searching using the postcode.

You may find the following link helpful https://www.solihull.gov.uk/communities-and-safety/Flood-risk-management – this shows the policies and guides related to flood risk management and SuDS design in Solihull.

We would welcome early dialogue prior to commencement or submission of any application to confirm and agree site-specific principles.

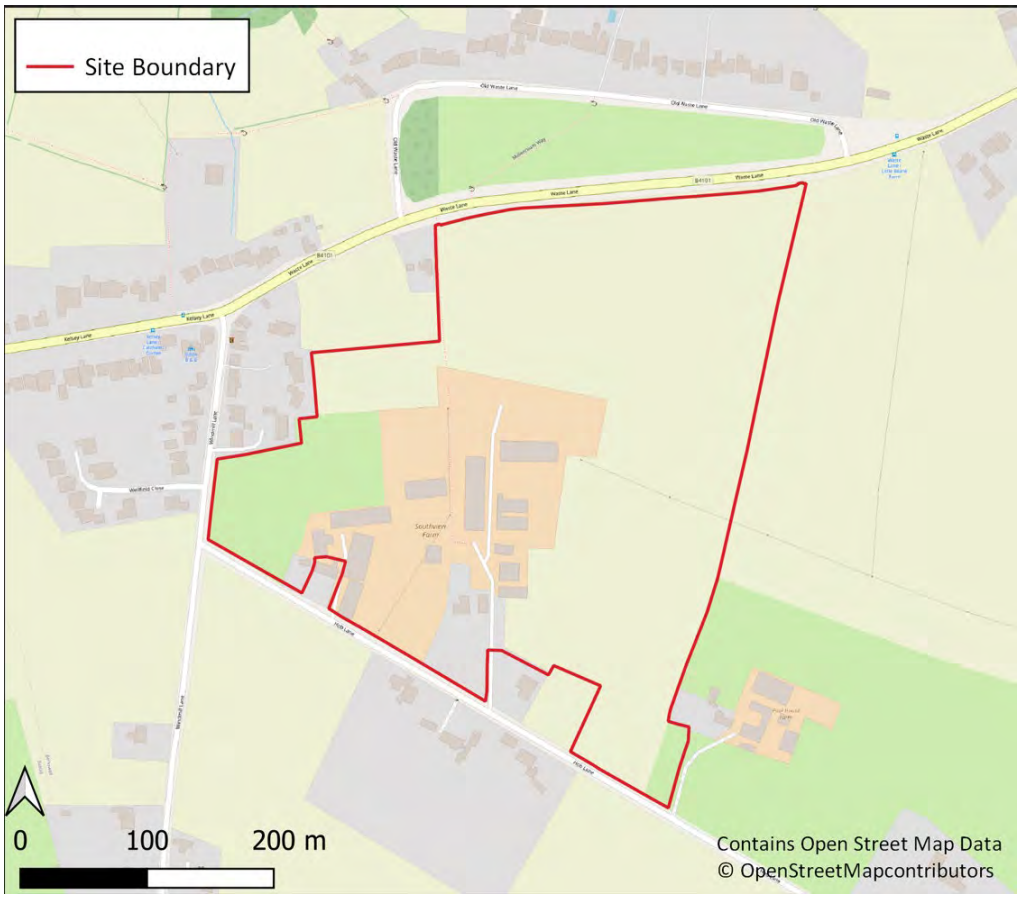
Many thanks,
Anastasia

Anastasia Krylova
Assistant Engineer | Highway Infrastructure | Economy & Infrastructure
Solihull Metropolitan Borough Council
T: 0121 704 6418
P: Council House | Manor Square | Solihull | B91 3QB

From: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Sent: 11 July 2022 16:30
To: Drainage (Places Directorate - Solihull MBC) <drainage@solihull.gov.uk>
Cc: Charlotte Turner <Charlotte.turner@pja.co.uk>
Subject: [PJA: 05655-B] Pheasant Oak Farm - LLFA

Hello,

PJA have been appointed to advance the evolution of the scheme proposals in relation to surface water drainage at the Site at Pheasant Oak Farm, Balsall Common. An approximate postcode is CV7 7GW and grid reference SP 25087 76223. A Site Location Plan is available below.



We would like to request any records of flooding you hold for the Site.

We are aware of Solihulls Local Policy requirements for above ground storage and to reduce runoff from proposed developments to the existing QBar greenfield runoff rate. We are proposing to utilise a SuDS strategy on Site and would welcome any thoughts you have with regards to the proposed development Site.

If you have any further queries, please reach out.

Kind regards,
Phoebe

PJA
transport • engineering • placemaking

Phoebe Ryding
Senior Flood Risk and Drainage Engineer
T. 0121 387 7961 M. 07872 858452
Park Point, 17 High Street, Longbridge, B31 2UQ, UK
www.pja.co.uk

Product 4 (Detailed Flood Risk Data) for Pheasant Oak Farm

Reference number: 272436
Date of issue: 16 September 2022

We are unable to provide you with a full product 4 response because:

- There is no detailed modelled information available for this site because it is in Flood Zone 1.
- And we do not have any records of flooding in this area.

Flood Map for Planning (Rivers and Sea)

The Flood Map for planning (Rivers and Sea) indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding (flood zone 3). It also shows the extent of the Extreme Flood Outlines (Flood zone 2) which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. The flood zones refer to the land at risk of flooding and **does not** refer to individual properties. It is possible for properties to be built at a level above the floodplain but still fall within the risk area.

The Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered that flooding may occur from other sources such as surface water sewers, road drainage, etc. This map can be accessed via our website: https://flood-map-for-planning.service.gov.uk/

Recorded Flooding

With regards to the history of flooding I can advise that we do not have any records of flooding in this area. It is possible that other flooding may have occurred that we do not have records for, and other organisations, such as the Lead Local Flood Authority or Internal Drainage Boards (where relevant), may have records.

Risk of Surface Water Flooding Map

Managing the risk of flooding from surface water is the responsibility of Lead Local Flood Authorities. The 'risk of flooding from surface water' map has been produced by the Environment Agency on behalf of government, using information and input from Lead Local Flood Authorities.

You may wish to contact your Local Authority who may be able to provide information on surface water.

Email: Enquiries_Westmids@environment-agency.gov.uk
Website: www.gov.uk/government/organisations/environment-agency

It is not possible to say for certain what the flood risk is but we use the best information available to provide an indication so that people can make informed choices about living with or managing the risks. The information we supply does not provide an indicator of flood risk at an individual site level. Further information can be found on the Environment Agency's website, https://flood-warning-information.service.gov.uk/long-term-flood-risk

Email: Enquiries_Westmids@environment-agency.gov.uk
Website: www.gov.uk/government/organisations/environment-agency

From: Asset.Protection
To: Phoebe Ryding
Subject: RE: [PJA: 05655-B] Pheasant Oak Farm - STW
Date: 14 July 2022 10:12:36
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png

ST Classification: OFFICIAL PERSONAL

Dear Phoebe,

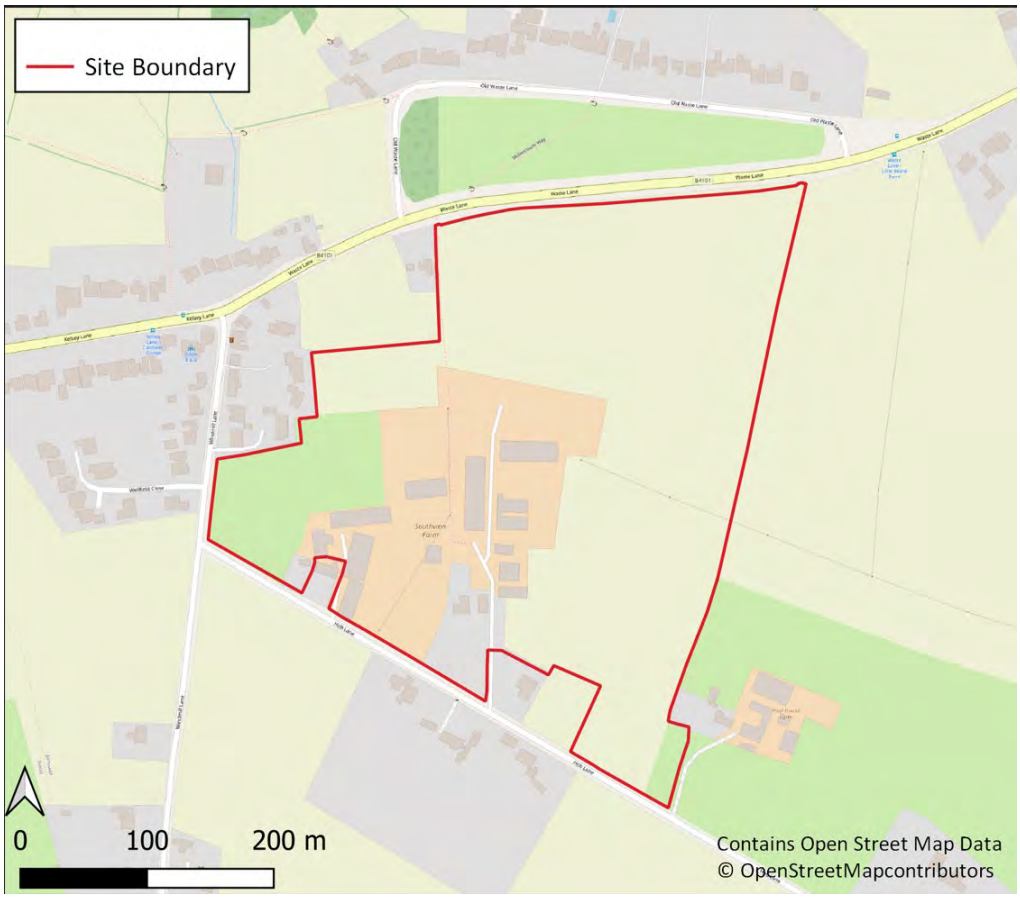
Thank you for your email.

Having checked our records there does not appear to be any history of flooding in this area.

Kind regards
Mike Shapland
Asset Protection

From: Phoebe Ryding <Phoebe.ryding@pja.co.uk>
To: NEW.CONNECTIONS@SEVERNTRENT.CO.UK
CC: Charlotte Turner <Charlotte.turner@pja.co.uk>
Sent: 11.07.22 16:31:49
Subject: [PJA: 05655-B] Pheasant Oak Farm - STW

Hello,
PJA have been appointed to advance the evolution of the scheme proposals in relation to surface water drainage at the Site at Pheasant Oak Farm, Balsall Common. An approximate postcode is CV7 7GW and grid reference SP 25087 76223. A Site Location Plan is available below.



We would like to request any records of sewer flooding you hold for the Site.

If you have any further queries, please reach out.

Kind regards,

Phoebe

Phoebe Ryding
Senior Flood Risk and Drainage Engineer
T. 0121 387 7961 M. 07872 858452
Park Point, 17 High Street, Longbridge, B31 2UQ, UK
www.pja.co.uk

Sign up here to receive news from PJA

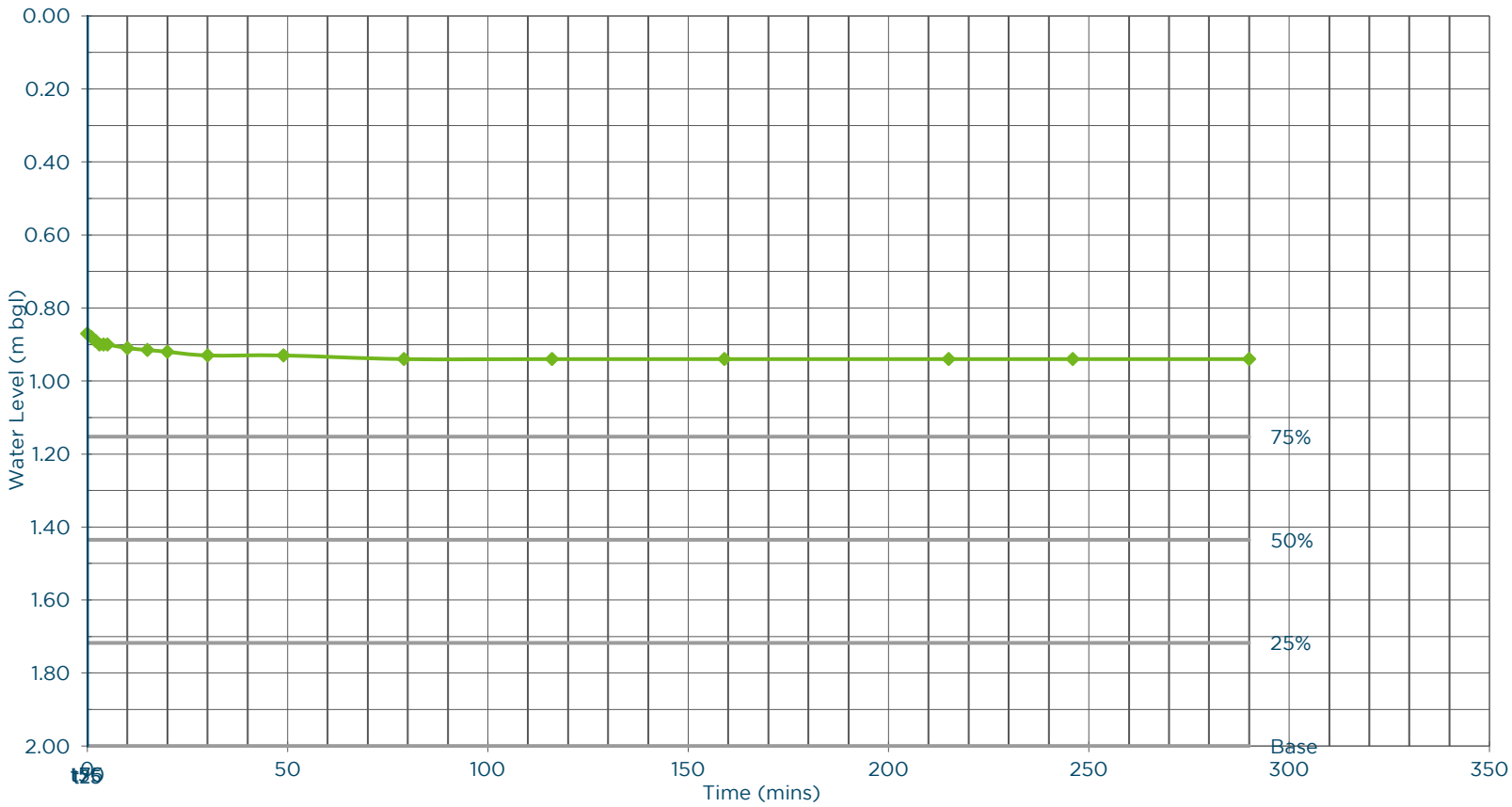
Appendix K Infiltration Test Results

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm,
Contract No:	C10313
Client:	PJA
Date:	17/08/2022

Pit Information	
Location ID:	SA01
Depth (m):	2.00
Width (m):	0.45
Length (m):	1.50
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
0.0	0.87
1.0	0.88
2.0	0.89
3.0	0.90
4.0	0.90
5.0	0.90
10.0	0.91
15.0	0.92
20.0	0.92
30.0	0.93
49.0	0.93
79.0	0.94
116.0	0.94
159.0	0.94
215.0	0.94
246.0	0.94
290.0	0.94

Test Information and Calculation	
Test Reference/Number:	1
Test Start Time:	9:40
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.00
Effective Storage Depth (m)	0.87
Effective Drop (m)	1.13
75% Effective Depth (m)	1.15
50% Effective Depth (m)	1.44
25% Effective Depth (m)	1.72
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
$V_{p75\text{-}25}$	0.38
Adjusted V_p for Gravel Fill	0.38
a_{s50}	2.88
$t_{p75\text{-}25}$	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

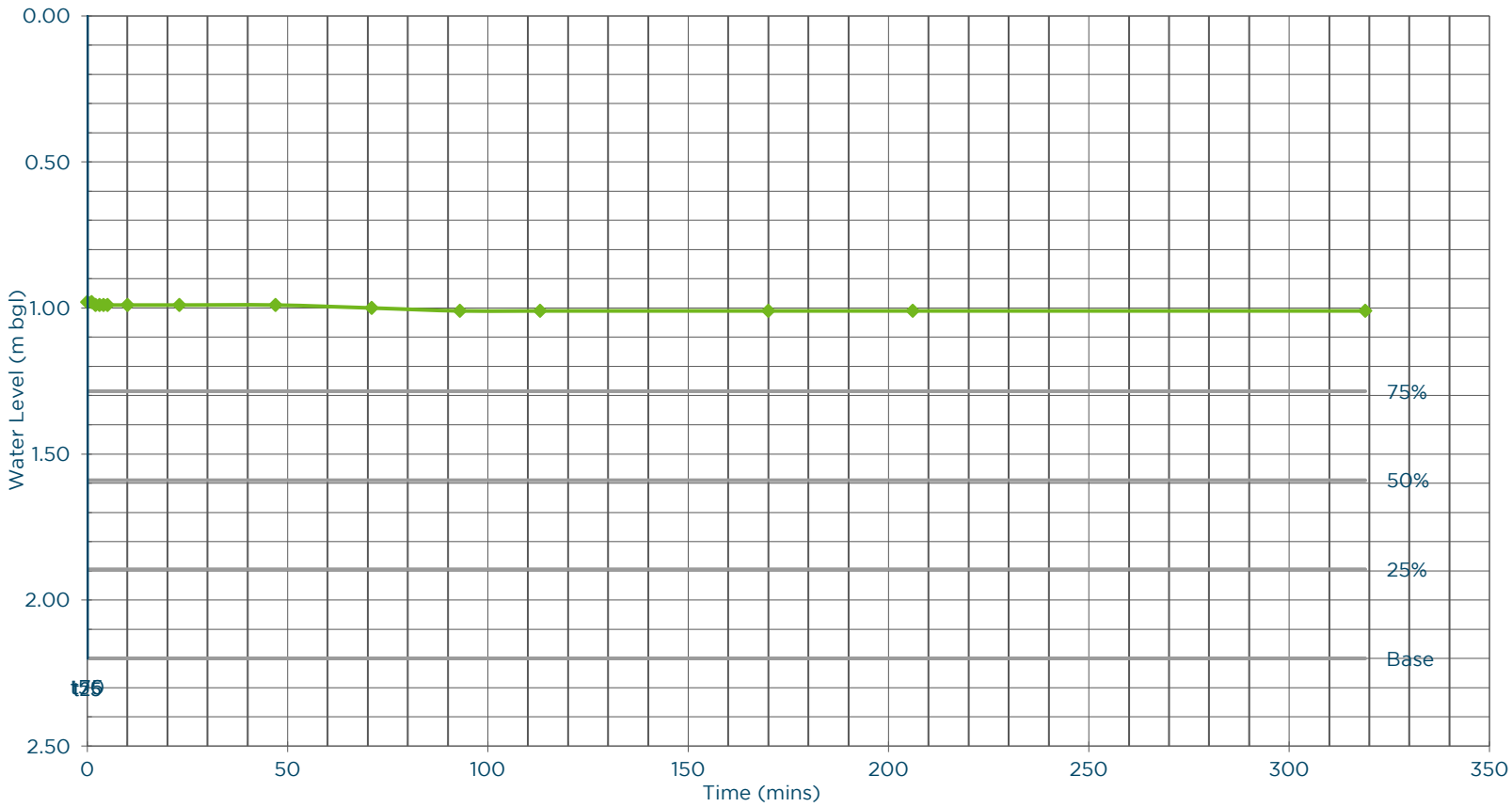
Comments

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm
Contract No:	C10313
Client:	PJA
Date:	17/08/2022

Pit Information	
Location ID:	SA02
Depth (m):	2.20
Width (m):	0.45
Length (m):	2.20
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
0.0	0.98
1.0	0.98
2.0	0.99
3.0	0.99
4.0	0.99
5.0	0.99
10.0	0.99
23.0	0.99
47.0	0.99
71.0	1.00
93.0	1.01
113.0	1.01
170.0	1.01
206.0	1.01
319.0	1.01

Test Information and Calculation	
Test Reference/Number:	1
Test Start Time:	10:41
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.20
Effective Storage Depth (m)	0.98
Effective Drop (m)	1.22
75% Effective Depth (m)	1.29
50% Effective Depth (m)	1.59
25% Effective Depth (m)	1.90
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
$V_{p75\text{-}25}$	0.60
Adjusted V_p for Gravel Fill	0.60
a_{s50}	4.22
$t_{p75\text{-}25}$	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

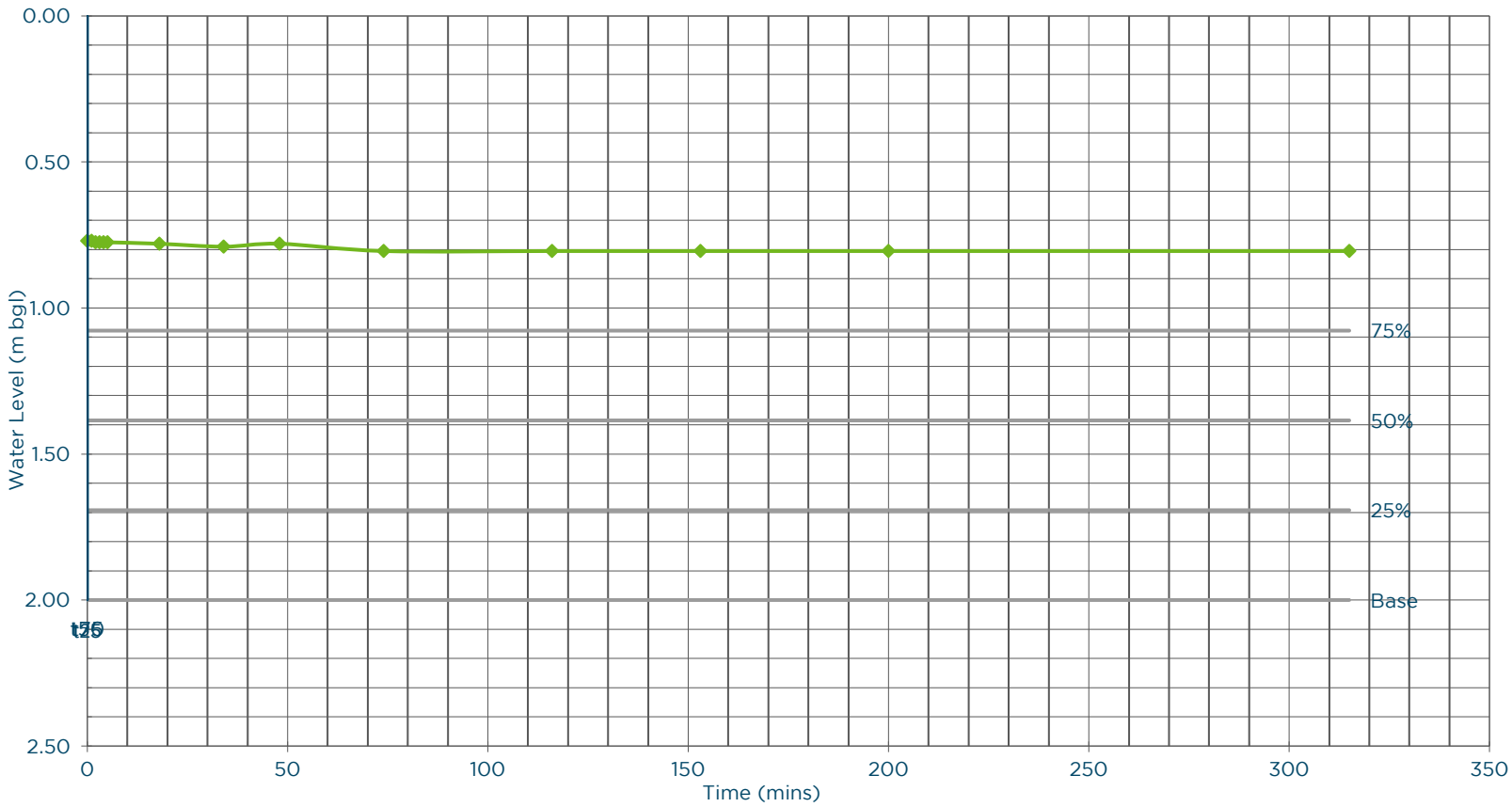
Comments

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm
Contract No:	C10313
Client:	PJA
Date:	17/08/2022

Pit Information	
Location ID:	SA03
Depth (m):	2.00
Width (m):	0.56
Length (m):	2.14
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
0.0	0.77
1.0	0.77
2.0	0.78
3.0	0.78
4.0	0.78
5.0	0.78
18.0	0.78
34.0	0.79
48.0	0.78
74.0	0.81
116.0	0.81
153.0	0.81
200.0	0.81
315.0	0.81

Test Information and Calculation	
Test Reference/Number:	1
Test Start Time:	11:00
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.00
Effective Storage Depth (m)	0.77
Effective Drop (m)	1.23
75% Effective Depth (m)	1.08
50% Effective Depth (m)	1.39
25% Effective Depth (m)	1.69
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
$V_{p75\text{-}25}$	0.74
Adjusted V_p for Gravel Fill	0.74
a_{s50}	4.52
$t_{p75\text{-}25}$	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

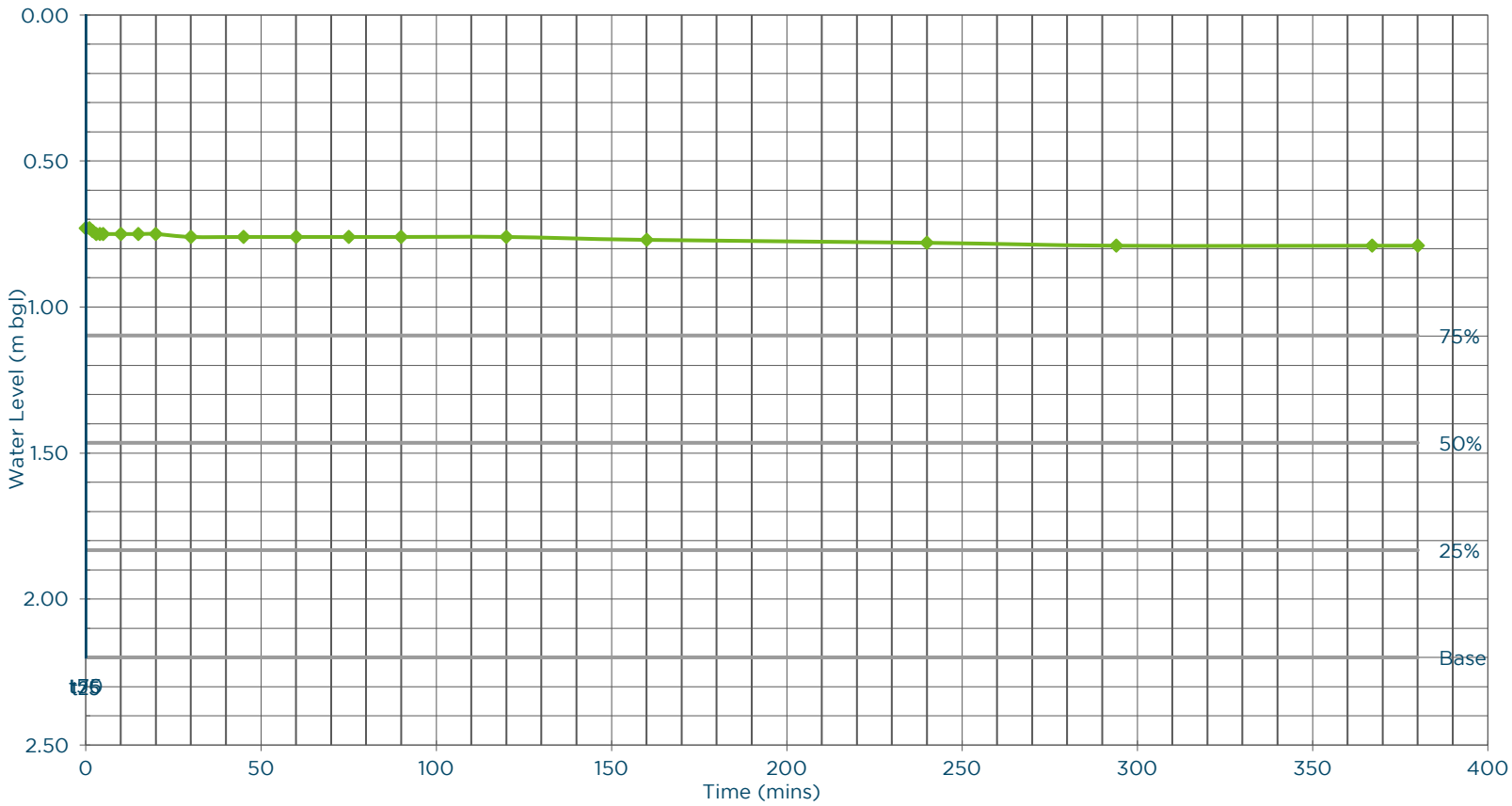
Comments

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm
Contract No:	C10313
Client:	PJA
Date:	18/08/2022

Pit Information	
Location ID:	SA04
Depth (m):	2.20
Width (m):	0.51
Length (m):	2.26
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
0.0	0.73
1.0	0.73
2.0	0.74
3.0	0.75
4.0	0.75
5.0	0.75
10.0	0.75
15.0	0.75
20.0	0.75
30.0	0.76
45.0	0.76
60.0	0.76
75.0	0.76
90.0	0.76
120.0	0.76
160.0	0.77
240.0	0.78
294.0	0.79
367.0	0.79
380.0	0.79

Test Information and Calculation	
Test Reference/Number:	3
Test Start Time:	9:40
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.20
Effective Storage Depth (m)	0.73
Effective Drop (m)	1.47
75% Effective Depth (m)	1.10
50% Effective Depth (m)	1.47
25% Effective Depth (m)	1.83
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
$V_{p75\text{-}25}$	0.85
Adjusted V_p for Gravel Fill	0.85
a_{s50}	5.22
$t_{p75\text{-}25}$	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

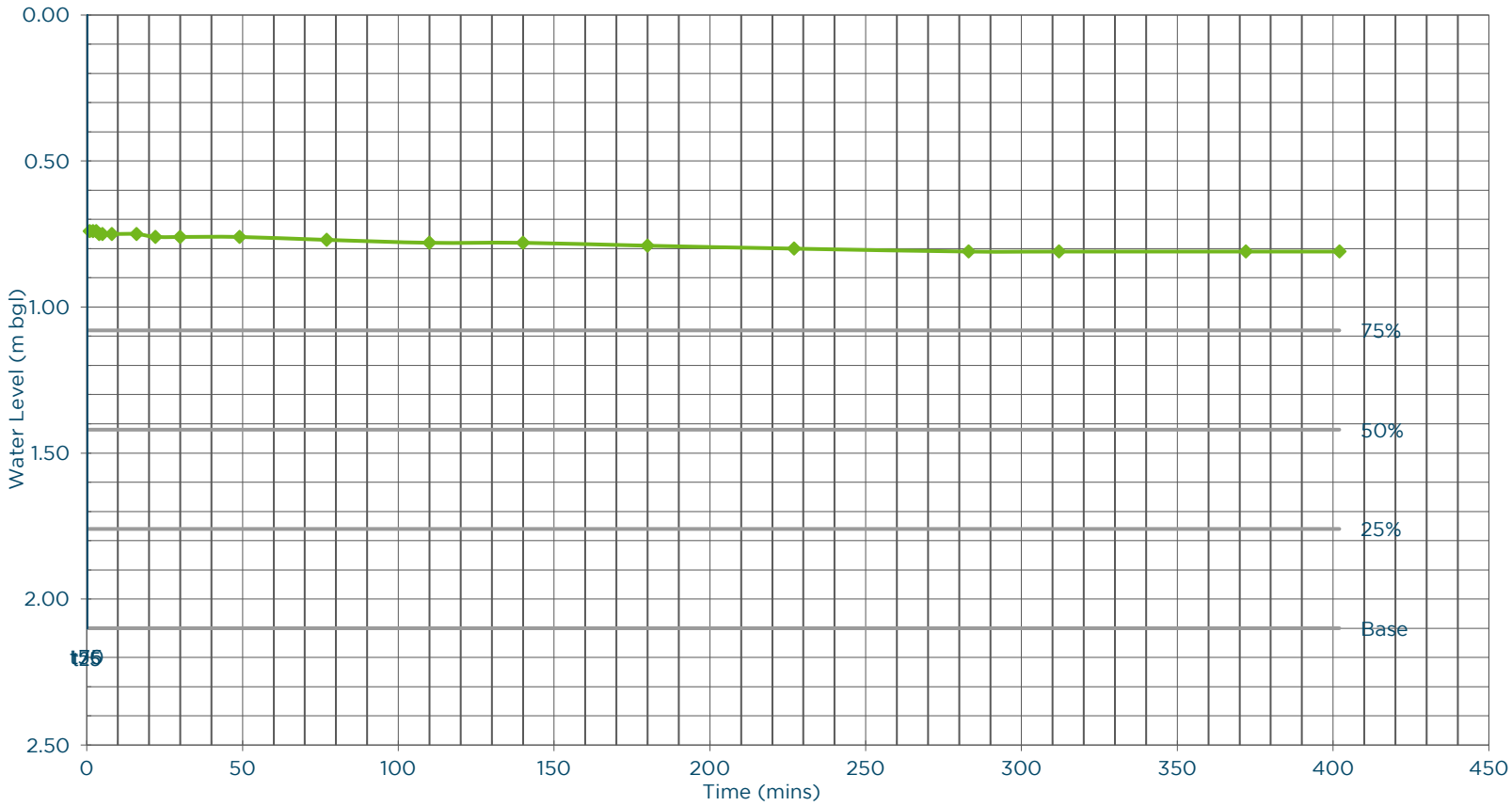
Comments

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm
Contract No:	C10313
Client:	PJA
Date:	18/08/2022

Pit Information	
Location ID:	SA05
Depth (m):	2.10
Width (m):	0.51
Length (m):	2.40
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
1.0	0.74
2.0	0.74
3.0	0.74
4.0	0.75
5.0	0.75
8.0	0.75
16.0	0.75
22.0	0.76
30.0	0.76
49.0	0.76
77.0	0.77
110.0	0.78
140.0	0.78
180.0	0.79
227.0	0.80
283.0	0.81
312.0	0.81
372.0	0.81
402.0	0.81

Test Information and Calculation	
Test Reference/Number:	3
Test Start Time:	8:45
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.10
Effective Storage Depth (m)	0.74
Effective Drop (m)	1.36
75% Effective Depth (m)	1.08
50% Effective Depth (m)	1.42
25% Effective Depth (m)	1.76
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
V_{p75-25}	0.83
Adjusted V_p for Gravel Fill	0.83
a_{s50}	5.18
t_{p75-25}	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

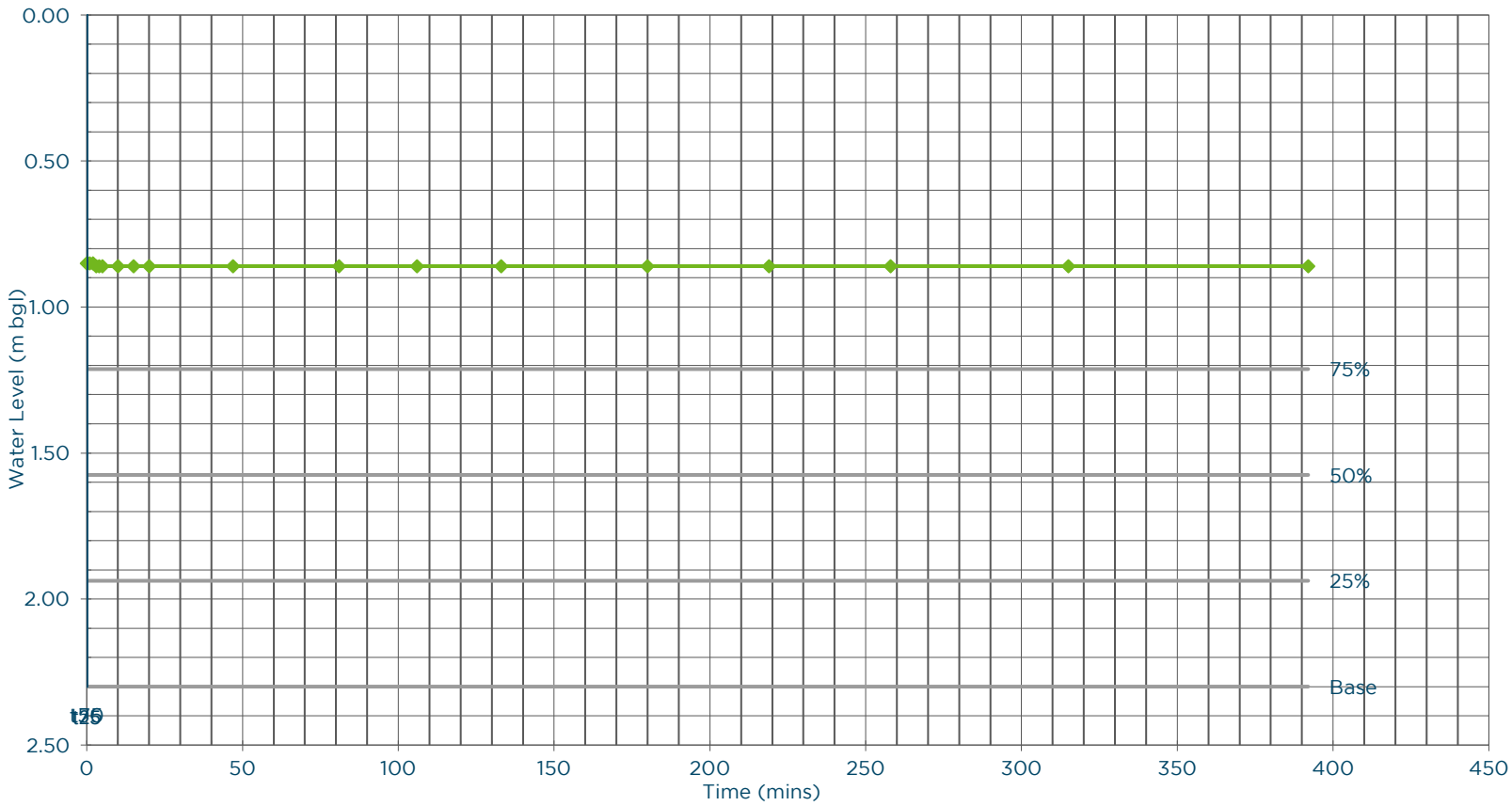
Comments

SOAKAWAY TESTING

EXPLORATION & TESTING ASSOCIATES

Contract Information	
Contract:	Pheasant Oak Farm
Contract No:	C10313
Client:	PJA
Date:	18/08/2022

Pit Information	
Location ID:	SA06
Depth (m):	2.30
Width (m):	0.45
Length (m):	2.45
Depth to Standing Water (m)	Dry



Time (min)	Depth (m)
0.0	0.85
1.0	0.85
2.0	0.85
3.0	0.86
4.0	0.86
5.0	0.86
10.0	0.86
15.0	0.86
20.0	0.86
47.0	0.86
81.0	0.86
106.0	0.86
133.0	0.86
180.0	0.86
219.0	0.86
258.0	0.86
315.0	0.86
392.0	0.86

Test Information and Calculation	
Test Reference/Number:	1
Test Start Time:	9:13
Method of Calculation	BRE365
Pit Gravel Filled?	No
Max. Depth (m)	2.30
Effective Storage Depth (m)	0.85
Effective Drop (m)	1.45
75% Effective Depth (m)	1.21
50% Effective Depth (m)	1.58
25% Effective Depth (m)	1.94
t_{75} (min)	0.00
t_{50} (min)	0.00
t_{25} (min)	0.00
$V_{p75\text{-}25}$	0.80
Adjusted V_p for Gravel Fill	0.80
a_{s50}	5.31
$t_{p75\text{-}25}$	0.00
Results	
Soil Infiltration Rate (m/s)	#DIV/0!
Soil Infiltration Rate (mm/hr)	#DIV/0!

References

BRE 365 *Soakaway design*, 2016, with reference to CIRIA Report 113 *Control of groundwater for temporary works*, 1986.

Comments

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 17/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425244.34 N275999.13
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA01	TP	121.14m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	121.02		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
								Soft brown slightly sandy gravelly CLAY. Gravel is angular to rounded fine to coarse quartzite and sandstone.
					0.52	120.62		Firm greyish red slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite. Occasional calcarous concretions.
					2.00	119.14		End of Trial Pit at 2.00m

1 2 3 4 5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
150.00	45.00	Stable	No			

Remarks

1. No Groundwater encountered 2. Terminated at target depth 3. No visual or olfactory evidence of contamination.

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 17/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425340.58 N276347.90
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA02	TP	123.29m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	123.19		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
					0.30	122.99		Soft brown slightly sandy gravelly CLAY. Gravel is angular to rounded fine to coarse quartzite, mudstone and sandstone.
								Firm grey mottled orange slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse quartzite. Rare calcarous concretions.
					1.00	122.29		Firm to Stiff greyish red slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to medium sandstone. Occasional calcarous concretions.
					1.70	121.59		Stiff greyish red sandy CLAY.
					2.20	121.09		End of Trial Pit at 2.20m

1 2 3 4 5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
220.00	45.00	Stable	No			

Remarks

1. No Groundwater encountered 2. Terminated at target depth 3. No visual or olfactory evidence of contamination.

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 17/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425182.42 N276376.38
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA03	TP	123.55m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.14	123.41		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
					0.40	123.15		Soft brown slightly sandy gravelly CLAY. Gravel is usnangular to rounded sandtone and quartzite.
					0.70	122.85		Yellowish brown slightly clayey gravelly SAND. Gravel is subangular to rounded sandstone and quartzite.
					1.80	121.75		Firm greyish red slightly gravelly sandy CLAY. Gravel is subrounded to rounded quartzite. Rare grey subrounded CLAY boulder.
					2.00	121.55		Firm to stiff greyish red slightly sandy CLAY.
								End of Trial Pit at 2.00m

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5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
214.00	56.00	Stable	No			

Remarks

1. No Groundwater encountered 2. Terminated at target depth 3. No visual or olfactory evidence of contamination.

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 18/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425139.02 N276427.84
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA04	TP	121.78m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	121.66		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
					0.40	121.38		Soft brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.
					0.80	120.98		Soft grey mottled orange slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite. Rare angular SANDSTONE cobbles.
					2.20	119.58		Soft greyish red slightly gravelly sandy CLAY. Gravel is sunangular to rounded fine to coarse sandstone and quartzite.
								End of Trial Pit at 2.20m

1 2 3 4 5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
226.00	51.00	Stable	No			

Remarks

1. No Groundwater encountered 2. Terminated at target depth 3. No visual or olfactory evidence of contamination.

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 18/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425014.11 N276294.47
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA05	TP	123.16m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.14	123.02		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
								Soft brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.
					0.65	122.51		Firm grey mottled orange slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite. Rare calcarous concretions.
	▼				2.10	121.06		End of Trial Pit at 2.10m

1 2 3 4 5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
240.00	51.00	Stable	No		2.00	

Remarks

1. Terminated at target depth 2. No visual or olfactory evidence of contamination.

Trial Pit Log

EXPLORATION & TESTING ASSOCIATES

Project Name: Balsall Common	Client: PJA	Date: 18/08/2022
Location: Solihull	Contractor: Exploration & Testing Associates	Co-ords: E425354.26 N276442.69
Project No. : C10313	Crew Name: John Farmer Plant Hire	Equipment: JCB 3CX

Location Number	Location Type	Level	Logged By	Scale	Status
SA06	TP	125.00m AoD	HBW	1:25	DRAFT

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	124.85		Grass over soft brown sandy gravelly CLAY with occasional rootlets (<5mm). (TOPSOIL)
					0.30	124.70		Soft brown slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone and quartzite.
					0.40	124.60		Firm grey mottled orange slightly sandy gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite. Rare angular SANDSTONE cobbles.
								Stiff greyish red slightly gravelly sandy CLAY. Gravel is subangular to rounded fine to coarse sandstone. Rare black staining.
					2.30	122.70		End of Trial Pit at 2.30m

1
2
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4
5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
245.00	45.00	Stable	No			

Remarks

1. No Groundwater encountered 2. Terminated at target depth 3. No visual or olfactory evidence of contamination.