

Cherry Tree House, 46 Malmesbury Road, SN6 6RH

Reference: R1088 -Rev - V1

Aug-26

www.rida-reports.co.uk

	Section
Introduction	1
Site Characteristics	2.0
Discharge Arrangement	3.0
Peak Runoff	4.0
Proposed Sustainable Drainage	5.0
Maintenance and Management Plan	6.0
Appendices	
Distribution Existing and Proposed Areas	A
Site Investigation results	B
Drainage Calculations	C
Drainage System General Arrangement	D

Rev 1	Produced by: ARD	079 721 44579	arge@rida-reports.co.uk
-------	------------------	---------------	--

Oxford Innospace, Old Music Hall, 106-108 Cowley Road, Oxford, OX4 1JE
England and Wales number 10590566

Detailed Drainage Design

Report Limitations

© 2025 RIDA Reports Limited. All Rights Reserved.

This document has been prepared by RIDA Reports Limited with all reasonable skill, care and diligence for sole use of our client (The Owner of Cherry Tree House, 46 Malmesbury Road, SN6 6RH), in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between RIDA Reports Limited and the Client. Any information provided by third parties and referred to herein has not been checked or verified by RIDA Reports Limited, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of RIDA Reports Limited.

The Client may not assign the benefit of the report or any part to any third party without the written consent of Rida Reports Limited. This report does not purport to provide definitive legal advice. Current regulations and good practices were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid considering changes in regulation and practice or additional information obtained regarding the site.

Ownership of the copyright of all printed material, including reports, survey data, drawings, and laboratory test results, remains with RIDA Reports. License is for the sole use of the client and may not be assigned, transferred or given to a third party. This license is only valid once we have been paid in full for this engagement. In the event of non-payment for our services, we reserve the right to retract the license for all project data, preventing their use and any reliance upon such data by the client or any other third party. We may also contact parties other than the client to notify them of this retraction.

Approval

	Name	Position	Date
Prepared By:	JKC	Engineer	18.08.2026
Reviewed By:	CD	Chartered Engineer	19.08.2026
Approved By:	CD	Chartered Engineer	19.08.2026

Revision

Revision Number	Date Issued	Details
V1	19.08.2026	First Issue
-	-	-
-	-	-

Oxford Innospace, Old Music Hall, 106-108 Cowley Road, Oxford, OX4 1JE
England and Wales number 10590566

Purpose of this report

- 1.1 The purpose of this statement is to accompany the detailed technical drawings and details showing the proposed Surface Water drainage system.

Scope

- 1.2 This Sustainable Drainage Strategy (SDS) outlines the key drainage principles and requirements for the proposed development at Cherry Tree House, 46 Malmesbury Road, SN6 6RH. It provides a summary of the sustainable drainage system (SuDS) design, based on the specific site conditions and relevant guidelines, including Building Regulations Approved Document Part H and CIRIA C753: The SuDS Manual 2015. As the project progresses and new information becomes available, this strategy will be updated to reflect ongoing changes and the development of the detailed design.

Site Characteristics

- 2.1 The site background is clearly identified through answers to the questions in table 1 below.

Table 1: Site Characteristics . See appendix B for support documentation

TOPIC	QUESTION	ANSWER
Protected species or habitat	Is the site near to designated sites and priority habitats?	No
Flood Plain	Is the site located in the flood plain?	No
Soils and Geology	Soil permeability? - See appendix B for results	Yes
Space constraints	Space for SuDS components?	Yes
Topography	Sited on a flat site?	Yes
	Sited on a steep slope (5-15%)	No
	Sited on a very steep slope (>15%)	No
Groundwater	Is the site at groundwater flood risk?	No
Contaminated land	Are there contaminated soils on site?	Unknown
Source Protection Zone	Is the site within a SPZ 3?	Yes
Runoff characteristics	Is the development in a high risk flooding area?	Yes

Existing and Proposed Site

- 2.2 The distribution of catchment areas for existing and proposed site is as per table 2 below. See appendix A for details

Table 2 : Existing and Proposed catchment areas in hectares

Description	Existing Site	Proposed Site
Impermeable Areas	0.026	0.017
Permeable Areas		
Connected to Drainage	0.000	0.000
Self Draining Areas	0.000	0.144
Areas Draining Away from drainage System	0.171	0.036
Total Development Area	0.197	0.197

- 2.3 It has been assumed that the positively drained areas will have different runoff coefficients depending on the type of surface as follow:

Impermeable Surface	1.0
Permeable Surfaces	0.5
Grass Areas	0.3

Evaluation of Discharge Point

3.1 The SuDS design takes into account Building Regulations Section H3 and the National standards for sustainable drainage systems (SuDS). The aim is to discharge surface water run-off as high up the drainage hierarchy, as reasonably practicable:

1. collected for non-potable use
2. infiltrated to ground
3. discharged to an above ground surface water body
4. discharged to a surface water sewer, or another piped surface water drainage system
5. discharged to a combined sewer

3.2 The discharge point has been evaluated following the NPPG and Building regulations. The findings are in table 3 below.

Table 3: Drainage Hierarchy evaluation

1	Rain Water Harvesting	Rainwater will be collected and reused for garden watering. Sizing and calculations are provided in Appendix C.
	Superficial geology classification	The British Geological Society records show that the superficial deposits are No results found.
	Bedrock geology classification	The British Geological Society records of the site show that it is located within the Oxford Clay Formation-Mudstone.
	Landis Top Soil Infiltration	The SOILSCAPE's records of the site show that it is located within an area of impeded drainage soils.
	Groundwater	The British Geological Survey's flood risk susceptibility maps show that the development has limited susceptibility to ground water flooding. The risk from groundwater flood to the site is considered very low.
Infiltration Evaluation		
2	Is infiltration feasible?	Soakaway tests were undertaken for the site. The lowest infiltration rate for this site is 0.00150376m/s or 5.4135m/hr. See appendix B for details.
3	Is a discharge to a watercourse feasible?	There is a water course / ditch on the lower end of the site which could provide an alternative means of discharge, however shallow infiltration is preferred
4	Is a discharge to a surface water sewer feasible?	There is no surface water sewer in the proximity to the site.
5	Is a discharge to a combined sewer feasible?	There is no combined water sewer in the proximity to the site.

Existing and Proposed Peak Run-off Calculations

- 4.1 The current site is a Brownfield. The peak runoff rate for the existing site was calculated as per table 4 and discharge rates as per table 5.

Table 4: Peak run-off rate calculation method for existing site

Method Used	Calculation Method
	Report 124 Flood Estimation for Small Catchments method has been used to estimate the site peak flow rates
×	This is a brownfield site, runoff rates are calculated in accordance with best practice simulation modelling and using the modified rational method
	This is a brownfield site where the pre-development drainage isn't known. The runoff rates are calculated using the Greenfield model with soil type 5

- 4.2 The runoff flow produced by the development will be controlled as per table 5.

Table 5: Runoff discharge rate control

Control Used	Description of runoff discharge
×	Water will be discharged into the ground via a SuDS as described in table 6 below
	The peak discharge rate has been reduced to Greenfield Qbar flow
	The peak discharge rate has been taken as 0.7 l/s as it is not possible to reduce it to the Greenfield Qbar rate
	The peak discharge rate has been reduced to Brownfield pre-development 1 in 1 flow
	The peak discharge rate has been reduced by 60% from the existing Brownfield pre-development 1 in 2 flow rate

Run-off flows

- 4.3 The size of the SuDS has been calculated for all events up to the 1 in 100 including an allowance for climate change of 40%. As per tables above, it is proposed to infiltrate all the flows. See table 6 for values and appendix C for calculations.

Table 6: Peak discharge rates for SuDS

Return Period Event	Discharge Rate (l/s)			Infiltration Rate (m/hr)
	Existing Greenfield	Existing Brownfield	Proposed	
Qbar	0.40	N/A	N/A	0.5000
1 in 1	0.30	4.10	N/A	0.5000
1 in 2	0.30	5.30	N/A	0.5000
1 in 30	0.90	9.70	N/A	0.5000
1 in 30 + CC	N/A	N/A	N/A	0.5000
1 in 100	1.20	12.20	N/A	0.5000
1 in 100 + CC	N/A	N/A	N/A	0.5000

For the purpose of a conservative approach, the model has been checked with a reduced rate of 0.5000 m/hr

Proposed Sustainable Drainage System

5.1 The following sustainable drainage systems have been used for this site. The drainage design uses these drainage system through out the site. See table 7 for details.

Table 7: Evaluation of SuDS and Proposed Drainage System

Most Sustainable	SuDS Technique	Feasible	Proposed	Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit
	Living Roofs					
	Green Roof	No	No	×	×	×
	Green Blue Roof	No	No	×	×	×
	Basins and Ponds					
	Rainwater Gardens	No	No	×	×	×
	Rainwater Planters	No	No	×	×	×
	Constructed Wetlands	No	No	×	×	×
	Balancing Pond	No	No	×	×	×
	Detention Basins	No	No	×	×	×
	Retention Ponds	No	No	×	×	×
	Filters and Swales					
	Filter Strips	No	No	×	×	×
	Swales	No	No	×	×	×
	Infiltration Devices					
	Soakaways Crates	No	No	×	×	×
	Deep Boreholes	No	No	×	×	×
	Infiltration Trenches	No	No	×	×	×
	Infiltration Basin	No	No	×	×	×
	Permeable Surfaces					
	Permeable Surfaces	Yes	Yes	×	×	
	Filter Drains	No	No	×	×	
	Tanked System					
	Storage Crates	No	No	×		
	Oversized Tanks	No	No	×		
	Oversized Pipes	No	No	×		
	Blue Roof	No	No	×		
Least Sustainable	Water Harvesting	Yes	Yes	×		

- 5.2 The location and details of the SuDS can be seen drainage layouts in appendix D. Calculations are in appendix C.
- 5.3 The drainage calculations demonstrate:
 - No flooding occurs for the 1 in 30 storm events.
 - Any flooding for the 1 in 100 year + 40% climate change event can be safely contained on site
- 5.4 The proposed drainage design demonstrates that the development can be sustainably drained to comply with the requirements of the NPPF.

Management of Exceedance Flows

- 5.5 The drainage network has been designed to attenuate surface runoff for all events up to and including the 1% AEP + CC(1 in 100 years). However consideration has been given to what may happen when the design capacity of the surface water drainage network is exceeded. Surface water will flow to the lowest points within the site. The flood risk to the buildings would therefore remain low. See appendix D.

Maintenance and Management plan responsibility

- 6.1 The SuDS will be maintained by The Owner the property

Maintenance and Management plan for proposed SuDS

- 6.2 The maintenance and Management Plan Guidance from the SuDS Manual, CIRIA C753 (CIRIA, 2015) is to be followed for the effective maintenance of the proposed SuDS techniques outlined above. The maintenance for SuDS structures are as follow:

INLETS, OUTLETS, CONTROLS AND INSPECTION CHAMBERS	
Regular Maintenance	Frequency
Inlets, outlets and surface control structures	
Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
Strim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris	Monthly
Inspection chambers and below ground control chambers	
Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.	Annually
Undertake inspection after leaf fall in autumn	
Occasional Maintenance	
Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage	As necessary
Remedial work	Frequency
Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary.	As required
Repair physical damage if necessary.	As required

Operation and maintenance requirements for RWH systems		
Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps, filters	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris	Annually (and following poor performance)
Occasional maintenance	Cleaning and/or replacement of any filters	Three monthly (or as required)
Remedial actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

Operation and maintenance requirements for pervious pavements		
Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Appendix A

Drawing Scale Bar		Drawing Scale Bar	
Drawing scale	Line length	Drawing scale	Line length
1:5	= 0.25 metres	1:200	= 10.0 metres
1:10	= 0.5 metres	1:250	= 12.5 metres
1:20	= 1.0 metres	1:500	= 25.0 metres
1:25	= 1.25 metres	1:1000	= 50.0 metres
1:50	= 2.5 metres	1:1250	= 62.5 metres
1:100	= 5.0 metres	1:2500	= 125 metres
Measure length of line above for checking of scale			

GENERAL NOTES

KEY	
	PERMEABLE AREAS (MENAGE)
	PERMEABLE AREAS
	IMPERMEABLE AREAS
	STUDY AREA

Rev	Details	Date	By	Chd

Drawing Status:
PRELIMINARY



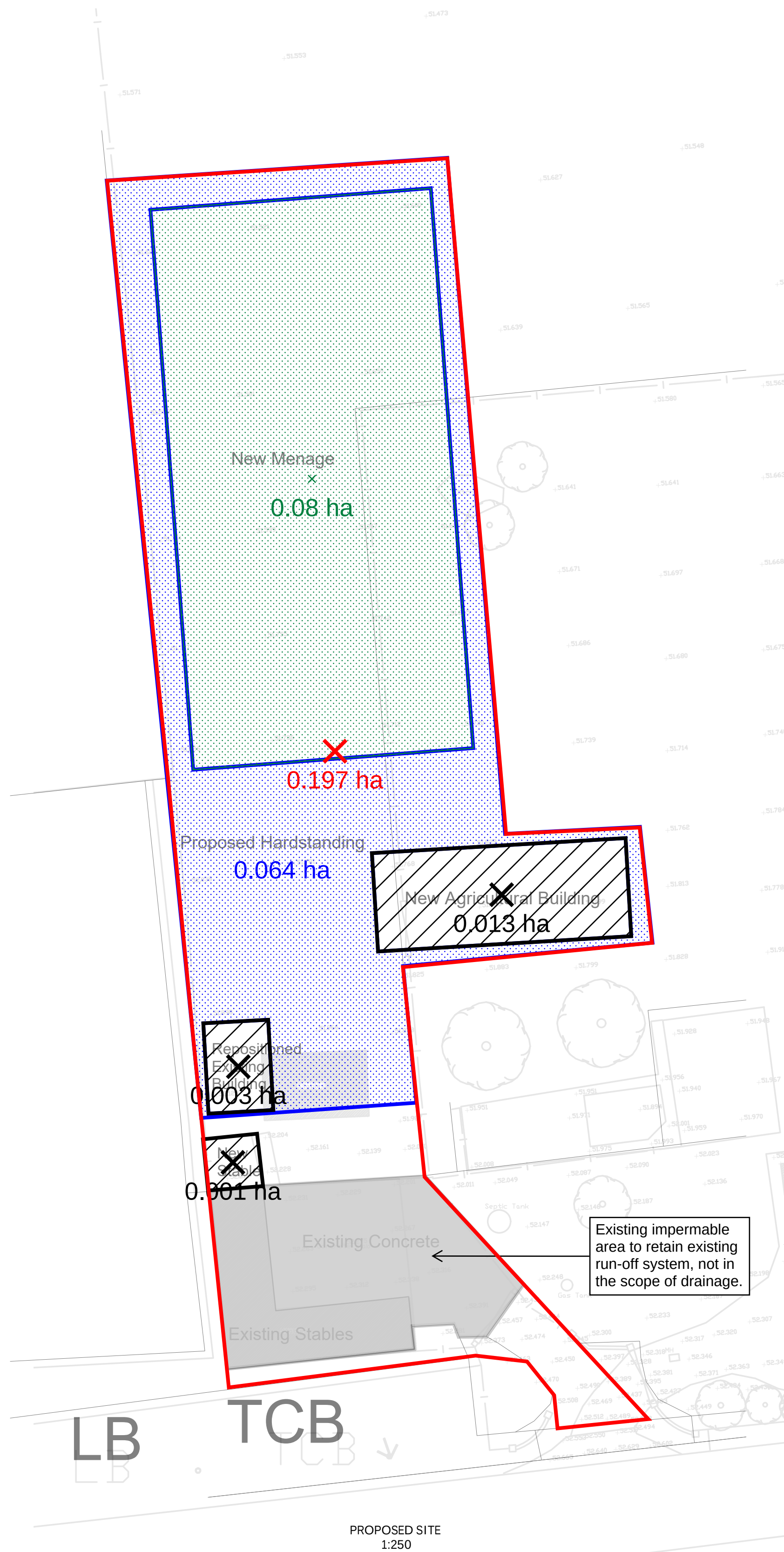
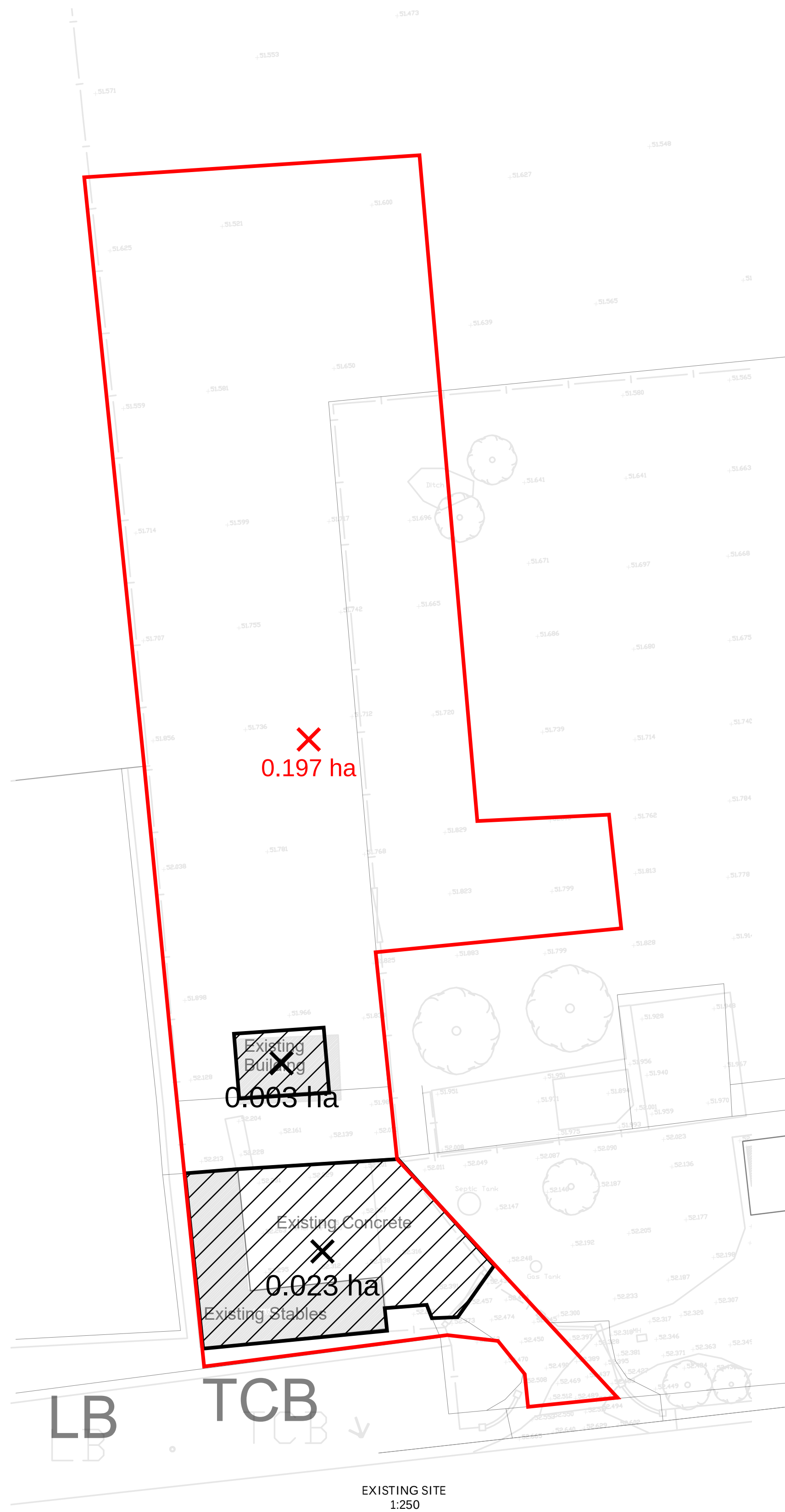
4 Bean Acre Road, Hook Norton, Banbury, Oxfordshire
e: info@rida-reports.co.uk
t: 01608 510 121
www.rida-reports.co.uk

Client:

Project:
Cherry Tree House, 46 Malmesbury Road, SN6 6RH

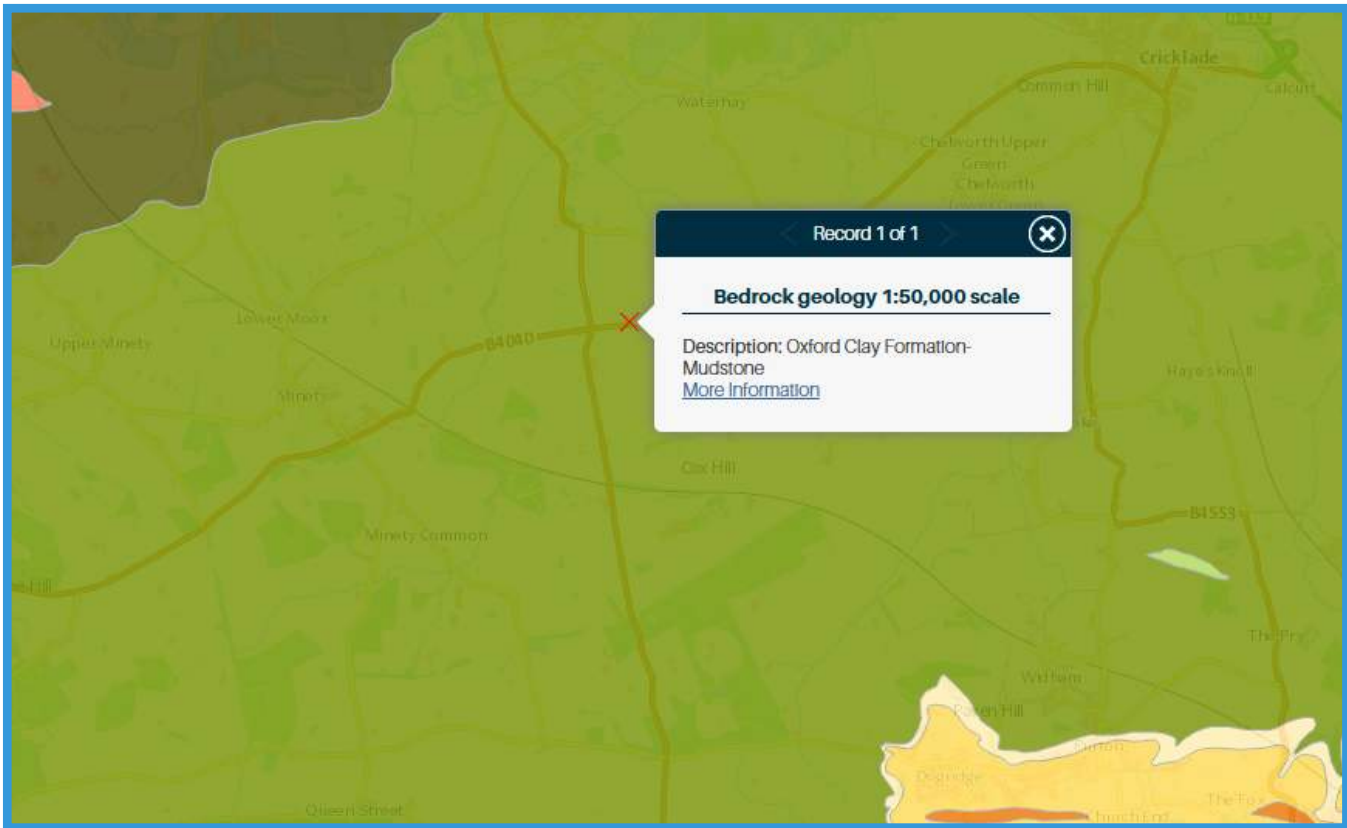
Drawing:
Existing and Proposed Areas
Permeable and Impermeable

Print: Size:	Project No:	Drawing No:	Revision:
A1	R1088	002	P1

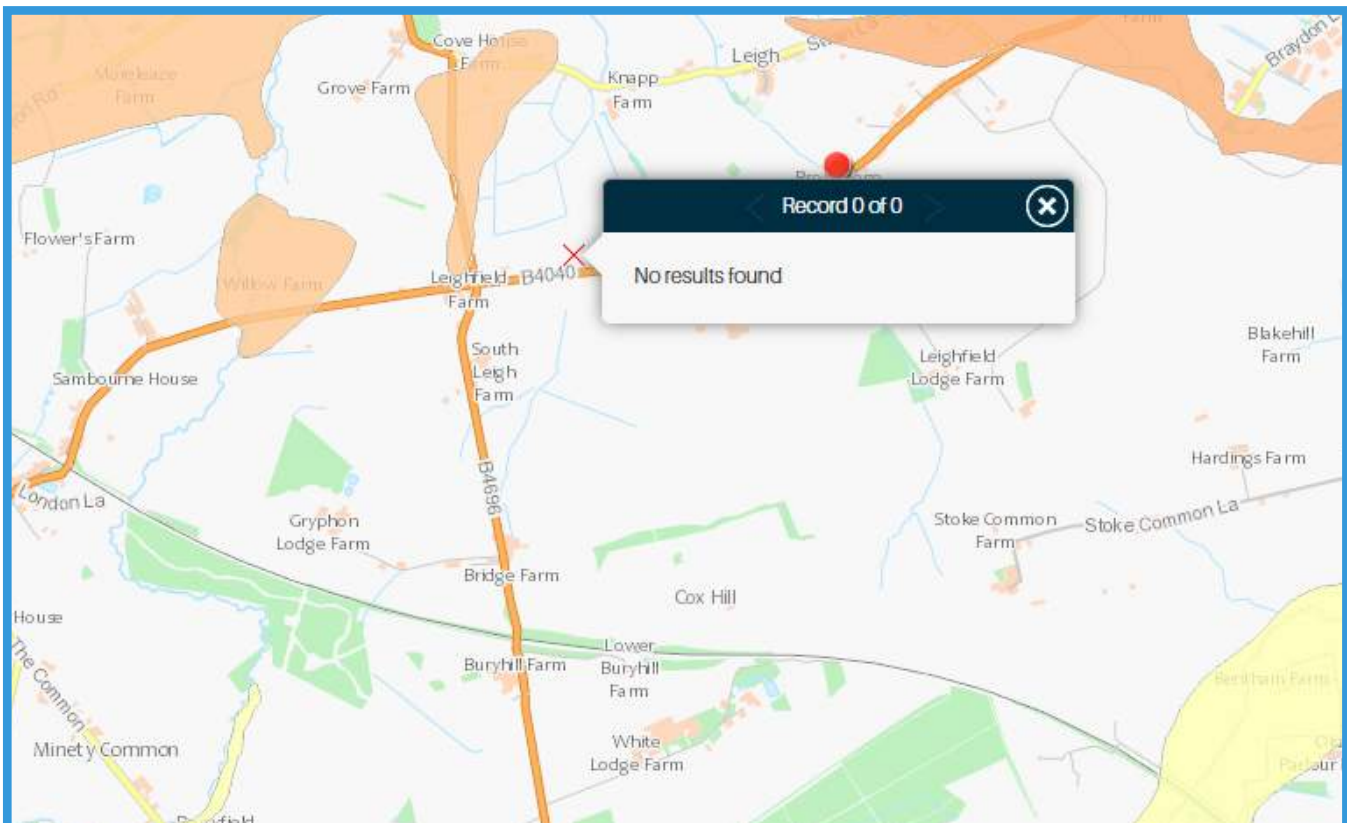


Appendix B

GEOLOGY - BEDROCK - Oxford Clay Formation-Mudstone



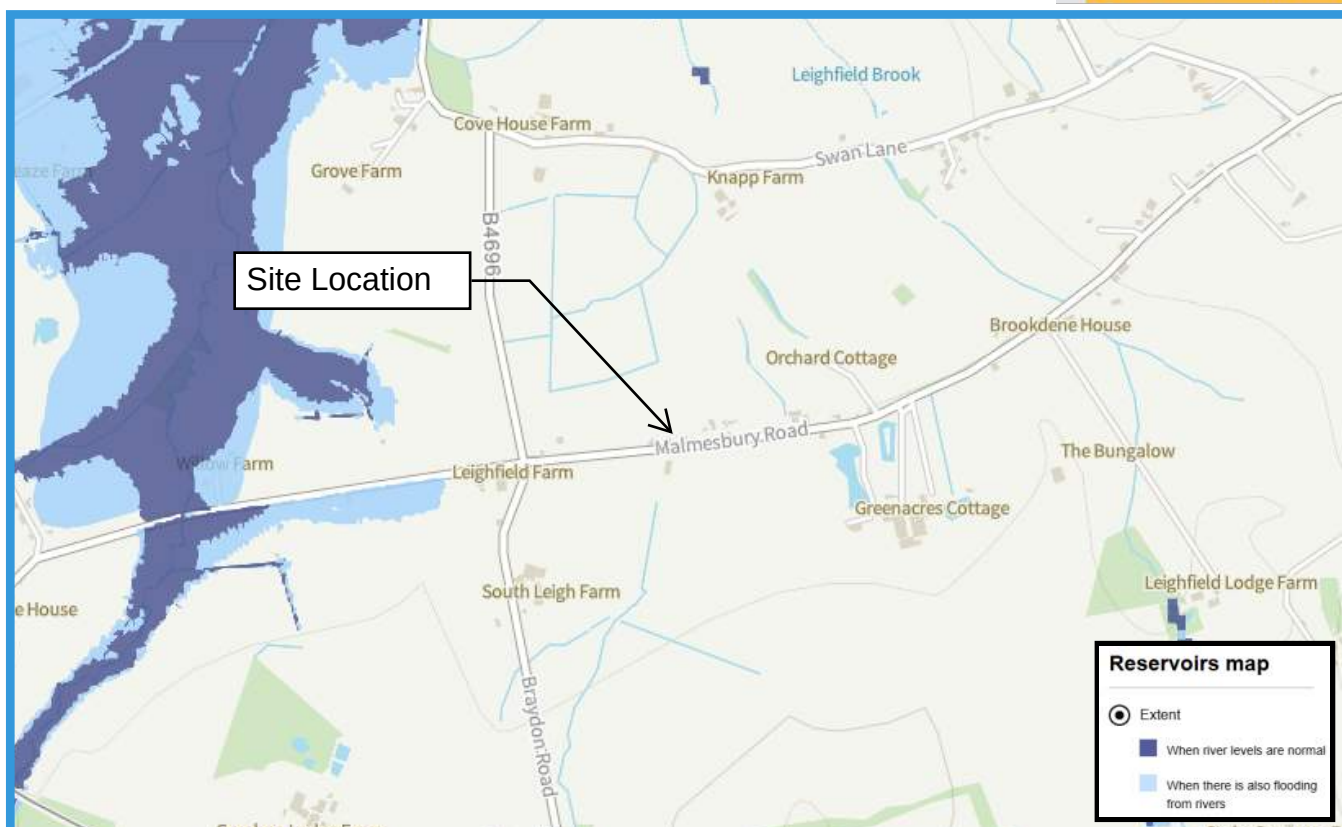
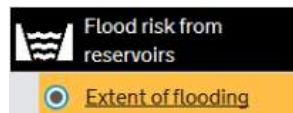
GEOLOGY - SUPERFICIAL DEPOSITS - No results found



Main River Map



Reservoirs Map

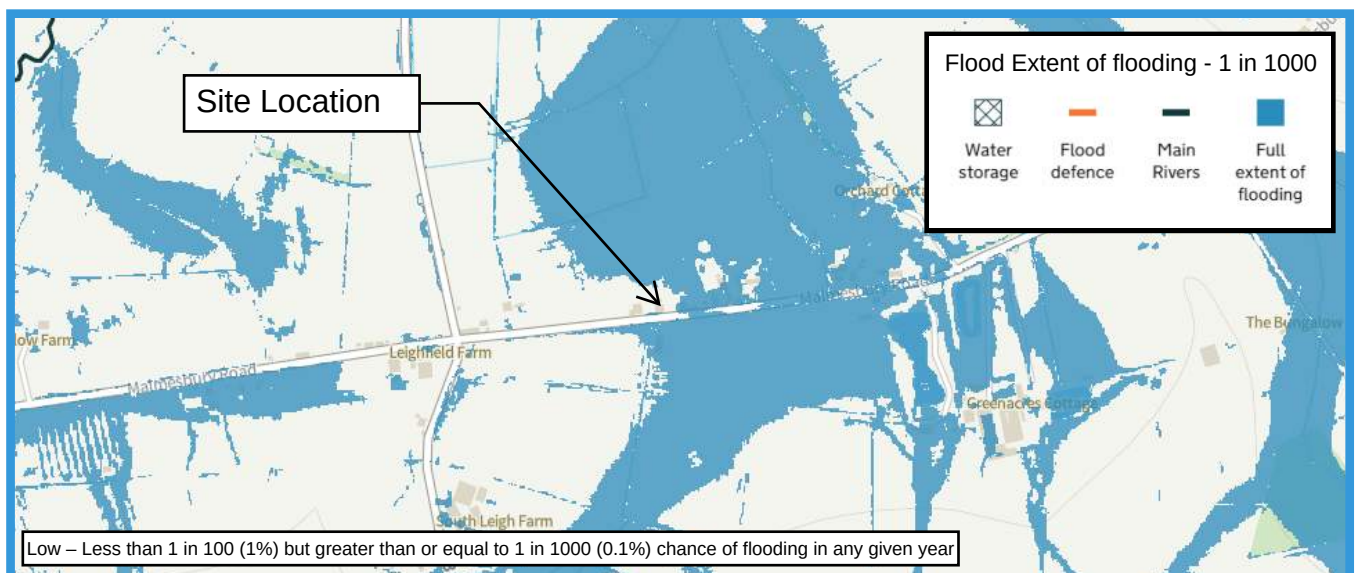
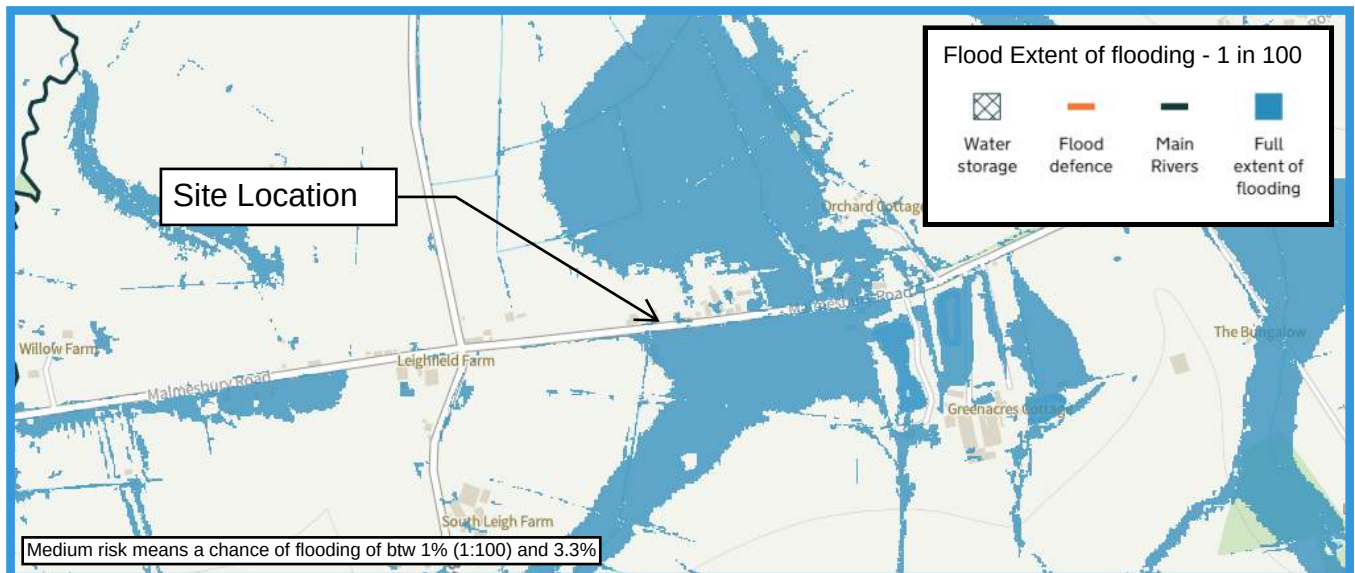
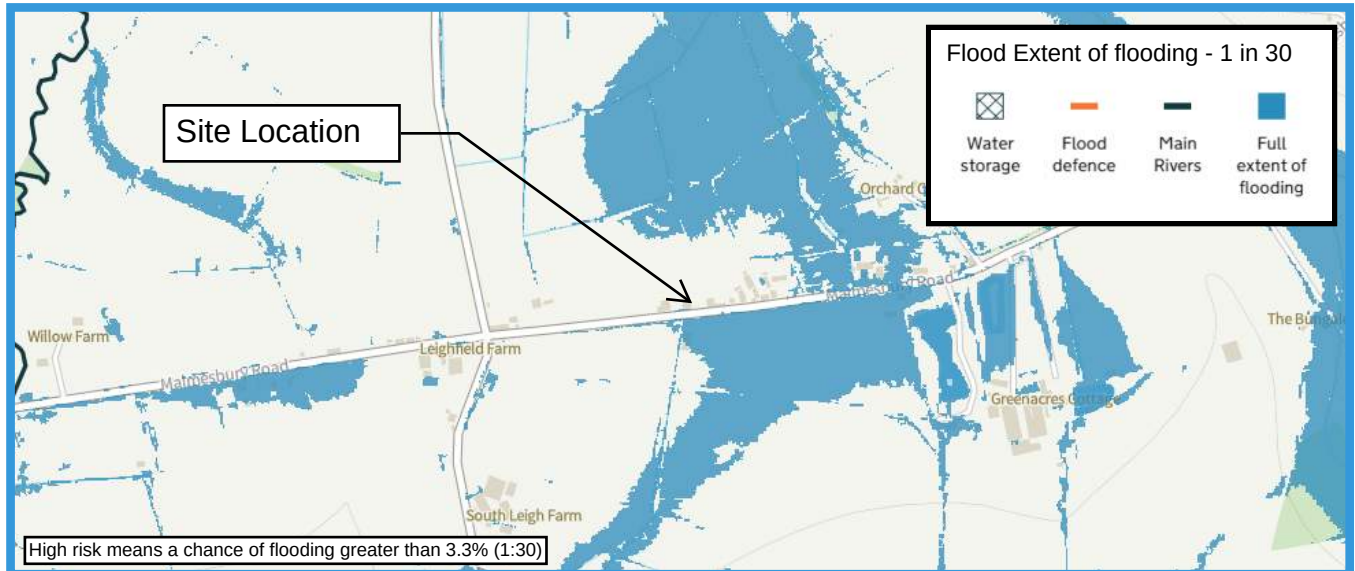


This is the EA Climate change scenarios. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

The 'Upper end' (based on the 95th percentile) for the 2070s epoch (2061-2125) has been used for the climate change scenarios. We have chosen long-term epochs appropriate to support long-term planning and development decisions.

EXTENT

2061 to 2125



WATER DEPTH 2061 to 2125

Surface water depth in millimetres



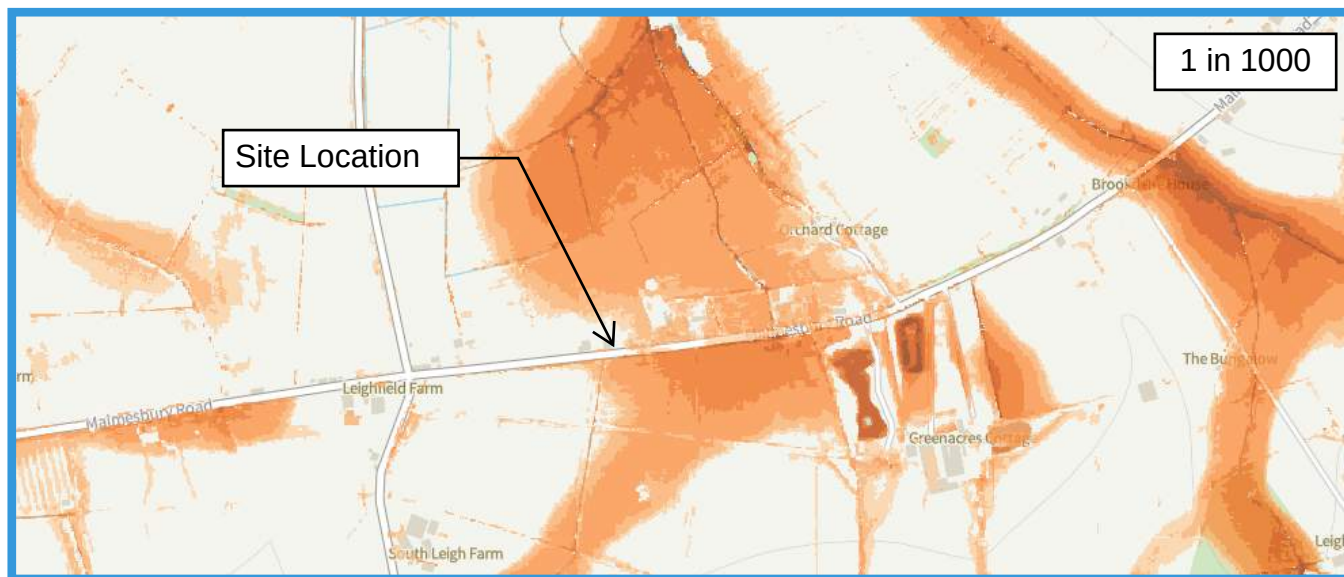
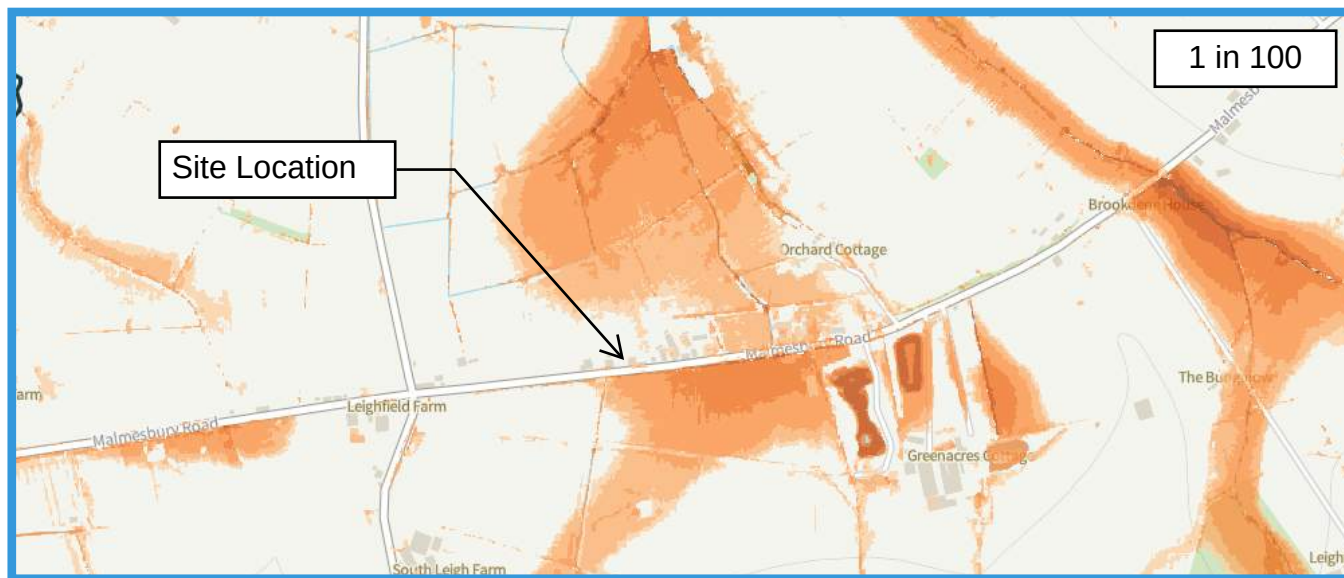
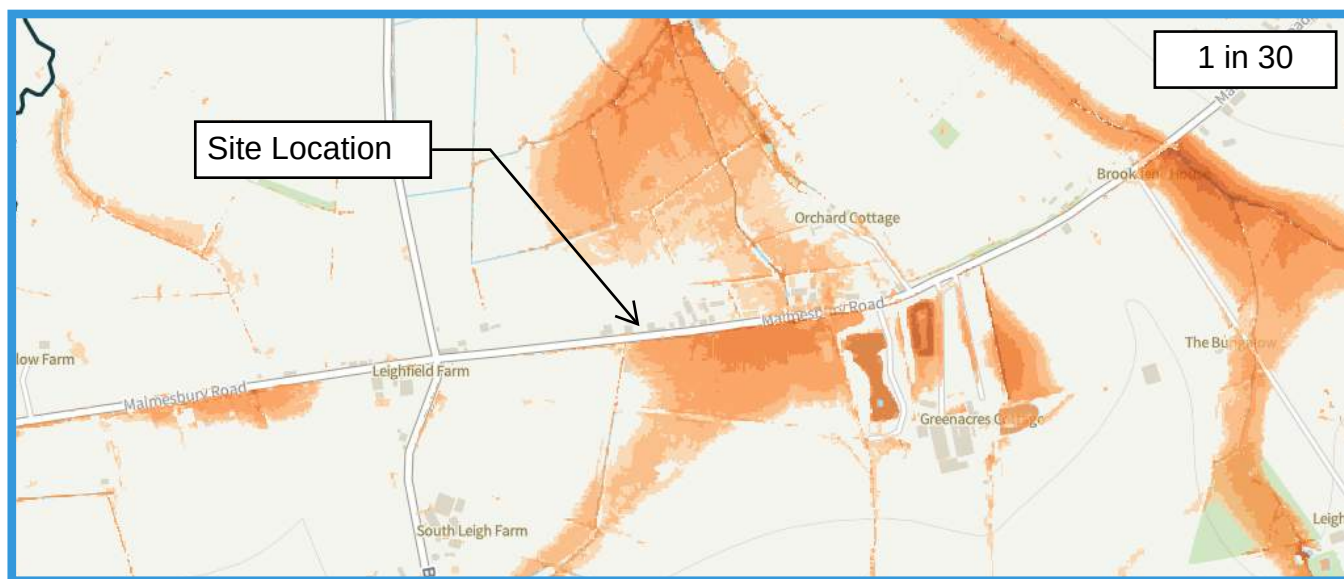
Water storage



Flood defence



Main Rivers



*High risk means a chance of flooding greater than 3.3% (1:30)

*Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year

*Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year

*Very low – less than 1 in 1000 (0.1%) chance of flooding in any given year



This shows the RoFRS_CC01_4band.lyr of flooding from rivers and the sea, climate change scenarios. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

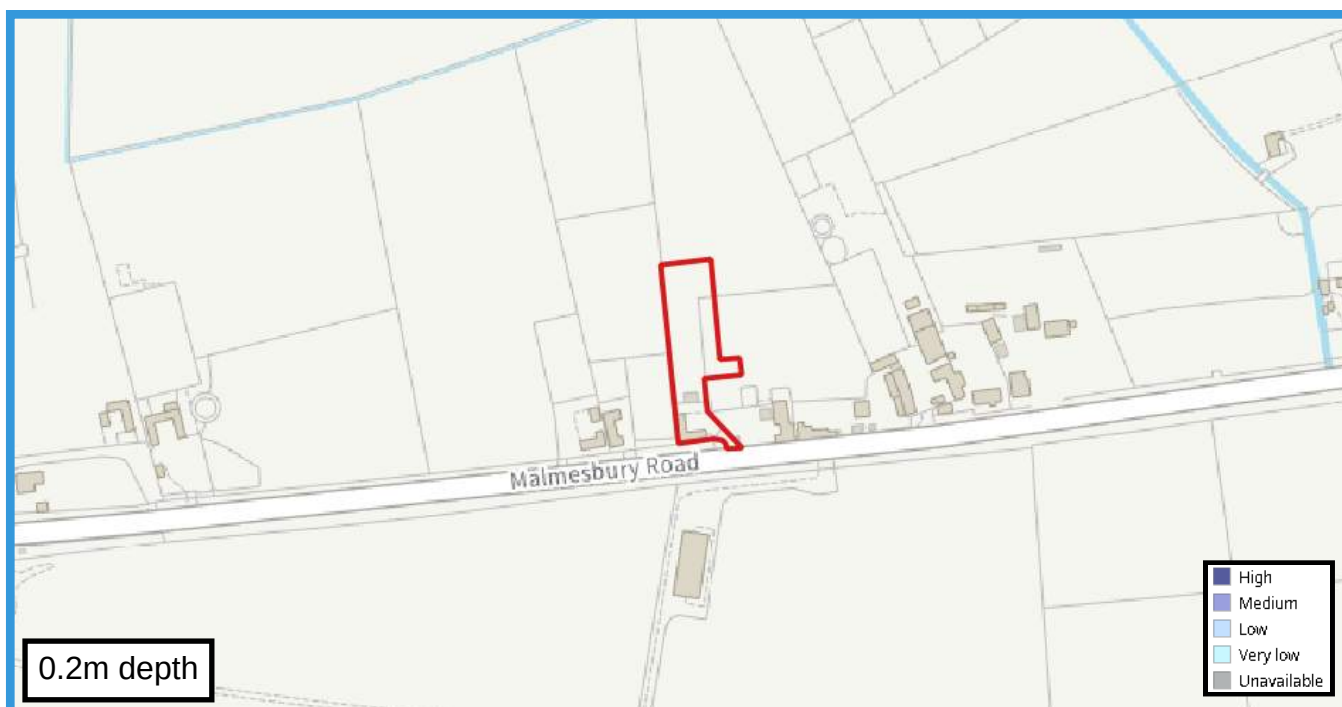
Near-term epochs and central/higher central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections:

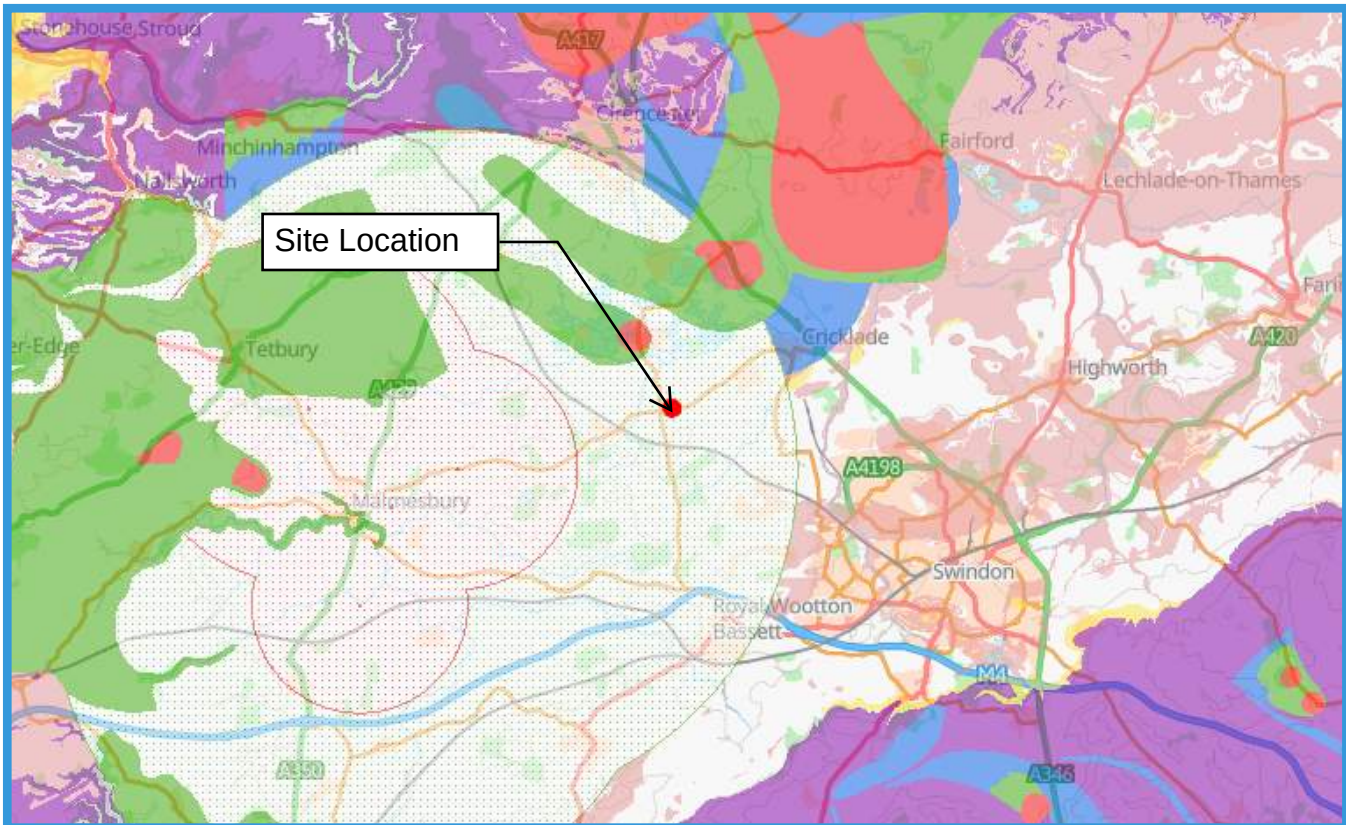
Fluvial: central allowance - 2040-2069 ("2050s" epoch)

Coastal: higher central allowance - 2036-2065

Likelihood of defence failure unsuitable and depth info does not provide the design flood depth needed for planning approval.

DEPTH





Site Check Results

Site Check Report generated on Fri Jul 17 2026

The following features have been found in your search area:

You selected the location: Centroid Grid Ref: SU05389137

Source Protection Zones merged (England)

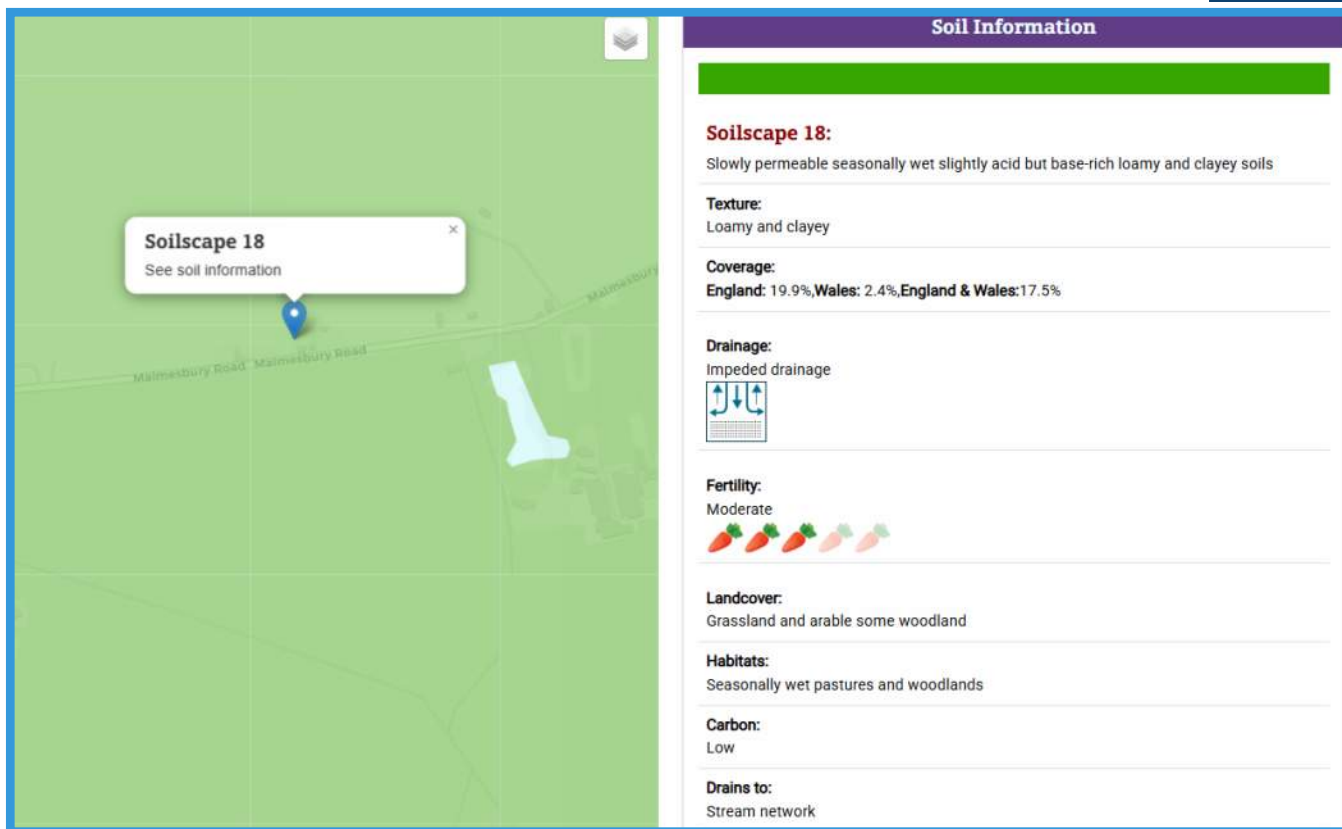
NUMBER 2c

Aquifer Designation Map (Bedrock) (England)

TPOLOGY Unproductive

Aquifer Designation Map (Superficial Drift) (England)

No Features found



GROUND WATER FLOOD RISK



Flood map for planning

Your reference
Unspecified

Location (easting/northing)
405393/191391

Created
17 July 2026 13:14

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)
405393/191391

Scale
1:2,500

Created
17 Jul 2026 13:14

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

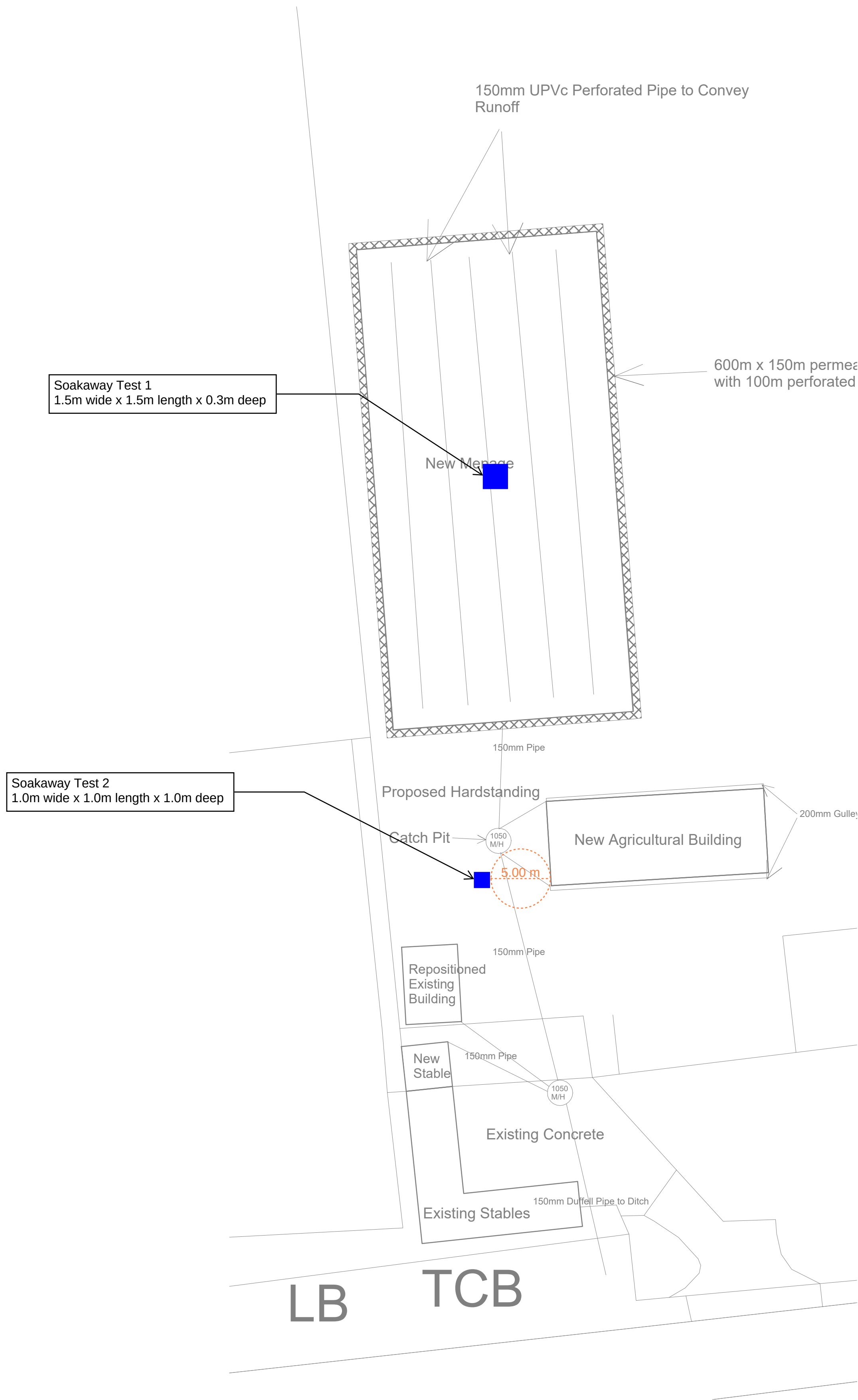


0 20 40 60m

Drawing Scale Bar		Drawing Scale Bar	
Drawing scale	Line length	Drawing scale	Line length
1:5	= 0.25 metres	1:200	= 10.0 metres
1:10	= 0.5 metres	1:250	= 12.5 metres
1:20	= 1.0 metres	1:500	= 25.0 metres
1:25	= 1.25 metres	1:1000	= 50.0 metres
1:50	= 2.5 metres	1:1250	= 62.5 metres
1:100	= 5.0 metres	1:2500	= 125 metres
Measure length of line above for checking of scale			

GENERAL NOTES

This drawing should be read



Rev	Details	Date	By	Chd

Drawing Status:
PRELIMINARY



4 Bean Acre Road, Hook Norton, Banbury, Oxfordshire
e: info@rida-reports.co.uk
t: 01608 510 121
www.rida-reports.co.uk

Client:

Project:

Cherry Tree House, 46 Malmesbury Road, SN6 6RH

Drawing:

Trial Pit Layout

SOAKAWAY TEST TO BRE365 STANDARD

PROCESS THE TEST MUST BE COMPLETE 3 TIMES OTHERWISE IT IS INVALID

1. Locate site of proposed soakaway

See enclosed drawing showing location of soakaway

2. Excavate hole to dimensions given

See drawing and figure opposite which shows the dimension of the hole. Excavation should be done using a machine.

3. Record Size

Measure actual size of excavated hole

4. Pour in min 1m³ of water (Instantaneously)

Use Water bowser, with a large outlet pipe, or excavator scoop or large container.

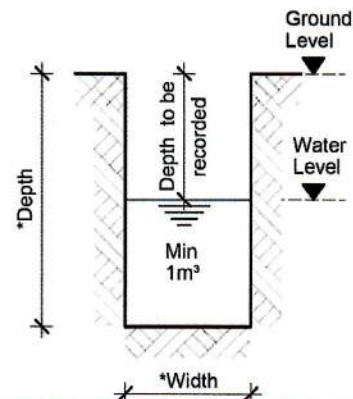
5. Record Time & Depth using the tables below

Give dimension from water level to ground level at regular intervals Keep hole covered when unattended.

6. Repeat test three times

When hole is empty repeat test, on same day or consecutive days depending on flow.

See video in following link: <https://www.youtube.com/watch?v=W39ID8kgS4M>



**ONCE THE 3 TESTS ARE COMPLETE OVER
EXCAVATE THE TRIAL PIT BY 1m BELOW ITS
BASE CHECK FOR GROUNDWATER
INTRUSION - TAKE PICTURES**

RESULTS

Groundwater Level 0.3 m (distance from ground level)

Description of excavated soil (circle as required) Sand Gravel Clay Mudstone Cornbrush

Dimension of excavated hole (m) Length: 1.0m Width: 1.0m Depth: 1.0m

Test 1	Minutes	Water Depth
	0	700 mm
	25	650 mm
	50	680 mm
	80	700 mm
	105	680 mm
	120	720 mm
	150	720 mm

Test 2	Minutes	Water Depth
		NO TEST

Test 3	Minutes	Water Depth
		NO TEST

PROCESS

THE TEST MUST BE COMPLETE 3 TIMES OTHERWISE IT IS INVALID

See enclosed drawing showing location of soakaway

See drawing and figure opposite which shows the dimension of the hole. Excavation should be done using a machine.

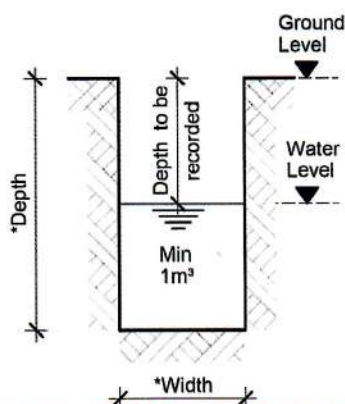
Measure actual size of excavated hole

Use Water bowser, with a large outlet pipe, or excavator scoop or large container.

Give dimension from water level to ground level at regular intervals. Keep hole covered when unattended.

When hole is empty repeat test, on same day or consecutive days depending on flow.

See video in following link: <https://www.youtube.com/watch?v=W39ID8kgS4M>



ONCE THE 3 TESTS ARE COMPLETE OVER
EXCAVATE THE TRIAL PIT BY 1m BELOW ITS
BASE CHECK FOR GROUNDWATER
INTRUSION - TAKE PICTURES

RESULTS

Groundwater Level	<u>100 mm</u> m (distance from ground level)				
Description of excavated soil (circle as required)	Sand	Gravel	Clay	<u>Mudstone</u>	Cornbrush
Dimension of excavated hole (m)	Length: <u>1.5 m</u>		Width: <u>1.5 m</u>		Depth: <u>300 mm</u>

[illegible][illegible][illegible]

SOAKAWAY TRIAL PIT 1

TEST 2

Pit Dimensions:

L:	1500	mm
W:	1500	mm
D:	300	mm

Key

Input
Calculation

Mean Surface Area	2.85	m2
Depth of water	200	mm
Time at 25% or at	50	mm of water

Interpolating Values

Time	Water Depth
12:00	1.0
12:05	1.2
12:10	1.5
12:15	1.8
12:20	2.0
12:25	2.2
12:30	2.5
12:35	2.8
12:40	3.0
12:45	3.2
12:50	3.5
12:55	3.8
13:00	4.0
13:05	4.2
13:10	4.5
13:15	4.8
13:20	5.0
13:25	5.2
13:30	5.5
13:35	5.8
13:40	6.0
13:45	6.2
13:50	6.5
13:55	6.8
14:00	7.0
14:05	7.2
14:10	7.5
14:15	7.8
14:20	8.0
14:25	8.2
14:30	8.5
14:35	8.8
14:40	9.0
14:45	9.2
14:50	9.5
14:55	9.8
15:00	10.0
15:05	10.2
15:10	10.5
15:15	10.8
15:20	11.0
15:25	11.2
15:30	11.5
15:35	11.8
15:40	12.0
15:45	12.2
15:50	12.5
15:55	12.8
16:00	13.0
16:05	13.2
16:10	13.5
16:15	13.8
16:20	14.0
16:25	14.2
16:30	14.5
16:35	14.8
16:40	15.0
16:45	15.2
16:50	15.5
16:55	15.8
17:00	16.0
17:05	16.2
17:10	16.5
17:15	16.8
17:20	17.0
17:25	17.2
17:30	17.5
17:35	17.8
17:40	18.0
17:45	18.2
17:50	18.5
17:55	18.8
18:00	19.0
18:05	19.2
18:10	19.5
18:15	19.8
18:20	20.0
18:25	20.2
18:30	20.5
18:35	20.8
18:40	21.0
18:45	21.2
18:50	21.5
18:55	21.8
19:00	22.0
19:05	22.2
19:10	22.5
19:15	22.8
19:20	23.0
19:25	23.2
19:30	23.5
19:35	23.8
19:40	24.0
19:45	24.2
19:50	24.5
19:55	24.8
20:00	25.0
20:05	25.2
20:10	25.5
20:15	25.8
20:20	26.0
20:25	26.2
20:30	26.5
20:35	26.8
20:40	27.0
20:45	27.2
20:50	27.5
20:55	27.8
21:00	28.0
21:05	28.2
21:10	28.5
21:15	28.8
21:20	29.0
21:25	29.2
21:30	29.5
21:35	29.8
21:40	30.0
21:45	30.2
21:50	30.5
21:55	30.8
22:00	31.0
22:05	31.2
22:10	31.5
22:15	31.8
22:20	32.0
22:25	32.2
22:30	32.5
22:35	32.8
22:40	33.0
22:45	33.2
22:50	33.5
22:55	33.8
23:00	34.0
23:05	34.2
23:10	34.5
23:15	34.8
23:20	35.0
23:25	35.2
23:30	35.5
23:35	35.8
23:40	36.0
23:45	36.2
23:50	36.5
23:55	36.8
00:00	37.0
00:05	37.2
0	

0.52	100
1.72	0

t: **1.12** min. From interpolating values

Time at 75% or at mm of water

Interpolating Values

Time Water Depth

0	200
0.52	100

t: **0.26** min. From interpolating values

[illegible]

Volume of test Pit between 25% and 75% of water depth:	0.225	m3
Time Taken to drain between 25% and 75% of water depth:	0.86	min or 0.014 hr

Test 2 - Soil Infiltration rate:	1.53E-03	m/s
	5.5080	m/hr

SOAKAWAY TRIAL PIT 1

TEST 3

Pit Dimensions:

L:	1500	mm
W:	1500	mm
D:	300	mm

Key

Input
Calculation

Mean Surface Area	2.94	m2
Depth of water	230	mm
Time at 25% or at	57.5	mm of water

Interpolating Values

Time	Water Depth
12:00	1.0
12:05	1.2
12:10	1.5
12:15	1.8
12:20	2.0
12:25	2.2
12:30	2.5
12:35	2.8
12:40	3.0
12:45	3.2
12:50	3.5
12:55	3.8
13:00	4.0
13:05	4.2
13:10	4.5
13:15	4.8
13:20	5.0
13:25	5.2
13:30	5.5
13:35	5.8
13:40	6.0
13:45	6.2
13:50	6.5
13:55	6.8
14:00	7.0
14:05	7.2
14:10	7.5
14:15	7.8
14:20	8.0
14:25	8.2
14:30	8.5
14:35	8.8
14:40	9.0
14:45	9.2
14:50	9.5
14:55	9.8
15:00	10.0
15:05	10.2
15:10	10.5
15:15	10.8
15:20	11.0
15:25	11.2
15:30	11.5
15:35	11.8
15:40	12.0
15:45	12.2
15:50	12.5
15:55	12.8
16:00	13.0
16:05	13.2
16:10	13.5
16:15	13.8
16:20	14.0
16:25	14.2
16:30	14.5
16:35	14.8
16:40	15.0
16:45	15.2
16:50	15.5
16:55	15.8
17:00	16.0
17:05	16.2
17:10	16.5
17:15	16.8
17:20	17.0
17:25	17.2
17:30	17.5
17:35	17.8
17:40	18.0
17:45	18.2
17:50	18.5
17:55	18.8
18:00	19.0
18:05	19.2
18:10	19.5
18:15	19.8
18:20	20.0
18:25	20.2
18:30	20.5
18:35	20.8
18:40	21.0
18:45	21.2
18:50	21.5
18:55	21.8
19:00	22.0
19:05	22.2
19:10	22.5
19:15	22.8
19:20	23.0
19:25	23.2
19:30	23.5
19:35	23.8
19:40	24.0
19:45	24.2
19:50	24.5
19:55	24.8
20:00	25.0
20:05	25.2
20:10	25.5
20:15	25.8
20:20	26.0
20:25	26.2
20:30	26.5
20:35	26.8
20:40	27.0
20:45	27.2
20:50	27.5
20:55	27.8
21:00	28.0
21:05	28.2
21:10	28.5
21:15	28.8
21:20	29.0
21:25	29.2
21:30	29.5
21:35	29.8
21:40	30.0
21:45	30.2
21:50	30.5
21:55	30.8
22:00	31.0
22:05	31.2
22:10	31.5
22:15	31.8
22:20	32.0
22:25	32.2
22:30	32.5
22:35	32.8
22:40	33.0
22:45	33.2
22:50	33.5
22:55	33.8
23:00	34.0
23:05	34.2
23:10	34.5
23:15	34.8
23:20	35.0
23:25	35.2
23:30	35.5
23:35	35.8
23:40	36.0
23:45	36.2
23:50	36.5
23:55	36.8
00:00	37.0
00:05	37.2
0	

0.55	100
1.78	0

t: **1.073** min. From interpolating values

Time at 75% or at **172.5** mm of water

Interpolating Values

Time Water Depth

0	230
0.55	100

t: **0.243** min. From interpolating values

[illegible]

Volume of test Pit between 25% and 75% of water depth:	0.259	m3
Time Taken to drain between 25% and 75% of water depth:	0.829	min or 0.014 hr

Test 3 - Soil Infiltration rate:	1.77E-03	m/s
	6.3662	m/hr

SOAKAWAY TRIAL PIT 1 INFILTRATION RATE	1.50E-03	m/s
	5.4135	m/hr

Project:	Cherry Tree House, 46 Malmesbury Road, SN6 6RH	
Calculation By:	Jim Karl Concepcion	
Title :	Soakaway Calculation	
Date:	8/18/2026	

Results

SOAKAWAY TRIAL PIT 1 INFILTRATION RATE

INFILTRATION RATE	1.50E-03	m/s
	5.4135	m/hr

MINIMUM INFILTRATION RATE	1.50376E-03	m/s
	5.41353	m/hr

Appendix C

Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
Rainfall Events	Singular	Additional Storage (m³/ha)	0.0
FSR Region	England and Wales	Starting Level (m)	
M5-60 (mm)	19.000	Check Discharge Rate(s)	✓
Ratio-R	0.330	1 year (l/s)	0.3
Summer CV	1.000	2 year (l/s)	0.3
Winter CV	1.000	30 year (l/s)	0.9
Analysis Speed	Normal	100 year (l/s)	1.2
Skip Steady State	x	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 %)
1	0	0	0
2	0	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Region	6	QBar	0.4
Greenfield Method	IH124	Growth Factor 1 year	0.85	Q 1 year (l/s)	0.3
Positively Drained Area (ha)	0.197	Growth Factor 2 year	0.88	Q 2 year (l/s)	0.3
SAAR (mm)	705	Growth Factor 30 year	2.40	Q 30 year (l/s)	0.9
Soil Index	2	Growth Factor 100 year	3.19	Q 100 year (l/s)	1.2
SPR	0.30	Betterment (%)	0		



Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
Rainfall Events	Singular	Additional Storage (m³/ha)	0.0
FSR Region	England and Wales	Starting Level (m)	
M5-60 (mm)	19.000	Check Discharge Rate(s)	✓
Ratio-R	0.330	1 year (l/s)	4.1
Summer CV	1.000	2 year (l/s)	5.3
Winter CV	1.000	30 year (l/s)	9.7
Analysis Speed	Normal	100 year (l/s)	12.2
Skip Steady State	x	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 %)
1	0	0	0
2	0	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Brownfield	CV	1.000	Q 2 year (l/s)	5.3
Brownfield Method	MRM	Time of Concentration (mins)	6.00	Q 30 year (l/s)	9.7
Contributing Area (ha)	0.026	Betterment (%)	0	Q 100 year (l/s)	12.2
PIMP (%)	100	Q 1 year (l/s)	4.1		

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Inverts
M5-60 (mm)	19.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.330	Preferred Cover Depth (m)	0.500
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	6.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Development 1	0.013	6.00	51.790	450	-0.215	0.102	0.650
Development 2	0.004	6.00	51.500	450	100.866	-35.879	0.400
Permeable Area	0.016	6.00	51.500	450	100.981	28.100	0.400
Permeable Surface			51.500		101.169	-0.088	0.610
Dummy			51.500	450	150.216	0.111	0.710

Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	0.0
M5-60 (mm)	19.000	Check Discharge Rate(s)	✓
Ratio-R	0.330	1 year (l/s)	4.1
Summer CV	1.000	2 year (l/s)	5.3
Winter CV	1.000	30 year (l/s)	9.7
Analysis Speed	Normal	100 year (l/s)	12.2
Skip Steady State	x	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 %)
1	0	0	0
2	0	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Time of Concentration (mins)	6.00
Brownfield Method	MRM	Betterment (%)	0
Contributing Area (ha)	0.026	Q 1 year (l/s)	
PIMP (%)	100	Q 30 year (l/s)	
CV	1.000	Q 100 year (l/s)	

Node Permeable Surface Online Pump Control

Flap Valve	x	Design Depth (m)	0.500	Switch off depth (m)	0.010
Replaces Downstream Link	✓	Design Flow (l/s)	0.1		
Invert Level (m)	50.890	Switch on depth (m)	0.500		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.010	0.000	0.150	0.000	0.300	0.000	0.500	0.000

Node Permeable Surface Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.50000	Invert Level (m)	50.890	Slope (1:X)	400.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.300
Safety Factor	3.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.80	Length (m)	10.000		

Approval Settings

Node Size	x	Coordinates	x	Full Bore Velocity	x	Time to Half Empty	✓
Node Losses	x	Crossings	x	Proportional Velocity	x	Return Period (years)	100
Link Size	x	Cover Depth	x	Surcharged Depth	x	Discharge Rates	x
Link Length	x	Backdrops	x	Flooding	x	Discharge Volume	x

Actual on-site infiltration rates are 5.414 m/hr, but for the purpose of a conservative approach, the model has been checked with a reduced rate.

Actual design proposes a Rainwater Harvesting system which is not modelled here, as it is assumed it may not always contribute to providing attenuation storage

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
15 minute summer	Development 1	10	51.202	0.062	5.8	0.0098	0.0000	OK
15 minute summer	Development 2	11	51.134	0.034	2.0	0.0055	0.0000	OK
15 minute summer	Permeable Area	11	51.168	0.068	7.1	0.0108	0.0000	OK
30 minute summer	Permeable Surface	22	50.969	0.079	14.8	3.1798	0.0000	OK
15 minute summer	Dummy	1	50.790	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Development 1	1.000	Permeable Surface	5.9	1.099	0.330	0.1701	
15 minute summer	Development 2	2.000	Permeable Surface	2.0	0.663	0.113	0.0302	
15 minute summer	Permeable Area	3.000	Permeable Surface	7.1	0.937	0.400	0.0758	
15 minute summer	Permeable Surface	Pump	Dummy	0.0				0.0
15 minute summer	Permeable Surface	Infiltration		7.4				

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
15 minute summer	Development 1	10	51.213	0.073	8.1	0.0116	0.0000	OK
15 minute summer	Development 2	11	51.141	0.041	2.8	0.0065	0.0000	OK
15 minute summer	Permeable Area	11	51.183	0.083	10.0	0.0133	0.0000	OK
30 minute summer	Permeable Surface	24	51.020	0.130	20.6	5.6475	0.0000	OK
15 minute summer	Dummy	1	50.790	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Development 1	1.000	Permeable Surface	8.2	1.151	0.461	0.2565	
15 minute summer	Development 2	2.000	Permeable Surface	2.8	0.729	0.158	0.0384	
15 minute summer	Permeable Area	3.000	Permeable Surface	10.0	1.018	0.563	0.0982	
15 minute summer	Permeable Surface	Pump	Dummy	0.0				0.0
15 minute summer	Permeable Surface	Infiltration		7.4				

Rainwater Tank Calculation

Annual Rainwater Yield

Rainfall	750	mm - use the rainfall map
Building Footprint Area	130	m ²
Roof Type (delete appropriate) Tile Roof	0.9	This value is 0.9
Slate/Stone Roof	0	This value is 0.8
Annual Rainwater Yield	87750	l

Annual Rainwater Demand

	Demand Liters	Number of occupants or m ² of garden area	Total Demand l
Toiles (person/year)	11800	0	0
Laundry (person/year)	3700	0	0
Cleaning (person/year)	800	0	0
Garden per m ²	60	1440	86400
Total Demand			86400

Tank Size

5009.8 liters

Platin flat rainwater tank

Dimensions

Volume	Width B	Length L	Height H	Height H _{tot}	Height dome shaft H _i	Innen Ø dome shaft	Weight	Order no.
1,500 l (400 US gal.)	1250 mm (4' 1")	2100 mm (6' 11")	700 mm (27.6")	1015 mm (3' 4")	315 mm (12.4")	650 mm (25.6")	82 kg (181 lbs)	390000
3,000 l (800 US gal.)	2100 mm (6' 11")	2450 mm (8' 1")	735 mm (28.9")	1050 mm (3' 5")	315 mm (12.4")	650 mm (25.6")	180 kg (397 lbs)	390001
5,000 l (1,325 US gal.)	2300 mm (7' 7")	2890 mm (9' 6")	1000 mm (3' 3")	1315 mm (4' 4")	315 mm (12.4")	650 mm (25.6")	250 kg (551 lbs)	390002
7,500 l (1,980 US gal.)	2250 mm (7' 5")	3600 mm (11' 10")	1250 mm (4' 1")	1565 mm (5' 2")	315 mm (12.4")	650 mm (25.6")	380 kg (837 lbs)	390005
10,000 l ²⁾ (2,650 US gal.)	Set consists of two Platin flat tanks. For dimensions and weights, see 5,000 l (1,325 US gal.) Tank							390010
15,000 l ²⁾ (3,960 US gal.)	Set consists of two Platin flat tanks. For dimensions and weights, see 7,500 l (1,980 US gal.) Tank							390011



Appendix D

Drawing Scale Bar			
Drawing scale	Line length	Drawing scale	Line length
1:5 = 0.25 metres	1:200 = 10.0 metres	1:250 = 12.5 metres	1:500 = 25.0 metres
1:10 = 0.5 metres	1:250 = 12.5 metres	1:1000 = 50.0 metres	1:1500 = 75.0 metres
1:20 = 1.0 metres	1:500 = 25.0 metres	1:1250 = 62.5 metres	1:1000 = 50.0 metres
1:25 = 1.25 metres	1:1000 = 50.0 metres	1:2500 = 125 metres	
1:50 = 2.5 metres	1:2500 = 125 metres		
1:100 = 5.0 metres			
Measure length of line above for checking of scale			

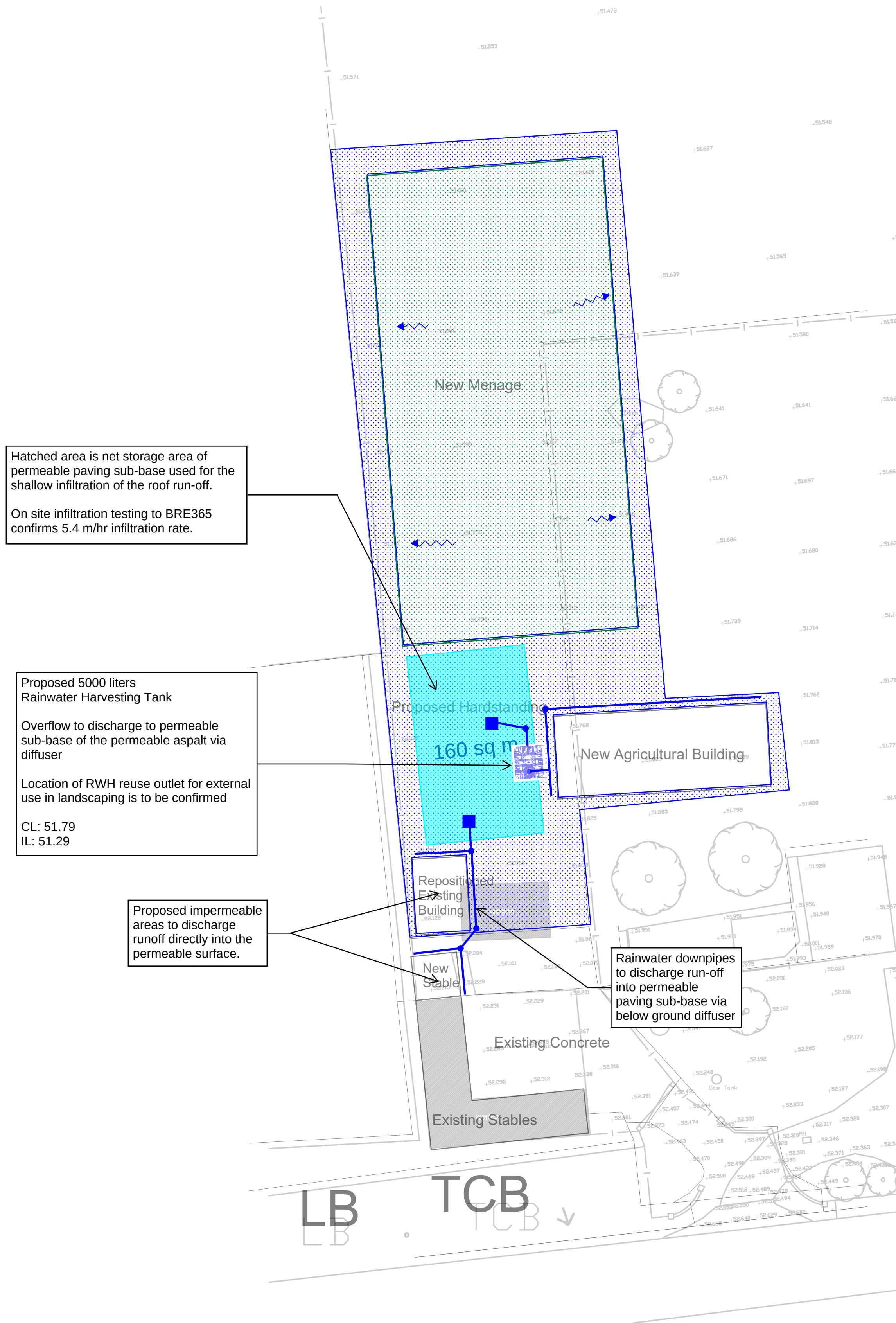
GENERAL NOTES

- All dimensions are in millimetres and levels in m AOD unless stated otherwise.
- Do not scale. If in any doubt, consult Engineer.
- Read in conjunction with the architects and engineers schedule drawings.
- Check inverts and sizes of existing pipes prior to the commencement of any work. Report any discrepancies to the engineer and await instructions.
- The location of services is shown as indicative. This drawing should be read in conjunction with the utilities drawings. No warranty to their accuracy can be given. The contractor shall take all necessary measures to satisfy himself as to the location of the existing services and connection points. Excavation should be undertaken in compliance with HSG47.
- Concrete structures design sulphate class and ACEC concrete class unknown.
- Pipework to be Thermoplastics U-PVC (Polypipe or similar) installed at levels marked on this drawing UNO. Pipe bedding should be class Z in pipes within 1.5m of the building or shallower than 700mm below ground level. For all other areas the pipe bedding should be class S.
- Joints and fittings for gravity sewers shall comply with the relevant provisions of BS EN 1401-1, BS EN 1852 and BS EN 12666-1. Pipes shall have a limit of 6% deformation. Pipes shall be SN8 ring stiffness and stamped accordingly. Pipe sections shall not be longer than 3m.
- Plastic chambers and rings, including demarcation chambers, shall comply with BS EN 3598-1 or BS EN 13598-2 as appropriate.
- Inspection chamber covers and frames shall comply with the relevant provisions of BS EN 124 and should be double sealed.
- All inspection chamber covers shall be the non-ventilating type and shall have closed keyways.
- Testing of pipelines should be as follows:

Gravity Pipework: Air pipe testing. Pipework should withstand a pressure of 100mm water gauge and this should not fall by more than 25mm in a 5 minute period. However where traps or gullies are connected they should withstand a pressure of 50mm water gauge and this should not fall by more than 12mm in a 5 minute period. It is recommended that pipework installations are tested in sections rather than waiting to complete in one operation.
- Manhole covers to be set square to the building. Covers of existing manholes to be adjusted to match final ground levels.
- Granular Bedding for pipes shall be constructed by spreading and compacting granular bedding material over the full width of the pipe trench. After the pipes have been laid, additional granular material shall, if required, be placed and compacted equally on each side of the pipes and, where practicable, this shall be done in sequence with the removal of the trench supports.

KEY

- Proposed Surface Water Sewer Pipe
- Exceedance Flows
- Porous asphalt surfacing Sub-base 350mm Type 3
- For permeable menage surfacing, refer to Architect's details
- Silt Trap



Hatched area is net storage area of permeable paving sub-base used for the shallow infiltration of the roof run-off.

On site infiltration testing to BRE365 confirms 5.4 m/hr infiltration rate.

Proposed 5000 liters Rainwater Harvesting Tank

Overflow to discharge to permeable sub-base of the permeable asphalt via diffuser

Location of RWH reuse outlet for external use in landscaping is to be confirmed

CL: 51.79
IL: 51.29

Proposed impermeable areas to discharge runoff directly into the permeable surface.

Rainwater downpipes to discharge run-off into permeable paving sub-base via below ground diffuser

Rev	Details	Date	By	Chd
-----	---------	------	----	-----

Drawing Status: **PRELIMINARY**



4 Bean Acre Road, Hook Norton, Banbury, Oxfordshire
e: info@rida-reports.co.uk
t: 01608 510 121
www.rida-reports.co.uk

Client:

Project:

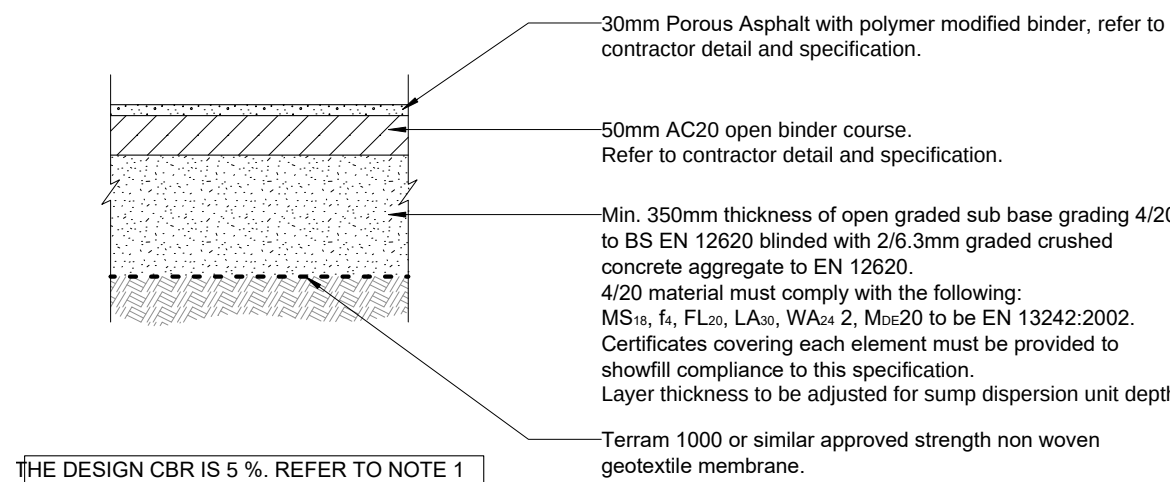
Cherry Tree House, 46 Malmesbury Road, SN6 6RH

Drawing:

Proposed Drainage Strategy

Drawing Scale Bar			
Drawing scale	Line length	Drawing scale	Line length
1:5	= 0.25 metres	1:200	= 10.0 metres
1:10	= 0.5 metres	1:250	= 12.5 metres
1:20	= 1.0 metres	1:500	= 25.0 metres
1:25	= 1.25 metres	1:1000	= 50.0 metres
1:50	= 2.5 metres	1:1250	= 62.5 metres
1:100	= 5.0 metres	1:2500	= 125 metres
Measure length of line above for checking of scale			

GENERAL NOTES

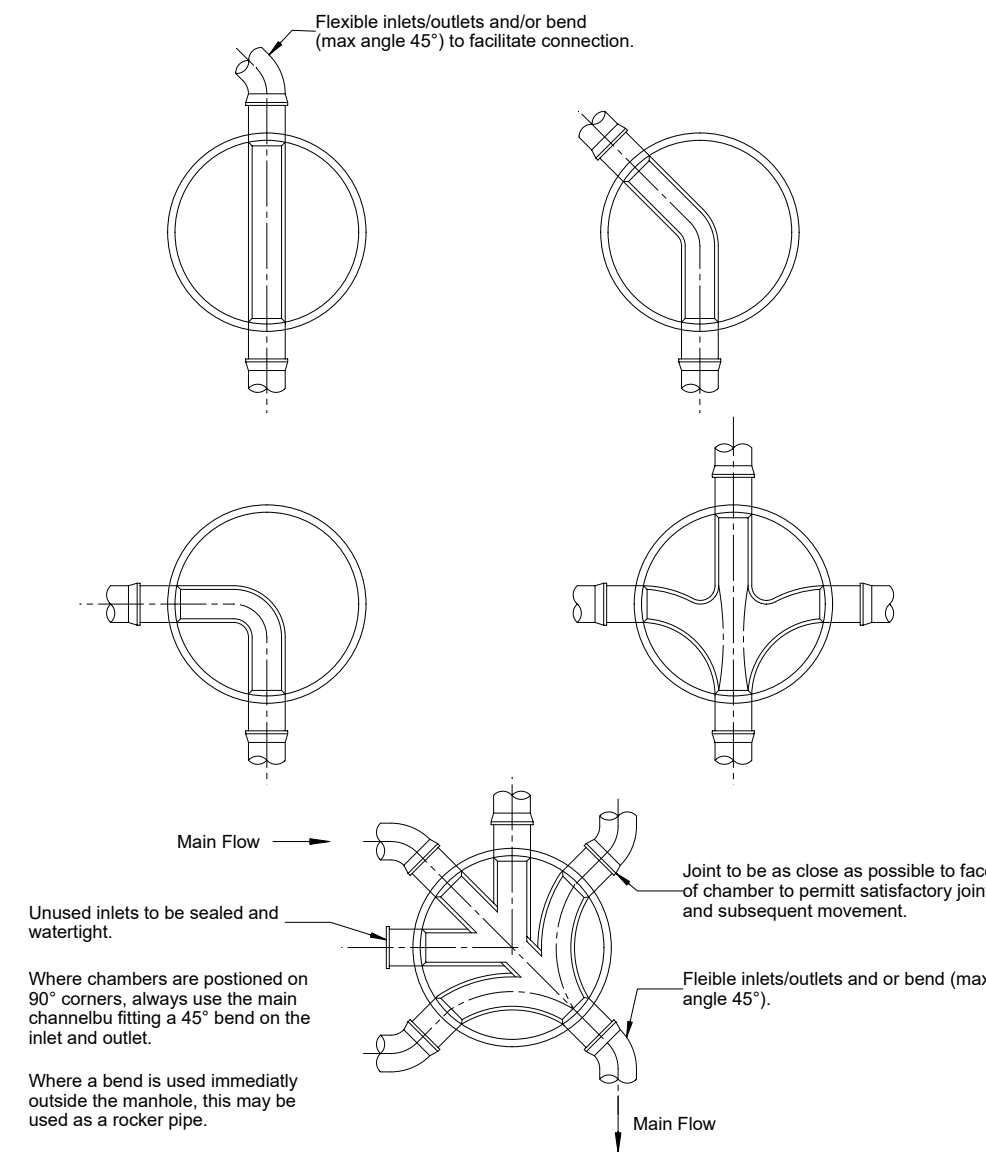


THE DESIGN CBR IS 5 %. REFER TO NOTE 1

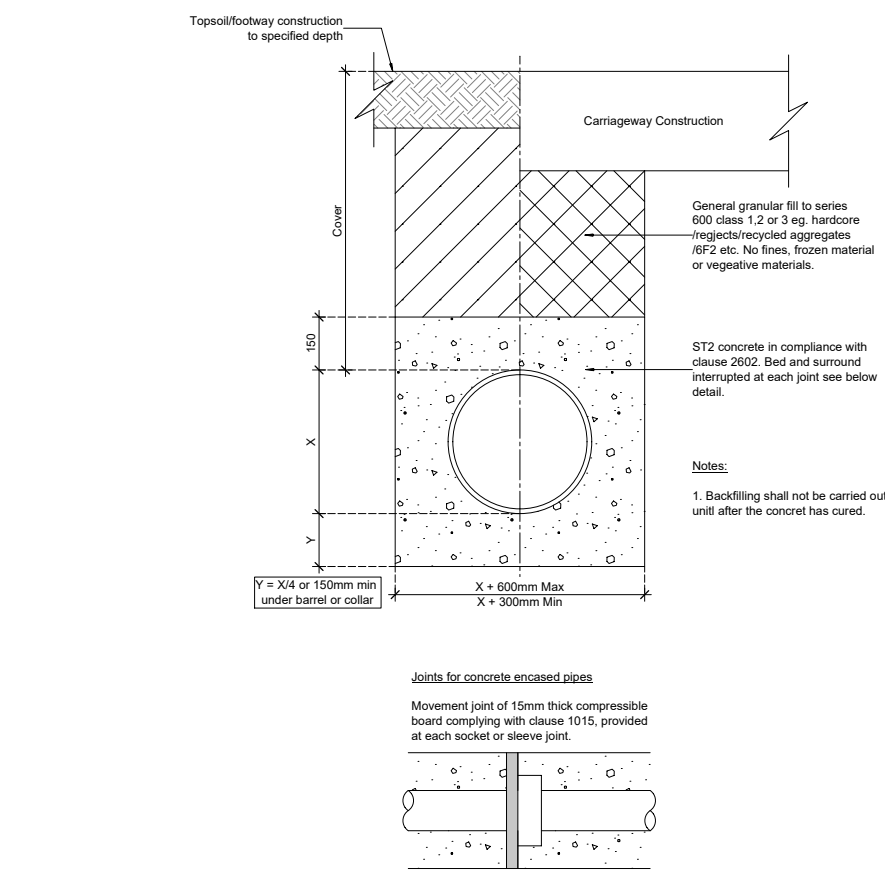
NOTES:

1. Site CBRs should be undertaken during excavation to confirm the CBR design value.
2. The sub-base should be laid in 100-150mm layers and lightly compacted to ensure the maximum density is achieved, without crushing the individual particles or reducing the void ratio.
3. The geotextile membrane must be installed in accordance with the manufacturers instructions and with 300mm min overlays between adjacent strips.

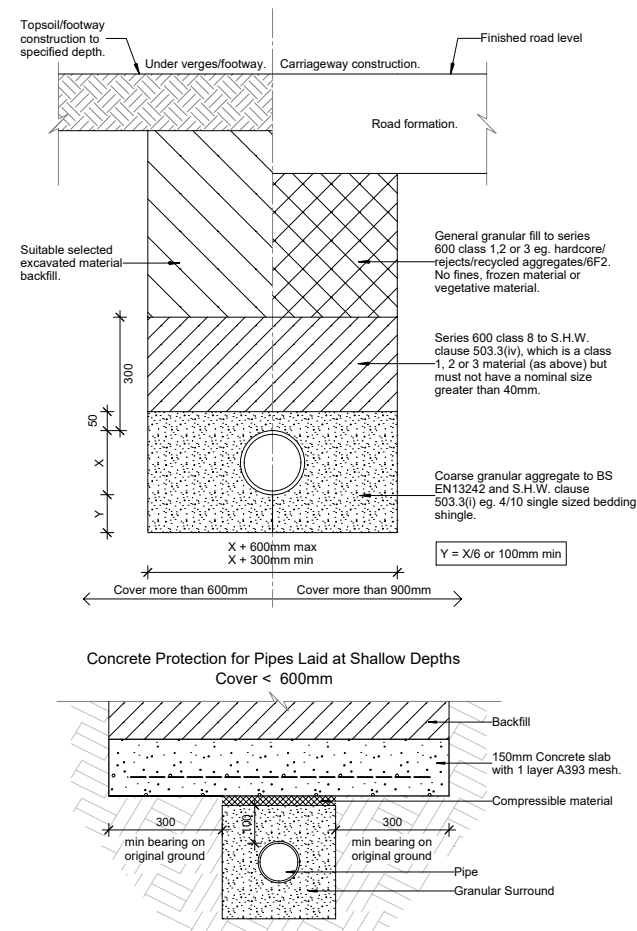
Porous Asphalt - Infiltration Car Park Area with Occasional Vehicle Overrun



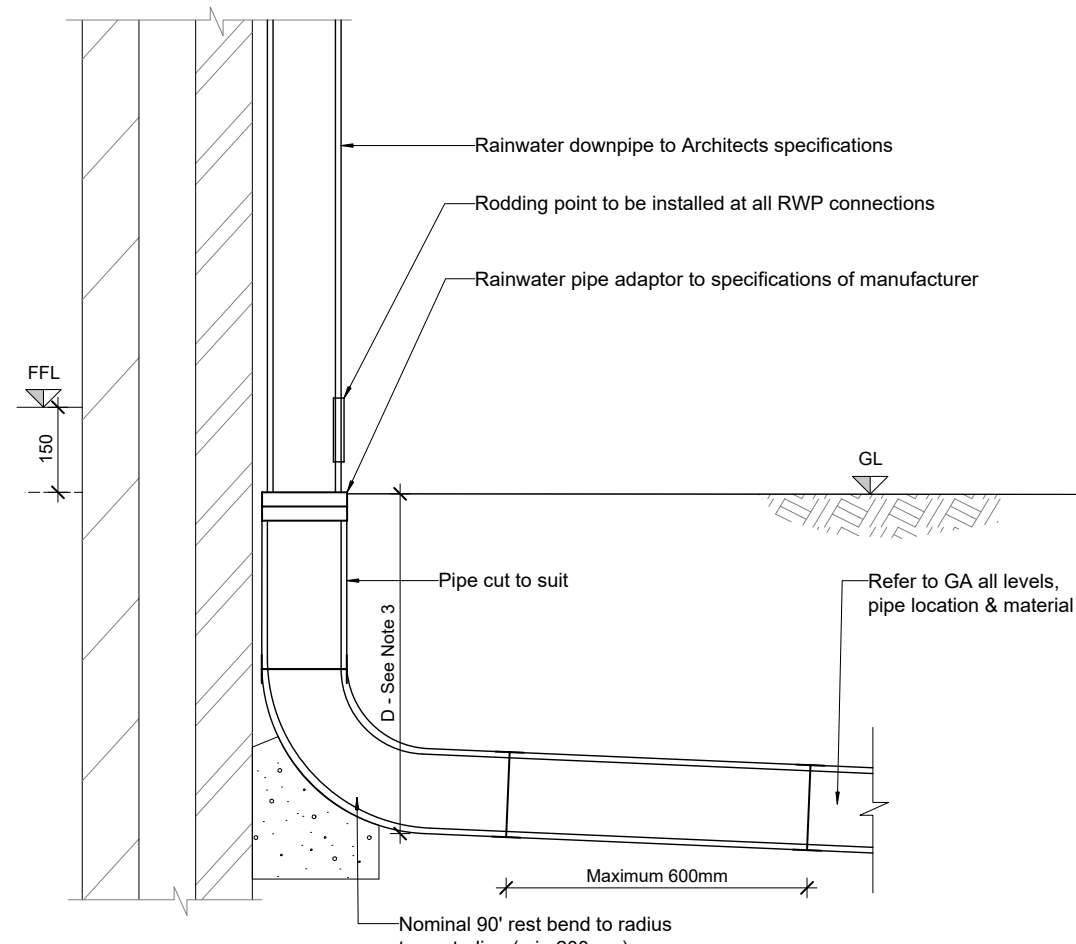
Chamber Type 3 Base Layouts



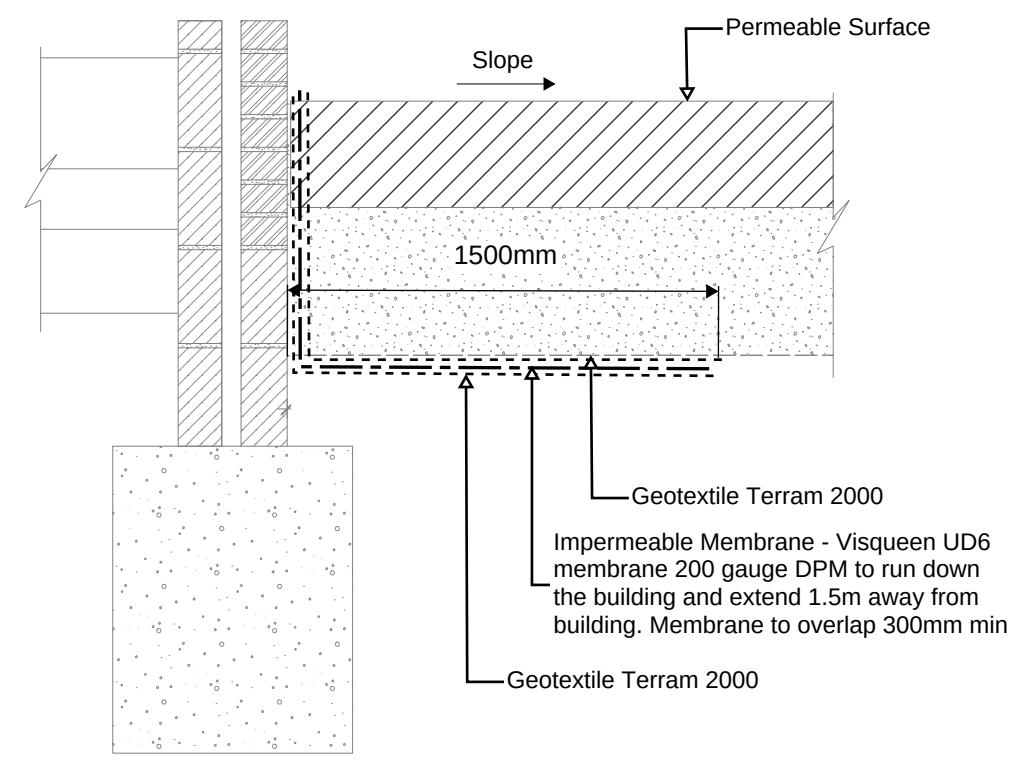
Pipe Bedding Detail Type Z



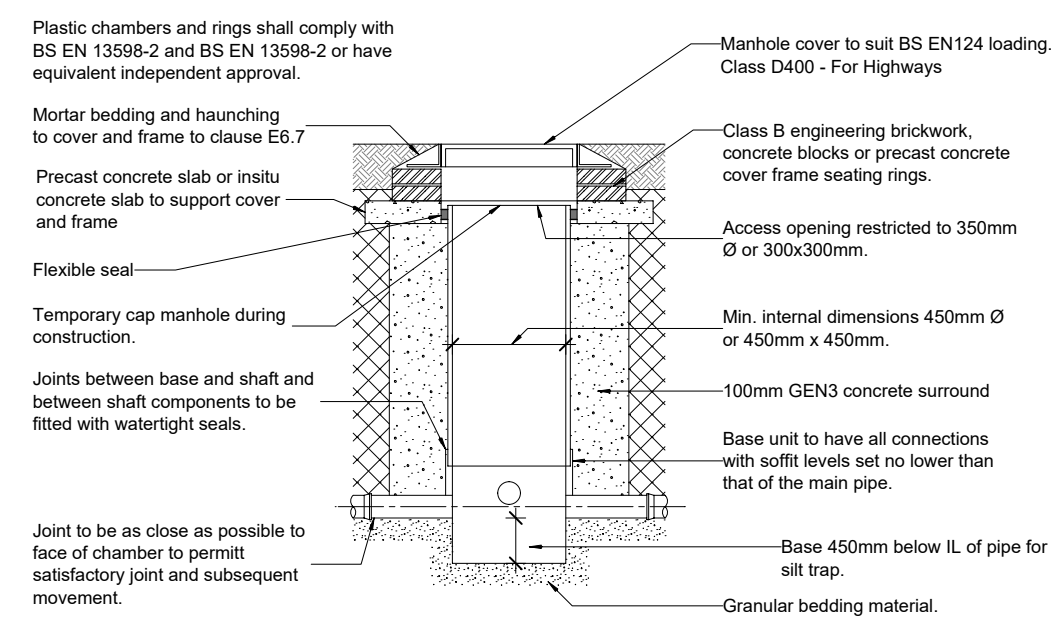
Pipe Bedding Detail Type S



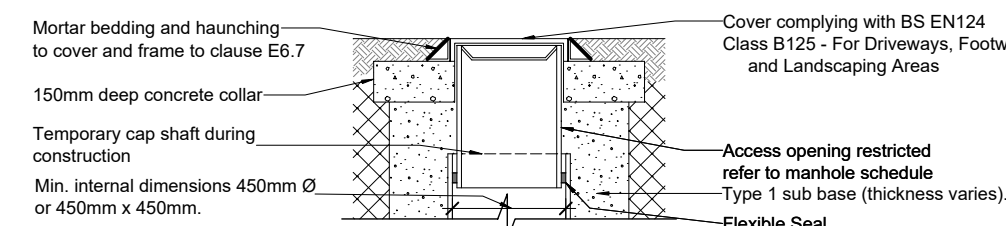
8251 - External Rainwater Pipe Connection Detail



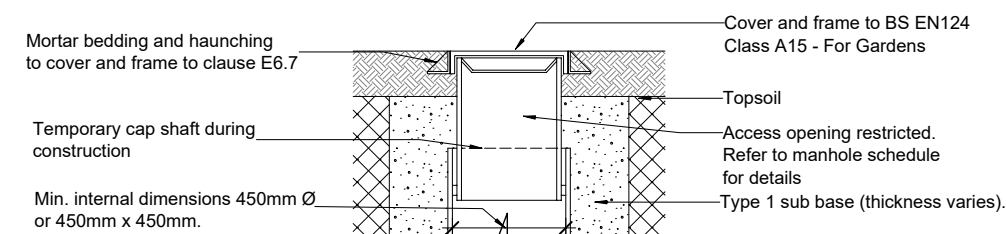
Permeable Surface Against Building



Typical Section in areas subject to vehicle loading



Sited in domestic driveways or footways

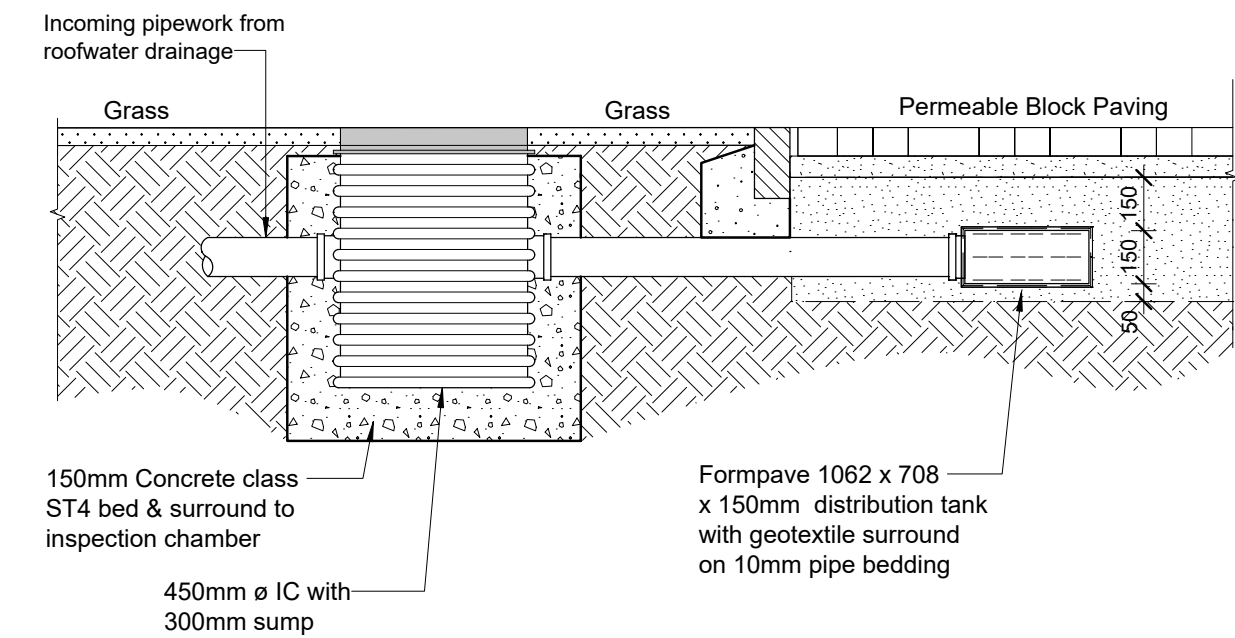


Sited in private garden - No loading

Notes:

1. Refer to drawing 8193 for base layouts.

Silt Trap Plastic



SD064 - Sump and Dispersion Unit

Rev	Details	Date	By	Chd
-----	---------	------	----	-----

Drawing Status:
PRELIMINARY

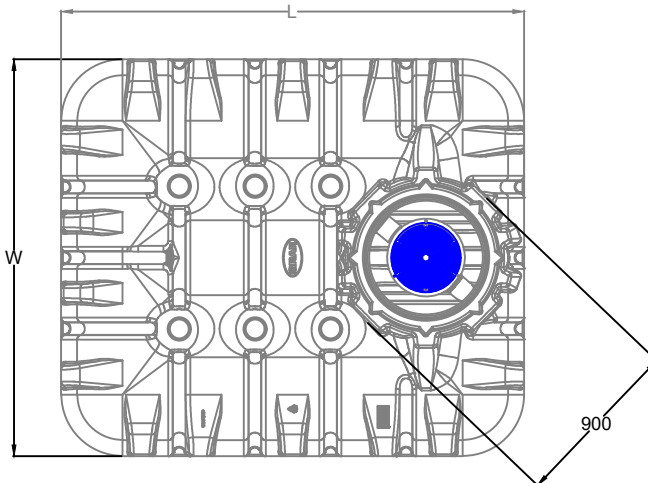
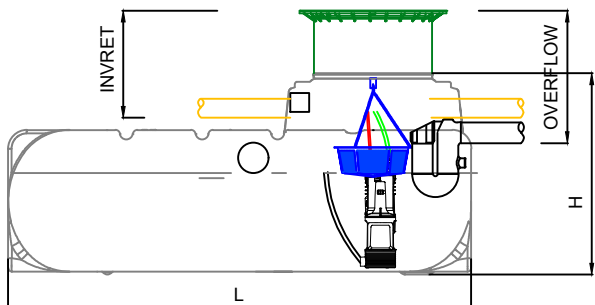
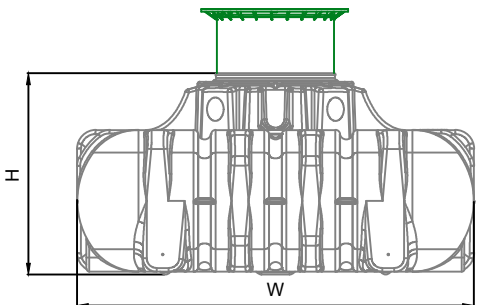


4 Beem Acre Road, Hook Norton, Banbury, Oxfordshire
e: info@rida-reports.co.uk
t: 01608 510 121
www.rida-reports.co.uk

Client:
Project:
Cherry Tree House, 46 Malmesbury Road, SN6 6RH
Drawing:
Standard Details

Print Size:	Scale:	Project No:	Drawing No:	Revision:
A1	NTS	R1088	006	P1

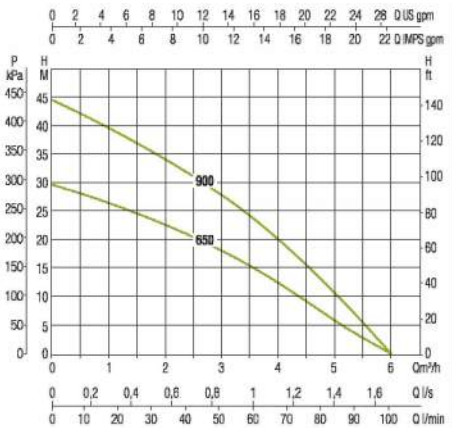
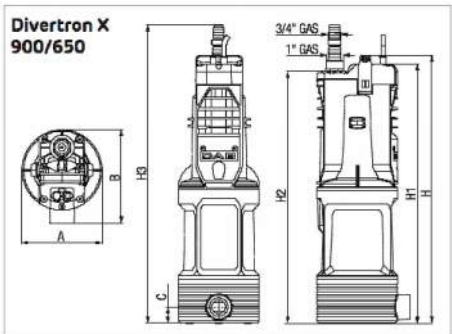
TANK SIZES & DIMENSIONS



	1,500L	3,000L	5,000L	7,500L
LENGTH	2,100mm	2,450mm	2,890mm	3,600mm
WIDTH	1,250mm	2,100mm	2,300mm	2,250mm
HEIGHT	1,015mm	1,050mm	1,265mm	1,565mm
INVERT	375-575mm	375-575mm	375-575mm	375-575mm
OVERFLOW	455-655mm	455-655mm	455-655mm	455-655mm

SUBMERSIBLE PUMP DETAILS

DAB DIVERTRON 900X



The performance curves are based on kinetic viscosity values = 1 mm²/s and density equivalent to 1000 kg/m³. Curve tolerance according to ISO 9906.

SYSTEM ACCESSORIES



HOSE CONNECTION BOX - EXTERNAL
(STANDARD SUPPLY)



HOSE CONNECTION BOX - INTERNAL
(STANDARD SUPPLY)



SPRING WATER SHAFT
(OPTIONAL EXTRA)



INTERNAL CLEANING UNIT
(OPTIONAL EXTRA)



DIGITAL FILL LEVEL SENSOR
(OPTIONAL EXTRA)

THIS DOCUMENT IS SUPPLIED IN STRICT CONFIDENCE AND MUST NOT BE LENT, REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF GRAF UK LIMITED

DO NOT SCALE - IF IN DOUBT ASK

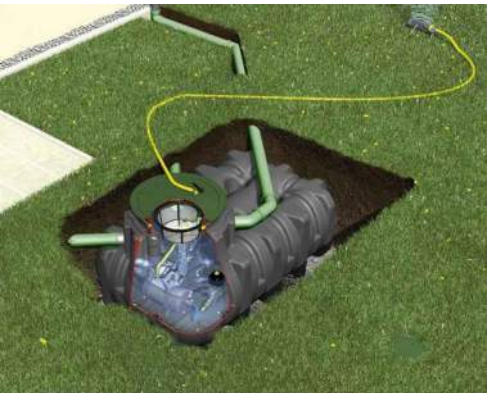
Notice: This drawing is issued only as a guideline and is an estimate of the materials required to construct the drainage system. It should not be used for construction purposes.

Graf UK Ltd makes no warranty or guarantee in relation to the suitability of any of the layout details shown on this drawing in relation to a particular scheme.

NOTES:-

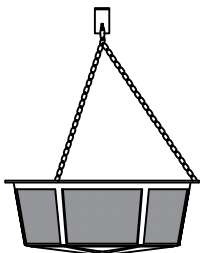
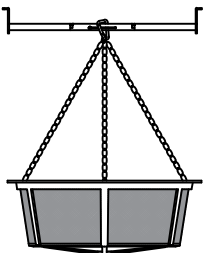
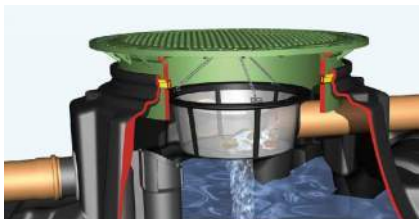
- All dimensions in mm, unless otherwise stated.
- All dimensions are nominal and may vary within manufacturing tolerances.
- All site temporary enabling works by others.
- Graf products to be installed in strict accordance with Graf recommendations.
- This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.

GARDEN COMFORT PLATIN SPECIFICATION



FILTER DETAILS

BASKET FILTER (INTERNAL)



TANK ACCESSORIES

Item	Diameter ϕ	Min. Height (mm)	Max. Height (mm)	Max. Loading (kg)*
Pedestrian Loading Lid (Mini)	ϕ 600mm	60mm	360mm	150kg
Pedestrian Loading Lid (Maxi)	ϕ 600mm	60mm	476mm	150kg
Vehicle Loading Lid	ϕ 625mm	60mm	476mm	3,500kg
Extension Sleeve (1m)	ϕ 670mm	500mm	1,000mm	
Extension Sleeve	ϕ 680mm	250mm		
Tank Dome (Maxi)	ϕ 650mm	610mm		

* Loading up to 12,000kg achievable (suitable cover to be provided by others)
** Tank Dome (Maxi) available with DN100 or DN150 connections

P0	LATEST REVISION	KS	16.04.24
REV.	DESCRIPTION	BY	DATE

GRAF UK Limited
GRAF UK Limited, Regen House, Beaumont Road, Banbury, Oxfordshire, OX16 1RH
T: 01608 661500 F: 01295 211333
E: info@grafuk.co.uk www.grafuk.co.uk

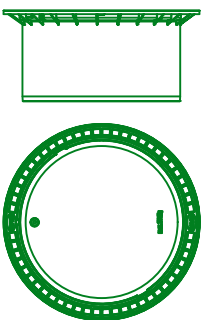
DRAWN :	KS	DATE :	16.04.2024
CHECKED :	DS	SCALE :	VARIOUS@A3

PROJECT
GRAF STANDARD DETAILS

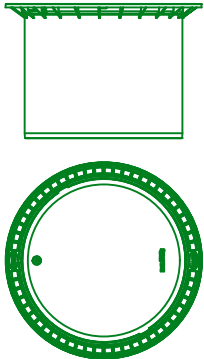
DESCRIPTION
GARDEN COMFORT RAINWATER HARVESTING SYSTEM PLATIN TANK

DRAWING No.	REV.
GARDEN COMFORT_STANDARD DETAIL_PLATIN	P0
	Page.1

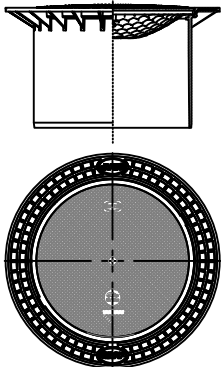
Pedestrian Loading Lid (Mini)



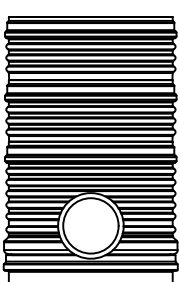
Pedestrian Loading Lid (Maxi)



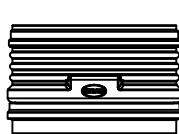
Vehicle Loading Lid



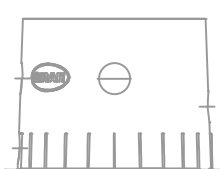
Extension Sleeve (1m)



Extension Sleeve



Tank Dome (Maxi)



NOTE:- Tank accessory suitability may vary depending on project. Please contact Graf UK for sizing and support.

SCOPE OF SUPPLY

SUPPLIED BY GRAF:

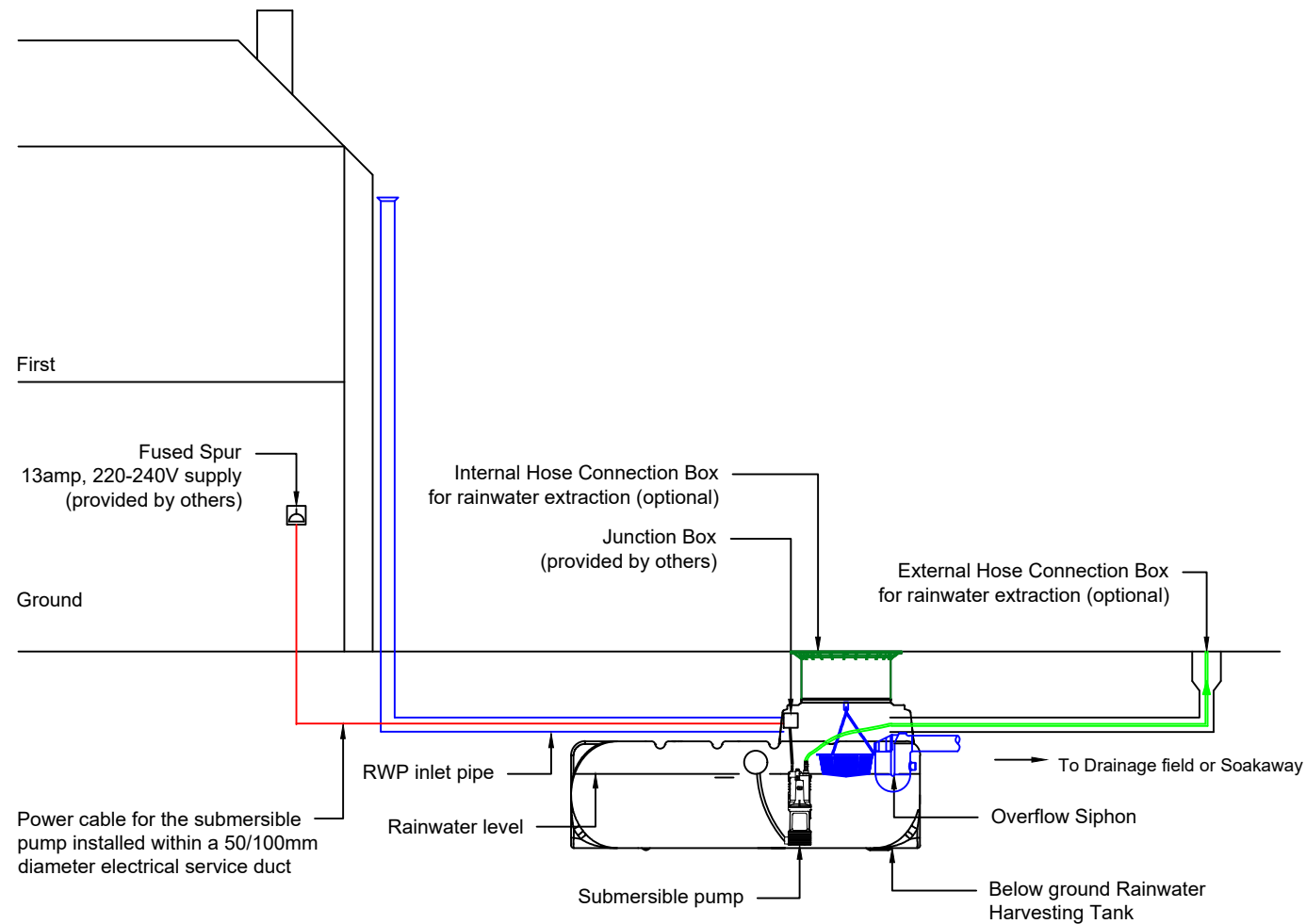
- 1. Underground tank
- 2. Telescopic lid
- 3. Filter
- 4. Submersible pump
- 5. Internal hose connection box
- 6. External hose connection box

SUPPLIED BY OTHERS:

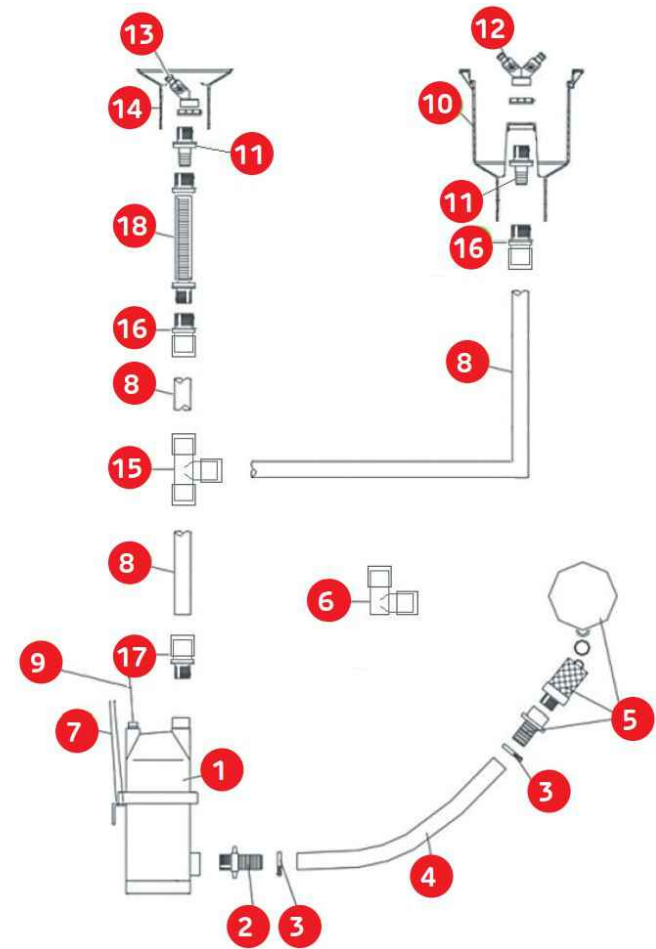
- 7. 100mm duct for pump cable
- 8. 100mm drainage pipe to connect downpipes to inlet (all downpipes to be brought into one single inlet)
- 9. 100mm pipe for overflow from tank



GARDEN COMFORT PLATIN SCHEMATIC



INTERNAL/EXTERNAL HOSE CONNECTION BOXES



- 1. Submersible pump
- 2. Brass hose screwing
- 3. Hose clip
- 4. Suction hose
- 5. Floating suction set
- 6. 25mm compression elbow (optional fitting used for external tap connection)
- 7. Fixing set for submersible pump
- 8. Pressure hose, black & green colour, length 25m
- 9. Electricity supply, length 10m, 3-core cable
- 10. External hose connection box
- 11. 3 / 4 " tank connector
- 12. 2-way regulating plug
- 13. Hose-lock connector
- 14. Internal hose connection box, located on manhole cover of rainwater tank
- 15. 25mm compression T-fitting
- 16. 25mm compression x 3 / 4 " female threaded fitting
- 17. 25mm compression x 1 " male threaded fitting
- 18. 1m length of braided hose, 3 / 4 " male x 3 / 4 " female connections

NOTE:- Tank accessory suitability may vary depending on project. Please contact Graf UK for sizing and support.

THIS DOCUMENT IS SUPPLIED IN STRICT CONFIDENCE AND MUST NOT BE LENT, REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF GRAF UK LIMITED

DO NOT SCALE - IF IN DOUBT ASK

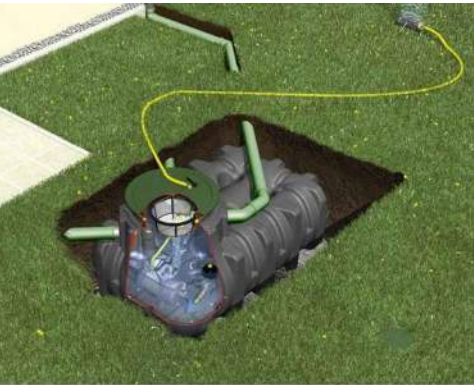
Notice: This drawing is issued only as a guideline and is an estimate of the materials required to construct the drainage system, it should not be used for construction purposes.

Graf UK Ltd makes no warranty or guarantee in relation to the suitability of any of the layout details shown on this drawing in relation to a particular scheme.

NOTES:-

- 1. All dimensions in mm, unless otherwise stated.
- 2. All dimensions are nominal and may vary within manufacturing tolerances.
- 3. All site temporary enabling works by others.
- 4. Graf products to be installed in strict accordance with Graf recommendations.
- 5. This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.

GARDEN COMFORT PLATIN SCHEMATIC



P0	LATEST REVISION	FC	16.04.24
REV.	DESCRIPTION	BY	DATE



GRAF UK Limited
GRAF UK Limited, Regen House, Beaumont Road, Banbury, Oxfordshire, OX16 1RH
T: 01608 661500 F: 01295 211333
E: info@grafuk.co.uk www.grafuk.co.uk

DRAWN :	KS	DATE :	16.04.2024
CHECKED :	DS	SCALE :	VARIOUS@A3

PROJECT

GRAF STANDARD DETAILS

DESCRIPTION

GARDEN COMFORT RAINWATER HARVESTING SYSTEM PLATIN TANK

DRAWING No.	REV.
GARDEN COMFORT_STANDARD DETAIL_PLATIN	P0
	Page.2

TRENCH DETAILS

FOR SUFFICIENT WORKING ROOM, THE BASE AREA OF THE TRENCH MUST EXCEED THE DIMENSIONS OF THE TANK BY 100mm ON ALL SIDES.

MINIMUM DISTANCE FROM SOLID STRUCTURES TO BE 1000mm.

THE TRENCH EMBANKMENT MUST BE DESIGNED SO SLIPPAGE OR COLLAPSE OF THE EMBANKMENT WALL IS NOT TO BE ANTICIPATED.

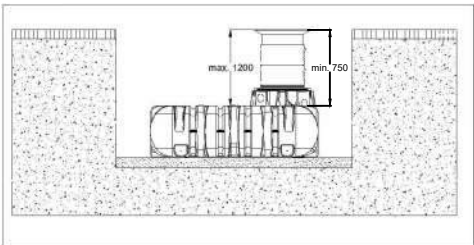
THE CONSTRUCTION SITE MUST BE HORIZONTAL AND PLANE AND MUST GUARANTEE SUFFICIENT LOAD-BEARING CAPACITY.

THE DEPTH OF THE TRENCH MUST BE DIMENSIONED SO THAT THE MAXIMUM COVER ABOVE THE TANK IS NOT EXCEEDED (SEE BELOW DETAILS).

THE TANK AND ANY OTHER COMPONENTS THAT CARRY WATER MUST BE INSTALLED IN A FROST-FREE AREA. THE FROST-FREE DEPTH IS USUALLY APPROX. 600mm-800mm. EXACT DEPTHS CAN BE OBTAINED FROM THE RESPONSIBLY AUTHORITY.

A 100mm-150mm COMPACTED LAYER OF 10-20mm ROUND GRAIN GRAVEL IS INSTALLED AT THE BASE OF THE EXCAVATION.

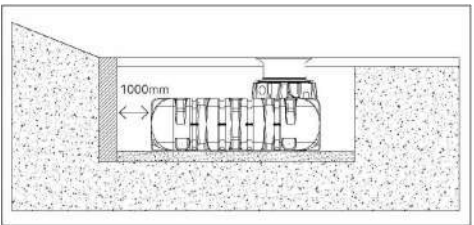
MINIMUM & MAXIMUM COVER



MINIMUM COVER IN A LANDSCAPED AREA TO BE 455mm FROM SHOULDER OF TANK.

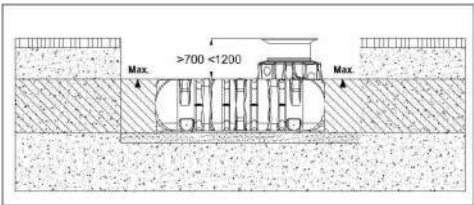
MAXIMUM COVER IN A LANDSCAPED AREA TO BE 1200mm FROM SHOULDER OF TANK.

SLOPE/EMBANKMENT INSTALLATIONS



IF THE TANK IS TO BE INSTALLED IN THE IMMEDIATE VICINITY (<5m) OF A SLOPE OR EMBANKMENT, A STATICALLY CALCULATED RETAINING WALL MUST BE ERECTED TO ABSORB ANY ADDITIONAL LOADING FROM THE SOIL. THE WALL MUST EXCEED THE DIMENSIONS OF THE TANK BY AT LEAST 500mm IN ALL DIRECTIONS AND MUST BE LOCATED AT LEAST 1000mm AWAY FROM THE TANK.

GROUNDWATER INSTALLATIONS



IF IT IS ANTICIPATED THAT THE TANK WILL BE IMMERSED IN GROUNDWATER DEEPER THAN SHOWN IN THE BELOW TABLE, SUFFICIENT DISSIPATION MUST BE ENSURED. DISSIPATION OF THE DRAINAGE WATER (E.G. VIA AN ANNULAR DRAINAGE SYSTEM) IS RECOMMENDED IN CASES OF COHESIVE, WATER-IMPERMEABLE SOIL.

TANK SIZE	1,500L	3,000L	5,000L	7,500L
IMMERSION DEPTH	700mm	735mm	1,000mm	1,250mm

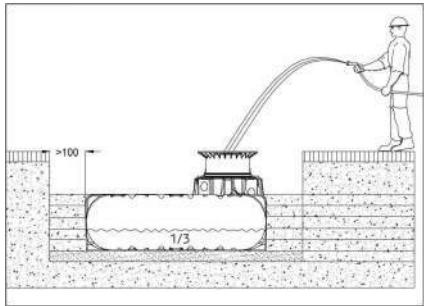
MINIMUM COVER TO BE 700mm FROM SHOULDER OF TANK IN AREAS WITH GROUNDWATER.

MAXIMUM COVER TO BE 1,200mm FROM SHOULDER OF TANK IN AREAS WITH GROUNDWATER.

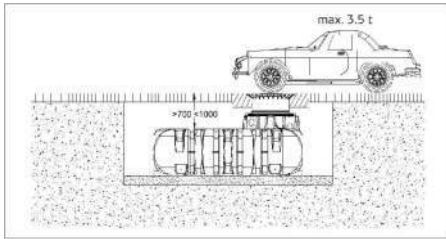
INSERTION & FILLING

THE TANK MUST BE INSERTED, IMPACT-FREE, INTO THE PREPARED TRENCH USING SUITABLE EQUIPMENT.

THE TANK IS FILLED WITH $\frac{1}{3}$ WATER BEFORE BACKFILLING. THE 10-20mm ROUND GRAIN GRAVEL IS BACKFILLED IN LAYERS OF MAX. 300mm STEPS AND IS TO BE WELL COMPACTED WITH A MANUAL TAMPER. MECHANICAL COMPACTION MACHINES ARE NOT TO BE USED UNDER ANY CIRCUMSTANCES. SURROUND MUST BE AT LEAST 100mm ON ALL SIDES OF THE TANK.



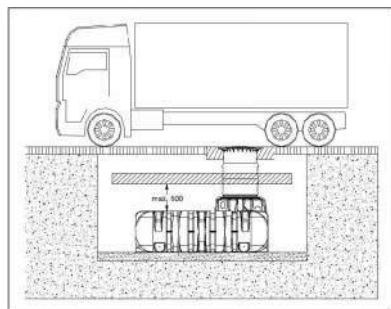
VEHICLE LOADING CONDITIONS



FOR LOADINGS OF UP TO 3,500KG IN TRAFFICKED AREAS WITH NO GROUNDWATER, THERE MUST BE;

MINIMUM COVER OF 700mm FROM THE SHOULDER OF THE TANK, AND

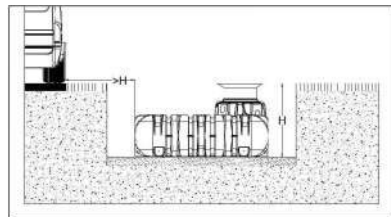
MAXIMUM COVER OF 1,000mm FROM THE SHOULDER OF THE TANK.



FOR LOADINGS OF MORE THAN 3,500KG AND UP TO HGV LOADING IN AREAS OF NO GROUNDWATER, THERE MUST BE;

A SELF-SUPPORTING IRON-REINFORCED CONCRETE PLATE, THAT WILL ENSURE THAT NO ADDITIONAL FORCES OR EFFECTS FROM THE HGV-BEARING WILL TRANSFER TO THE TANK/S.

THE MAXIMUM DISTANCE FROM THE BODY OF THE TANK TO THE REINFORCING PLATE IS 500mm.



FOR INSTALLATIONS ADJACENT TO SURFACES USED BY VEHICLES OF OVER 3,500KG, THE TANK MUST BE INSTALLED AT A DISTANCE FROM THE ROAD SURFACE THAT IT AT LEAST THE DEPTH OF THE TRENCH.

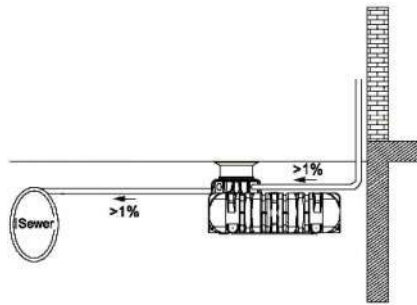
PIPE CONNECTIONS

ALL PIPE CONNECTIONS MUST BE INSTALLED WITH A FALL OF AT LEAST 1% IN THE DIRECTION OF FLOW (POSSIBLE, SUBSEQUENT SETTLING MUST BE TAKEN INTO ACCOUNT).

IF THE TANK OVERFLOW IS CONNECTED TO A PUBLIC SEWER, THIS MUST BE PROTECTED AGAINST REFLUX BY MEANS OF A LIFTING STATION OR REFLUX SEAL IN ACCORDANCE WITH DIN 1986.

ALL SUCTION, PRESSURE & CONTROL LINES MUST BE INSTALLED IN AN EMPTY PIPE / DUCT AND AS STRAIGHT AS POSSIBLE. ANY NECESSARY BENDS MUST BE FORMED IN 30 DEGREE MOULDED SECTIONS.

IMPORTANT: THE EMPTY PIPE / DUCT MUST BE CONNECTED TO AN APERTURE ABOVE THE MAX. WATER LEVEL.



PLEASE REFER TO TANK INSTALLATION GUIDE FOR DETAILS ON; SAFETY, PRODUCT FEATURES, IDENTIFICATION OBLIGATIONS, TECHNICAL DATA, TANK STRUCTURE, TANK ASSEMBLY & SERVICING AND INSPECTION.

THIS DOCUMENT IS SUPPLIED IN STRICT CONFIDENCE AND MUST NOT BE LENT, REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF GRAF UK LIMITED

DO NOT SCALE - IF IN DOUBT ASK

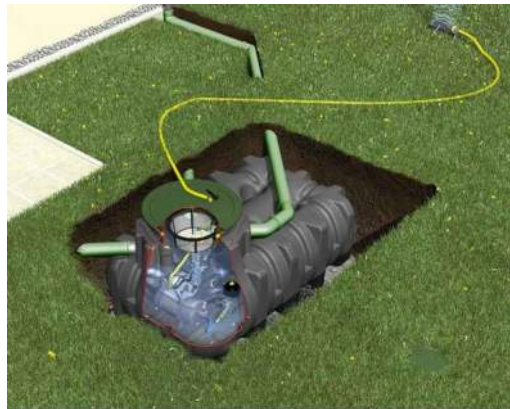
Notice: This drawing is issued only as a guideline and is an estimate of the materials required to construct the drainage system, it should not be used for construction purposes.

Graf UK Ltd makes no warranty or guarantee in relation to the suitability of any of the layout details shown on this drawing in relation to a particular scheme.

NOTES:-

- All dimensions in mm, unless otherwise stated.
- All dimensions are nominal and may vary within manufacturing tolerances.
- All site temporary enabling works by others.
- Graf products to be installed in strict accordance with Graf recommendations.
- This drawing is intended for guidance only. Confirmation of the suitability for a particular project should be sought from the consulting engineers prior to final design or commencement of any construction works.

GARDEN COMFORT PLATIN TANK INSTALLATION



P0	LATEST REVISION	KS	16.04.24
REV.	DESCRIPTION	BY	DATE



GRAF UK Limited

GRAF UK Limited, Regen House, Beaumont Road, Banbury, Oxfordshire, OX16 1RH

T: 01608 661500

F: 01295 211333

E: info@grafuk.co.uk

www.grafuk.co.uk

DRAWN :	KS	DATE :	16.04.2024
CHECKED :	DS	SCALE :	VARIOUS@A3

PROJECT	GRAF STANDARD DETAILS
---------	-----------------------

DESCRIPTION	GARDEN COMFORT RAINWATER HARVESTING SYSTEM PLATIN TANK
-------------	--

DRAWING No.	REV.
GARDEN_COMFORT_STANDARD_DETAIL_PLATIN	P0
	Page.3