Our ref: /GF/HP/63942 – 01A

consulting engineers & surveyors

PRP Northampton
Catherine House Harborough Road
Brixworth Northampton NN6 9BX

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northampton@prp.uk.com
www.prp.uk.com

26 October 2023

Storm Water Drainage Technical Note
for 147 Aylsham Drive, Ickenham
on behalf of

Savoys Developments Limited,
4 Station Parade,
Ruislip,
HA4 7DL

This drainage technical note has been prepared on the instruction of Savoys Development Ltd in support of the planning application for the construction of a two storey, 1-bed attached dwelling and two storey rear extension involving parking and amenity space at 174 Aylsham Drive Ickenham UB10 8UF. The existing site is irregularly shaped and occupies an approximate area of 0.032ha.

The British National Grid metre for the centre of the site is Easting: **508586**, Northing: **186566.** Accompanying site location plan and existing site topographical drawings is appended to this technical note. The site is currently used for residential purposes, as 147 Aylsham Drive is currently occupied.

Ground surface across the development site comprises of mainly grass, planted areas and concrete paving slabs The topographical survey which found this above information was undertaken by Midland Survey Ltd in July 2019. The survey also provides limited information on the existing utilities and drainage on-site.

The site is underlain by Firm yellowish-brown clay with occasional bluish grey mottling as identified in the appended soil testing report. BRE 365 testing was attempted during site investigation works, though due to limited infiltration, no results were taken.

A drainage survey undertaken by SB Drain Services Ltd dated May 2021, indicate the existing property utilises existing rubble soakaways for surface water discharge. Existing foul sewers on site where also identified. This survey is appended to this technical note.

26 October 2023

Looking at the Environment Agency (EA) flood maps, the site is located within flood zone 1 with a very low risk of surface water flooding (less than 0.1% likelihood of flooding occurring in a given year). There is a low risk of flooding within Aylsham Drive to the south west of the site however this is unlikely to impact on the development due to site levels being higher than the road and water flood levels indicated to be below 300mm. Flood mapping information can be found in appended to this technical note.

It is proposed to construct a two storey, 1-bed attached dwelling and two storey rear extension involving parking and amenity space at 174 Aylsham Drive Ickenham UB10 8UF. A site plan is appended to this technical note.

Surface water drainage will be collected from a total area of 145m^2 and will be address by a variety of SuDS options. 49 m^2 of roof runoff to the rear of the properties will discharge to above ground water storage tanks where water will be stored for use in garden areas for plants, other vegetation and external washing down. Overflows from these tanks will be connected into either existing surface water drains on site or to the subbase of the parking area. These overflows will utilise the limited infiltration for the site via the existing rubble soakaways and blanket subbase areas. Calculations for the sizing of the above ground water storage tanks have been appended to this technical note.

Permeable block paving and subbase is proposed for the driveway which will allow for direct infiltration from surface water settling in this area of site similarly to as it would currently. It is also proposed to discharge 14 m^2 of roof area into the subbase from the front of the property. Due to such poor infiltration encountered during investigation for the site it is difficult to prove the viability of infiltration techniques, however due to the fact there has not been known issues with surface water infiltrating into material on site at time of writing, it is likely there is still a minimal chance of infiltration especially for smaller areas of concentrated surface water especially in areas surrounded with planting. Calculations for the permeable paving have been appended to this technical note which design the subbase for the worst-case storm of 1 in 100 year with an allowance of 40% for climate change. The subbase is designed to allow for infiltration with the rate being based upon a poor rate of 1x10^-6. Subbase has been determined to be minimum of 0.35m in depth and allows for drained areas of 64 m^2 for the permeable paving extent and the 14m^2 for roof areas from the front of the properties. The remaining 18m^2 of roof area from the existing property frontage is proposed to remain as it currently does, discharging into existing on-site surface sewer prior to joining flows from offsite prior to discharging into an existing offsite rubble soakaway in land to the south west of site. Storage capacity of the subbase is calculated to be 6m3.

An outline foul and surface water drainage layout plan for the proposed development has been appended to this technical note. Details of associated SuDS techniques have also bee appended to this note.

26 October 2023

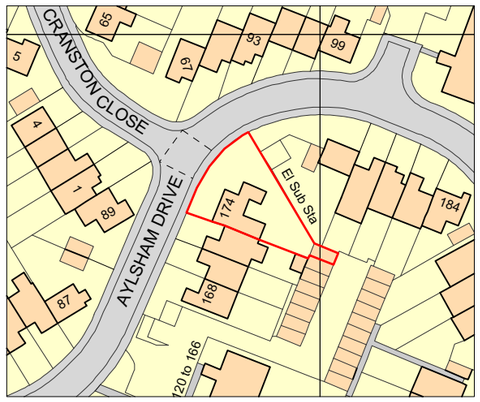
The surface water drainage system has been designed with future maintenance in mind, a maintenance and management plan has been proposed as part of the drainage technical note. This is appended at the end of this note.

The development should be allowed to proceed on the basis of the following

- The foul flows from the proposed development can be discharged into the nearby Thames Water Asset via gravity flows to an existing onsite foul system.
- The surface water flows from the proposed development will be treated and subsequently discharged via infiltration methods utilising SuDS features.
- A maintenance plan including prevention measures has been outlined for the development and will be included within O&M Manuals for the development being provided to future homeowners.

Gareth Flower
Project Civil Engineer
PRP

Himanshu Patel
Director
PRP



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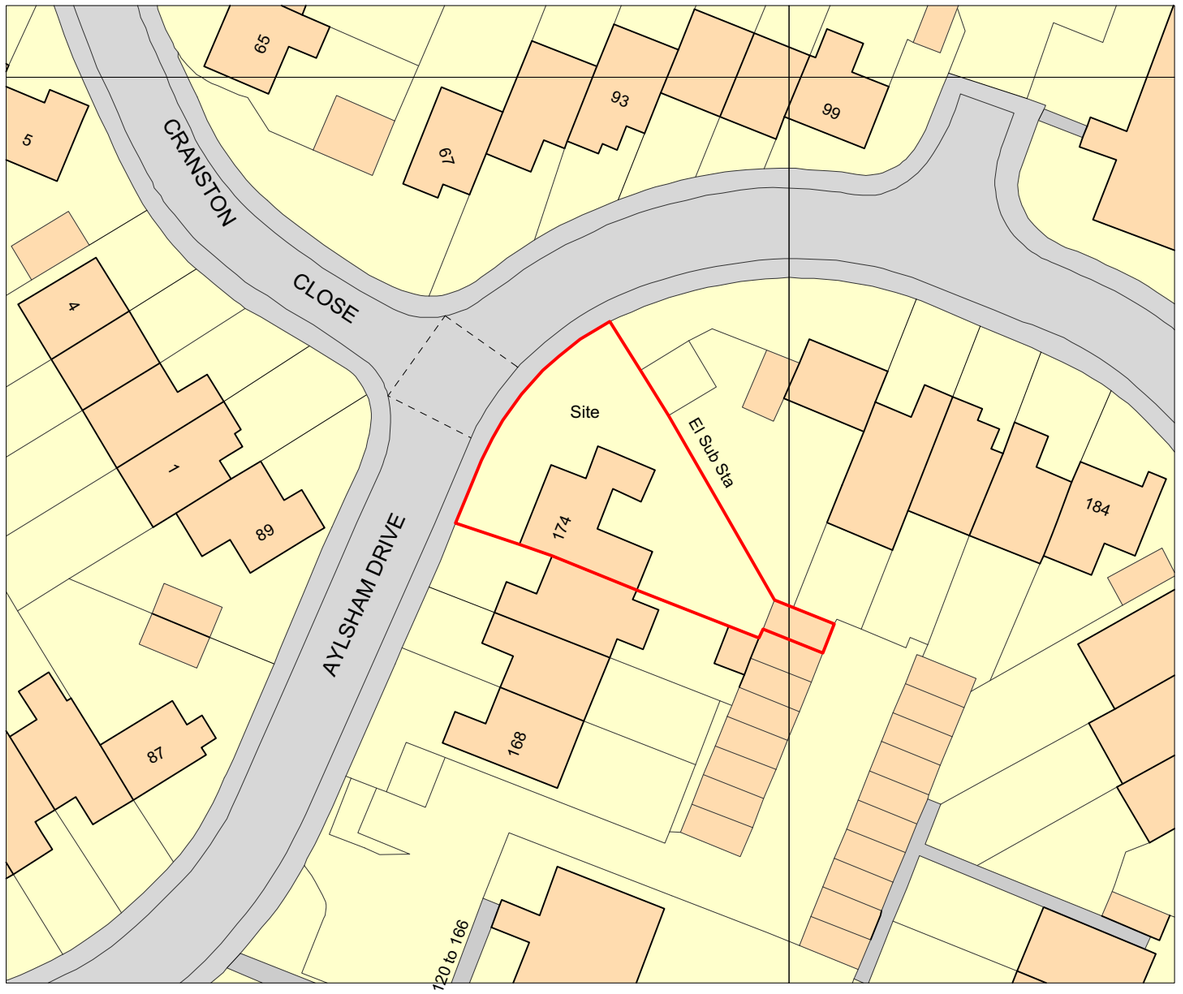


1 SITE LOCATION PLAN

Scale: 1:1250

0 20 40 60 80 100 M

2 BLOCK PLAN

Scale: 1:500

0 10 20 30 M

Site area : 344.5m^2

No.	Date:	Revision Notes:	Revised By:
A	13/12/2019	Revisions to red line	FT
B	16/12/2019	Site area added	FT

dp architects
design | planning | architects
RIBA
CIAT
DP Architects
The Old Brewery Tap, 3 Stadium Street, Wallington, Oxfordshire, OX10 0BU
Tel: 01491 613 088 Email: mail@dparchitects.co.uk

Client

Project

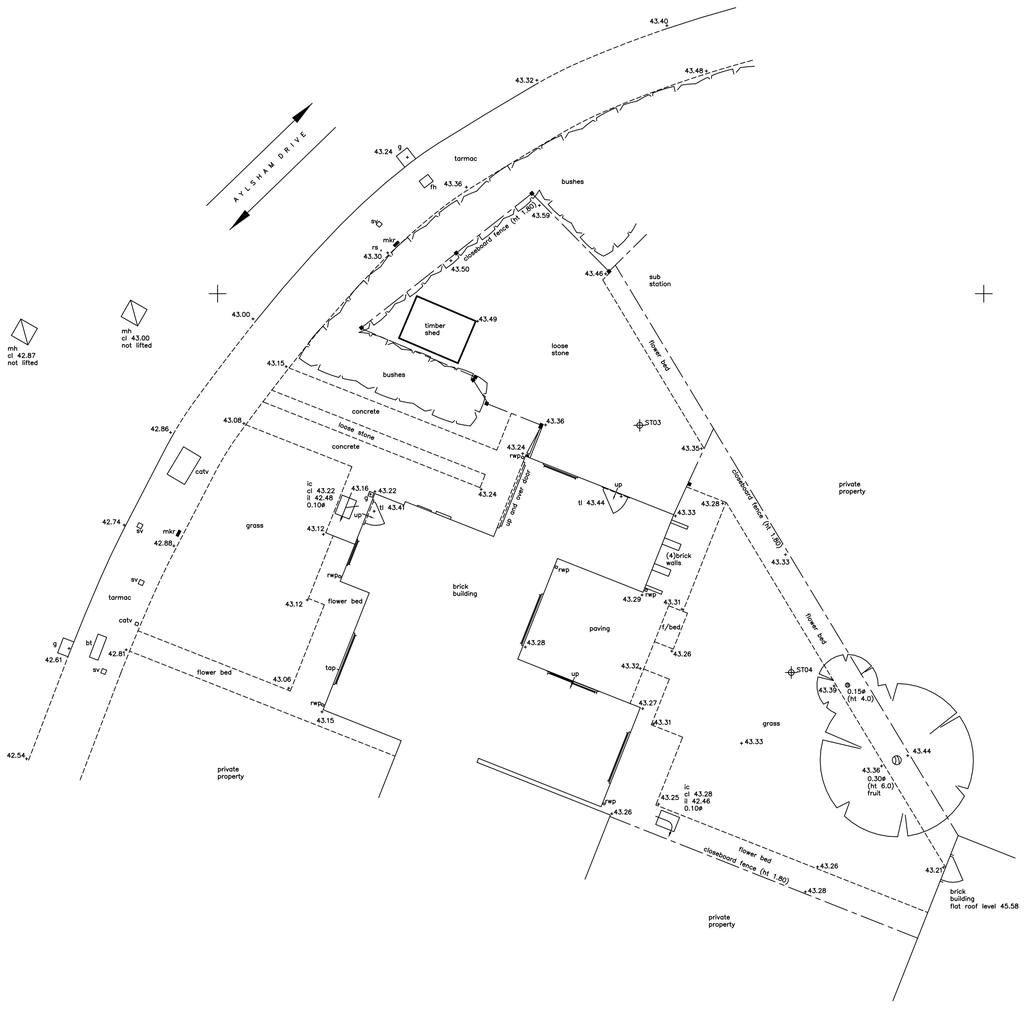
PROPOSED EXTENSION

**174 AYLSHAM DRIVE,
ICKENHAM,
UB10 8UF**

Drawing

SITE LOCATION & BLOCK PLAN

Scale	Dwg No.	Revision
as stated	**19 BGAR SL01**	**B**
Drawn: SDG		
Date: June 2019	Status: PLANNING	



NOTES

GENERAL NOTES :-

ALL LEVELS ARE IN METRES DERIVED FROM GPS TRANSFORMATION.

GRID COORDINATES ARE ORDNANCE SURVEY NATIONAL GRID DERIVED FROM GPS TRANSFORMATION. GPS COORDINATES AND LEVELS SET AT ST01 (NO SCALE FACTOR APPLIED)

THIS DRAWING HAS BEEN PRODUCED WITH A PLOT SCALE ACCURACY OF 1:100

SERVICE COVERS INDICATED WHERE VISIBLE. PIPE INVERTS / DETAILS SURVEYED FROM SURFACE INSPECTION ONLY. GENERALLY DAMAGED COVERS AND COVERS WITHIN HIGHWAYS WILL NOT BE LIFTED

TREE SPECIES SHOULD BE CONFIRMED BY TREE SPECIALIST IF CRITICAL.

OVERHEAD CABLES ARE INDICATED USING REMOTE SURVEY METHODS AND ARE SUBJECT TO SEASONAL VARIATION, AND SHOULD BE TREATED AS APPROXIMATE.

SERVICE COVERS LOCATED UNDER PARKED VEHICLES/MOBILE STRUCTURES MAYBE OMITTED.

BURIED SERVICE COVERS WILL NOT BE INDICATED.

TOPOGRAPHICAL SURVEY/UTILITY KEY :-

(ht) – height
ø – diameter
● – pea trap
a/g – above ground
a/r – assumed route
av – air valve
bb – belisha beacon
bd – back drop
bl – bed level
boll – bollard
bos – bottom of shaft
bt – telecom
c/b fence – closeboard fence
c/box – control box
catv – cable television
cl – cover level
con – conifer
cr – cable riser
cws – combined water sewer
d/chan – drainage channel
ejb – electric junction box
elec – electric
eot – end of trace
ep – electric pole
er – earth rod
f/bed – flower bed
fh – fire hydrant
fl – floor level
fs – fire switch
fws – foul water sewer
g – gully
g/run – gully run
gr – gas riser
h/chestnut – horse chestnut
h/thorn – hawthorn
ic – inspection cover
il – invert level
ill – illuminated
int – interceptor
lp – lamp post
mh – manhole cover
mkr – marker
o/h – over head
ol – off let
osa – off survey area
OSBM – ordnance survey bench mark
p & r fence – post & rail fence
pd – pit depth
pr – pipe riser
ptg – pipe to ground
pts – pipe to surface
re – rodding eye
ret wall – retaining wall
rs – road sign
rwp – rain water pipe
s/birch – silver birch
s/p – safety paving
sap – sapling
sec fence – security fence
sfc – soil filled chamber
sl – spot light
sp – soil pipe
st – stop tap
sv – stop valve
svp – soil vent pipe
tws – storm water sewer
TBM – temporary bench mark
tfr – taken from records
tl – threshold level
toc – top of cap
top – top of pipe
tot – top of tank
tp – telecom pole
ts – traffic signal
t/s – trench scar
u/s – underside
uti – unable to lift
utr – unable to rod
uts – unable to survey
utt – unable to trace
vp – vent pipe
wfc – water filled chamber
wl – water level
wm – water meter
wp – waste pipe
wr – water riser

SURVEY CONTROL :-

STATION	EASTINGS	NORTHINGS	LEVEL
ST01	508565.389	186566.470	42.770
ST02	508556.148	186543.458	42.227
ST03	508588.775	186570.706	43.375
ST04	508593.719	186562.643	43.388

NORTH POINT :-

NORTH

UTILITY SURVEY KEY :-

HATCHED AREA
BOREHOLE
CPT
TRIAL PIT
HAND PIT
WINDOW SAMPLE

ELECTRIC CABLE
WATER PIPE
FOUL SEWER
STORM SEWER
COMBINED SEWER
DUCTS
CABLE TELEVISION
DATA CABLE
TELECOM CABLE
GAS PIPE
UNIDENTIFIED SERVICE
OTHER
CCTV
TRAFFIC LIGHT
OFFSET FILL
VENT
FUEL PIPE
GAUGE LINES
PIPE
ASSUMED ROUTE
TAKEN FROM RECORDS

DISCLAIMER :-

Electromagnetic techniques have been used in the location of underground services. The results are not infallible and trial excavations should be carried out to confirm service identification, positions and particularly depths, where these are critical. The completeness of the underground services information cannot be guaranteed.

This method of survey does not differentiate between live and dead services, and as such all services should be treated as live. This drawing may not include the location of all public services that may cross the site, therefore the relevant service drawings should be obtained from the appropriate utility company and used in conjunction with this drawing.

Private service pipes and cables in highways are not shown, but there presence should be anticipated.

Additional below ground structures or obstructions not shown on this drawing may be present. Reference should be made to historical plans and as-built drawings. Excavations in the vicinity of services should be carried out with due diligence ref: HSG47 document avoiding dangers from underground services

Please note that factors such as ground conditions, proximity of other utilities, material and method of construction have an influence on the quality of the data collected on site.

TSA Standards – "Even an appropriate and professionally executed survey may not be able to achieve a 100% detection rate."

UTILITY NOTES

0 1 2 4 6 8 10

MIDLAND SURVEY LTD

HEAD OFFICE
Cromwell House, Westfield Road, Southam, Warwickshire, CV47 0JH.
Tel: 01926 810811 Fax 01926 810812
E-Mail: mail@midlandsurvey.co.uk
www.midlandsurvey.co.uk

Client	DP ARCHITECTS
Project	174 AYLSHAM DRIVE, ICKENHAM, UB10 8UF
Title	TOPOGRAPHICAL SURVEY
Date	JULY 2019
Scale	1:100@A1
Dwg No	34375/1
Surveyor	J.M.P
Checked	T.W.G

Revisions

TOPOGRAPHICAL (LAND) SURVEYORS / UTILITY SURVEYORS
BUILDING MEASUREMENT SURVEYORS / 3D LASER SCANNING

Accredited Contractor
constructionLine
THE SURVEY ASSOCIATION

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

0998

Contract	**174 Aylesham Drive**
Serial No.	**38923_1**

Client:

PRP UK Ltd

Catherine House
Old Harborough Road
Brixworth
Northampton
NN6 9BX

Soil Property Testing Ltd

15, 16, 18 Halcyon Court, St Margaret's Way,
Stukeley Meadows, Huntingdon,
Cambridgeshire, PE29 6DG

Tel: 01480 455579
Email: enquiries@soilpropertytesting.com
Website: www.soilpropertytesting.com

Samples Submitted By:

PRP UK Ltd

Samples Labelled:

174 Aylesham Drive

Approved Signatories:

☑ **J.C. Garner B.Eng (Hons) FGS**
Technical Director & Quality Manager

☐ **W. Johnstone**
Materials Lab Manager

☐ **D. Sabnis**
Operations Manager

Date Received: 16/06/2021

Samples Tested Between: 16/06/2021 **and** 29/06/2021

Remarks:

For the attention of Karen Holton
Your Reference No: 63294

Notes:

1. All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.
2. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
3. Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.
4. This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.
5. The results within this report only relate to the items tested or sampled.

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

0998

Contract	**174 Aylesham Drive**		
Serial No.	**38923_1**	**Target Date**	30/06/2021
Scheduled By	PRP UK Ltd		

Schedule Remarks

Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BSEN)	Liquid/Plastic Limits	Sulphate Content/pH Value														Sample Remarks
TP2	B	1	1.00	1	1	1														
TP2	B	2	1.50	1	1	1														
Totals				**2**	**2**	**2**														**End of Schedule**

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

0998

Contract	**174 Aylesham Drive**
Serial No.	**38923_1**

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti-city Index (%)	Liquid-ity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP2	1.00	B	1	**35.0**	83	27	56	0.14	From Natural	0 (A)		71	Firm yellowish brown CLAY with occasional bluish grey mottling, and recently active and decayed roots.	CV
TP2	1.50	B	2	**29.3**	78	26	52	0.06	From Natural	0 (A)		71	Stiff yellowish brown CLAY with occasional bluish grey mottling, recently active and decayed roots, and selenite crystals.	CV

Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4
Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:

Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

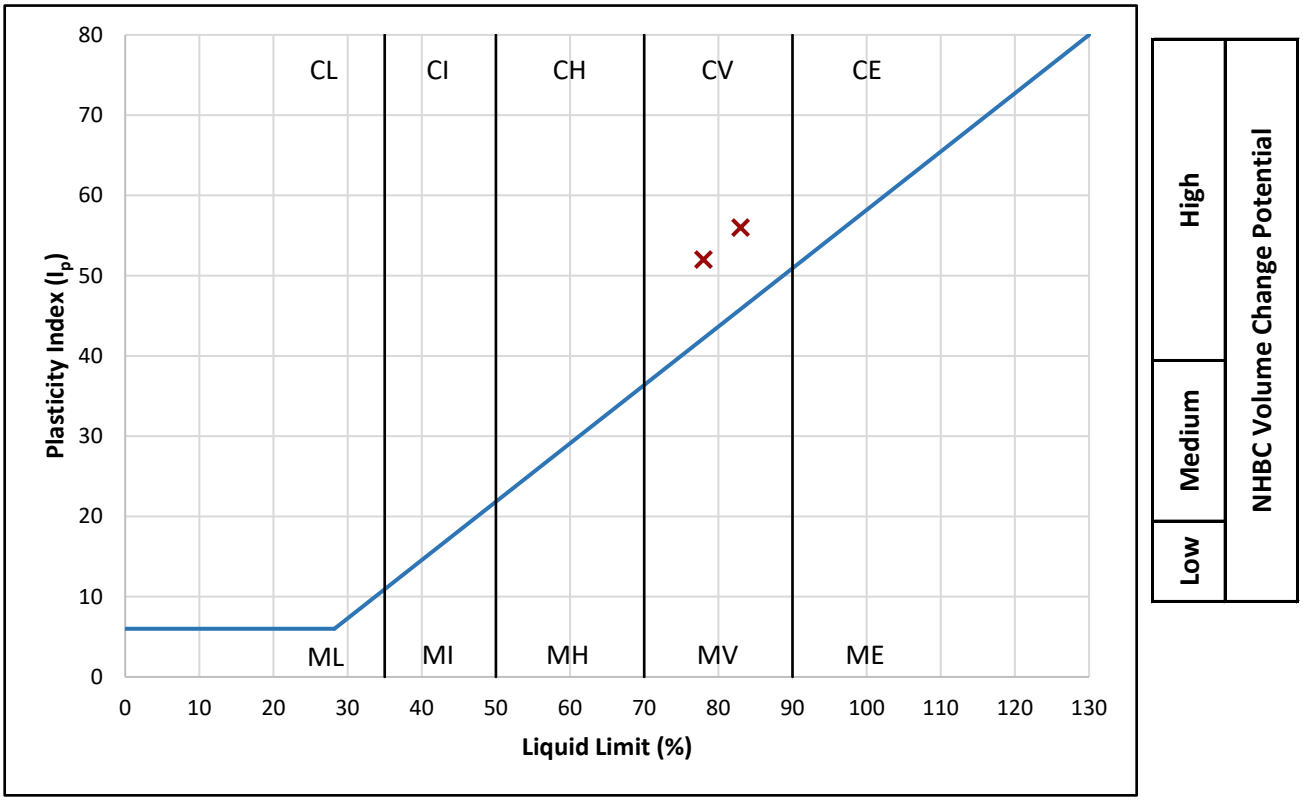
DATE ISSUED: 29/06/2021

0998

Contract	**174 Aylesham Drive**
Serial No.	**38923_1**

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

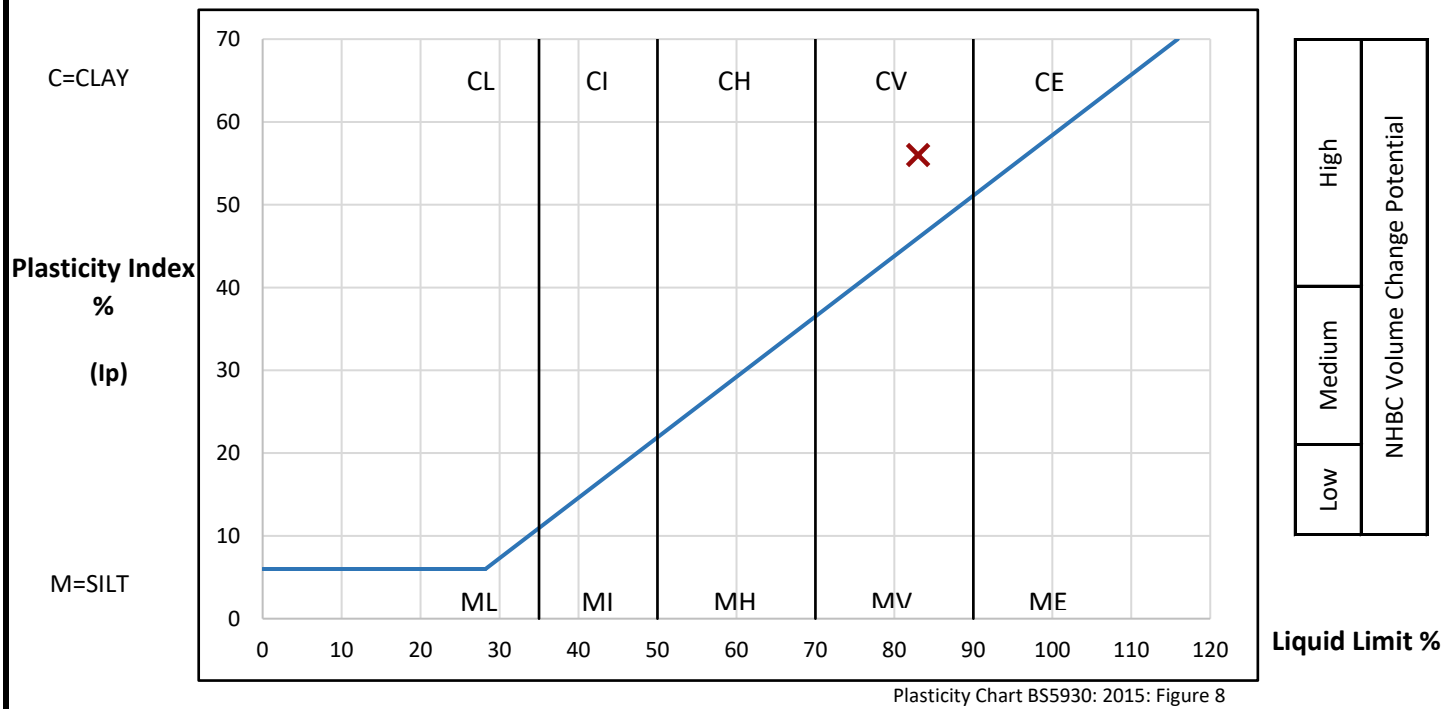
0998

Contract	**174 Aylesham Drive**
Serial No.	**38923_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
TP2	1.00	B	1	35.0	Firm yellowish brown CLAY with occasional bluish grey mottling, and recently active and decayed roots.	

PREPARATION			
Method of preparation	From natural	Liquid Limit	83 %
Sample retained 0.425mm sieve (Assumed)	0 %	Plastic Limit	27 %
Corrected water content for material passing 0.425mm		Plasticity Index	56 %
Sample retained 2mm sieve (Assumed)	0 %	Liquidity Index	0.14
Curing time 71 hrs	Clay Content Not analysed	NHBC Modified (I'p)	n/a
		Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

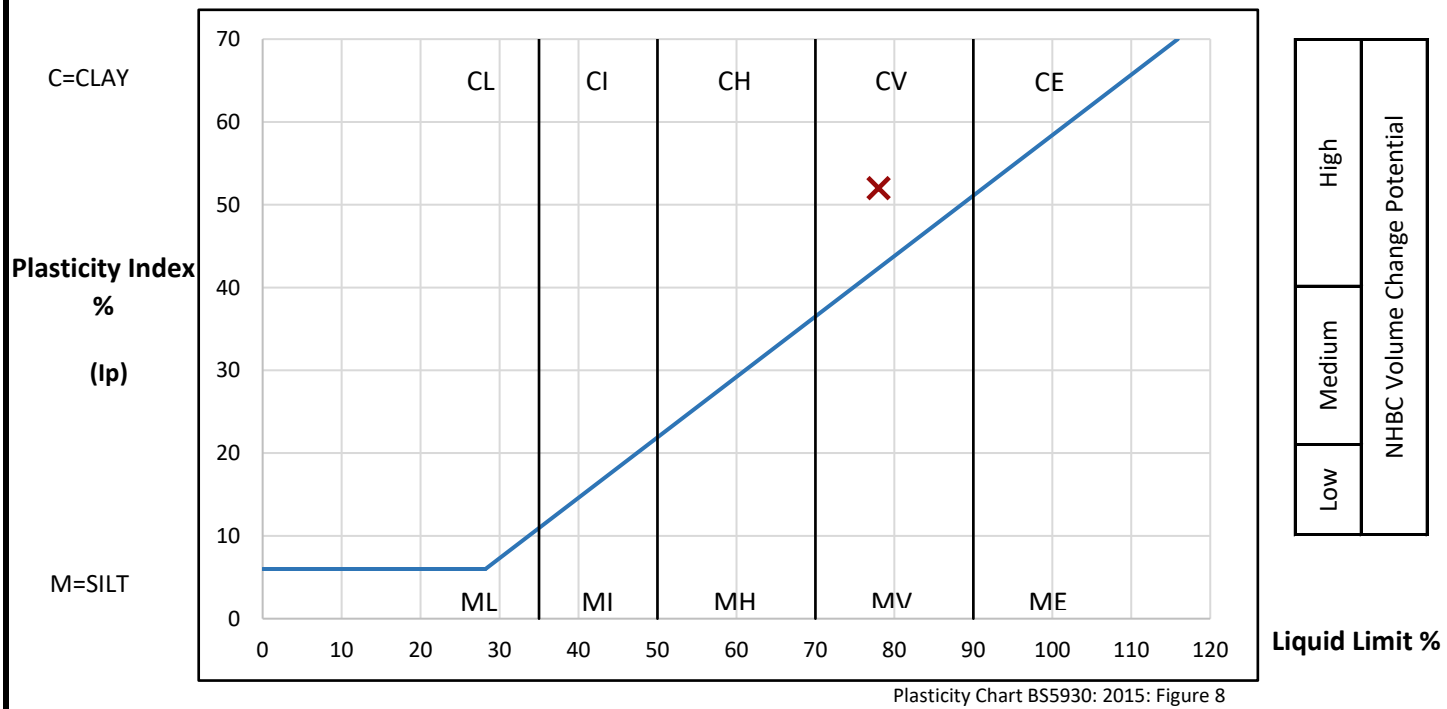
0998

Contract	**174 Aylesham Drive**
Serial No.	**38923_1**

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
TP2	1.50	B	2	29.3	Stiff yellowish brown CLAY with occasional bluish grey mottling, recently active and decayed roots, and selenite crystals.	Specimen dried at 80°C due to the presence of selenite.

PREPARATION				Liquid Limit	78 %
Method of preparation		From natural		Plastic Limit	26 %
Sample retained 0.425mm sieve	(Assumed)	0 %		Plasticity Index	52 %
Corrected water content for material passing 0.425mm				Liquidity Index	0.06
Sample retained 2mm sieve	(Assumed)	0 %		NHBC Modified (I'p)	n/a
Curing time	71 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Plasticity Chart BS5930: 2015: Figure 8

Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments:

TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD

DATE ISSUED: 29/06/2021

Contract:	**174 Aylesham Drive**
Serial No:	**38923_1**

DETERMINATION OF THE SULPHATE CONTENT AND pH OF SOIL AND GROUNDWATER

Borehole / Pit No.	Depth (m)	Sample		Conc. of Soluble SO3		Calc'd Conc. Of SO4 (g/L)	pH Value	% Sample Passing 2mm Sieve	Description	Remarks
		Type	Ref.	Water Soluble 2:1 (g/L)	Ground Water (g/L)					
TP2	1.00	B	1	0.22		0.26	6.5	100	Firm yellowish brown CLAY with occasional bluish grey mottling, and recently active and decayed roots.	
TP2	1.50	B	2	1.99		2.39	6.6	100	Stiff yellowish brown CLAY with occasional bluish grey mottling, recently active and decayed roots, and selenite crystals.	

Method of Preparation:	BS1377: Part 1: 2016: 8.5, BS1377: Part 3: 1990: 5.3 Soil/Water Extract, 5.4 Groundwater
Method of Test:	BS1377: Part 3: 1990: 5.5
Type of Sample Key:	U= Undisturbed, B= Bulk, D= Disturbed, J= Jar, W= Water, SPT= Split Spoon Sample, C= Core Cutter
Comments:	**Test not UKAS accredited**
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location, and origin of test specimen within original sample. Oven drying temperature if not 105-110C.

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Project

Project Name:	174 Aylsham Drive
Project Description:	WinCan Import in Miraculix WRc4 Standard
Project Number:	AJ/170521/02
Project Status:	Complete
Project Date:	17/05/2021

SB DRAIN SERVICES LTD
DRAIN AND RODENT PROOFING SPECIALIST

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Table of Contents

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Project Information

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

Client

Company: PRP Surveyors
Contact: Himanshu Patel
Street: Catherine House, Harborough Road
Town or City: Brixworth, Northampton
County: Northamptonshire
Post Code: NN6 9BX
Phone: 01604 889870
Email: himanshu.patel@prp.uk.com

Site

Street: 174 Aylsham Dr
Town or City: Ickenham
County: Uxbridge
Post Code: UB10 8UF

Contractor

Company: SB Drain Services LTD
Contact: Adam Jones
Street: Five Oaks
Town or City: Caddington, Luton
County: Bedfordshire
Post Code: LU1 4JD
Phone: 01582 968200
Mobile: 07732496550
Email: adam@sbdrainservices.co.uk

SB DRAIN SERVICES LTD
DRAIN AND RODENT PROOFING SPECIALIST

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Project Information

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

Project Notes

SUMMARY

I would like to take this opportunity to thank you for your instruction to carry out specific works at the above address. Our findings and recommendations are included in this report together with video clips of the survey.

SURVEY GUIDELINES;

The following report lists our findings. This is based on all the surveyed drainage runs at the above property be it a single run or a complete system.

The following report also includes a quotation for any remedial works should they be necessary.

This information is completely impartial and is designed to assist our clients in making an informed decision on any repair or maintenance works that may be required.

All distances measured are approximate and refer to the on-screen meterage, where applicable.
The clock reference system is used to indicate where observations are being made, relative to the absolute position of the invert (bottom) of the pipe. That is to say that the soffit (top) of the pipe is at 12 O'clock, the invert of the pipe is at 6 O'clock, the right-hand edge is at 3 O'clock and the left hand edge is at 9 O'clock. Where observations are made between points of the clock face, they are done so in a clockwise direction i.e. from 3 to 9 O'clock is the bottom half of the pipe.

Unless stated otherwise, all invert depths are measured at the downstream end of the inspection chamber or manhole, vertically from the bottom of the channel to the top of the manhole cover.

The conditions of the drains observed in this report are that of the day(s) of the survey only.

The branch inlets to inspection chambers are numerically identified in a clockwise direction, starting from, but not including, the lowest pipe (i.e. the outflow).

The 'master' copy of the video for this report will be kept at SB Drain Services Ltd for a period of 12 months from the date of the survey, and further copies may be available on request. After this time, the master copy may be destroyed.

SB Drain Services Ltd has made every concerted attempt to produce a qualitative and quantitative survey, outlining all the significant faults and where applicable, their appropriate remedial actions. However, we cannot accept any liability for any misinterpretation by third parties of the information contained herein.

SURVEY SCOPE;

We attended site as requested to carry out CCTV inspection works to check the condition of the drainage system and to map the drain lines.

MISCELLANEOUS OBSERVATIONS;

(See photos)

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Project Information

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

CONCLUSION;

Drainage on site is of a separate foul (red) and Surface (blue) water system. Foul water discharges to a public main sewer which runs at the back of the properties. Surface water drainage discharges to buried rubble filled soakaways. Soakaways appear to be working, with no evidence of water holding. Please refer to site drawing.

CCTV inspection upstream from F1 highlighted an internal manhole chamber. Survey was carried out through the chamber to a stack.

Pipework is of both vitrified clay and PVC material. The drainage is generally in good condition. However there is a hole within the pipework leading to the soakaway within the rear garden.

Please see below recommendations for your consideration.

RECOMMENDATIONS;

1. **RWP1:** excavate trench from base of RWP to the existing main run from S1 - Soakaway. Install new PVC pipework from RWP1 and make good connection to existing main run. Backfill trench and reinstate ground to match existing.
   Cost - £450.00 plus VAT

2. **RWP4 - Soakaway:** excavate trench to expose defective pipework. Remove defective section. Install new PVC pipe section and make good connection to existing pipework. Backfill trench and reinstate ground to match existing.
   Cost - £425.00 plus VAT

Due to the nature of working underground it is not possible to state conclusively that there will be no further damage discovered once the repair works commence. If this occurs, we will make all efforts to mitigate the costs and seek the authority through the proper channels before carrying out any additional repairs. If you would like to continue with the repairs, please ensure access to water and electricity are provided on site to complete the repair.

Kind Regards

Adam Jones

T: 01582 968200 **M**: 07732 496550 **W**: www.sbdrainservices.co.uk

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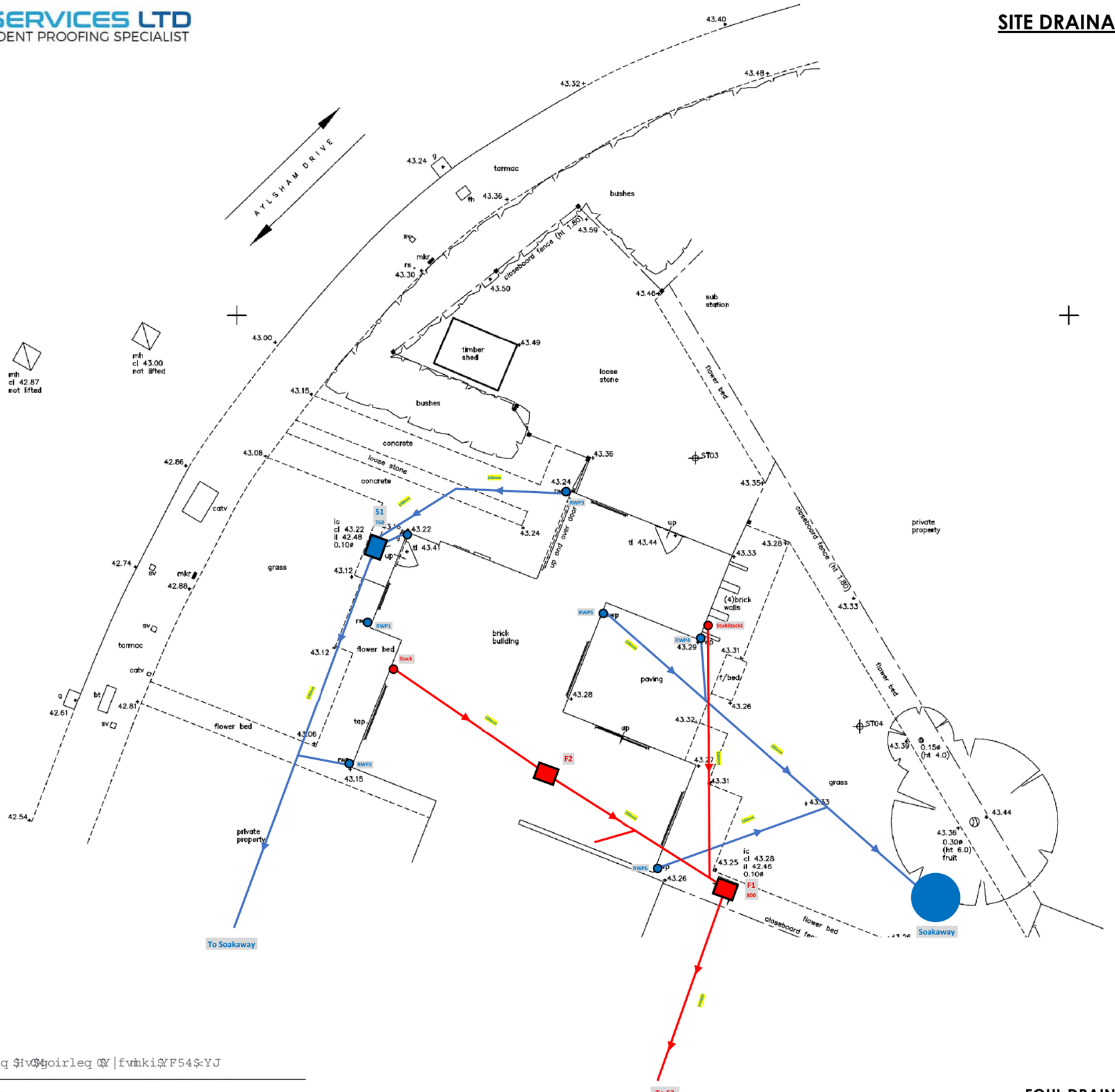
SITE DRAINAGE LAYOUT PLAN (NOT TO SCALE)



SITE ADDRESS: 5;8$E}pwleq $HvQMgoirleq Q$Y|fvmki$YF54$<YJ

DATE: 5;34936465

- FOUL DRAIN ROUTE
- STORM WATER
- FOUL/COMBINED MANHOLE
- STORM WATER MANHOLE

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Scoring Summary

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

Structural Defects

Grade 3: Best practice suggests consideration should be given to repairs in the medium term.

Grade 4: Best practice suggests consideration should be given to repairs to avoid a potential collapse.

Grade 5: Best practice suggests that this pipe is at risk of collapse at any time. Urgent consideration should be given to repairs to avoid total failure.

Section	PLR	Grade	Description
4	RWP4X	4	Hole in drain or sewer, at 10 o'clock

Service / Operational Condition

Grade 3: Best practice suggests consideration should be given to maintenance activities in the medium term.

Grade 4: Best practice suggests consideration should be given to maintenance activity to avoid potential blockages.

Grade 5: Best practice suggests that this pipe is at a high risk of backing up or causing flooding.

Section	PLR	Grade	Description
4	RWP4X	3	Settled deposits, fine, 20% % cross-sectional area loss

Abandoned Surveys

Section	PLR	Description
All inspections complete, none are abandoned.		

Information

These scoring summaries are based on the SRM grading from the WRc.

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Project Pictures

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

F1 - Overview

F1 - View of chamber

Gully1 - Overview

RWP1 - Discharges into ground. Not connected to below ground drainage.

RWP1 - Overview

RWP2 - Overview

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Project Pictures

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

RWP3 - Overview

RWP4 - Overview

RWP5 - Overview

RWP6 - Overview

S1 - Manhole cover and frame is loose.

S1 - Overview

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Project Pictures

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

S1 - View orf chamber

Surface water at rear discharges to buried soakaway

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Section Profile

Project Name	Project Number	Project Date
174 Aylsham Drive	AJ/170521/02	17/05/2021

Circular, 100 mm

Section	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
2	G1	S1 CNB	17/05/2021	174 Aylsham Drive	Vitrified clay pipe (i.e. all clayware)	0.91 m	0.91 m
3	S1	Soakaway	17/05/2021	174 Aylsham Drive	Vitrified clay pipe (i.e. all clayware)	16.91 m	16.91 m
4	RWP4	Soakaway	17/05/2021	174 Aylsham Drive	Polyvinyl chloride	8.89 m	8.89 m
5	StubStack1	Main Run	17/05/2021	174 Aylsham Drive	Polyvinyl chloride	8.28 m	8.28 m
6	F2	F1 CNA	17/05/2021	174 Aylsham Drive	Polyvinyl chloride	6.23 m	6.23 m
7	Stack	F2	17/05/2021	174 Aylsham Drive	Polyvinyl chloride	5.36 m	5.36 m
8	F1	F3	17/05/2021	174 Aylsham Drive	Polyvinyl chloride	16.45 m	16.45 m

Total: 7 Inspections x Circular 100 mm = 63.04 m Total Length and 63.04 m Inspected Length

Circular, 150 mm

Section	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
1	RWP	S1 CNA	17/05/2021	174 Aylsham Drive	Vitrified clay pipe (i.e. all clayware)	5.93 m	5.93 m

Total: 1 Inspection x Circular 150 mm = 5.93 m Total Length and 5.93 m Inspected Length

Total: 8 Inspections = 68.97 m Total Length and 68.97 m Inspected Length

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Section Inspection - 17/05/2021 - RWPX

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	17/05/21	11:10	01	No Rain Or Snow	Yes	RWPX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

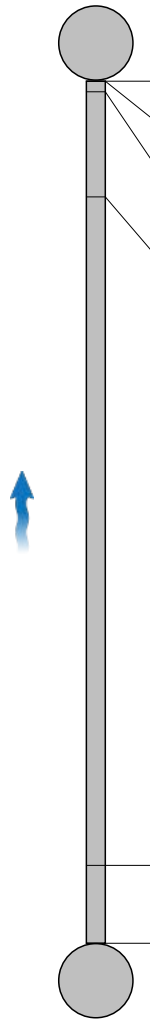
Town or Village:	Uxbridge	**Inspection Direction:**	Upstream	**Upstream Node:**	RWP
Road:	174 Aylsham Drive	**Inspected Length:**	5.93 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	5.93 m	**Downstream Node:**	S1 CNA
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.760 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Year Constructed:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:52

Depth: 0.76 m
S1 CNA



RWP
Depth: 0.00 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number: S1 CNA	00:00:08		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:10		
0.08	LR	Line deviates right	00:00:16	20210517-111107-snap0000.jpg	
0.80	GP	General photograph taken at this point	00:00:25	20210517-111107-snap0001.jpg	
5.40	LU	Line deviates up	00:00:48	20210517-111107-snap0002.jpg	
5.93	BRF	Finish node type, major connection without manhole, reference number: RWP	00:00:58	20210517-111107-snap0003.jpg	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - RWPX

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Upstream	RWPX	01	AJ/170521/02

20210517-111107-snap0000.jpg, 00:00:16, 0.08 m
Line deviates right

20210517-111107-snap0001.jpg, 00:00:25, 0.80 m
General photograph taken at this point

20210517-111107-snap0002.jpg, 00:00:48, 5.40 m
Line deviates up

20210517-111107-snap0003.jpg, 00:00:58, 5.93 m
Finish node type, major connection without manhole, reference number: RWP

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Section Inspection - 17/05/2021 - G1X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	2	17/05/21	11:12	01	No Rain Or Snow	Yes	G1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

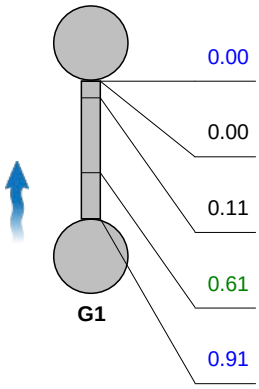
Town or Village:	Uxbridge	**Inspection Direction:**	Upstream	**Upstream Node:**	G1
Road:	174 Aylsham Drive	**Inspected Length:**	0.91 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	0.91 m	**Downstream Node:**	S1 CNB
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.740 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Depth: 0.74 m
S1 CNB



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number: S1 CNB	00:00:01		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:01		
0.11	GP	General photograph taken at this point	00:00:07	20210517-111300-snap0000.jpg	
0.61	LU	Line deviates up	00:00:26	20210517-111300-snap0001.jpg	
0.91	BRF	Finish node type, major connection without manhole, reference number: G1	00:00:40	20210517-111300-snap0002.jpg	

Depth: 0.00 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - G1X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Upstream	G1X	01	AJ/170521/02

20210517-111300-snap0000.jpg, 00:00:07, 0.11 m
General photograph taken at this point

20210517-111300-snap0001.jpg, 00:00:26, 0.61 m
Line deviates up

20210517-111300-snap0002.jpg, 00:00:40, 0.91 m
Finish node type, major connection without manhole, reference number: G1

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Section Inspection - 17/05/2021 - S1X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	3	17/05/21	11:14	01	No Rain Or Snow	Yes	S1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

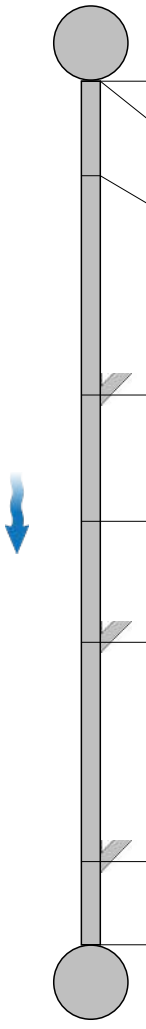
Town or Village:	Uxbridge	**Inspection Direction:**	Downstream	**Upstream Node:**	S1
Road:	174 Aylsham Drive	**Inspected Length:**	16.91 m	**Upstream Pipe Depth:**	0.740 m
Location:		**Total Length:**	16.91 m	**Downstream Node:**	SOAKAWAY
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.000 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:148

Depth: 0.74 m
S1



Soakaway
Depth: 0.00 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number: S1	00:00:00		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:01		
1.86	GP	General photograph taken at this point	00:00:11	20210517-111415-snap0000.jpg	
6.16	JN	Junction, at 09 o'clock, diameter: 100 mm: RWP	00:00:26	20210517-111415-snap0001.jpg	
8.63	GP	General photograph taken at this point	00:00:57	20210517-111415-snap0002.jpg	
10.98	JN	Junction, at 09 o'clock, diameter: 100 mm	00:01:07	20210517-111415-snap0003.jpg	
15.28	JN	Junction, at 09 o'clock, diameter: 100 mm	00:01:25	20210517-111415-snap0004.jpg	
16.91	SKF	Finish node type, soakaway, reference number: Soakaway	00:02:37	20210517-111415-snap0005.jpg	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - S1X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	S1X	01	AJ/170521/02

20210517-111415-snap0000.jpg, 00:00:11, 1.86 m
General photograph taken at this point

20210517-111415-snap0001.jpg, 00:00:26, 6.16 m
Junction, at 09 o'clock, diameter: 100 mm, RWP

20210517-111415-snap0002.jpg, 00:00:57, 8.63 m
General photograph taken at this point

20210517-111415-snap0003.jpg, 00:01:07, 10.98 m
Junction, at 09 o'clock, diameter: 100 mm

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Section Pictures - 17/05/2021 - S1X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	S1X	01	AJ/170521/02

20210517-111415-snap0004.jpg, 00:01:25, 15.28 m
Junction, at 09 o'clock, diameter: 100 mm

20210517-111415-snap0005.jpg, 00:02:37, 16.91 m
Finish node type, soakaway, reference number: Soakaway

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Section Inspection - 17/05/2021 - RWP4X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	4	17/05/21	11:28	01	No Rain Or Snow	Yes	RWP4X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Uxbridge	**Inspection Direction:**	Downstream	**Upstream Node:**	RWP4
Road:	174 Aylsham Drive	**Inspected Length:**	8.89 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	8.89 m	**Downstream Node:**	SOAKAWAY
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.000 m

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Polyvinyl chloride
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:78

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	BR	Start node type, major connection without manhole, reference number: RWP4	00:00:02		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:04		
1.03	LL	Line deviates left	00:00:14	20210517-112820-snap0000.jpg	
1.60	REM	General remark: Survey through main run	00:00:21	20210517-112820-snap0001.jpg	
2.24	JN	Junction, at 03 o'clock, diameter: 100 mm	00:00:46	20210517-112820-snap0002.jpg	
4.22	GP	General photograph taken at this point	00:00:57	20210517-112820-snap0003.jpg	
7.18	H	Hole in drain or sewer, at 10 o'clock	00:01:08	20210517-112820-snap0004.jpg	4
7.18	DES	Settled deposits, fine, 20% % cross-sectional area loss	00:01:14		3
7.26	D	Deformed drain or sewer, 10% %	00:01:20		2
8.89	SKF	Finish node type, soakaway, reference number: Soakaway	00:01:44		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	80.0	11.2	100.0	4.0	1	2.0	0.2	2.0	3.0

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Section Pictures - 17/05/2021 - RWP4X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	RWP4X	01	AJ/170521/02

20210517-112820-snap0000.jpg, 00:00:14, 1.03 m
Line deviates left

20210517-112820-snap0001.jpg, 00:00:21, 1.60 m
General remark, Survey through main run

20210517-112820-snap0002.jpg, 00:00:46, 2.24 m
Junction, at 03 o'clock, diameter: 100 mm

20210517-112820-snap0003.jpg, 00:00:57, 4.22 m
General photograph taken at this point

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Section Pictures - 17/05/2021 - RWP4X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	RWP4X	01	AJ/170521/02

20210517-112820-snap0004.jpg, 00:01:08, 7.18 m
Hole in drain or sewer, at 10 o'clock

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Section Inspection - 17/05/2021 - StubStack1X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	5	17/05/21	11:30	01	No Rain Or Snow	Yes	STUBSTACK1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Uxbridge	**Inspection Direction:**	Downstream	**Upstream Node:**	STUBSTACK1
Road:	174 Aylsham Drive	**Inspected Length:**	8.28 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	8.28 m	**Downstream Node:**	MAIN RUN
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Polyvinyl chloride
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:73

Depth: 0.00 m
StubStack1

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	RE	Start node type, rodding eye, reference number: StubStack1	00:00:01		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:01		
0.08	LD	Line deviates down	00:00:10		
0.91	REM	General remark: Line levels out	00:00:21		
1.60	LR	Line deviates right	00:00:31	20210517-113048-snap0000.jpg	
2.93	GP	General photograph taken at this point	00:00:38	20210517-113048-snap0001.jpg	
4.37	LR	Line deviates right	00:00:45	20210517-113048-snap0002.jpg	
7.87	LL	Line deviates left	00:00:59		
8.28	BRF	Finish node type, major connection without manhole, reference number: Main Run	00:01:35	20210517-113048-snap0003.jpg	

Main Run
Depth: 0.00 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - StubStack1X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
5	Downstream	STUBSTACK1X	01	AJ/170521/02

20210517-113048-snap0000.jpg, 00:00:31, 1.60 m
Line deviates right

20210517-113048-snap0001.jpg, 00:00:38, 2.93 m
General photograph taken at this point

20210517-113048-snap0002.jpg, 00:00:45, 4.37 m
Line deviates right

20210517-113048-snap0003.jpg, 00:01:35, 8.28 m
Finish node type, major connection without manhole, reference number: Main Run

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Section Inspection - 17/05/2021 - F2X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	6	17/05/21	11:40	01	No Rain Or Snow	Yes	F2X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

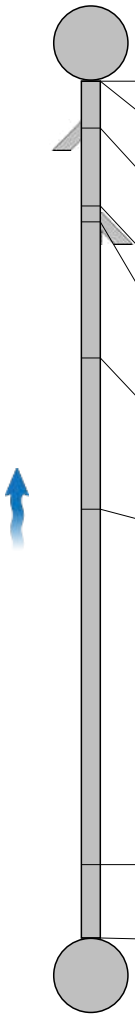
Town or Village:	Uxbridge	**Inspection Direction:**	Upstream	**Upstream Node:**	F2
Road:	174 Aylsham Drive	**Inspected Length:**	6.23 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	6.23 m	**Downstream Node:**	F1 CNA
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.800 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Polyvinyl chloride
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:55

Depth: 0.80 m
F1 CNA



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number: F1 CNA	00:00:00		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:01		
0.34	JN	Junction, at 03 o'clock, diameter: 100 mm	00:00:14	20210517-114036-snap0000.jpg	
0.91	LR	Line deviates right	00:00:32		
1.03	JN	Junction, at 09 o'clock, diameter: 100 mm	00:00:36	20210517-114036-snap0001.jpg	
2.01	LL	Line deviates left	00:00:47		
3.12	GP	General photograph taken at this point	00:00:55	20210517-114036-snap0002.jpg	
5.70	LL	Line deviates left	00:01:04	20210517-114036-snap0003.jpg	
6.23	MHF	Finish node type, manhole, reference number: F2	00:01:13	20210517-114036-snap0004.jpg	

F2
Depth: 0.00 m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

SB Drain Services LTD
Five Oaks, Caddington, Luton
Tel. 01582 968200
adam@sbdrainservices.co.uk

Section Pictures - 17/05/2021 - F2X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Upstream	F2X	01	AJ/170521/02

20210517-114036-snap0000.jpg, 00:00:14, 0.34 m
Junction, at 03 o'clock, diameter: 100 mm

20210517-114036-snap0001.jpg, 00:00:36, 1.03 m
Junction, at 09 o'clock, diameter: 100 mm

20210517-114036-snap0002.jpg, 00:00:55, 3.12 m
General photograph taken at this point

20210517-114036-snap0003.jpg, 00:01:04, 5.70 m
Line deviates left

SB DRAIN SERVICES LTD
DRAIN AND RODENT PROOFING SPECIALIST

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Section Pictures - 17/05/2021 - F2X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Upstream	F2X	01	AJ/170521/02

20210517-114036-snap0004.jpg, 00:01:13, 6.23 m
Finish node type, manhole, reference number: F2

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Section Inspection - 17/05/2021 - StackX

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	7	17/05/21	11:45	01	No Rain Or Snow	Yes	STACKX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

Town or Village:	Uxbridge	**Inspection Direction:**	Upstream	**Upstream Node:**	STACK
Road:	174 Aylsham Drive	**Inspected Length:**	5.36 m	**Upstream Pipe Depth:**	0.000 m
Location:		**Total Length:**	5.36 m	**Downstream Node:**	F2
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Polyvinyl chloride
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole	00:00:00		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:00		
0.15	LR	Line deviates right	00:00:04		
1.48	GP	General photograph taken at this point	00:00:21	20210517-114529-snap0000.jpg	
4.83	LU	Line deviates up	00:00:32	20210517-114529-snap0001.jpg	
5.36	BRF	Finish node type, major connection without manhole, reference number: Stack	00:00:39	20210517-114529-snap0002.jpg	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - StackX

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
7	Upstream	STACKX	01	AJ/170521/02

20210517-114529-snap0000.jpg, 00:00:21, 1.48 m
General photograph taken at this point

20210517-114529-snap0001.jpg, 00:00:32, 4.83 m
Line deviates up

20210517-114529-snap0002.jpg, 00:00:39, 5.36 m
Finish node type, major connection without manhole, reference number: Stack

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Section Inspection - 17/05/2021 - F1X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	8	17/05/21	11:46	01	No Rain Or Snow	Yes	F1X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Adam Jones	Not Specified	Not Specified	Not Specified	Not Specified	Not Specified

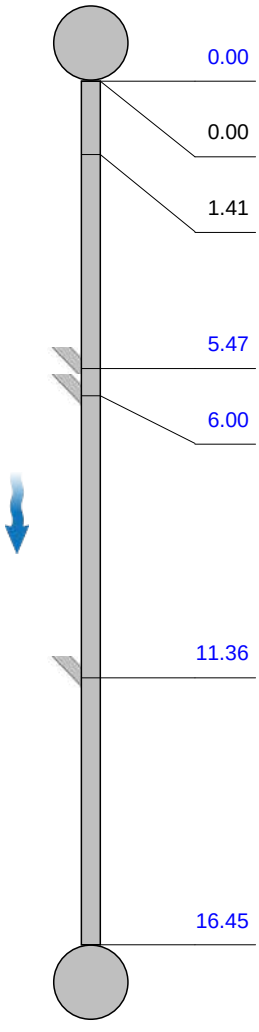
Town or Village:	Uxbridge	**Inspection Direction:**	Downstream	**Upstream Node:**	F1
Road:	174 Aylsham Drive	**Inspected Length:**	16.45 m	**Upstream Pipe Depth:**	0.800 m
Location:		**Total Length:**	16.45 m	**Downstream Node:**	F3
Surface Type:		**Joint Length:**	0.00 m	**Downstream Pipe Depth:**	0.000 m

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Year Constructed:		**Pipe Material:**	Polyvinyl chloride
Flow Control:	No flow control	**Lining Type:**	No Lining
Inspection Purpose:	Sample survey to determine asset condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:144

Depth: 0.80 m
F1



F3
Depth: 0.00 m

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node type, manhole, reference number: F1	00:00:00		
0.00	WL	Water level, 5% % of the vertical dimension	00:00:00		
1.41	GP	General photograph taken at this point	00:00:08	20210517-114655-snap0000.jpg	
5.47	JN	Junction, at 03 o'clock, diameter: 100 mm	00:00:19	20210517-114655-snap0001.jpg	
6.00	JN	Junction, at 03 o'clock, diameter: 100 mm	00:00:25	20210517-114655-snap0002.jpg	
11.36	JN	Junction, at 03 o'clock, diameter: 100 mm	00:00:41		
16.45	MHF	Finish node type, manhole, reference number: F3	00:01:08	20210517-114655-snap0003.jpg	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 17/05/2021 - F1X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Downstream	F1X	01	AJ/170521/02

20210517-114655-snap0000.jpg, 00:00:08, 1.41 m
General photograph taken at this point

20210517-114655-snap0001.jpg, 00:00:19, 5.47 m
Junction, at 03 o'clock, diameter: 100 mm

20210517-114655-snap0002.jpg, 00:00:25, 6.00 m
Junction, at 03 o'clock, diameter: 100 mm

20210517-114655-snap0003.jpg, 00:01:08, 16.45 m
Finish node type, manhole, reference number: F3

Flood map for planning

Your reference	Location (easting/northing)	Created
<Unspecified>	**508586/186567**	**25 Oct 2023 10:09**

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 that 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.

Environment Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
508586/186567

Scale
1:2500

Created
25 Oct 2023 10:09

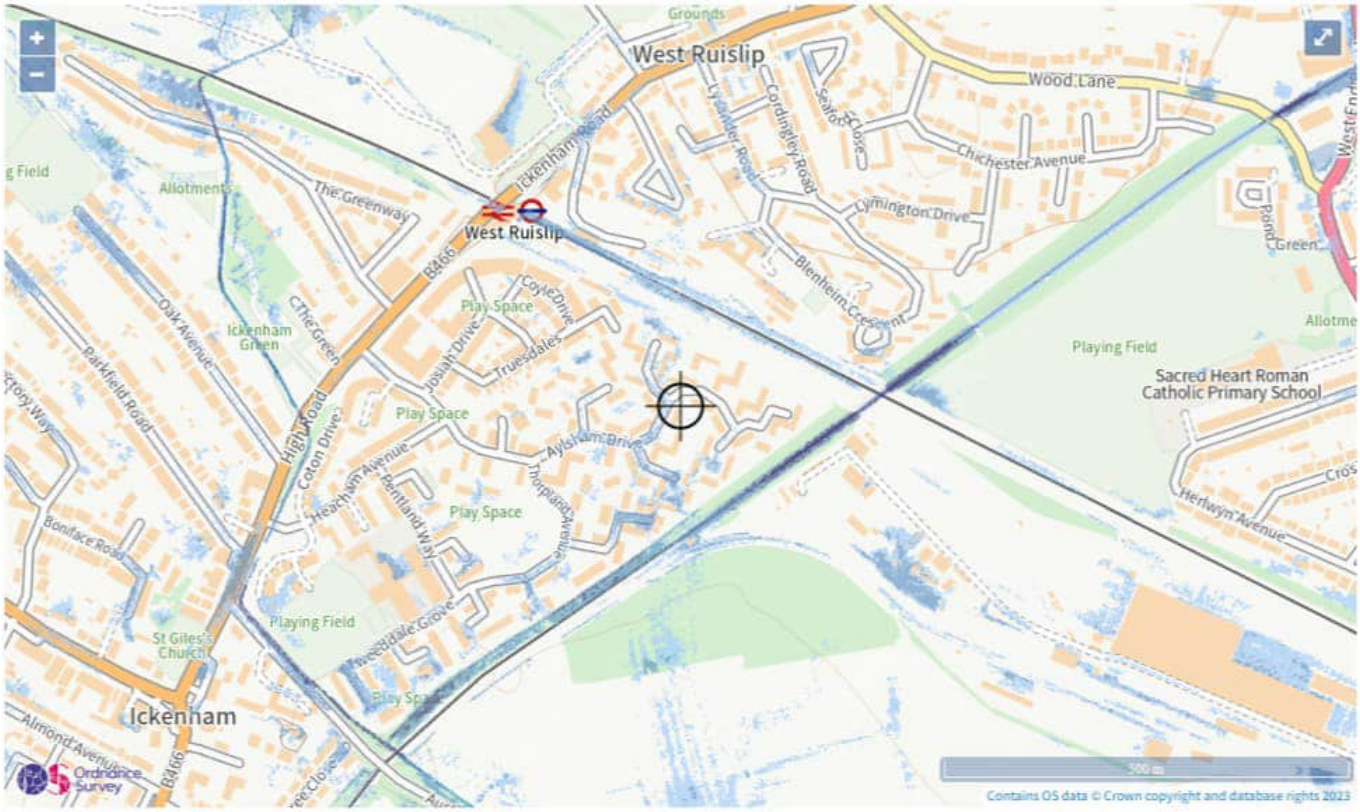
- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

Surface water flood risk: water velocity in a low risk scenario

Flood velocity (metres/second)

Over 0.25 m/s | Less than 0.25 m/s | Direction of water flow | Location you selected



Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

Over 900mm | 300 to 900mm | Below 300mm | Location you selected

AYLSHAM DRIVE

existing hedge to be retained

Parking proposed house

Cycle store

Bin store

Sub-station

footprint of approved extension 5924/APP/2019/2972

extent of existing garage

Proposed House

Parking existing house

Back Garden
area 52 sqm

existing 1.8 cb fence

Existing Dwelling

Back Garden
area 71 sqm

footprint of existing extension

Access to house via garage

Existing garage
Parking space for existing house & bike store

N

PROPOSED SITE PLAN
Scale: 1:100

0 5 10 M

Bin Store Example

Notes:

No.	Date:	Revision Notes:	Initials:
A	20/03/2020	Minor Amendments	FT

dp architects
design | planning | architecture

RIBA Chartered Practice CIAT

DP Architects
The Old Brewery Tap, 3 Shriburn Street, Watlington, Oxfordshire, OX49 5BU
Tel: 01491 613 066 Email: mail@dparchitects.co.uk

Client

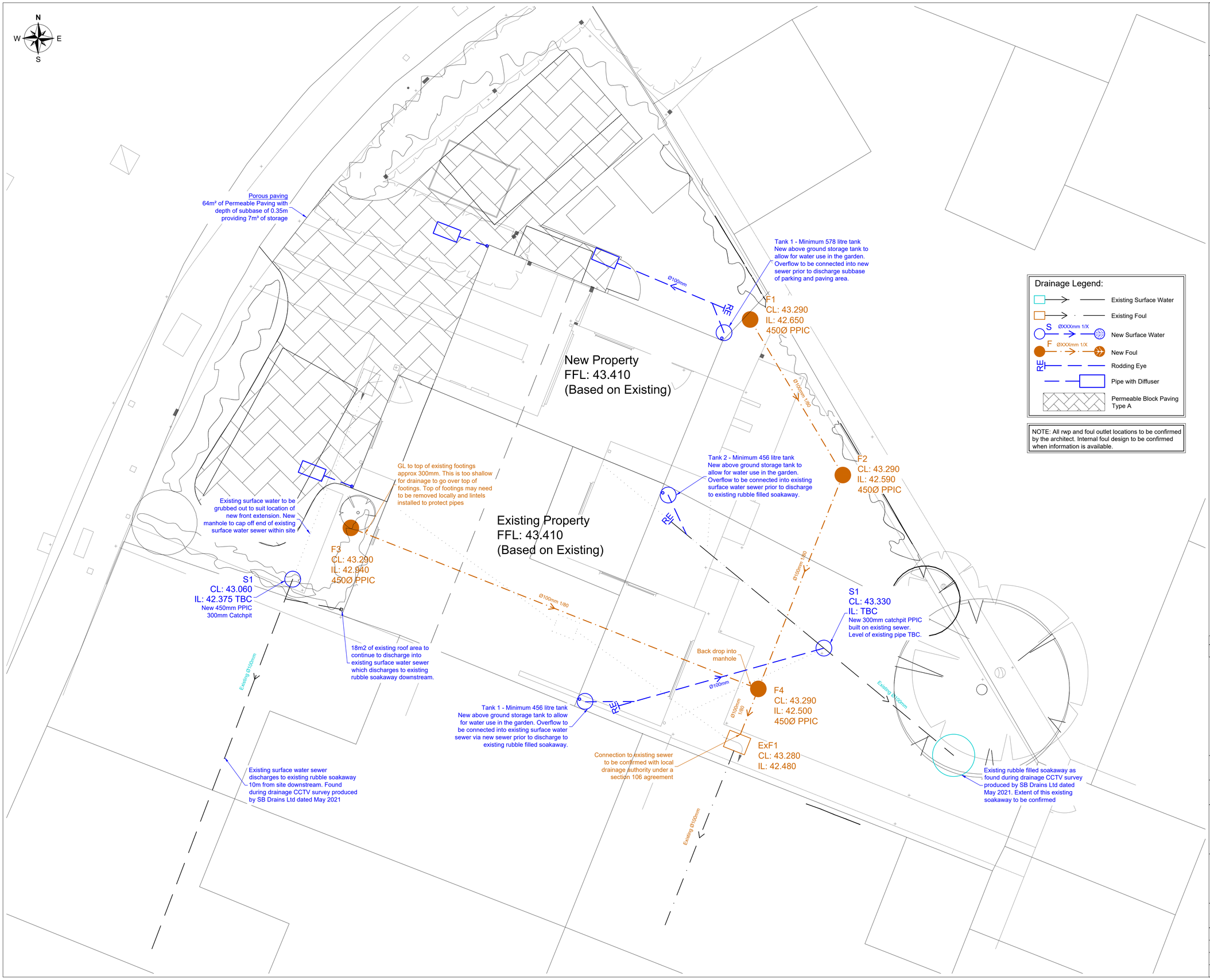
Project

174 AYLSHAM DRIVE
ICKENHAM
UB10 8UF

Drawing

PROPOSED SITE PLAN
1 BED HOUSE AND EXTENSION OF EXISTING DWELLING

Scale	Dwg No.	Revision
1:100 @ A2	**20 BGAR SP04**	**A**
Drawn: FT		
Date: 25.02.20	Status: PLANNING	



Drainage Legend:

- Existing Surface Water
- Existing Foul
- S ØXXXmm 1/X — New Surface Water
- F ØXXXmm 1/X — New Foul
- RE — Rodding Eye
- Pipe with Diffuser
- Permeable Block Paving Type A

NOTE: All rwp and foul outlet locations to be confirmed by the architect. Internal foul design to be confirmed when information is available.

SAFETY,HEALTH & ENVIRONMENTAL HAZARD INFORMATION BOX.

The hazards noted below are in addition to the normal hazards and risks faced by a competent contractor when dealing with the types of works detailed on this drawing.

CONSTRUCTION RISKS:

DEMOLITION RISKS:

MAINTENANCE / CLEANING RISKS:

Notes:

1. DO NOT SCALE FROM THIS DRAWING.
2. All dimensions are in millimetres Unless Noted Otherwise (u.n.o.)
3. Drawing is to be read in conjunction with all relevant architect's drawings. Any inconsistencies should be reported to PRP immediately.
4. All levels and dimensions are to be checked on site before any work commences.
5. For more information see PRP drawings:
   63294 - 100series - Drainage and External Works
   63294 - 200series - Foundations
   63294 - 300series - Superstructure
6. The Health and Safety at Work act is to be complied with at all times. Attention is drawn to the wearing of hard hats, safety boots, reflective clothing, and the use of any other required safety equipment.

Drainage:

1. The position, line, level and diameter of all existing drainage apparatus should be confirmed on site prior to the commencement of the works. Any discrepancies should be reported to PRP immediately.
2. The connection of foul and surface water drainage to the existing public sewer system shall be subject to the approval of the water authority
3. For positions of all rainwater pipes & foul outlets refer to Architect's drawings.
4. Drainage designed in accordance with the Sewerage Sector Guidance, Design and Construction Guidance ("the Code") Approved Version 2.0, 10 March 2020.
5. All joints between precast manhole components shall have a minimum uncompressed thickness of 10mm of proprietary bitumen or resin mastic sealant.
6. Chambers & manholes with outgoing pipes of greater than Ø600mm shall be fitted with removable stainless steel (grade 316) safety chains or polypropylene rope.
7. Storm & foul branch connections are to be laid at gradients of between 1:10 & 1:80
8. All in-situ concrete shall be minimum grade GEN3.
9. Precast concrete cover & reducing slabs to be heavy duty reinforced concrete to BS 5911.
10. Rising mains shall be black MDPE SDR11 as WI 4-32-03 & joints & fittings to be in accordance with WI 4-32-04. Other approved pipe materials to be in accordance with their relevant BS.
11. Manhole covers & frames shall be manufactured in cast iron or ductile iron & shall comply with requirements of BS EN 124 & shall be kite marked or equivalent.
12. Where there is no intermediate manhole between the start of a surface water pipe run and the soakaway the gradient of the run shall be not less than 1 : 60.
13. All completed work shall be suitably protected from damage by construction work. Damaged drainage will not be accepted. It is recommended that no heavy loading or underground work is permitted above or near unprotected drainage, and that dumpers, trucks, fork lifts or other heavy vehicles are not driven along or near pipe runs.
14. Inspection chambers, soakaways and flow control units are to be installed strictly in accordance with manufacturer guidance and instructions

Rev	Date	Description	By / Chk
P1	25/10/2023	Issued for comments	GF / HP

PRP
consulting engineers & surveyors

Catherine House
Old Harborough Road
Brixworth, NN6 9BX

Telephone: 01604 889 870
northampton@prp.uk.com
www.prp.uk.com

**Leicester
Northampton
London**

engineering excellence | creating advantage

Client:
Savoys Developments Limited

Architect:
ABAY Architecture

Project:
174 Aylesham Drive, Ickenham
UB10 8UF

Title:
Drainage Layout

Status:
PRELIMINARY

Engineer:	GF	Date:	Oct 2023
Drawn:	GF	Scales @ A1:	1:50
Checked:	HP		
Project No:	63942	Drg No: 101	Rev: P1

PRP consulting engineers & surveyors PRP Northampton Catherine House Harborough Road Brixworth Northampton NN6 9BX	Project 147 Aylsham Drive				Job Ref. 63942	
	Section Above Ground Water Tank Calculations				Sheet no./rev. 1	
	Calc. by GF	Date 24/10/2023	Chk'd by	Date	App'd by	Date

Above Ground Water Tank Calculations

Roof area (m2) x Drainage coefficient x filter efficiency x annual rainfall x 0.05 = tank size.

Drainage coefficient = 0.8 (80%)
filter efficiency = 0.95 (95%)
annual rainfall = 800mm (average UK)

Tank 1

15x0.8x0.95x800x0.05 = 456 litres

Tank 2

15x0.8x0.95x800x0.05 = 456 litres

Tank 3

19x0.8x0.95x800x0.05 = 578 litres

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1414 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	42.612	0.092	0.0	1.8	O K
30 min Summer	42.645	0.125	0.0	2.4	O K
60 min Summer	42.678	0.158	0.0	3.0	O K
120 min Summer	42.710	0.190	0.0	3.6	Flood Risk
180 min Summer	42.726	0.206	0.0	4.0	Flood Risk
240 min Summer	42.736	0.216	0.0	4.2	Flood Risk
360 min Summer	42.749	0.229	0.0	4.4	Flood Risk
480 min Summer	42.756	0.236	0.0	4.5	Flood Risk
600 min Summer	42.760	0.240	0.0	4.6	Flood Risk
720 min Summer	42.762	0.242	0.0	4.6	Flood Risk
960 min Summer	42.762	0.242	0.0	4.6	Flood Risk
1440 min Summer	42.755	0.235	0.0	4.5	Flood Risk
2160 min Summer	42.745	0.225	0.0	4.3	Flood Risk
2880 min Summer	42.733	0.213	0.0	4.1	Flood Risk
4320 min Summer	42.708	0.188	0.0	3.6	Flood Risk
5760 min Summer	42.685	0.165	0.0	3.2	O K
7200 min Summer	42.663	0.143	0.0	2.7	O K
8640 min Summer	42.644	0.124	0.0	2.4	O K
10080 min Summer	42.627	0.107	0.0	2.0	O K
15 min Winter	42.626	0.106	0.0	2.0	O K
30 min Winter	42.662	0.142	0.0	2.7	O K
60 min Winter	42.699	0.179	0.0	3.4	O K
120 min Winter	42.735	0.215	0.0	4.1	Flood Risk
180 min Winter	42.754	0.234	0.0	4.5	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.117	0.0	19
30 min Summer	92.164	0.0	34
60 min Summer	57.296	0.0	64
120 min Summer	34.403	0.0	124
180 min Summer	25.188	0.0	184
240 min Summer	20.071	0.0	242
360 min Summer	14.541	0.0	362
480 min Summer	11.566	0.0	482
600 min Summer	9.677	0.0	602
720 min Summer	8.362	0.0	720
960 min Summer	6.636	0.0	960
1440 min Summer	4.783	0.0	1194
2160 min Summer	3.442	0.0	1556
2880 min Summer	2.723	0.0	1960
4320 min Summer	1.955	0.0	2768
5760 min Summer	1.543	0.0	3568
7200 min Summer	1.284	0.0	4328
8640 min Summer	1.105	0.0	5096
10080 min Summer	0.973	0.0	5752
15 min Winter	141.117	0.0	19
30 min Winter	92.164	0.0	33
60 min Winter	57.296	0.0	64
120 min Winter	34.403	0.0	122
180 min Winter	25.188	0.0	180

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	42.766	0.246	0.0	4.7	Flood Risk
360 min Winter	42.781	0.261	0.0	5.0	Flood Risk
480 min Winter	42.790	0.270	0.0	5.2	Flood Risk
600 min Winter	42.795	0.275	0.0	5.3	Flood Risk
720 min Winter	42.798	0.278	0.0	5.3	Flood Risk
960 min Winter	42.800	0.280	0.0	5.4	Flood Risk
1440 min Winter	42.793	0.273	0.0	5.3	Flood Risk
2160 min Winter	42.778	0.258	0.0	4.9	Flood Risk
2880 min Winter	42.761	0.241	0.0	4.6	Flood Risk
4320 min Winter	42.725	0.205	0.0	3.9	Flood Risk
5760 min Winter	42.690	0.170	0.0	3.3	O K
7200 min Winter	42.658	0.138	0.0	2.6	O K
8640 min Winter	42.629	0.109	0.0	2.1	O K
10080 min Winter	42.605	0.085	0.0	1.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
240 min Winter	20.071	0.0	240
360 min Winter	14.541	0.0	356
480 min Winter	11.566	0.0	472
600 min Winter	9.677	0.0	588
720 min Winter	8.362	0.0	702
960 min Winter	6.636	0.0	926
1440 min Winter	4.783	0.0	1354
2160 min Winter	3.442	0.0	1684
2880 min Winter	2.723	0.0	2132
4320 min Winter	1.955	0.0	3024
5760 min Winter	1.543	0.0	3856
7200 min Winter	1.284	0.0	4616
8640 min Winter	1.105	0.0	5360
10080 min Winter	0.973	0.0	5960

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.200	Shortest Storm (mins)	15
Ratio R	0.412	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.008

Time (mins) From:	To:	Area (ha)
0	4	0.008

Model Details

Storage is Online Cover Level (m) 43.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.4
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	17.8	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	42.520	Cap Volume Depth (m)	0.350

2020

GARANTIA®

Rainwater Harvesting in Style

MODERN *line*

EXCLUSIVE *line*

CLASSIC *line*

BASIC *line*

20 YEARS

There’s a stylish tank to suit all tastes

Make some serious savings

Mains water is a valuable commodity – much too precious to be used for watering plants. Rainwater Harvesting is a perfectly available alternative. GARANTIA offers a range of stylish Rainwater Harvesting tanks for your garden which are both kind on your purse and extremely pleasing to the eye.

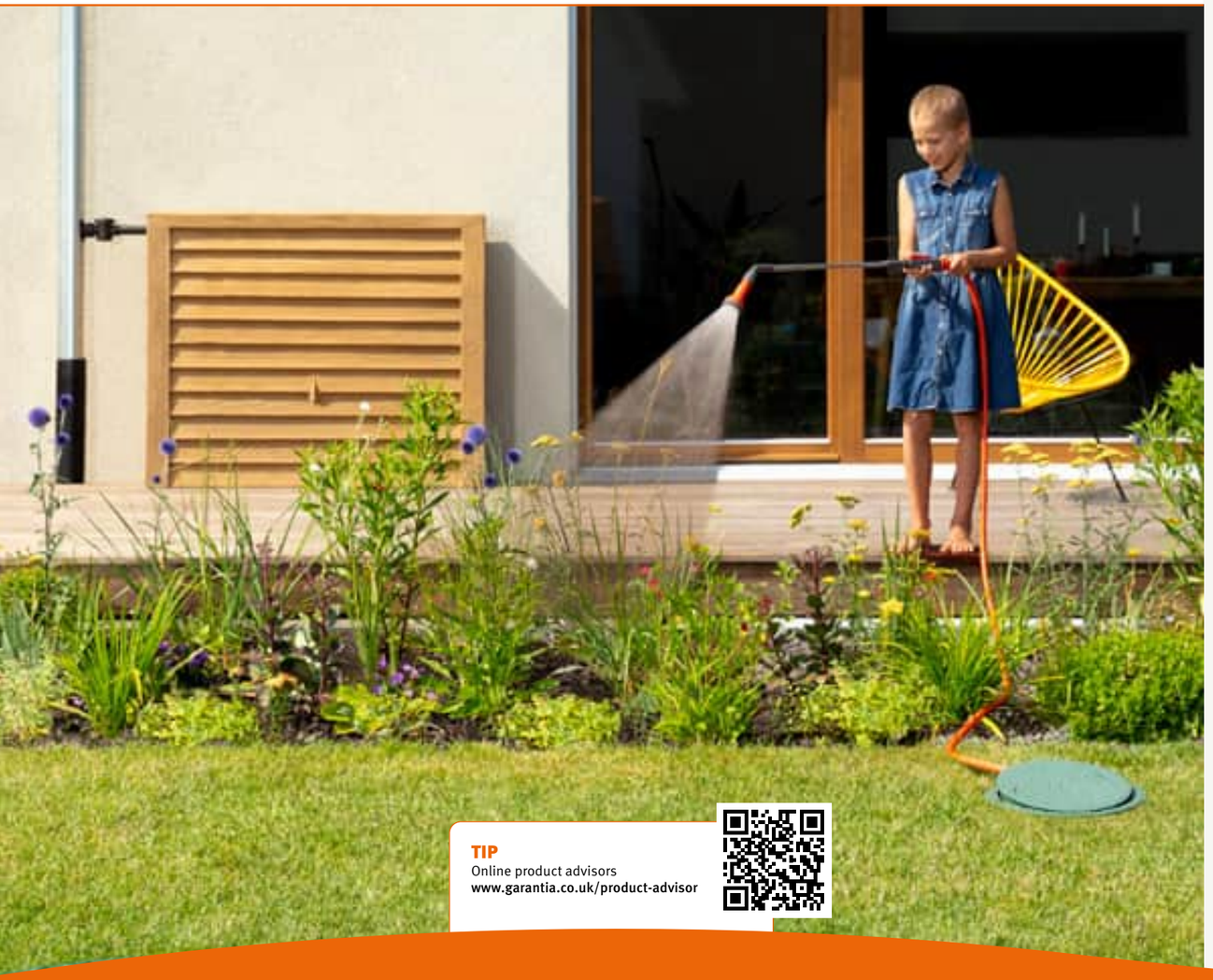
This is how environmentalism starts

Collecting even little quantities of rainwater is saving the groundwater storages.

Smart people water their garden with rainwater

For plants, there’s no better water than rainwater. It’s clean, soft, free and falls from the sky on a regular basis. It’s much better than tap water and groundwater, which are cold and often hard. Rainwater tanks are therefore becoming an increasingly common feature in gardens.

A special filter, which filters the precious resources and prevents the tank from overflowing, makes the ideal connection to the downpipe.



TIP
Online product advisors
www.garantia.co.uk/product-advisor

Choose your tank from different shapes and colours

MODERN *line*
›› page 6

EXCLUSIVE *line*
›› page 14

CLASSIC *line*
›› page 22

BASIC *line*
›› page 40

Guaranteed GARANTIA quality

PREMIUM QUALITY

The integrated plant cup with eased withdrawal and a depth of 20 cm (7.9") grants for all 2in1 water tanks an individual design.

DOWNPIPE FILTER AND ACCESSORIES
page 45

100 % RECYCLABLE

The tank material is 100 % recyclable. We attach great importance to durable product design, right from the product development stage. Manufacture is carried out using state-of-the-art production facilities, which ensures that the environmental impact is minimised in the long run.

CHILD-PROOF

With their closed tank shapes or integrated covers, GARANTIA decorative tanks are child-proof.

INCL. MOUNTING ACCESSORIES

Each tank is supplied together with suitable assembly accessories. These may include an inlet seal, a plant mat for plantable tanks, and wind protection for tanks installed against walls.

WEATHER-RESISTANT

A rainwater tank is exposed to weather conditions and extreme temperature fluctuations. Materials adapted to these conditions ensure a long-lasting attractive appearance.

THREADED CONNECTION

A standard 19 mm (¾") thread connection makes the tap (accessories) easy to install without drilling. Using a tap or the GARANTIA Universal Hose Kit (accessories), water extraction couldn‘t be easier.

COMFORT-CONNECTION

An additional lead-out for the water withdrawal with the hose connection and a cleanout before the freezing season.

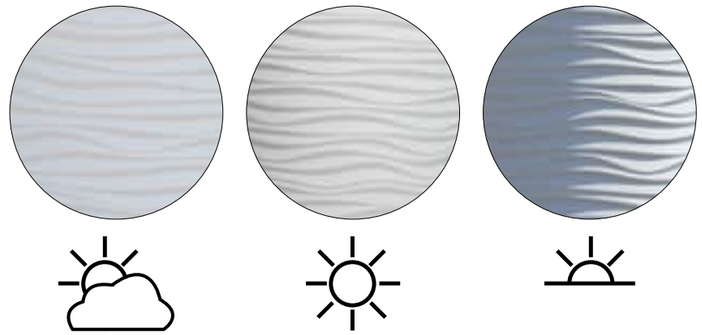
NATURA 2IN1 WATER TANK
beach, order no. 326151

GARANTIA®

PREMIUM QUALITY

PURE NATURE!

The tank with wavelike surface texture presents itself in ever new facets depending on the incidence of light. The Natura 2in1 water tank sets a lively trend on your terrace.



Accessories and decoration are not included in the scope of delivery

Natura 2in1 water tank

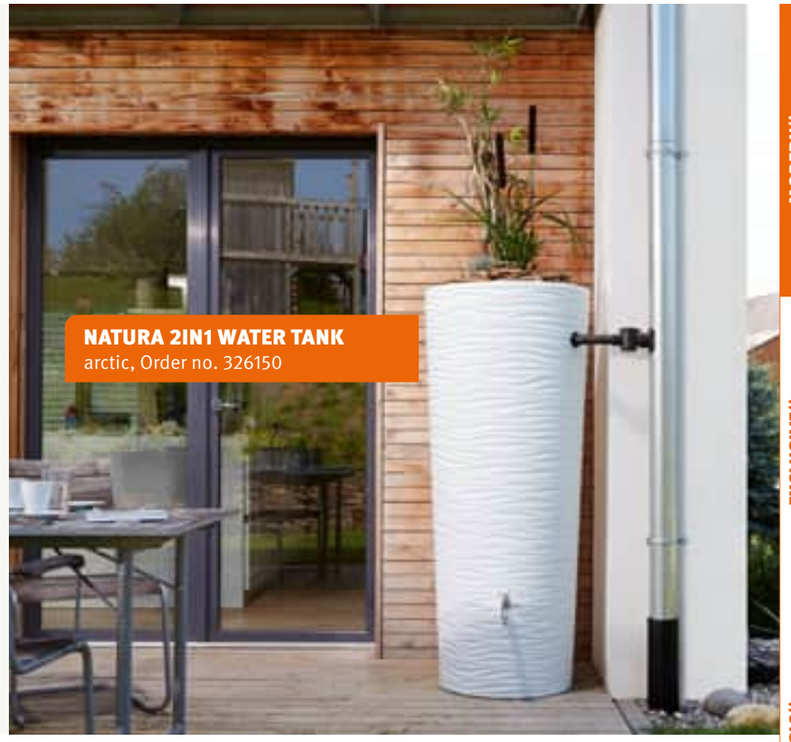
TIP
Design Chrome tap
Order no. 330254

›› Details see page 50

Natura 2in1 water tank
350 l (92.5 US gal.)

Height 150 cm (4' 11")
ø above 62 cm (24.5")
ø below 50 cm (20")
Weight 15 kg (33 lbs)

arctic	Order no. 326150
beach	Order no. 326151
sahara	Order no. 326152
ocean	Order no. 326153



The water tank includes two high-quality brass threads

BEST PRODUCT 2015/2016

GERMAN DESIGN AWARD SPECIAL 2017

reddot design award winner 2017

Accessories and decoration are not included in the scope of delivery

Color 2in1 water tank

COLOR 2IN1 WATER TANK
tomato, Order no. 326102

TIP
Design Chrome tap
Order no. 330254

›› Details see page 50

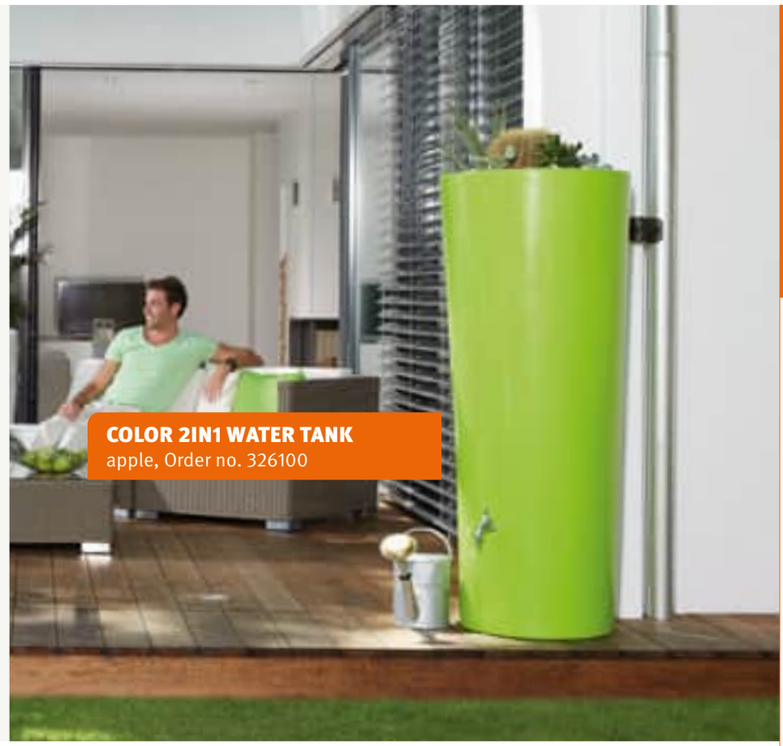
GARANTIA®

PREMIUM QUALITY

Color 2in1 water tank
350 l (92.5 US gal.)

Height 150 cm (4' 11")
ø above 62 cm (24.5")
ø below 50 cm (20")
Weight 15 kg (33 lbs)

apple	Order no. 326100
tomato	Order no. 326102
coco	Order no. 326105



COLOR 2IN1 WATER TANK
apple, Order no. 326100

The water tank includes two high-quality brass threads

Accessories and decoration are not included in the scope of delivery

Stone 2in1 water tank

STONE 2IN1 WATER TANK
silver, Order no. 326140

TIP
Design Chrome tap
Order no. 330254

›› Details see page 50

Stone 2in1 water tank
350 l (92.5 US gal.)

Height 150 cm (4' 11")
ø above 62 cm (24.5")
ø below 50 cm (20")
Weight 15 kg (33 lbs)

silver	Order no. 326140
lava	Order no. 326141

STONE 2IN1 WATER TANK
lava, Order no. 326141

The water tank includes two high-quality brass threads

Accessories and decoration are not included in the scope of delivery

Antique Amphora

ANTIQUE AMPHORA 360 L
terracotta, Order no. 211602

TIP
Rain collector Speedy
order no. 503040

›› Details see page 46

GARANTIA®

PREMIUM QUALITY

Antique amphora 250 l (66 US gal.)

ø max. 70 cm (27.5")
Width above handles 79 cm (31")
Height 108 cm (42.5")
Weight 15 kg (33 lbs)
Depth integrated plant cup 15 cm (6")

terracotta	Order no. 211601
darkgranite	Order no. 211609

Antique amphora 360 l (95 US gal.)

ø max. 78 cm (31")
Width above handles 88 cm (34.5")
Height 120 cm (47")
Weight 20 kg (44 lbs)
Depth integrated plant cup 17 cm (6.5")

terracotta	Order no. 211602
darkgranite	Order no. 211610

Antique amphora 600 l (158.5 US gal.)

ø max. 92 cm (36")
Width above handles 104 cm (41")
Height 142 cm (56")
Weight 30 kg (66 lbs)
Depth integrated plant cup 20 cm (8")

terracotta	Order no. 211612
darkgranite	Order no. 211614

Antique wall amphora 260 l (69 US gal.)

Depth 54 cm (21")
Width above handles 88 cm (34.5")
Height 120 cm (47")
Weight 20 kg (44 lbs)
Depth integrated plant cup 17 cm (6.5")

terracotta	Order no. 211603
darkgranite	Order no. 211611

The water tank includes two high-quality brass threads

Each tank is unique due to the special production process

ANTIQUE PLANT AMPHORA
terracotta, Order no. 211600

Antique plant amphora

Can be used for decoration or simply as a planter

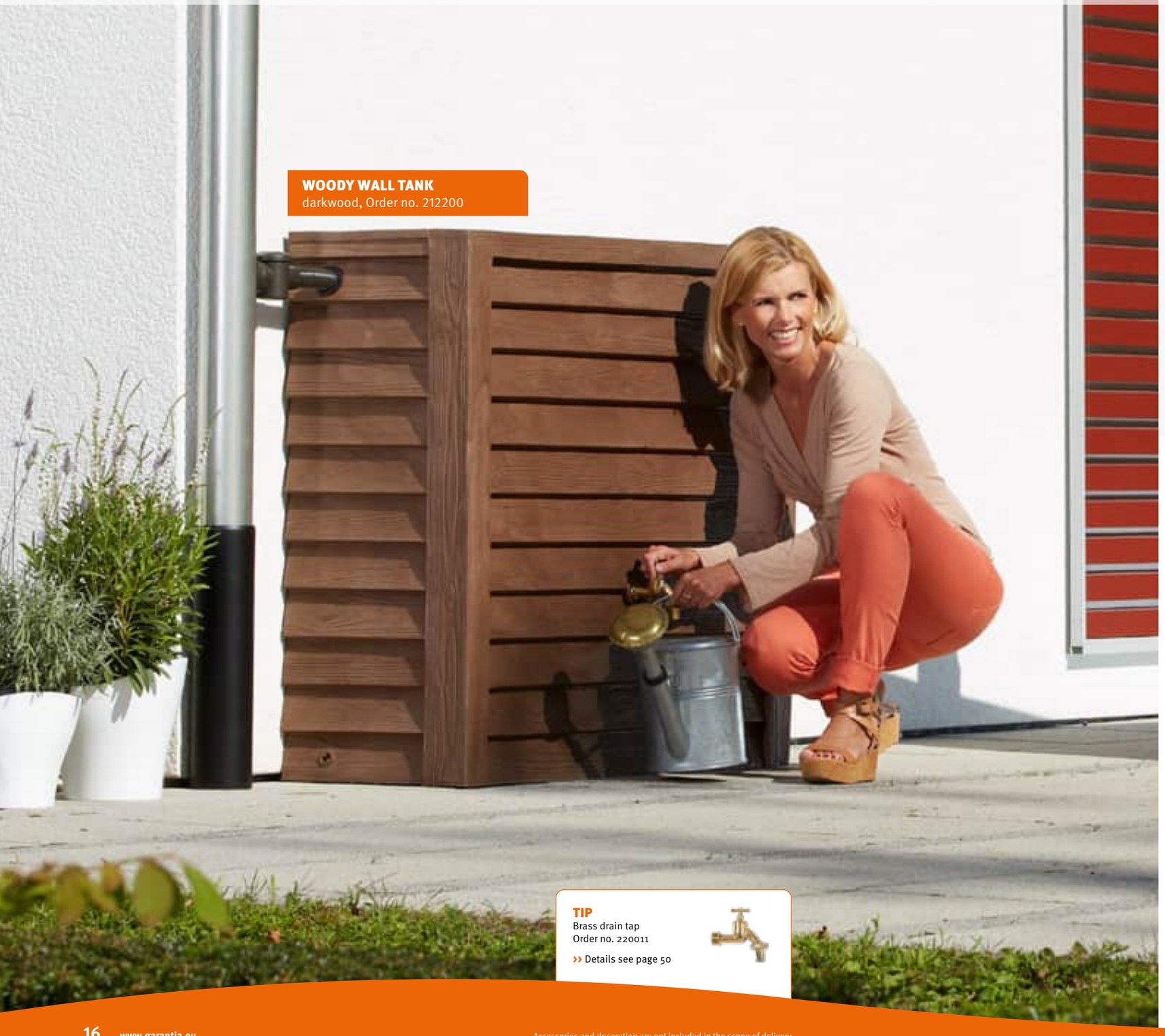
ø max. 52 cm (20.5")
Width above handles 59 cm (23")
Height 80 cm (31.5") **Weight** 9 kg (20 lbs)
Depth integrated plant cup 27 cm (10.5")

terracotta	Order no. 211600
darkgranite	Order no. 211608

Accessories and decoration are not included in the scope of delivery

Woody wall tank

WOODY WALL TANK
darkwood, Order no. 212200



TIP
Brass drain tap
Order no. 220011

›› Details see page 50

GARANTIA®

PREMIUM QUALITY

WOODY WALL TANK
lightwood, Order no. 212201

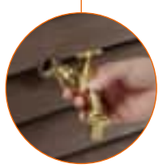
Woody wall tank
350 l (92.5 US gal.)

Width 124 cm (49")
Depth 40 cm (16")
Height 100 cm (39.5")
Weight 35 kg (77 lbs)

darkwood Order no. 212200
lightwood Order no. 212201

darkwood

The water tank includes three high-quality brass threads



lightwood

Each tank is unique due to the special production process

Accessories and decoration are not included in the scope of delivery

Rocky Junior wall tank

Rocky Junior wall tank
300 l (79 US gal.)

Width 80 cm (31.5")
Depth 40 cm (16")
Height 118 cm (46.5")
Weight 28 kg (62 lbs)

darkgranite Order no. 326135

Sunda wall tank

GARANTIA®

PREMIUM QUALITY

TIP
Rain collector Speedy
order no. 503040

›› Details see page 46

Sunda wall tank
300 l (79 US gal.)

Width 80 cm (31.5")
Depth 40 cm (16")
Height 118 cm (46.5")
Weight 16 kg (35 lbs)

mocca Order no. 212100

Accessories and decoration are not included in the scope of delivery

Rocky wall tank

ROCKY WALL TANK
darkgranite, Order no. 326130

TIP
Chrome drain tap
Order no. 330282

›› Details see page 50

GARANTIA®

PREMIUM QUALITY

ROCKY WALL TANK
sandstone, Order no. 326132

Rocky wall tank
400 l (105.5 US gal.)

Width 120 cm (47")
Depth 40 cm (16")
Height 100 cm (35.5")
Weight 35 kg (77 lbs)

darkgranite	Order no. 326130
sandstone	Order no. 326132
redstone	Order no. 326131

Each tank is unique due to the special production process

The water tank includes two high-quality brass threads

darkgranite

sandstone

redstone

Accessories and decoration are not included in the scope of delivery

2in1 water tank

2IN1 WATER TANK
taupe, Order no. 326116

TIP
Design Chrome tap
Order no. 330254

›› Details see page 50

GARANTIA®

PREMIUM QUALITY

2in1 water tank
300 l (79 US gal.)

ø max. 62 cm (24.5")
Height 145 cm (57")
Weight 12 kg (26.5 lbs)

taupe	Order no. 326116
mocca	Order no. 326109
zink grey	Order no. 326111

2IN1 WATER TANK
zink grey, Order no. 326111

Accessories and decoration are not included in the scope of delivery

Barrica rain water barrel

BARRICA RAIN WATER BARREL
260 l (69 US gal.), Order no. 212130

TIP
Rain collector Speedy
order no. 503040

›› Details see page 46

Accessories and decoration are not included in the scope of delivery

GARANTIA®

PREMIUM QUALITY

Barrica rain water barrel 260 l (69 US gal.)

ø max. 65 cm (25.5")
Height 93 cm (36.5")
Weight 10 kg (22 lbs)

Order no. 212130

Barrica rain water barrel 420 l (111 US gal.)

ø max. 78 cm (31")
Height 105 cm (3' 5")
Weight 16 kg (35 lbs)

Order no. 212132

Removable lid with child-proof lock

Linus 2in1 water tank

Linus 2in1 water tank
220 l (58 US gal.)

Height 120 cm (3' 11")
ø above 58 cm (23")
ø below 40 cm (16")
Weight 8 kg (17.5 lbs)

zink grey Order no. 326170

TIP
Design Chrome tap
Order no. 330254

›› For details please see page 50

GARANTIA®

PREMIUM QUALITY

Muro water tank

Muro water tank
260 l (68.5 US gal.)

ø 60 cm (23.5")
Height 93 cm (36.5")
Weight 10 kg (22 lbs)

graphite grey Order no. 326160

Removable lid with child-proof lock

Accessories and decoration are not included in the scope of delivery

Column tank

Column tank 330 l (87 US gal.)
ø max. 59 cm (23")
Height 161 cm (5' 3")
ø Cover opening 18 cm (7")
Weight 14 kg (31 lbs)

sand beige Order no. 326530
stone grey Order no. 326531

Column tank 500 l (132 US gal.)
ø max. 73 cm (29")
Height 193 cm (6' 4")
ø Cover opening 18 cm (7")
Weight 25 kg (55 lbs)

sand beige Order no. 326510
stone grey Order no. 326512

Column tank 1.000 l (264 US gal.)
ø max. 91 cm (35.8")
Height 222 cm (7' 3")
ø Cover opening 18 cm (7")
Weight 44 kg (97 lbs)

sand beige Order no. 326505
stone grey Order no. 326506

Column tank 2.000 l (528 US gal.)
ø max. 118 cm (46.5")
Height 223 cm (7' 4")
ø Cover opening 18 cm (7")
Weight 75 kg (165 lbs)

sand beige Order no. 326540

Column wall tank 350 l (92.5 US gal.)
Width 73 cm (29")
Depth 48 cm (19")
Height 193 cm (6' 4")
ø Cover opening 18 cm (7")
Weight 25 kg (55 lbs)

sand beige Order no. 326526

Column wall tank 550 l (145 US gal.)
Width 88 cm (34.5")
Depth 52 cm (20.5")
Height 212 cm (6' 11.5")
ø Cover opening 18 cm (7")
Weight 32 kg (70.5 lbs)

sand beige Order no. 326521
stone grey Order no. 326520

GARANTIA®

PREMIUM QUALITY

TIP
Regendieb Pro grey,
order no. 344202

›› Details see page 49

Accessories and decoration are not included in the scope of delivery

Rainwater Amphora

GARANTIA®

PREMIUM QUALITY

Rainwater Amphora
300 l (79 US gal.)

ø max. 68 cm (27")
Height 129 cm (51")
ø Cover opening 18 cm (7")
Weight 10 kg (22 lbs)

terracotta Order no. 211701

Rainwater Amphora
500 l (132 US gal.)

ø max. 79 cm (31")
Height 150 cm (4' 11")
ø Cover opening 18 cm (7")
Weight 14 kg (31 lbs)

terracotta Order no. 211702

RAINWATER AMPHORA 500 L (132 US GAL.)
terracotta, Order no. 211702

TIP
Brass drain tap
Order no. 220011

›› Details see page 50

Accessories and decoration are not included in the scope of delivery

Elegance wall tank

ELEGANCE WALL TANK
sand beige, Order no. 212302

TIP
Design Chrome tap
Order no. 330254

›› Details see page 50

ELEGANCE WALL TANK
stone grey, Order no. 212301

Elegance wall tank
400 l (106 US gal.)

Width 60 cm (23.5")
Depth 60 cm (23.5")
Height 180 cm (5' 11")
Weight 18 kg (40 lbs)

sand beige	Order no. 212302
stone grey	Order no. 212301

Accessories and decoration are not included in the scope of delivery

Terranova wall tank

TIP
Rain collector Speedy
order no. 503040

›› Details see page 46

Terranova wall tank
275 l (72.5 US gal.)

Width 80 cm (31.5")
Depth 40 cm (15.5")
Height 105 cm (3' 5")
Weight 11 kg (24 lbs)

graphite grey Order no. 212120

Wall tank

Wall tank
300 l (79 US gal.)

Width 120 cm (3' 11")
Depth 40 cm (15.5")
Height 100 cm (3' 3")
Weight 37 kg (81.5 lbs)

sand beige Order no. 326121

Accessories and decoration are not included in the scope of delivery

Water extraction

Granit water extraction unit

Height 100 cm (39.5")
Column 13 x 13 cm (5" x 5")
Base 25 x 25 cm (10" x 10")
Weight 5 kg (11 lbs)

darkgranite Order no. 356025
lightgranite Order no. 356026

Wood water extraction unit

Height 100 cm (39.5")
Column 13 x 13 cm (5" x 5")
Base 25 x 25 cm (10" x 10")
Weight 5 kg (11 lbs)

darkwood Order no. 356030
lightwood Order no. 356031

Rondo water extraction unit

Height 90 cm (35.5")
ø Column 12 cm (4.5")
Base 19 cm (7.5")
Weight 3 kg (6.5 lbs)

stone grey Order no. 356021

! Ideal as an additional extraction point for Rainwater Harvesting systems.

Stone fountain

STONE FOUNTAIN VENEZIA
redstone, Order no. 356102

! Ideal as an additional extraction point for Rainwater Harvesting systems.

GARANTIA®

Stone fountain Venezia

Height 90 cm (35.5")
Width 44 cm (17")
Depth 52 cm (20.5")
Height Basin 15 cm (6")
Weight 7 kg (15.5 lbs)

lightgranite Order no. 356100
redstone Order no. 356102

Stone fountain Roma

Height 100 cm (39.5")
Width 54 cm (21")
Depth 58 cm (23")
Height Basin 25 cm (10")
Weight 8 kg (17.5 lbs)

lightgranite Order no. 356101
redstone Order no. 356103

Includes 19 mm (¾") nostalgic tap for conveniently accessing water

Deceptively authentic – made out of high quality and weather-proof plastic material

Pre-assembled and ready for connection

Option of connecting from below using 19 mm (¾") hose connection

STONE FOUNTAIN ROMA
lightgranite, Order no. 356101

BASIC *line*

Garden tank Classico

Garden tank Classico
650 l (172 US gal.)

Width 80 cm (31.5")
Depth 60 cm (23.5")
Height 192 cm (6' 3.5")
ø Cover opening 18 cm (7")
Weight 28 kg (61.5 lbs)

dark green Order no. 326030

Garden tank Classico
1.300 l (343.5 US gal.)
Set consists of 2 x 650 l (172 US gal.) tanks, including connection kit

Width 165 cm (5' 5")
Depth 60 cm (23.5")
Height 192 cm (6' 4")
ø Cover opening 18 cm (7")
Weight 56 kg (123.5 lbs)

dark green Order no. 326035

Garden tank Classico
2.600 l (687 US gal.)
Set consists of 4 x 650 l (172 US gal.) tanks, including connection kit (drill, seal, connecting piece)

Width 335 cm (10' 12")
Depth 60 cm (23.5")
Height 192 cm (6' 4")
ø Cover opening 18 cm (7")
Weight 112 kg (247 lbs)

dark green Order no. 326036

- Suited for garden and cellar installation
- Can be extended in any way
- 19 mm (¾") inner thread for simple fitting of the tap

Garden tank | Top-Tank

GARANTIA®

PREMIUM QUALITY

Garden tank 500 l (132 US gal.)
Width 88 cm (34.5")
Depth 72 cm (28")
Height 108 cm (3' 6.5")
ø Cover opening 38 cm (15")
Weight 23 kg (50.5 lbs)

dark green Order no. 326022

Garden tank 750 l (198 US gal.)
Width 88 cm (34.5")
Depth 72 cm (28")
Height 161 cm (5' 3")
ø Cover opening 38 cm (15")
Weight 39 kg (86 lbs)

dark green Order no. 326010

- Suited for garden and cellar installation
- Can be extended in any way
- Convenient cleaning thanks to large cover 38 cm (15")
- Cover with child-proof lock
- Transparent Universal Hose Kit, can also be used as level indicator

Garden tank 1.000 l (264 US gal.)
Width 105 cm (3' 5")
Depth 77 cm (30")
Height 174 cm (5' 8.5")
ø Cover opening 38 cm (15")
Weight 52 kg (114.5 lbs)

dark green Order no. 326011

Garden tank 2.000 l (528 US gal.)
Set consists of 2 x 1,000 l (264 US gal.) tanks, including connection kit (drilling on site)

dark green Order no. 326015

Top-Tank 1.300 l (343.5 US gal.)
ø max. 118 cm (3' 10.5")
Height 156 cm (5' 1.5")
Weight 30 kg (66 lbs)

dark green Order no. 323001

Accessory Top-tank

Extention set DN 70
Consisting of 2 special seals (without drill and connecting pipe)
order no. 322010

Suction fitting 25 mm (1")
Without hose | floating
order no. 330054

Drill DN 70
With mounting shank
order no. 202002

- Reasonably priced solution for above-ground Rainwater Harvesting
- Extremely stable
- Can be extended in any way
- Preformed connections:
  2 x DN 70, 2 x DN 100 and 1 x DN 200 suitable for standard high-temperature wastewater pipes

Accessories and decoration are not included in the scope of delivery

Water butt

WATER BUTT LANZAROTE
graphite grey, Order no. 500222

ROUND WATER BUTT
green, Order no. 500212

TIP
Rain collector Rapido
Order no. 503073

›› Details see page 46

Water butt Lanzarote
graphite grey, including lid, drain tap and child protection

Volume	Height [1]	Ø max.	Order No.
300 l (79 US gal.)	86 cm (34")	82 cm (32.5")	500222

Water butt Toskana
terracotta, including lid, drain tap and child protection

Volume	Height [1]	Ø max.	Order no.
300 l (79 US gal.)	86 cm (34")	82 cm (32.5")	500216

Water butt Sahara
brown, including lid, drain tap and child protection

Volume	Width	Depth	Height	Order no.
300 l (79 US gal.)	80 cm (31.5")	66 cm (26")	91 cm (36.2")	501209
520 l (137 US gal.)	125 cm (48.8")	80 cm (31.5")	93 cm (36.6")	501208

Lanzarote water butt stand

Height	Colour	Order no.
33 cm (13")	graphite grey	502015

Toskana water butt stand

Height	Colour	Order no.
33 cm (13")	terracotta	502010

Sahara water butt stand

suitable for water butt Sahara	Height	Order no.
300 l (79 US gal.)	33 cm (13")	502008
520 l (137 US gal.)	33 cm (13")	502009

Round water butt
Including lid and drain tap

Volume	Ø max.	Height [1]	Order no.
210 l (55 US gal.)	77 cm (30.5")	80 cm (31.5")	500212
310 l (81 US gal.)	80 cm (31.5")	94 cm (37")	500213
510 l (134 US gal.)	100 cm (39.5")	110 cm (43.5")	500214

Square water butt
Including lid and drain tap

Volume	Width	Depth	Height [1]	Order no.
203 l (53 US gal.)	70 cm (27.5")	70 cm (27.5")	82 cm (32.5")	501205
300 l* (79 US gal.)	80 cm (31.5")	66 cm (26")	92 cm (36")	501206
520 l* (137 US gal.)	124 cm (49")	80 cm (31.5")	93 cm (36.5")	501207

*Incl. metal bracing for increased stability

Square water butt heavy version
Including lid and drain tap

Volume	Width	Depth	Height [1]	Order no.
210 l (55 US gal.)	81 cm (32")	63 cm (25")	69 cm (27")	501201
400 l (105.5 US gal.)	96 cm (38")	75 cm (29.5")	84 cm (33")	501202

Water butt stand

suitable for round water butt	Height	Order no.
210 l (55 US gal.)	33 cm (13")	502001
310 l (81 US gal.)	33 cm (13")	502002
510 l (134 US gal.)	33 cm (13")	502003

Water butt stand

suitable for square water butt	Height	Order no.
203 l (53 US gal.)	33 cm (13")	502001
300 l (79 US gal.)	33 cm (13")	502004
520 l (137 US gal.)	33 cm (13")	502005

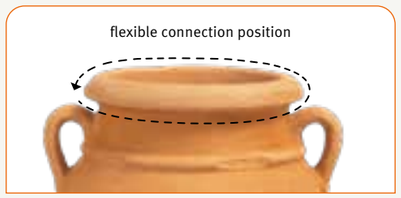
[1] Height incl. lid

Accessories and decoration are not included in the scope of delivery

Connection made easy

DOWNPIPE FILTER ›› Page 46

Downpipe filters reliably filter dirt from rainwater, thus ensuring optimal water quality. The water butt cannot overflow due to an overflow stop. The excess water simply flows back into the downpipe. In winter, the inlet to the rainwater tank is easy to stop.



UNIVERSAL HOSE KIT ›› Page 50

The GARANTIA Universal Hose Kit (accessories) provides an additional extraction option. It is used to leverage the tank's full volume, and also as a fill level indicator. The hose kit (accessories) is either screwed into the tank's convenient connection or mounted onto the tank using a drill and a seal.

INSTALLATION AND CONNECTION OF A DECORATIVE TANK

This video shows how easy it is to set up an above ground tank, what you should consider and how the connection to the downpipe is made.

www.garantia.co.uk/v209

DRAIN TAP ›› Page 50

Water extraction is made extremely convenient by the GARANTIA tap (accessories). It is screwed into the tank's standard thread connection without the need for drilling.

Rain collector

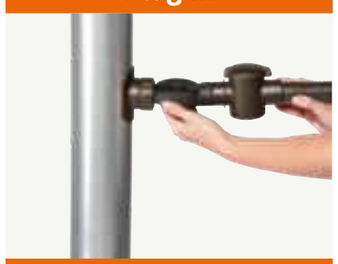
Rain collector	Speedy	Rapido	Rapido Quattro	Quattro	Avanti
Downpipe sizes	70	100 mm (2.8 | 4")	70	100 mm (2.8 | 4")	50 x 75 mm (2 x 3")	max. 70 x 110 mm (2.7 x 4.3")	max. 70 x 110 mm (2.7 x 4.3")
Overflow stop function	•	•	•	•	•
Max. roof area	80 m² (861 ft²)	80 m² (861 ft²)	80 m² (861 ft²)	80 m² (861 ft²)	80 m² (861 ft²)
Rainwater butt connection	32 mm (1 ¼")	32 mm (1 ¼")	32 mm (1 ¼")	25 mm (1")	32 mm (1 ¼")
Required distance between downpipe and wall	–	–	–	10 mm (0,4")	–
Switch for summer / winter operation	•	•	•	•	•
Filter insert	plastic sieve	–	–	plastic sieve	plastic sieve
Dimensions	**Height** 9 cm (3.5") **Width** 6.5 cm (2.6") **Length** 16 cm (6")	**Height** 5.5 cm (2") **Width** 5.5 cm (2") **Length** 9 cm (3.5")	**Height** 5.5 cm (2") **Width** 5.5 cm (2") **Length** 9 cm (3.5")	**Height** 12 cm (4.5") **Width** 10.5 cm (4") **Depth** 13.5 cm (5.5")	**Height** 8 cm (3") **Width** 5.6 cm (2") **Length** 6.5 cm (2.6")
Colour | Order no.	503040	503073	503071	grey | 503060 beige | 503062	503076

THE WORLD CHAMPIONS OF MONTAGE

Installed in 5 minutes

Drill

Plug in



Done

Filter insert

- No removal of the downpipe for the installation
- Including core drill, connecting hose, connection seal 40 cm (16")

- No removal of the downpipe for the installation
- Including core drill, connecting hose, connection seal 40 cm (16")
- Flexible connection (360° turnable)

- No removal of the downpipe for the installation
- Including core drill, connecting hose, connection seal 40 cm (16")
- Flexible connection (360° turnable)

- Suitable for oval and square downpipes
- High water yield (approx. 90 %)

- No removal of the downpipe for the installation
- Including core drill, connecting hose, connection seal 40 cm (16")

VIDEO TIP

montage of the water butt connection
www.garantia.co.uk/v210

Downpipe filters

Downpipe filters	Filling device de luxe	Filling device	Filling device Mini	Regendieb Pro	Regendieb	Foliage guard
Downpipe sizes	70 | 80 | 100 mm (2.8 | 3 | 4")	700 – 100 mm (2.80 – 4")	50 – 60 mm (2 – 2.4")	70 | 80 | 100 mm (2.8 | 3 | 4")	70 | 100 mm (2.8 | 4")	70 | 100 mm (2.8 | 4")
Overflow stop function	•	•	•	•	•	–
Max. roof area	80 m² (861 ft²)	50 m² (538 ft²)	50 m² (538 ft²)	200 m² (2152 ft²)	200 m² (2152 ft²)	80 m² (861 ft²)
Rainwater butt connection	32 mm (1 ¼")	25 mm (1")	25 mm (1")	DN 50, 32 mm (1 ¼")	DN 70 | DN 50, 32 mm (1 ¼")	–
Required distance between downpipe and wall	25 mm (1")	16 mm (0.6")	17 mm (0.7")	16 mm (0.6")	25 mm (1")	5 mm (0.2")
Switch for summer / winter operation	•	•	•	•	•	•
Filter insert	plastic sieve	plastic sieve	plastic sieve	stainless steel sieve	stainless steel sieve	plastic sieve
Dimensions	**Height** 15 cm (6") **ø** 15 cm (6")	**Height** 11.5 cm (4.5") **ø** 13 cm (5")	**Height** 9.5 cm (4") **ø** 8 cm (3")	**Height** 25.5 cm (10") **ø** 13 cm (5")	**Height** 25 cm (9.5") **Width** 15 cm (6") **Depth** 20 cm (8")	**Height** 35 cm (14") **Width** 11 cm (4") **Depth** 18 cm (7")
Colour | Order no.	grey | 503015 brown | 503014	grey | 503011 brown | 503010	grey | 503006 brown | 503005	grey | 344202 brown | 344203	grey | 343011 brown | 343010	grey | 346013

- With. 25 cm (10") hose and screw connection

- New filter principle with greater filter area
- Turnable filter body for flexible connection
- Including connection seal

- Including connection seal

- Reliably traps leaves and large contaminants, preventing the downpipe from getting blocked
- Ideal in areas with a lot of leaves e.g. as pre-filter
- Self-cleaning and low-maintenance
- Convenient removal of screen area without having to dismantle the filter for cleaning or before frost period

THE SLIM PROFESSIONAL FOR LARGE ROOFS

For roof surfaces up to 200 m² (2153 ft²)

Accessories – overground water tanks

Design Chrome tap
This stylish chrome tap is suitable for all modern tanks. Chrome polished, size 19 mm (¾"), incl. teflon sealing tape.
order no. 330254

Tap
A must for all stylish tanks! Suitable for all products of Classic and Exclusive Line, size 19 mm (¾"), incl. teflon sealing tape.
brass order no. 220011
chrome order no. 330282

Tap for water butts
Water butt tap with sealing ring and lock nut, size 19 mm (¾").
order no. 504011

Aqua-Quick plastic tap
With brass finish, suited to all above-ground tanks and water butts, size 19 mm (¾").
order no. 504040

Aqua-Quick 4-part plastic tap kit
So that water can run faster! Plastic tap with brass finish in complete kit consisting of: tap with seal and screw connection, connecting pieces for standard hose fitting, hose 13 mm (½") and hose 19 mm (¾"), union nuts and seals.
order no. 504044

Universal Hose Kit
Kit for complete water extraction and water level display for above-ground rainwater storage tanks. Consisting of 215 cm (7' 1") flexible hose, extraction tap and various connection options. Suited to all storage tanks.
order no. 220015

Tap connection
With inside thread 19 mm (¾") and outside thread 25 mm (1"), made of plastic. Suitable for all GARANTIA taps.
order no. 504025

Tap with tank screw
Connection for Top and Garden tank, size 19 mm (¾"), incl. teflon sealing tape.
order no. 330044

Water butt connection kit
Consisting of two hose connections with lock nut and 25 cm (9.8") hose.

19 mm (3/4")
Order no. 504017

19 mm (3/4") with drill
Order no. 504018

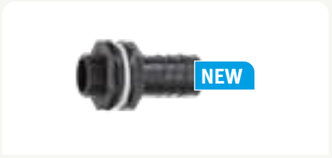
32 mm (1 1/4")
Order no. 330031

51 mm (2")
Order no. 330040

Connection set Flex-Comfort
Extra-long and extremely flexible connection kit 40 cm (16") to connect rainwater tanks as well as Regendieb and Regendieb Pro. Includes extensive installation accessories.

Scope of supply:
Flexible 40 cm (16") connection hose, core drill and hose connector;
with 2 x connection fittings, inlet seals and hose clips.
grey order no. 220019
brown order no. 220020

Child-proof lock | wind protection
For water butt cover (reusable), 4 items
order no. 504016



Hose barb 1"
for hose 32 mm (1 ¼"), incl. seal and lock nut
Order no. 220021

Overflow bend
With hose connection

Size 32 mm (1 ¼")
order no. 330041

Size 51 mm (2")
order no. 330043

GARANTIA®

High quality products for your house and garden

You'll find rainwater tanks in our GARANTIA catalogue, "Rainwater Harvesting underground tanks".

You'll find garden products in our GARANTIA catalogue, "The garden range"

Prices:
A price list with our export conditions is available on request.

Warranty clause:
The warranty mentioned in this brochure only refers to the tank in question and not to the accessories. Within the warranty period we grant free replacement of the material. Further benefits are excluded. Pre-condition for warranty benefits are proper handling, assembly and installation according to the mounting guidelines.

N.B.
Protect tanks from frost when installed aboveground! In case of groundwater installation, please contact us for further information previous to the purchase!
For all indications of measurements in this brochure we reserve a tolerance of +/- 3 %. The useful volume of the tanks may be up to 10 % lower than the tank capacity, according to the connecting option.

Technical modifications and further development of the different products are subject to change. Errors excepted.

For all our offers and conclusions of contract are only valid our General Terms and Conditions of Business dated 01/10/2012 which we will send to you on request.

GARANTIA®
is a trademark of

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Kunststofferzeugnisse
Carl-Zeiss-Straße 2 – 6
DE-79331 Teningen

Tel.: +49 7641 589-0
Fax: +49 7641 589-50
info@garantia.eu

www.garantia.eu

Recommended by:

Permavoid Rainwater Diffuser Unit

Data Sheet

PRODUCT INFORMATION **P1** **ISSUE 3 - JUNE 2018**

Run-off from building roofs is collected into downpipes and flows into a back inlet gully incorporating an internal filter or catchpit inspection chambers. The back inlet gully or chamber discharges the filtered stormwater into the permeable sub-base via Permavoid Rainwater Diffuser Unit encapsulated in a 2mm mesh fabric. The run-off will then diffuse out of the Permavoid Rainwater Diffuser Unit and into the modified granular sub-base layer. The Permavoid unit is a 150mm deep modular interlocking plastic unit storage system designed for use as a combined drainage component and sub-base replacement system, ideal for shallow infiltration/attenuation.

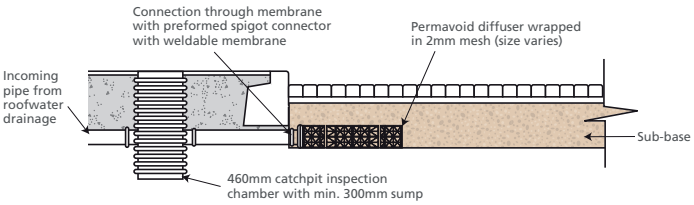
Permavoid Rainwater Diffuser Unit - Configuration Options

Length \ Width	354mm	708mm	1062mm	1416mm	2124mm
708mm	✓	✓	✓	✓	✓
1062mm	✗	✓	✓*	✓	✓
1416mm	✓	✓	✓	✓	✓
2124mm	✓	✓	✓	✓	✓

*1062 x 1062mm diffuser unit has a 354 x 354mm central opening.
Depths available are either 150mm or 300mm.
Connections available are either Ø110mm or Ø160mm.

Catchpit: 460mm diameter catchpit with 160mm inlet - PSMST 160
460mm diameter catchpit with 110mm inlet - PSMST 110

Typical Layout - Rainwater downpipe drainage into sub-base reservoir



Technical Support

Detailed guidance and assistance is available.
For further information, please contact our Technical Team on **+44 (0) 1509 615 100** or email **civils@polypipe.com** or visit **www.polypipe.com/civils-technical-hub**

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	3kg
Length	708mm
Width	354mm
Depth	150mm
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	715kN/m²
Lateral	156kN/m²
SHORT TERM DEFLECTION	
Vertical	1mm per 126kN/m²
Lateral	1mm per 15kN/m²
TENSILE STRENGTH	
Of a single joint	42.4kN/m²
Of a single joint at (1% secant modulus)	18.8kN/m²
Bending resistance of unit	0.71kN/m
Bending resistance of single joint	0.16kN/m
OTHER PROPERTIES	
Volumetric void ratio	95%
Average effective perforated surface area	52%
Intrinsic permeability (k)	Minimum 1.0 x 10^{-5}
Ancillary	Permavoid Permatie Permavoid Shear Connector
Material	Polypropylene (PP)

HYDRAULIC PERFORMANCE

3 units wide, 1 unit deep (1.06m x 0.15m)

FREE DISCHARGE

Gradient (%)	0	1	2	3	4	5
Flow rate (l/m/s)	8	13	15	17	19	21

Polypipe Civils,
Charnwood Business Park, Loughborough, Leicestershire LE11 1LE
Tel: +44 (0) 1509 615100 Fax: +44 (0) 1509 610215 Email: civils@polypipe.com
www.polypipe.com/wms

Polypipe

Permavoid Rainwater Diffuser Unit

Data Sheet

Permavoid Rainwater Diffuser Unit can be utilised in these SuDS techniques

TECHNIQUES													
Blue-Green roofs	Podium Decks	Trees	Sports Pitches	Cycle Paths	Permeable Paving (sub base & podium)	Bioretention & Rain Gardens	Attenuation Storage Tanks	Infiltration	Swales	Filter Drains	Detention Basins	Ponds & Wetlands	Filter Strips
			✓		✓		✓						

Visit **www.polypipe.com/greeninfrastructure**

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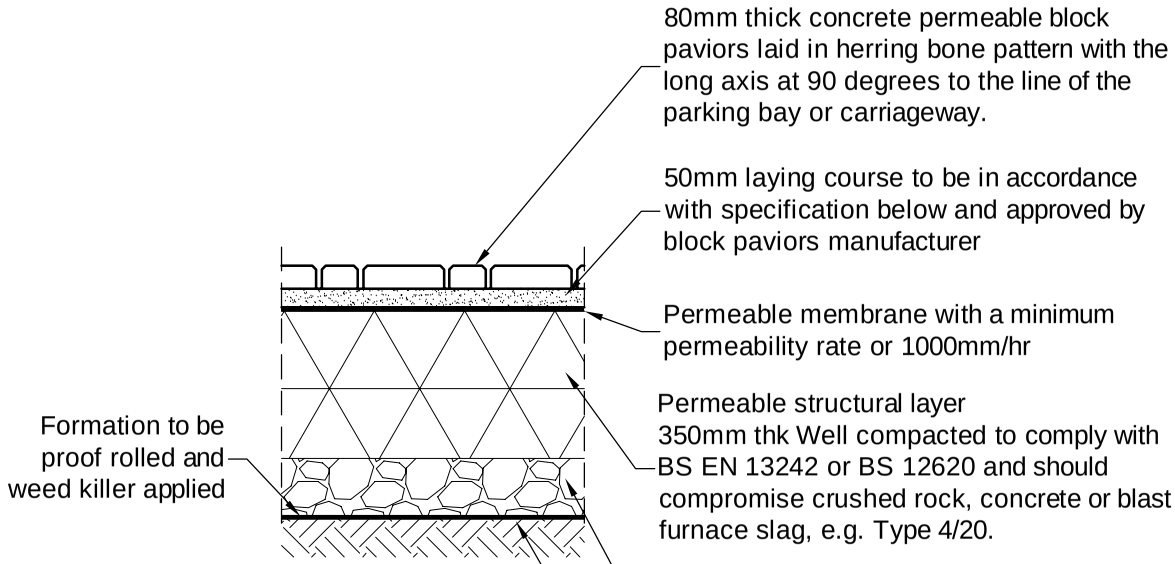
Polypipe



Laying course material to BS EN 12620	
BS Sieve Size	Percentage Passing
14mm	100
10mm	98-100
6.3mm	80-99
2.0mm	0-20
1.0mm	0-5

Permeable Block Paved Drives and Parking Courts

1:20

PRP
consulting engineers & surveyors
Catherine House
Old Harborough Rd
Brixworth, NN6 9BX
Tel: 01604 889 870
northampton@prp.uk.com
www.prp.uk.com

Project:
174 Aylesham Drive, Ickenham

Title:
Permeable Paving Detail

Status:
PRELIMINARY

Engineer:	GF	Date:	Oct 2023
Drawn:	GF	Scales @ A4:	1:20
Checked:	HP		
Project No:	63942	Drg No: 102	Rev: P1

MAINTENANCE AND ACTION SCHEDULE
FOR
SURFACE WATER DRAINAGE

Project No:	**63942**	Prepared by:	PRP Catherine House Old Harborough Road Brixworth Northampton NN6 9BX
For:	174 Aylsham Drive, Ickenham		
Date:	October 2023		

1. Catchpits, manholes and inspection chambers should be regularly inspected and debris/silt removed, if this is not removed then it is likely to become hard packed requiring considerable effort to remove it. Replacement of the cellular soakaway units will be necessary if the system becomes blocked with silt.

2. The following are guidelines for when inspections and treatment should be carried out based on a typical small residential development. The rate of silt and debris accumulation should be monitored and the frequency of inspection may need to be adjusted based on this.

    2.1. Monthly:

    - Inspect silt traps and note rate of sediment accumulation (Monthly during first year, then annually.)
    - Inspect catchpits note rate of sediment accumulation. Clear out catchpits to ensure they operate correctly (Monthly during the first year, then annually.)
    - Remove litter (including leaf litter), weeds and debris from permeable block driveway surface and access chambers.

    Annually:

    - Inspect all gutters and gullies for sediment and debris and remove as necessary to prevent it from entering into the soakaway units.
    - Any roots that have entered the system should be removed.
    - Inspect manholes, silt traps and catchpits to remove any silt or debris from base and ensure that they are clean.
    - Check existing soakaways to ensure they are emptying correctly.
    - Above ground water storage tanks to be emptied annually and suitably cleaned inside and outside. Scrubbing of the interior to remove algae, sludge and other grime. Clean with warmwater with a mild detergent.

    2.2. As required:

    - Clean pipework of blockages. To prevent further impact during future rainfall events.
    - Leaf mesh guards to be cleaned of leaves and debris if they become blocked

3. The entire drainage system should be visually inspected during and after any heavy rain storms.

    During a storm observation of any rise in surface flood levels may be a warning sign that the drainage system could possibly be failing.

    After an extreme storm event inspect the drainage system for any debris and silts build-ups within the catchpits

4. The entire surface water drainage system should be checked for defects following all significant rainfall events. This surface water maintenance schedule should be included in the O/M manuals for the completed development.

5. The owners of each property will be responsible for the maintenance of their section of the drainage system. The homeowners should seek assistance from drainage specialists that have the expertise and equipment to suitably maintain the drainage systems in line with this plan.