



DRAINAGE STRATEGY

LAND AT AMETHYST LANE
HELIX PARTNERSHIP HOMES
JULY 2024
5725-LAAL-ICS-XX-RP-C-07.001

DRAINAGE STRATEGY

5725-LAAL-ICS-XX-RP-C-07.001

REPORT ISSUE

Revision	Date	Notes
P01	25/07/2024	First Issue

PREPARED BY

B. KNOWLDEN July 2024

REVIEWED BY

A. J. GRIFFITHS July 2024

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1 DRAINAGE STRATEGY

Item	Details	Reference /comment
Method of Foul Water Discharge	Foul water flows are to drain to the existing manhole in the South of the site via gravity, subject to confirmation of capacity by Thames Water. The proposed main foul drainage network will be offered for adoption to Thames Water under a Section 104 application.	The new connection will be subject to confirmation of capacity by Thames water.
Method of Surface Water Discharge	The surface water drainage design proposed for the new dwellings is to follow the drainage hierarchy to ensure the site reflects the natural flows from the site as closely as possible: 1. Rainwater reuse 2. Infiltration 3. Discharge to Surface Water or a Watercourse 4. Discharge to a Surface Water sewer or a Highway Drain 5. Discharge to a Foul Sewer Surface water falling onto the roof and hard-standing areas will be collected and conveyed via underground pipes to the permeable paving. Surface water will be managed and stored using the open-graded sub-base of the interlinked permeable surfacing before flowing through a Hydrobrake to manage the outflow. The proposed discharge rate of 5.0 l/s has been confirmed as acceptable by Thames Water. The connection to the adopted surface water sewer will be via the existing highway drainage, which will require a Section 50 to Berkshire highways and an indirect Section 106 application to Thames Water. Tree pits have been shown on the drainage drawing, however, they have not been included in the calculations. Details of the tree pits can be found Appendix D. The on-site system will be privately maintained in line with the guidance to the rear of this document by the owners of the freehold or their representatives.	The new connection will be subject to an indirect S106 connection consent from Thames Water
Local Ground Conditions	A site investigation has yet to be undertaken for the site. However, existing onsite soakaways have failed based off CCTV survey and are full of silt. This would indicate that soakage wouldn't be suitable onsite and so they have not been proposed. Additionally, the presence of Surface Water Sewer would indicate that there is a lack of onsite soakage. The offsets required for the anticipated chalk ground conditions cannot be accommodated either.	CCTV report in Appendix B

Item	Details	Reference /comment
Surface Water Calculations	The surface water drainage system has been designed for a 1 in 100-year event, plus an allowance of 40% for climate change. Contributing Areas (m²) Roof Areas = 1720 Road Area = 1160 Total Area = 2880	The total impermeable area for the site is 2880m ²
Water Quality	Permeable paving will be required for its water purification qualities in order to avoid the need for petrol interceptors. Silt traps will be used to prevent silt build up within the network.	
Exceedance Flows	Exceedance flows will replicate the existing and flow at a surface level from the lowest point on the surface water system towards the public highway. The proposed surface water drainage measures will be designed to contain the peak storm event that can be expected for a 1 in 100-year situation. A 40% allowance has already been applied to the site to account for future climate change.	
Fluvial Flood Risk/ Environment Agency Flood Mapping	The Environment Agency flood map for the development site suggests that the site wholly falls within Flood zone 1, which is defined as land assessed as having a less than 1 in 1000 annual probability of river flooding in any one year.	
SuDS Maintenance	During construction, the SuDS systems will be maintained by the contractor. Upon sale of the last plot, the SuDS drainage system inclusive of access road, permeable paving and silt traps are to be maintained by the owner of the freehold or their appointed representative(s).	Refer to Appendix A for the suggested SuDS Maintenance schedule
Other		

Table 1 Drainage Strategy

Appendix A - Maintenance Schedule

Item	Required Maintenance	Frequency
Pipe and chambers	CCTV camera survey, flush, descale, repair as necessary	5 Years or upon poor performance
Infiltration Blanket/Rubble Filled Soakaway	CCTV from silt trap along the perforated pipe to assess silt build-up and condition of pipework	5 Years or upon poor performance
Pervious pavements (Block Paving)	Brushing and vacuuming.	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site-specific observations of clogging or manufacturers' recommendations.
	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weed.	As required.
	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	As required.
	Rehabilitation of surface and upper sub-structure.	As required (if infiltration performance is reduced as a result of significant clogging).
	Initial inspection.	Monthly for 3 months after installation
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action.	3-monthly, 48 h after large storms.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor inspection chambers.	Annually.
Bio-retention areas/Tree pits	Litter and debris removal.	Monthly (or as required).
	Grass cutting – to retain grass height within specified design range.	Monthly (during growing season), or as required.
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required).
	Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter and cut back adjacent vegetation where possible.	Annually.
	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	Annually, or if bare soil is exposed over 10 % or more of the swale treatment area.
	Repair erosion or other damage by re-turfing or reseeded.	As required.
	Re-level uneven surfaces and reinstate design levels.	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required.

Item	Required Maintenance	Frequency
	Remove build up of sediment on upstream gravel trench, flow spreader or at top of filter strip.	As required.
	Remove and dispose of oils or petrol residues using safe standard practices.	As required.
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect infiltration surfaces for ponding, compaction, silt accumulation. Record areas where water is ponding for > 48 hours.	Monthly, or when required.
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Half yearly.
Silt traps and catchpits	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Inspection of silt traps and catch pits to assess silt accumulation	Monthly (and after large storms)
	Removal of accumulated silt from silt trap and catch pit sumps	Annually, or as required
	Repair/rehabilitation of inlets, outlet, overflows and vents	As required
	Inspect/check all inlets, outlets, and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms
Flow control chambers and devices	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Inspection of flow control chamber to assess if system is draining down correctly and that the orifice or flow control device is not blocked. Assess if there are any silt accumulations in the chamber sump.	Monthly (and after large storms)
	Removal of accumulated silt from silt trap and catchpit sumps	Annually, or as required
	Repair/rehabilitation of inlets, outlet, overflows and vents	As required
	Inspect/check all inlets, outlets, and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

Table 2 SuDS Maintenance

Appendix B - CCTV Report

CCTV Report



Project

Amethyst Lane, Reading, Berkshire,
RG30 2EZ.

Survey Date

14.04.2023

Client

Gleeds Management Services LTD

Checked by

AJM

Surveyor

SJH

Revision - Issue Date

Job Number

43954CCTV-01

Issue Date

26.05.2023

High Pressure Jetting & Resurvey

Maintenance Visits

Following the initial investigations completed on site we would recommend a quarterly re-survey of the drainage network in order to monitor the ongoing pipework condition.

System Maintenance Survey:

Quarterly Assessment of Existing Defects Due – 14.07.2023

Annual Full System Re-survey Due – 14.04.2024

High Pressure Jetting Required:

(5% - 30%) - MH1 A, MH1 B, MH2 X, MH4505 A, MH4505 C, MH4551 X, MH4551 B, MH4601 A,

(35 % - 60%) -

(65% - 95%) – MH4551 A

Project-information

 Project name:
Amethyst Lane

 Contract number:
43954

 Contact:
Richards Deacon

 Date:
16/03/2023

Client **Gleeds Cost Management Ltd**
 Contact: **Richard Deacon**
 Position: **Project Manager**
 Road **95 New Cavendish Street**
 Town **London**
 County **W1W 6XF**
 Telephone: **01489 779000**
 Fax:
 Mobile: **07918 246957**
 E-Mail: **Richard.Deacon@gleeds.com**

Site **Amethyst Lane**
 Contact: **Richard Deacon**
 Position:
 Road **Amethyst Lane**
 Town **Reading**
 County **Berkshire RG30 2EZ**
 Telephone: **07918246957**
 Fax:
 Mobile:
 E-Mail: **richard.deacon@gleeds.com**

Contractor **Survey Solutions**
 Contact: **Shane Hole**
 Position: **Surveyor**
 Road **Codham Hall Ln**
 Town **Brentwood**
 County **Essex**
 Telephone: **01277 222700**
 Fax:
 Mobile: **07399 662124**
 E-Mail: **greg.baird@survey-solutions.co.uk**

Defect Grade Description

 Project name:
Amethyst Lane

 Contract number:
43954

 Contact:
Richards Deacon

 Date:
16/03/2023
1:
 Brick: No Structural Defects
Pipe: No Structural Defects

Acceptable Structural Condition

2:
 Brick: Minor cracking, Surface mortar loss, Spalling slight, wear slight
Pipe: Circumfrential crack, Moderate joint defects, Spalling slight, Wear slight

Minor collapse risk in short term but potential for further deterioration

3:
 Brick: Total mortarloss without other defects, single brick displaced, Deformation up to 5%, Spalling medium, Wear medium
Pipe: Fractures with deformation up tp 5%, Longitudinal cracking or mulitlpe cracking, Minor loss of level, More severe joint defects, Spalling medium, Wear medium

! Collapse unlikely in near future but future deterioration likely !

4:
 Brick: Total mortarloss with deformation greater than 10%, Deformation up to 10% and fractured, Displaced/hanging brickwork, Small number of missing bricks
Pipe: Broken, Deformation up to 10% and broken,, Fractured with deformation 5 - 10%, Multiple fractures, Serious loss of level, spalling large, wear large

!! Collapse likely in foreseeable future !!

5:
 Brick: Already Collapsed, Missing invert, Deformation over 10% and fractured, Displaced/hanging brickwork and deformation over 10%, Extensive missing bricks
Pipe: Already collapsed, Deformation over 10% and broken, Extensive areas of fabric missing, Fractured with deformation over 10%

!!! Collapsed or collapse imminent !!!



Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 1	PLR: MH1 X X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH1 X
Place:	District:	end MH: MH
Location:	Tape No.:	Total length: 12.6 m

Purpose:	Shape/Size: Circular dia 150 mm
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:100	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH1 X	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 10 % height/diameter	00:00:00		(Serv) 0
	3.50	GP	General Condition photograph	00:00:00	5_4a	(Misc) 0
	12.60	FH	Finish Survey: MH	00:00:00	2_5a	(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:

Amelthyst Lane

Date:

16/03/2023

section number:

1

PLR:

MH1 X X

Photo: 5_4a, 00:00:00
3.5m, General Condition photograph



Photo: 2_5a, 00:00:00
12.6m, Finish Survey: MH



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Essex
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Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 2	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH1 A
Place:	District:	end MH:
Location:	Tape No.:	Total length: 25 m

Purpose:	Shape/Size: Circular 150?
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:200	position	code	observation	counter	photo	grade
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	11.00	DE	Debris, 5 % cross-sectional area loss	00:00:00	11_4a	(Serv) 1
	17.50	DE	Debris, 10 % cross-sectional area loss	00:00:00	12_5a	(Serv) 1
	18.20	S1 DES	Debris silt, 5 % cross-sectional area loss, Start	00:00:00	13_6a	(Serv) 1
	21.70	DE	Debris, 15 % cross-sectional area loss	00:00:00	14_7a	(Serv) 1
	24.00	DE	Debris, 10 % cross-sectional area loss	00:00:00	15_8a	(Serv) 1
	25.00	F1 DES	Debris silt, 5 % cross-sectional area loss, Finish	00:00:00		(Serv) 1
	25.00	SA	Survey abandoned, Remark: Restricted leverage.	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:
Amelthyst Lane

Date:
16/03/2023

section number:
2

PLR:
? X



Photo: 11_4a, 00:00:00
11m, Debris, 5 % cross-sectional area loss



Photo: 12_5a, 00:00:00
17.5m, Debris, 10 % cross-sectional area loss



Photo: 13_6a, 00:00:00
18.2m, Debris silt, 5 % cross-sectional area loss, Start



Photo: 14_7a, 00:00:00
21.7m, Debris, 15 % cross-sectional area loss

Inspection photos

Place:

Road:

Amelthyst Lane

Date:

16/03/2023

section number:

2

PLR:

? X

Photo: 15_8a, 00:00:00

24m, Debris, 10 % cross-sectional area loss



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Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 3	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH1 B
Place:	District:	end MH: MH1
Location:	Tape No.:	Total length: 17.7 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:150	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH1 B	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	1.80	DE	Debris, 5 % cross-sectional area loss	00:00:00	21_4a	(Serv) 1
	3.40	GP	General Condition photograph	00:00:00	22_5a	(Misc) 0
	16.70	DE	Debris, 5 % cross-sectional area loss	00:00:00	23_6a	(Serv) 1
	17.70	FH	Finish Survey, Remark: MH1	00:00:00	4_7a	(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:

Date:

section number:

PLR:

Amelthyst Lane**16/03/2023****3****? X**

Photo: 21_4a, 00:00:00
1.8m, Debris, 5 % cross-sectional area loss



Photo: 22_5a, 00:00:00
3.4m, General Condition photograph



Photo: 23_6a, 00:00:00
16.7m, Debris, 5 % cross-sectional area loss



Photo: 4_7a, 00:00:00
17.7m, Finish Survey, Remark: MH1

Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 4	PLR: MH2 X X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road:	Amelthyst Lane	Division:		start MH:	MH2 X
Place:		District:		end MH:	
Location:		Tape No.:		Total length:	23 m

Purpose:		Shape/Size:	Circular 150
Use:	Foul	Material:	Vitrified clay Pipe length:
Catchment:		Lining:	
		Category:	

Comment:

Location details:

1:175	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH2 X	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	S1 DES	Debris silt, 10 % cross-sectional area loss, Start	00:00:00	28_3a, b	(Serv) 1
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	23.00	F1 DES	Debris silt, 10 % cross-sectional area loss, Finish	00:00:00		(Serv) 1
	23.00	SA	Survey abandoned, Remark: Loss of traction.	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:	Road: Amelthyst Lane	Date: 16/03/2023	section number: 4	PLR: MH2 X X
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Photo: 28_3a, 00:00:00
0.1m, Debris silt, 10 % cross-sectional area loss, Start



Photo: 28_3b, 00:00:00
0.1m, Debris silt, 10 % cross-sectional area loss, Start



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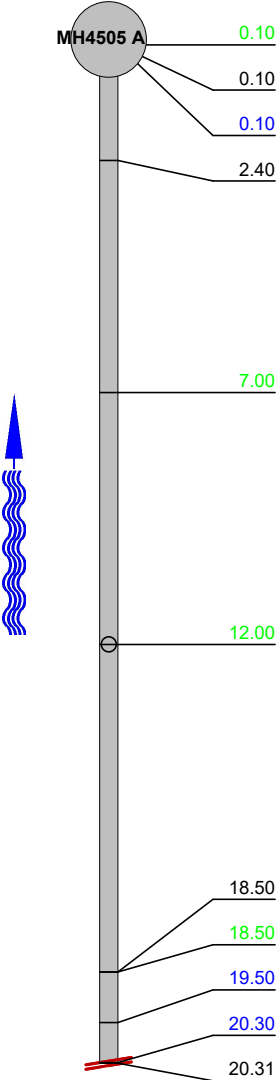
Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 5	PLR: MH4505 A X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4505 A
Place:	District:	end MH:
Location:	Tape No.:	Total length: 20.31 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:150	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4505 A	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 10 % height/diameter	00:00:00		(Serv) 0
	2.40	GP	General Condition photograph	00:00:00	6_4a	(Misc) 0
	7.00	MH	Manhole Remark: MH	00:00:00		(Constr) 0
	12.00	JN	Junction at 11 o'clock, dia 150 mm	00:00:00	6_6a	(Constr) 0
	18.50	FH	Finish Survey, Remark: MH	00:00:00		(Misc) 0
	18.50	MH	Manhole Remark: MH	00:00:00		(Constr) 0
	19.50	S1 DEG	Debris grease, from 05 to 07 o'clock, 10 % cross-sectional area loss, Start	00:00:00	41_9a	(Serv) 1
	20.30	F1 DEG	Debris grease, from 05 to 07 o'clock, 20 % cross-sectional area loss, Finish	00:00:00	43_10a	(Serv) 1
	20.31	SA	Survey abandoned, Remark: Blocked pipe.	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:
Amelthyst LaneDate:
16/03/2023section number:
5PLR:
MH4505 A X

Photo: 6_4a, 00:00:00
2.4m, General Condition photograph



Photo: 6_6a, 00:00:00
12m, Junction at 11 o'clock, dia 150 mm



Photo: 41_9a, 00:00:00
19.5m, Debris grease, from 05 to 07 o'clock, 10 %
cross-sectional area loss, Start



Photo: 43_10a, 00:00:00
20.3m, Debris grease, from 05 to 07 o'clock, 20 %
cross-sectional area loss, Finish



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Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 6	PLR: MH4505 B X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4505 B
Place:	District:	end MH: MH4801
Location:	Tape No.:	Total length: 26.8 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:200	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4505 B	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	11.70	GP	General Condition photograph	00:00:00	47_4a	(Misc) 0
	26.80	FH	Finish Survey, Remark: MH4801	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:
Amelthyst LaneDate:
16/03/2023section number:
6PLR:
MH4505 B X

Photo: 47_4a, 00:00:00
11.7m, General Condition photograph



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Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 7	PLR: MH4505 C X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4505 C
Place:	District:	end MH: MH
Location:	Tape No.:	Total length: 8.55 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:75	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4505 C	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	0.40	LR	Line of Sewer deviates right	00:00:00		(Serv) 0
	4.30	DEG	Debris grease, from 05 to 08 o'clock, 15 % cross-sectional area loss	00:00:00	53_5a	(Serv) 1
	8.50	DEG	Debris grease, from 06 to 11 o'clock, 30 % cross-sectional area loss	00:00:00	54_6a	(Serv) 1
	8.51	FH	Finish Survey, Remark: MH	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:	Road: Amelthyst Lane	Date: 16/03/2023	section number: 7	PLR: MH4505 C X
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Photo: 53_5a, 00:00:00
4.3m, Debris grease, from 05 to 08 o'clock, 15 %
cross-sectional area loss



Photo: 54_6a, 00:00:00
8.5m, Debris grease, from 06 to 11 o'clock, 30 %
cross-sectional area loss



Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 8	PLR: MH4551 X X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4551 X
Place:	District:	end MH: MH
Location:	Tape No.:	Total length: 25.9 m

Purpose:	Shape/Size: Circular 150
Use: Surface water	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:125	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4551 X	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	2.30	JN	Junction at 09 o'clock, dia 150 mm	00:00:00	59_4a	(Constr) 0
	2.80	JN	Junction at 03 o'clock, dia 150 mm	00:00:00	60_5a	(Constr) 0
	7.00	DES	Debris silt, 15 % cross-sectional area loss	00:00:00	61_6a	(Serv) 1
	15.90	FH	Finish Survey, Remark: MH	00:00:00		(Misc) 0

Inspection report

Date: 16/03/2023	Job nr.: 43954	Weather:	Operator: SJH	section number: 8	PLR: MH4551 X X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

1:125	position	code	observation	counter	photo	grade
						
Structural Defects Service Defects				Constructional Features Miscellaneous Features		

Inspection photos

Place:

Road:
Amelthyst Lane

Date:
16/03/2023

section number:
8

PLR:
MH4551 X X



Photo: 59_4a, 00:00:00
2.3m, Junction at 09 o'clock, dia 150 mm



Photo: 60_5a, 00:00:00
2.8m, Junction at 03 o'clock, dia 150 mm



Photo: 61_6a, 00:00:00
7m, Debris silt, 15 % cross-sectional area loss



Survey Solutions
Brentwood
Essex
Tel: 01277 222700, Fax:

Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 9	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4551 A
Place:	District:	end MH:
Location:	Tape No.:	Total length: 9.9 m

Purpose:	Shape/Size: Circular 150
Use: Surface water	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:75	position	code	observation	counter	photo	grade
	0.00	CU	Camera Underwater, Finish			(Misc) 0
	0.10	MH	Manhole Remark: MH4551 A	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	6.50	S1 DES	Debris silt, 30 % cross-sectional area loss, Start	00:00:00	10_4a, b	(Serv) 1
	7.80	F1 DES	Debris silt, 80 % cross-sectional area loss, Finish	00:00:00	10_5a	(Serv) 1
	7.90	MH	Manhole Remark: MH	00:00:00		(Constr) 0
	8.30	DES	Debris silt, 20 % cross-sectional area loss	00:00:00	10_7a	(Serv) 1
	8.85	WL	Water level, 50 % height/diameter			(Serv) 0
	8.90	S2 CU	Camera Underwater, Start	00:00:00		(Misc) 0
	9.40	F2 CU	Camera Underwater, Finish	00:00:00		(Misc) 0
	9.41	SA	Survey abandoned, Remark: Loss of traction.	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:

Date:

section number:

PLR:

Amelthyst Lane**16/03/2023****9****? X**

Photo: 10_4a, 00:00:00
6.5m, Debris silt, 30 % cross-sectional area loss, Start



Photo: 10_4b, 00:00:00
6.5m, Debris silt, 30 % cross-sectional area loss, Start



Photo: 10_5a, 00:00:00
7.8m, Debris silt, 80 % cross-sectional area loss, Finish



Photo: 10_7a, 00:00:00
8.3m, Debris silt, 20 % cross-sectional area loss



Survey Solutions
Brentwood
Essex
Tel: 01277 222700, Fax:

Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 10	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4551 B
Place:	District:	end MH:
Location:	Tape No.:	Total length: 20.7 m

Purpose:	Shape/Size: Circular 150
Use: Surface water	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:175	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4551 B	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.20	S1 DES	Debris silt, 10 % cross-sectional area loss, Start	00:00:00	78_3a	(Serv) 1
	0.50	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	16.00	WL	Water level, 10 % height/diameter	00:00:00		(Serv) 0
	16.90	JN	Junction at 11 o'clock, dia 80 mm	00:00:00	81_6a	(Constr) 0
	18.60	F1 DES	Debris silt, 0 % cross-sectional area loss, Finish	00:00:00	82_7a	(Serv) 1
	19.40	JN	Junction at 03 o'clock, dia 80 mm	00:00:00	83_8a	(Constr) 0
	20.00	S1 DES	Debris silt, 10 % cross-sectional area loss, Start	00:00:00	84_9a	(Serv) 1
	20.60	F1 DES	Debris silt, 10 % cross-sectional area loss, Finish	00:00:00	86_10a	(Serv) 1
	20.70	SA	Survey abandoned, Remark: Loss of traction.	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:
Amelthyst Lane

Date:
16/03/2023

section number:
10

PLR:
? X



Photo: 78_3a, 00:00:00
0.2m, Debris silt, 10 % cross-sectional area loss, Start



Photo: 81_6a, 00:00:00
16.9m, Junction at 11 o'clock, dia 80 mm



Photo: 82_7a, 00:00:00
18.6m, Debris silt, 0 % cross-sectional area loss, Finish



Photo: 83_8a, 00:00:00
19.4m, Junction at 03 o'clock, dia 80 mm

Inspection photos

Place:

Road:
Amelthyst Lane

Date:
16/03/2023

section number:
10

PLR:
? X



Photo: 84_9a, 00:00:00
20m, Debris silt, 10 % cross-sectional area loss, Start



Photo: 86_10a, 00:00:00
20.6m, Debris silt, 10 % cross-sectional area loss, Finish



Survey Solutions
Brentwood
Essex
Tel: 01277 222700, Fax:

Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 11	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4601 A
Place:	District:	end MH: MH
Location:	Tape No.:	Total length: 13.55 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:

Location details:

1:100	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4601 A	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	9.10	LL	Line of Sewer deviates left	00:00:00		(Serv) 0
	9.30	S1 DES	Debris silt, 10 % cross-sectional area loss, Start	00:00:00	91_5a	(Serv) 1
	9.80	F1 DES	Debris silt, 10 % cross-sectional area loss, Finish	00:00:00	92_6a	(Serv) 1
	13.50	DE	Debris, 15 % cross-sectional area loss	00:00:00	93_7a, b	(Serv) 1
	13.55	FH	Finish Survey, Remark: MH	00:00:00		(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:

Date:

section number:

PLR:

Amelthyst Lane**16/03/2023****11****? X**

Photo: 91_5a, 00:00:00
9.3m, Debris silt, 10 % cross-sectional area loss, Start



Photo: 92_6a, 00:00:00
9.8m, Debris silt, 10 % cross-sectional area loss, Finish



Photo: 93_7a, 00:00:00
13.5m, Debris, 15 % cross-sectional area loss



Photo: 93_7b, 00:00:00
13.5m, Debris, 15 % cross-sectional area loss



Inspection report

Date: 16/03/2023	Job N°: 43954	Weather:	Operator: SJH	section number: 12	PLR: ? X
Present:	Vehicle:	Camera: SOLO PRO	Preset:	Cleaned:	Grade:

Road: Amelthyst Lane	Division:	start MH: MH4601 B
Place:	District:	end MH: MH
Location:	Tape No.:	Total length: 18.3 m

Purpose:	Shape/Size: Circular 150
Use: Foul	Material: Vitrified clay Pipe length:
Catchment:	Lining:
	Category:

Comment:
Location details:

1:150	position	code	observation	counter	photo	grade
	0.10	MH	Manhole Remark: MH4601 B	00:00:00		(Constr) 0
	0.10	ST	Start of Survey	00:00:00		(Misc) 0
	0.10	WL	Water level, 5 % height/diameter	00:00:00		(Serv) 0
	6.10	GP	General Condition photograph	00:00:00	99_4a	(Misc) 0
	18.30	FH	Finish Survey, Remark: MH	00:00:00	100_5a	(Misc) 0

Structural Defects	Constructional Features
Service Defects	Miscellaneous Features

Inspection photos

Place:

Road:
Amelthyst LaneDate:
16/03/2023section number:
12PLR:
? X

Photo: 99_4a, 00:00:00
6.1m, General Condition photograph



Photo: 100_5a, 00:00:00
18.3m, Finish Survey, Remark: MH

Appendix C - Drainage Layout

BURIED UTILITIES RISK NOTE

- Buried utilities are present on and in the vicinity of the site.
- The Contractor must satisfy themselves that they have seen utility returns for the area and that appropriate Risk Assessment Method Statement (RAMS) are in place and implemented to ensure that buried and/or overhead services are located prior to any works taking place.
- Any RAMS shall address safe procedures for protection and working in the proximity of services.

Construction Note

It is essential that new drainage associated with the development is laid from the outfall(s) into the site. This is essential to avoid unforeseen obstructions where encountered (such as services). If the drainage is laid from the site out to the outfall it can result in significant abortive works to relay and overcome such obstructions.

Location of Public Sewers have been taken from record drawings which should be fully substantiated by the contractor prior to commencing works on site

All manholes covers located within carriageways shall have no slip covers to prevent motorcycles/cycles losing control

Manhole schedules - Invert level shown related to the deepest pipe within the chamber

All adaptable drainage works to follow the requirements of Water UK - Design and Construction Guide (DCG).

DESIGNERS CDM NOTE - RESIDUAL RISKS IDENTIFIED

The design Engineer(s) have analysed this design as the scheme has been developed, in order to identify if there are any significant residual risk hazards (i.e. unusual, unexpected, abnormal or difficult).

Residual risks **HAVE** been identified and are therefore shown on this drawing. These risks have not been possible to remove by design.

This statement assumes that a competent Contractor with the appropriate qualified staff will be employed for the works, and that they will be familiar with site wide construction risks and hazards that they can reasonably be expected to encounter as part of their work.

Drainage Strategy

Foul Drainage

Gravity system discharging into existing Thames Water foul sewer adjacent to the site. Drainage connection subject to section 106 application.

Surface Water Drainage

Consists of interlinked gravity fed permeable paving and swales, conveying roof runoff to discharge through a hydro brake at a rate of 5 l/s to Thames water surface water sewer.

System will have fail safe exceedance overflow into existing public road, which also flows to the existing surface water sewer.

- CDM RESIDUAL RISK ITEM**
Overhead cables within site area.
- CDM RESIDUAL RISK ITEM**
Works within public Highway.
Danger to site personnel and general public
- CDM RESIDUAL RISK ITEM**
Existing services likely within working area.
Danger to site personnel and general public
- CDM RESIDUAL RISK ITEM**
Drainage pipes, manhole rings covers and fittings.
Risk of Manual handling injury.
- CDM RESIDUAL RISK ITEM**
Contact with waste water when making drainage connections.
Risk of infection from Weils disease etc.
- CDM RESIDUAL RISK ITEM**
Above Ground activities.
Possibility of objects falling from operations at high level onto persons working or passing below.
- CDM RESIDUAL RISK ITEM**
Works within confined spaces.



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Drainage Key	
Sewers	
	Foul water drain (private/non adaptable)
	Surface water drain (private/non adaptable)
	Foul water sewer (Adaptable)
	Surface water sewer (Adaptable)
	Highway drain (Adaptable)
Chamber Key	
FW/SW	
	Mini access chamber (mac) - 300mmØ
	PPIC - 475mmØ*
	P.C.C. units/brick*
	Manhole Depth: 1.25m to 1.5m* Depth: 1.55m to 3.0m*
* General note (Refer to standard details & longitudinal sections for chamber sizes. Size may need to increase dependant on number of incoming pipes/size of incoming pipes)	
	Surface water rodding eye
	Rain water down pipe (roddable access)
	Soil vent pipe/soil stack
	Silt Trap (ST) with removable silt bucket
	S1/F1 Manhole reference number
	RWP cellular discharge/collection unit (DU) (Permavoid or similar)
	Impermeable barrier to stop lateral movement of water
	Finished Floor Level (FFL)
	Block paving - permeable
	Block paving - standard (non-permeable)
	Soft Landscaping
	Tree Pit with perforated pipe below

P03	BMK	AJG	Swale Removed and Tree Pits added	25/07/24
P02	BMK	AJG	Swale Drainage Updated	19/07/24
P01	BMK	AJG	Initial Issue	15/07/24
REV	DRAWN	CHECK	REVISION COMMENTS	ISSUE DATE
DRAWING TITLE Drainage Design				SHEET NO. 1/1
PROJECT Land at Amethyst Lane Reading RG30 2EX				
CLIENT 				
SCALE @ A1 1:250				ENGINEER AJG
PROJECT NUMBER 5725	STATUS S2	INFORMATION		DRAFT NJ
PROJECT LAAL	ORIGIN ICS	PHASE 01	LEVEL XX	APPROVED RJW
		TYPE DR	ROLE C	NO. REVISION 0200 P02

Surface Water Network						Grade 1 in	Pipe DIA (mm)	Length (m)
Manhole Reference	Invert Level (m)	Cover Level (m)	Depth (m)	Chamber Details	Cover Loading			
S0	57.590	58.58	0.99	Existing	-	141.2	150	8.4
S1	57.650	58.40	0.75	Flow Control	D400		Baffle	
S2	57.690	58.40	0.71	Diffuser	-	150.0	150	4.5
S3	57.720	58.40	0.68	Diffuser	-		Baffle	
S4	57.740	58.40	0.66	Diffuser	-	Baffle		
S5	57.760	58.40	0.64	Diffuser	-	Baffle		
S6	57.770	58.45	0.68	Diffuser	-	Baffle		
S7	57.780	58.45	0.67	Diffuser	-	Baffle		
S8	57.800	58.45	0.65	Diffuser	-	Baffle		
S9	57.990	58.60	0.61	Diffuser	-	150.0	150	1.5
S10	58.000	58.60	0.60	Diffuser	-			
S9	57.990	58.60	0.61	Diffuser	-	Baffle		
S11	58.000	58.60	0.60	Diffuser	-			
S2	57.690	58.40	0.71	Diffuser	-	60.0	150	7.7
S12	57.818	58.65	0.83	PPIC S/T Ø450	A15		60.0	150
S13	58.075	58.65	0.58	MAC Ø300	A15			
S12	57.818	58.65	0.83	PPIC S/T Ø450	A15	20.0	150	5.1
S14	58.073	58.65	0.58	MAC Ø300	A15			
S2	57.690	58.40	0.71	Diffuser	-	13.0	150	4.7
S15	58.052	58.65	0.60	PPIC S/T Ø450	A15			
S2	57.690	58.40	0.71	Diffuser	-	5.5	150	2.1
S16	58.072	58.65	0.58	PPIC S/T Ø450	A15			
S4	57.740	58.45	0.71	Diffuser	-	12.0	150	3.8
S17	58.057	58.65	0.59	PPIC S/T Ø450	A15			
S5	57.760	58.40	0.64	PPIC S/T Ø450	A15	12.0	150	3.5
S18	58.052	58.65	0.60	PPIC S/T Ø450	A15			
S6	57.770	58.45	0.68	PPIC S/T Ø450	A15	10.0	150	2.9
S19	58.060	58.65	0.59	PPIC S/T Ø450	A15		60.0	150
S6	57.770	58.45	0.68	PPIC S/T Ø450	A15	60.0	150	1.8
S20	57.800	58.65	0.85	PPIC S/T Ø450	A15		120.0	150
S21	58.034	58.65	0.62	PPIC S/T Ø450	A15			
S20	57.800	58.65	0.85	PPIC S/T Ø450	A15	120.0	150	4.6
Junction	57.838	58.65	0.81	Junction	-		60.0	150
S22	58.020	58.65	0.63	MAC Ø300	A15			
S20	57.800	58.65	0.85	PPIC S/T Ø450	A15	120.0	150	10.4
Junction	57.887	58.65	0.76	PPIC S/T Ø450	A15		150.0	150
S23	57.975	58.40	0.43	PPIC S/T Ø450	A15	150.0	150	12.5
S40	58.058	58.40	0.34	MAC Ø300	A15			
S6	57.770	58.45	0.68	Diffuser	-	150.0	150	1.8
S24	57.782	58.35	0.57	Junction	-		150.0	150
S25	57.806	58.45	0.64	PPIC S/T Ø450	A15			
S5	57.760	58.40	0.64	Diffuser	-	150.0	150	8.7
S26	57.818	58.55	0.73	PPIC S/T Ø450	A15		150.0	150
S27	57.941	58.55	0.61	PPIC S/T Ø450	A15	150.0	150	13.2
S7	57.780	58.45	0.67	Diffuser	-	20.0	150	3.3
S28	57.945	58.55	0.60	PPIC S/T Ø450	A15		150.0	150
S6	57.770	58.45	0.68	Diffuser	-	150.0	150	14.6
S29	57.867	58.35	0.48	Junction	-		60.0	150
S30	57.926	58.40	0.47	PPIC Ø450	A15			
S8	57.800	58.45	0.65	Diffuser	-	60.0	150	3.3
S31	57.855	58.45	0.60	PPIC S/T Ø450	A15			
S8	57.800	58.45	0.65	Diffuser	-	150.0	150	27.6
S32	57.984	58.35	0.37	Junction	-		60.0	150
S33	58.041	58.45	0.41	PPIC S/T Ø450	A15			
S9	57.990	58.60	0.61	Diffuser	-	150.0	150	4.0
S34	58.017	58.70	0.68	PPIC S/T Ø450	A15		40.0	150
S35	58.289	58.70	0.41	MAC Ø300	A15			
S9	57.990	58.60	0.61	Diffuser	-	150.0	150	5.5
S36	58.027	58.70	0.67	PPIC S/T Ø450	A15		40.0	150
S37	58.299	58.70	0.40	MAC Ø300	A15	60.0	150	
S10	58.000	58.60	0.60	Diffuser	-	150.0	150	4.8
S38	58.032	58.70	0.67	PPIC S/T Ø450	A15		40.0	150
S39	58.300	58.70	0.40	MAC Ø300	A15			
S11	58.000	58.60	0.60	Diffuser	-	150.0	150	4.5
S41	58.030	58.70	0.67	PPIC S/T Ø450	A15		40.0	150
S42	58.303	58.70	0.40	MAC Ø300	A15			
S11	58.000	58.60	0.60	Diffuser	-	150.0	150	8.0
S43	58.053	58.70	0.65	PPIC S/T Ø450	A15		150.0	150
S44	58.113	58.70	0.59	PPIC S/T Ø450	A15	150.0	150	10.8
S45	58.185	58.70	0.52	MAC Ø300	A15			

Foul Water Network						Grade 1 in	Pipe DIA (mm)	Length (m)
Manhole Reference	Invert Level (m)	Cover Level (m)	Depth (m)	Chamber Details	Cover Loading			
F0	56.910	58.67	1.76	Existing	-	150.0	150	3.2
F1	56.931	58.60	1.67	1200Ø PCC	B125	150.0	150	5.5
F2	56.968	58.60	1.63	1200Ø PCC	B125	150.0	150	19.2
F3	57.096	58.60	1.50	1200Ø PCC	B125	150.0	150	16.7
F4	57.207	58.40	1.19	1200Ø PCC	B125	150.0	150	10.2
F5	57.275	58.40	1.12	1200Ø PCC	B125	150.0	150	14.4
F6	57.371	58.40	1.03	1200Ø PCC	B125	150.0	100	37.9
F7	57.624	58.70	1.08	1200Ø PCC	B125	150.0	100	30.8
F8	57.829	58.70	0.87	PPIC Ø450 Type D	B125			
F7	57.624	58.70	1.08	1200Ø PCC	B125			
F9	57.700	58.70	1.00	PPIC Ø450 Type D	B125	150.0	100	11.4
F6	57.371	58.40	1.03	1200Ø PCC	B125			
F10	57.595	58.40	0.81	PPIC Ø450 Type D	B125	60.0	100	13.4
F11	57.955	58.40	0.45	PPIC Ø450 Type D	B125	60.0	100	21.6
F2	56.968	58.60	1.63	1200Ø PCC	B125			
F12	57.098	58.60	1.50	PPIC Ø450	B125	40.0	100	5.2
F13	57.421	58.60	1.18	PPIC Ø450	B125	40.0	100	12.9
F14	57.863	58.60	0.74	PPIC Ø450	B125	40.0	100	17.7
F1	56.931	58.60	1.67	1200Ø PCC	B125			
F15	57.276	58.60	1.32	PPIC Ø450	B125	40.0	100	13.8

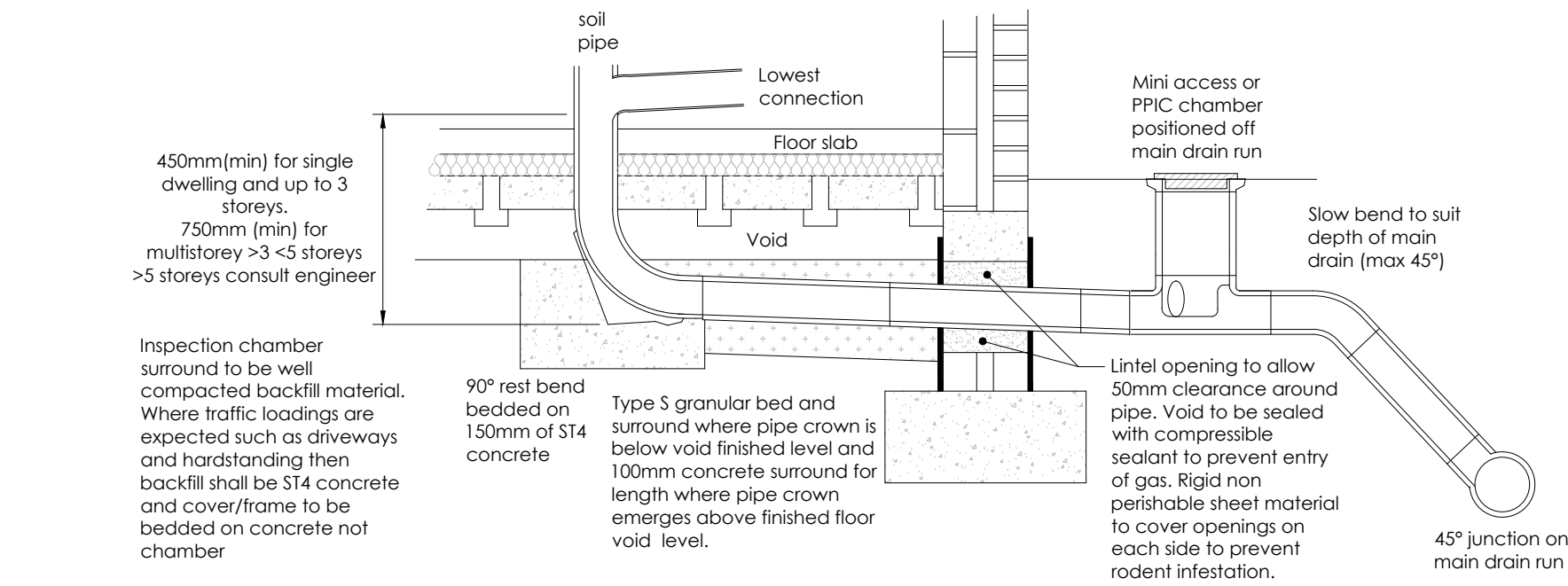
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P03	BMK	AJG	Swales Removed	25/07/24
P02	BMK	AJG	Swale Drainage Updated	19/07/24
P01	BMK	AJG	Initial Issue	15/07/24
REV	DRAWN	CHECK	REVISION COMMENTS	ISSUE DATE
Drawing schedule				SHEET NO. 1/1
PROJECT Land at Amethyst Lane Reading RG30 2EX				
CLIENT		ENGINEER AJG DRAFT NJ APPROVED RJW		
SCALE @ A1 1:250		PROJECT NUMBER 5725		
PROJECT NUMBER 5725		STATUS S2		
PROJECT LAAL		ORIGIN ICS		
PROJECT LAAL		PHASE 01		
PROJECT LAAL		LEVEL XX		
PROJECT LAAL		TYPE DR		
PROJECT LAAL		ROLE C		
PROJECT LAAL		NO. 0201		
PROJECT LAAL		REVISION P03		

DRAINAGE NOTES

- All private drainage must comply with the current edition of DTLR Building Regulations approved document H.
- Where drainage is to be adopted it should meet with the requirements of Ofwat Code for Adoptions.
- Drainage design to be to BS EN 752:2017
- Any intended changes to the drainage design must be discussed with the Engineer. If changes are made the Engineer must be supplied with as-constructed information to enable drawings to be suitably updated for the Health & safety file.
- Before works commence the contractor should satisfy themselves that the details of the drainage system to be connected into are correct i.e. cover, invert levels, line, condition and type of sewer.
- Private access chambers are to be appropriate to the depths and loadings as follows:-

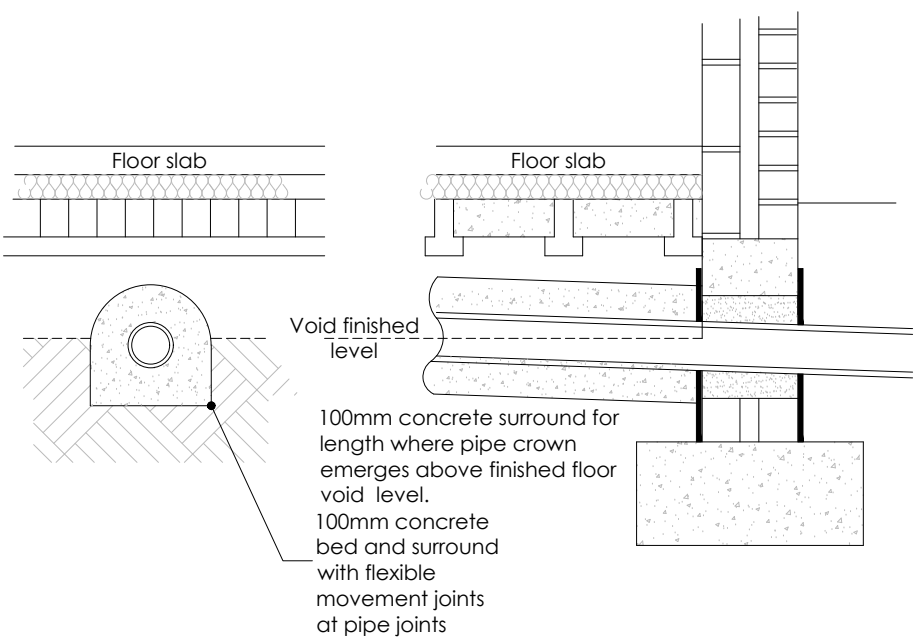
Depth to invert	Access size
Up to 600mm	Mini access chamber 300mmØ
Up to 1200mm	Inspection chamber 475mm Ø (PPIC)
1200 to 1500mm	600mmx450mm Brick/P.C.C units
1500 to 3000mm	P.C.C ring manhole 1050mmØ
	P.C.C. ring manhole 1200mmØ
	(ring diameter increased if sewer greater than 475mmØ).
- All manholes shall have a flexible joint within 150mm of the face of the structure and a "rocker pipe" which should not exceed 600mm in length.
- Pipe materials shall be -
Vitrified clayware to BS EN 295
Cast iron to BS EN 545:2010
UPVC - BS EN 1401 PP - BS EN 1852
Structure wall -BS EN 13476
- For private sewers having 900mm or less cover beneath carriageways & hardstanding or 600mm in landscape areas then they shall have concrete surround or slab protection. Slab protection to be 100mm thick C20concrete slab with mesh reinforcement and a bearing of 150mm each side of the trench. Concrete surround to be 150mm C20 with flexible joints.
- Trenches within 1.2m of load bearing walls should be filled with concrete at least to the underside of the foundation. Where the distance is more than 1.2m from the foundations the concrete should be taken at least up to a 45degree line from the bottom of the foundations. Alternatively, the foundations could be taken to a deeper level to avoid undermining by the drainage trench (check with the Engineer where this is required).
- Pipe bed and surround to be granular Type 5 unless otherwise noted.
- Drains passing through walls or foundations should have either an arched or lintelled opening to give 50mm clearance around the pipe. The opening shall be masked both sides with a rigid non-perishable material, or alternatively a short length of pipe may be built in solid if it is connected within 150mm to rocker pipes (max 600mm long) with flexible joints.
- Drainage under buildings should be bedded and surrounded by at least 100mm of granular material.
- Unless otherwise stated on the drawings or in the schedules then all private drainage shall be 100mmØ.
- All road gully connections to be 150mmØ and surrounded with 150mm C20 concrete surround.
- Where schemes require soakaways they shall not be positioned closer than 5m from the nearest dwelling or structure. Where solution features can occur in the underlying strata such as chalk then this distance will need to be increased to 10m.
- New connections to existing public sewers should be carried in accordance with appropriate Section 106 (Water Industry Act) 'connection consent' and also under the supervision of the Water Authority.
- Covers shall be to B.S. EN 124-2:2015
Class A15 - areas where only pedestrians have access.
Class B125 - for use in car parks and pedestrian areas where occasional vehicular access is likely.
Class C250 - areas where not extending more than 500mm from kerb face into the carriageway
Class D400 - areas where cars and lorries have access including carriageways, hard shoulders.
Cover and frames to be 150mm deep except residential cul-de-sacs
- It is recommended that drainage works should be constructed from the outfall particularly where the outfall depth is relatively shallow. If it is not possible to commence works from the outfall the contractor should satisfy themselves that the invert, line, position and type of existing outfall are correct.
- Drainage works should be protected from possible damage by construction traffic loadings during the construction period. Protection may be provided by barriers. materials should not be stored over drainage works.
- Buildings up to 3 storeys shall have a rest bend at the base of the soil stack. 450mm min below the invert of the lowest incoming drain. Buildings over 3 storeys must be a minimum of 750mm below the lowest incoming drain. Buildings over 5 storeys then the ground floor drainage connections should have their own connections to the external drain.
- Where piling works are undertaken the positions of existing sewers must be accurately located before piling takes place.



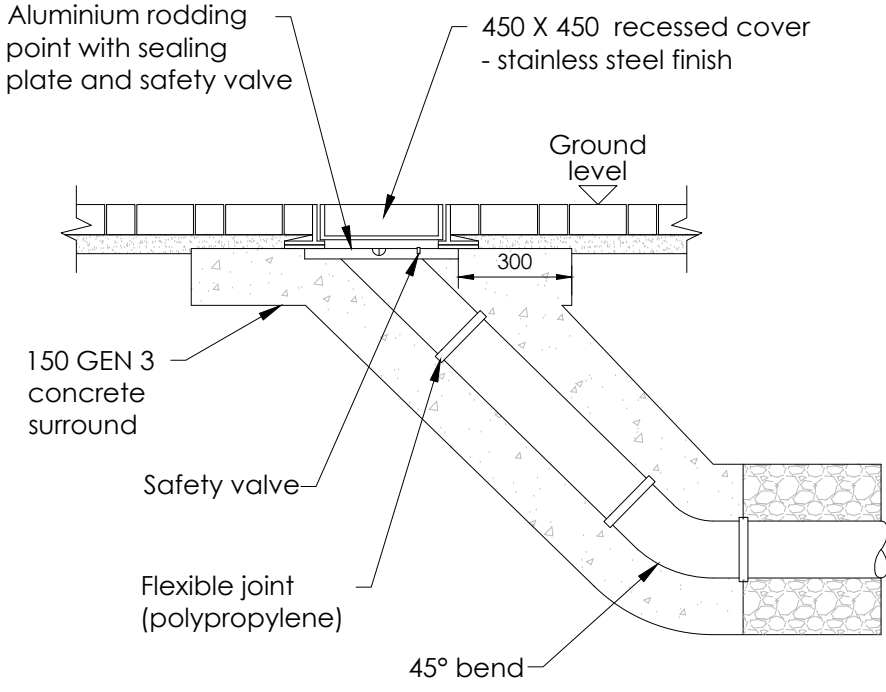
POLYPROPYLENE INSPECTION CHAMBER - PPIC

MINI ACCESS CHAMBER

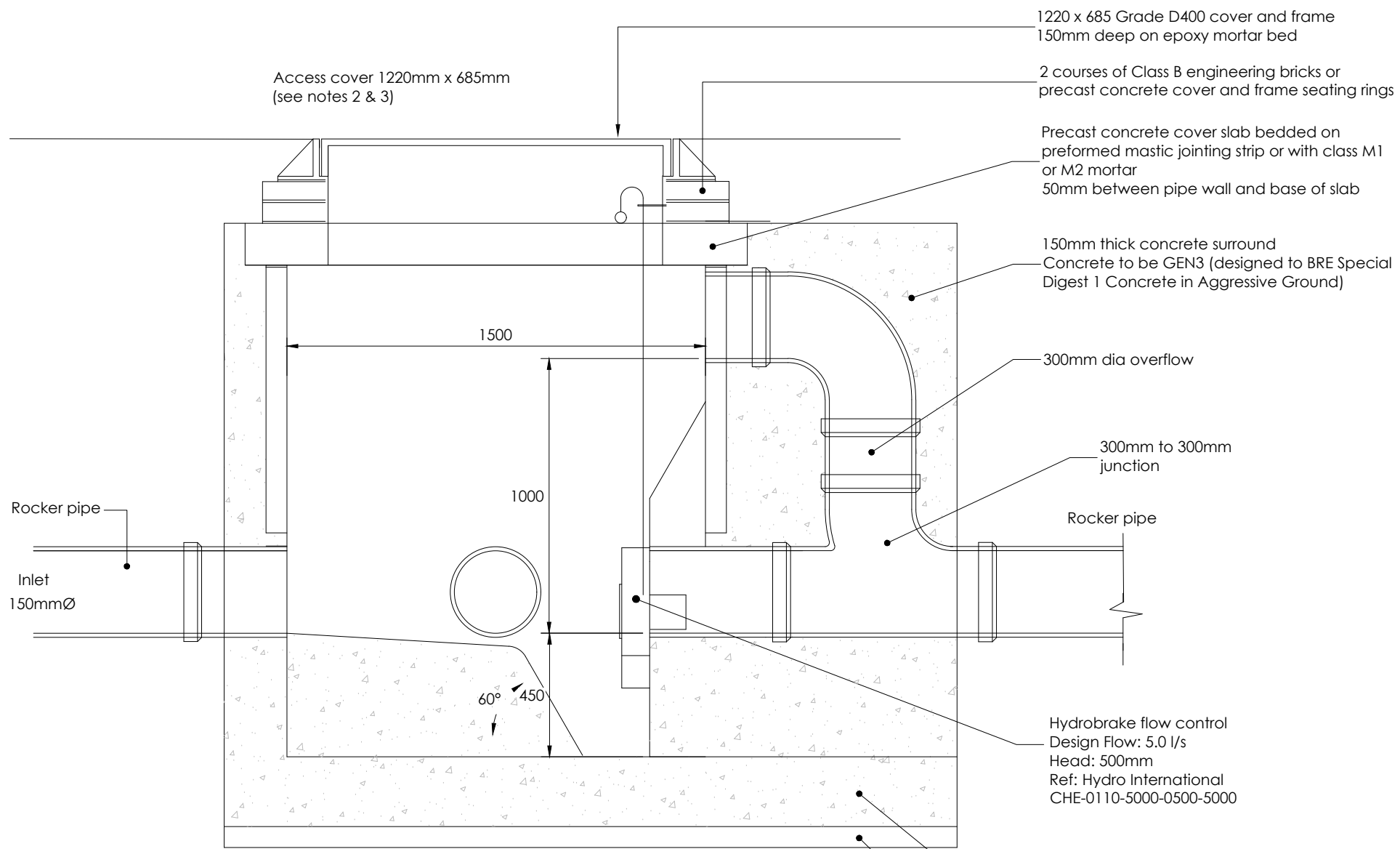
Chamber Type	Internal Diameter (mm)	Max. No. Inlets	Max. Depth (mm)
Polypropylene Mini Access Chamber (mac)	300	3	600
Polypropylene Inspection Chamber (PPIC)	475	5	1200



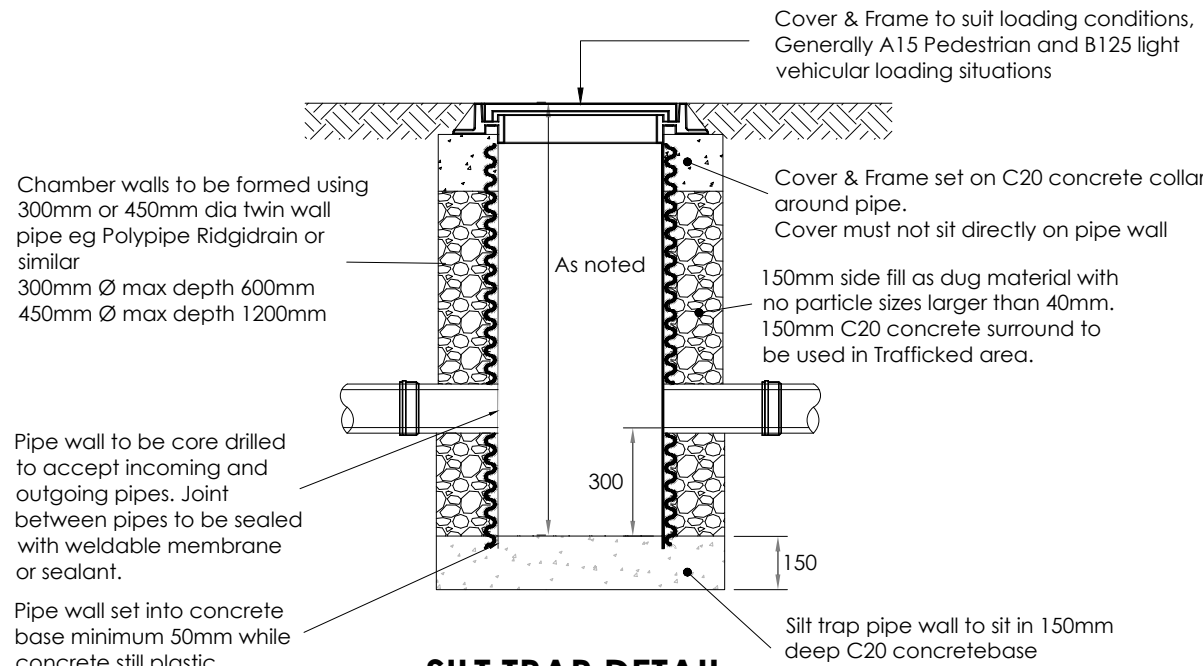
- Where chambers are positioned on 90° corners always use the main channel by fitting a 45° angle bend on the inlet and outlet.
- Bends up to a max 45° angle can be used on any inlet
- Heaviest flow should always be directed through the main channel.
- Short steep connections should preferably be connected via a 45 ° inlet using a bend where necessary.
- In buildings up to 3 storeys the rest bend at the base of the soil stack should be 450mm below the invert of the lowest incoming drain. In buildings over 3 storeys this should be increased to 750mm. In buildings over 5 storeys the ground floor drainage connections should have their own connections to the external drain.



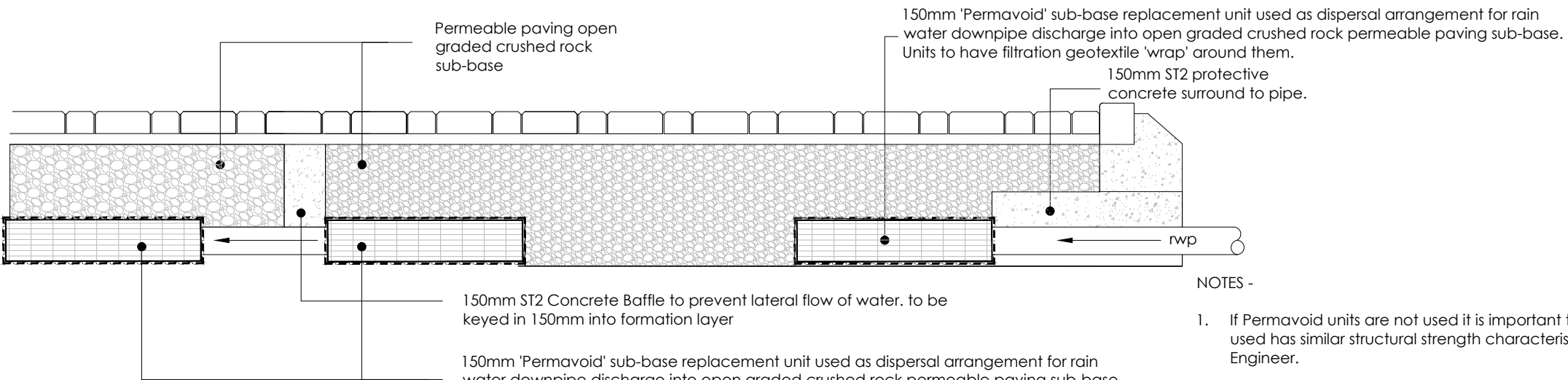
RECESSED RODDING EYE



HYDROBRAKE CONSTRUCTION

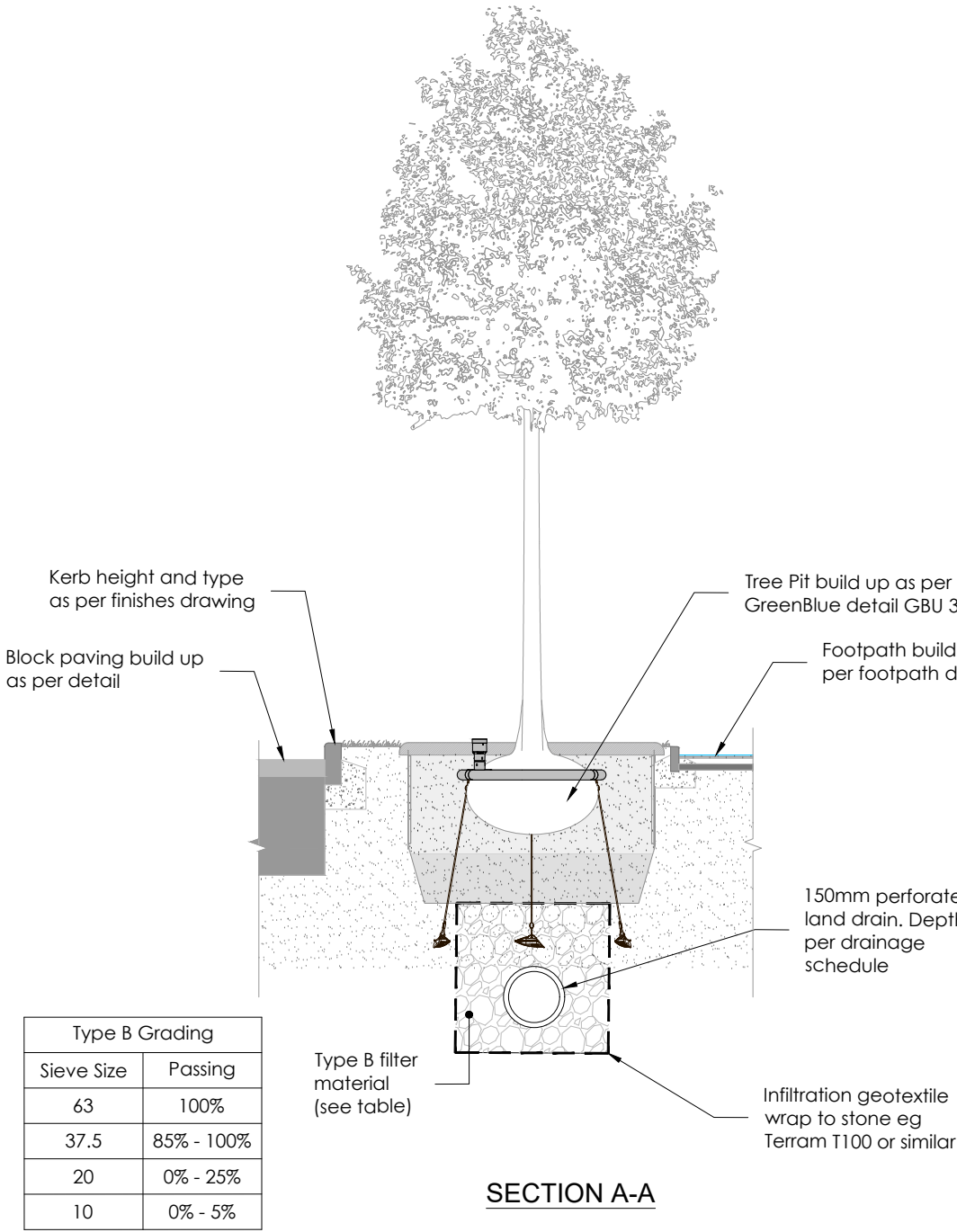


SILT TRAP DETAIL



PERMEABLE PAVING LINK PIPE INLET/OUTFALL DETAIL with BAFFLE

- NOTES -
- If Permavoid units are not used it is important that the alternative unit used has similar structural strength characteristics. If in doubt contact the Engineer.
 - Cellular unit to be located within open graded crushed rock sub-base.
 - Last chamber upstream of discharge units must be a catchpit to prevent silt and debris from entering discharge unit.
 - Where the invert level of the discharge unit is below the formation level of the open graded sub-base then local deepening of the sub-base should take place to give a minimum surround of 300mm each side and bed of 100mm. A filtration geotextile should be placed at the new formation level beneath the discharge unit.



SECTION A-A

Type B Grading	Sieve Size	Passing
	63	100%
	37.5	85% - 100%
	20	0% - 25%
	10	0% - 5%

NOTES

- All dimensions and levels are in metres unless otherwise noted
- This drawing is to be read in conjunction with the relevant Architect's/Engineer's drawings, specifications and CDM documentation
- This drawing has been produced electronically and may have been photo reduced or enlarged when copied. Work to figured dimensions only (DO NOT SCALE - EXCEPT FOR PLANNING PURPOSES). All dimensions to be checked on site. Any errors or omissions to be reported to the engineer immediately.
- This drawing contains coloured lines / information that may not be clear if reproduced in black and white.
- Digital copies of this plan can only be considered accurate if supplied directly by Infrastruct CS Ltd.

P02	BMK	AJG	Swiae removed and free pit added	25/07/24
P01	BMK	AJG	Initial issue	19/07/24
REV	DRAWN	CHECK	REVISION COMMENTS	ISSUE DATE
DRAWING TITLE				SHEET NO.
Private Details				1/1
PROJECT				
Land at Amethyst Lane Reading RG30 2EX				
CLIENT				
				
SCALE @ A1 1:250				ENGINEER AJG
PROJECT NUMBER 5725		STATUS S2		DRAFT NJ
ISSUE PURPOSE INFORMATION		APPROVED RJV		
PROJECT LAAL	ORIGIN ICS	PHASE 01	LEVEL XX	TYPE DR
ROLE C	NO. 0400	REVISION P02		

1. All private drainage must comply with the current edition of DTLR Building Regulations approved document H.
2. Where drainage is to be adopted it should meet with the requirements of Ofwat Code for Adoptions.
3. Drainage design to be to BS EN 752:2017

5. Before works commence the contractor should satisfy themselves that the details of the drainage system to be connected into are correct i.e. cover, invert levels, line, condition and type of sewer.

6. Private access chambers are to be appropriate to the depths and loadings as follows:-

Depth to invert	Access size
Up to 600mm	Mini access chamber 300mmØ
Up to 1200mm	Inspection chamber 475mm Ø (PPIC) 600mmx450mm Brick/P.C.C units
1200 to 1500mm	P.C.C ring manhole 1050mmØ
1500 to 3000mm	P.C.C. ring manhole 1200mmØ <i>ring diameter increased if sewer</i>

7. All manholes shall have a flexible joint within 150mm of the face of the structure and a "rocker pipe " which should not exceed 600mm in length.

8. Pipe materials shall be -
Vitrified clayware to BS EN 295
Cast iron to BS EN 545:2010
UPVC - BS EN 1401 PP - BS EN 1852
Structure wall -BS EN 13476

9. For private sewers having 900mm or less cover beneath carriageways & hardstanding or 600mm in landscape areas then they shall have concrete surround or slab protection. Slab protection to be 100mm thick C20 concrete slab with mesh reinforcement and a bearing of 150mm each side of the trench. Concrete surround to be 150mm C20 with flexible joints.

10. Trenches within 1.2m of load bearing walls should be filled with concrete at least to the underside of the foundation. Where the distance is more than 1.2m from the foundations the concrete should be taken at least up to a 45degree line from the bottom of the foundations. Alternatively, the foundations could be taken to a deeper level to avoid undermining by the drainage trench (check with the Engineer where this is required).

11. Pipe bed and surround to be granular Type S unless otherwise noted.

12. Drains passing through walls or foundations should have either an arched or lintelled opening to give 50mm clearance around the pipe. The opening shall be masked both sides with a rigid non-perishable material, or alternatively a short length of pipe may be built in solid if it is connected within 150mm to rocker pipes (max 600mm long) with flexible joints.

13. Drainage under buildings should be bedded and surrounded by at least 100mm of granular material.

14. Unless otherwise stated on the drawings or in the schedules then all private drainage shall be 100mmØ.

15. All road gully connections to be 150mmØ and surrounded with 150mm C20 concrete surround.

16. Where schemes require soakaways they shall not be positioned closer than 5m from the nearest dwelling or structure. Where solution features can occur in the underlying strata such as chalk then this distance will need to be increased to 10m.

17. New connections to existing public sewers should be carried in accordance with appropriate Section 106 (Water Industry Act) 'connection consent' and also under the supervision of the Water Authority.

18. Covers shall be to B.S. EN 124-2:2015
Class A15 - areas where only pedestrians have access.
Class B125 - for use in car parks and pedestrian areas
where occasional vehicular access is likely.

Class C250 - areas where not extending more than 500mm from kerb face into the carriageway
Class D400 - areas where cars and lorries have access including carriageways, hard shoulders.

Cover and frames to be 150mm deep except residential cul-de-sacs

19. It is recommended that drainage works should be constructed from the outfall particularly where the outfall depth is relatively shallow. If it is not possible to commence works from the outfall the contractor should satisfy themselves that the invert, line, position and type of existing outfall are correct.

20. Drainage works should be protected from possible damage by construction traffic loadings during the construction period. Protection may be provided by barriers, materials should not be stored over drainage works.

21. Buildings up to 3 storeys shall have a rest bend at the base of the soil stack 450mm min below the invert of the lowest incoming drain. Buildings over 3 storeys must be a minimum of 750mm below the lowest incoming drain. Buildings over 5 storeys then the ground floor drainage connections should have their own connections to the external drain.

22. Where piling works are undertaken the positions of existing sewers must be accurately located before piling takes place.

Mortar bed and haunching to cover and frame to Clause E6.7 of SA7th Edition

600mm x 600mm clear opening cover comply with BS EN 124 and BS 7903 Clause E2.32 of SA7th Edition

Minimum 2 courses of Class B engineering bricks or precast concrete cover and frame sealing rings

675mm maximum to first ladder rung from cover level

lifting eyes in concrete rings to be pointed

In-situ concrete to be Gen3 (designed to BRE Special Digest 1 Concrete in Aggressive Ground)

High-strength concrete topping to be brought up to a dense smooth face, neatly shaped and finished to all branch connections (minimum thickness 20mm)

Construction joint

Self-cleaning toe holes to be provided where channel exceeds 600mm wide

Inverts to be formed using channel pipes

900mm clear access behind ladder

Clause B3.2.13 for PC ring diameter

600mm x 600mm clear opening cover comply with BS EN 124 and BS 7903 Clause E2.32 of SA7th Edition

Minimum clear access 600mm

Precast concrete manhole sections and cover slab to be bedded with mortar, plastomeric or elastomeric seal conforming to BS EN 1917 and BS 5911-3 see Clause E2.29 SA7th Edition

Alternative

Precast concrete manhole sections and cover slab to be bedded with mortar, plastomeric or elastomeric seal conforming to BS EN 1917 and BS 5911-3 see Clause E2.29 SA7th Edition Chamber wall to be minimum 125mm with no concrete surround

150mm concrete surround (see also alternative construction shown above)

Chamber height (not less than 2000mm)

Benching slope to be 1:10 to 1:30

The bottom precast manhole ring to be built into base concrete minimum 75mm

Distance between top of pipe and underside of precast section to be minimum 50mm to maximum 300mm

225mm to underside of channel

Joints to be as close as possible to face of manhole to permit satisfactory joint and subsequent movement

Pipe joint with channel to be located minimum 100mm inside face of manhole

Double step rungs in accordance with BS EN 13101 Clause E2.33 SA 7th Edition for double step details

Pipe Ø	Rocker Pipe Length
150 - 600	0.6
601 - 750	1.0
over 750	1.25

Recommended rocker pipe length
away from structure Table E.12
from Clause E6.6 of SA 7th edition

Nominal Bore of Pipe (mm)	Alternative Aggregate Sizes (mm)		CF Value Max
	Single-Sized	Graded	
100-150	10	-	0.2
225-300	10 or 14	14 to 5	0.2
375-525	10, 14 or 20	14 to 5 or 20 to 5	0.2
Exceeding	14, 20 or 40	14 to 5 or 20 to 5 or 40 to 5	0.15 0.5

The diagram illustrates two cross-sections of a trench excavation for a Type 1 sub-base and a Type S sub-base. Both sections show a trench excavation with a backfill material, a 50mm compressible layer beneath the slab, and a 150mm nominal size aggregate. The Type 1 sub-base is shown with a 150mm nominal size aggregate and a 150mm nominal size aggregate. The Type S sub-base is shown with a 150mm nominal size aggregate and a 150mm nominal size aggregate. The diagram also shows the trench excavation backfill material under the carriageway and loadbearing areas to be Type 1 sub-base or Type S granular bed and surround. The trench excavation backfill material under the carriageway and loadbearing areas to be Type 1 sub-base or Type S granular bed and surround. The trench excavation backfill material under the carriageway and loadbearing areas to be Type 1 sub-base or Type S granular bed and surround.

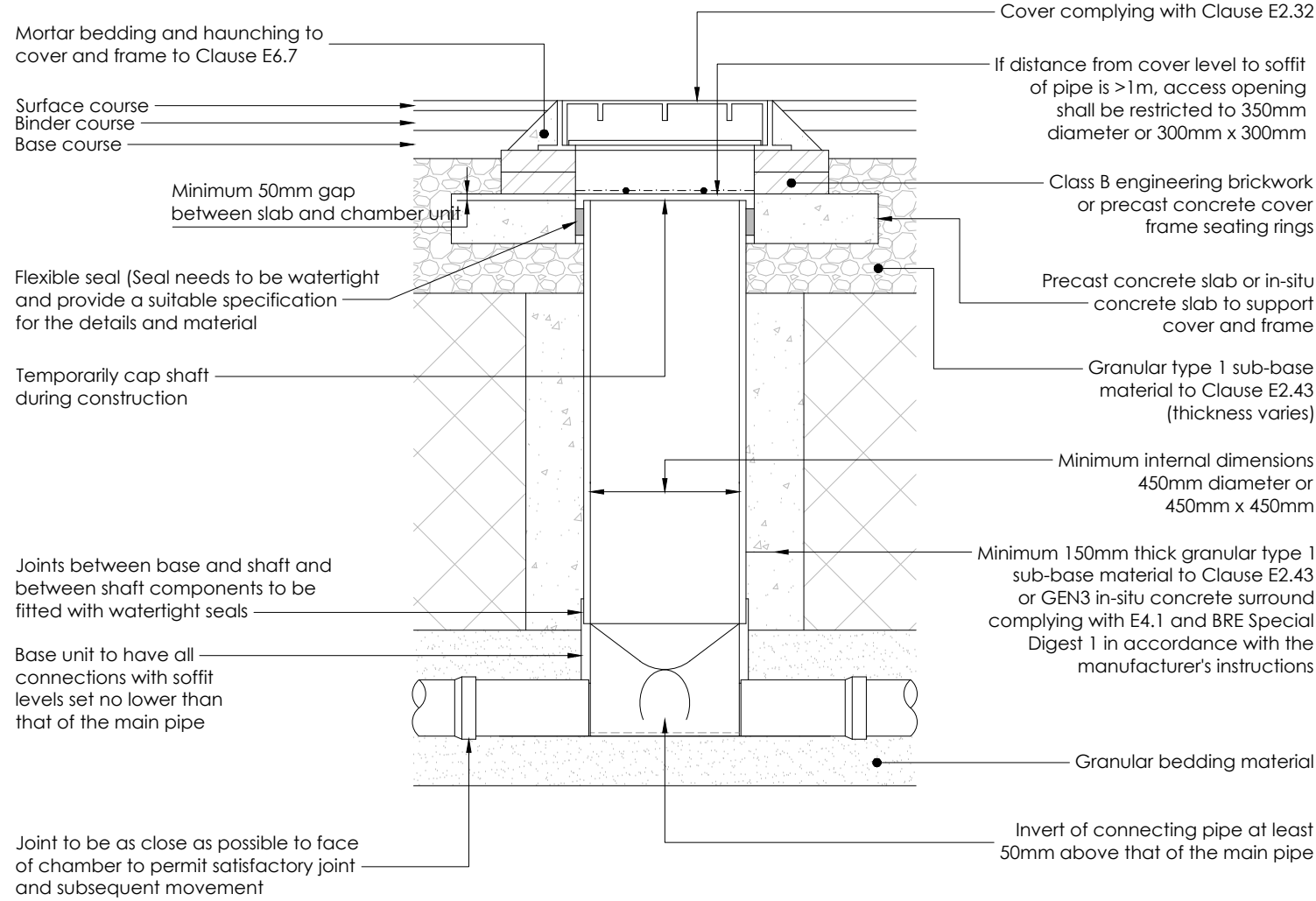
To be used where cover to pipe soffit is greater than 900mm in vehicular areas and greater than 600mm in non-trafficked areas (ie footpaths, verges, etc)

PIPE DIA	TRENCH WIDTH	Tw
150	600	
225	700	
300	750	
375	1050	
450	1150	
525	1200	
600	1350	
675	1450	
750	1500	
825	1600	
900	1900	
1050	2050	
1200	2300	

To be used where cover to pipe soffit is less than 900mm in vehicular areas and 600mm in non-trafficked areas (ie footpaths, verges, etc)

Depth from cover level to soffit of pipe up to 3m
Flexible material construction for use in areas subject to vehicle loading

Plastic chambers and rings shall comply with Clause E2.31



Note: Where the access chamber is in the highway (including any footway), the highway authority can have specific requirements

To be used where cover to pipe soffit is less than 900mm in vehicular areas and 600mm in non-trafficked areas (ie footpaths, verges, etc)

Pipe nominal size (DN)	Pipe Bedding Requirement (mm)
100	10 nominal single size
over 100 to 150	10 or 14mm nominal single size or 14mm to 5mm graded
over 150 to 300	10, 14 or 20mm nominal single-size or 14mm to 5mm graded or 20mm to 5mm graded 20mm to 5mm graded
over 300 to 550	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded
over 550	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded

GRANULAR BEDDING AND SIDEFILL MATERIAL GRADINGS

Appendix D - Drainage Calculations

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area

Type : Catchment Area

Area (ha)	0.006
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (1)

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (2)

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (3)

Type : Catchment Area

Area (ha)	0.007
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (4)

Type : Catchment Area

Area (ha)	0.005
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (5)

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (6)

Type : Catchment Area

Area (ha)	0.019
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (7)

Type : Catchment Area

Area (ha)	0.032
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (8)

Type : Catchment Area

Area (ha)	0.013
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		





Catchment Area (9)

Type : Catchment Area

Area (ha)

0.009

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (10)

Type : Catchment Area

Area (ha)

0.012

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (11)

Type : Catchment Area

Area (ha)

0.011

Dynamic Sizing	
Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (12)

Type : Catchment Area

Area (ha)	0.01
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (13)

Type : Catchment Area

Area (ha)	0.009
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (14)

Type : Catchment Area

Area (ha)	0.014
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (15)

Type : Catchment Area

Area (ha)	0.021
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (16)

Type : Catchment Area

Area (ha)	0.017
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.950
Winter Volumetric Runoff	0.950
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (17)

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		





Catchment Area (18)

Type : Catchment Area

Area (ha)	0.01
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (19)

Type : Catchment Area

Area (ha)	0.005
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (20)

Type : Catchment Area

Area (ha)	0.006
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		





Catchment Area (21)

Type : Catchment Area

Area (ha)	0.005
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (22)

Type : Catchment Area

Area (ha)	0.003
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (23)

Type : Catchment Area

Area (ha)	0.007
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (24)

Type : Catchment Area

Area (ha)	0.006
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (25)

Type : Catchment Area

Area (ha)	0.008
-----------	-------

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (26)

Type : Catchment Area

Area (ha)	0.008
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Catchment Area (27)

Type : Catchment Area

Area (ha)	0.011
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (28)

Type : Catchment Area

Area (ha)	0.006
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100



Catchment Area (29)

Type : Catchment Area

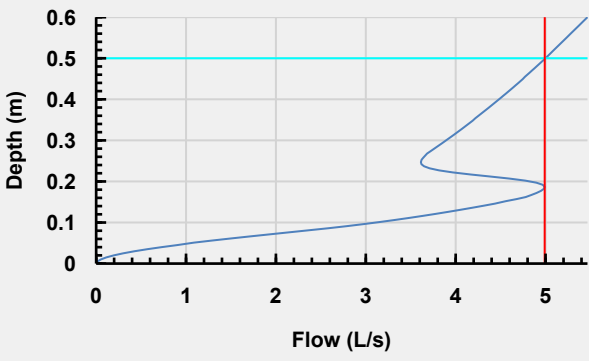
Area (ha)	0.005
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
Report Details: Type: Junctions Storm Phase: Phase		Designed by: BMK	Checked by:		Approved By:
		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			

Outlets

Junction	Outlet Name	Outgoing Connection	Outlet Type
Manhole	Outlet	Pipe (10)	Free Discharge
Manhole (1)	Outlet	Pipe (11)	Free Discharge
Flow Control	Outlet	Pipe (9)	Hydro-Brake®
	Invert Level (m)	57.650	
	Design Depth (m)	0.500	
	Design Flow (L/s)	5.0	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0110-5000-0500-5000	
			
Manhole (2)	Outlet	Pipe (17)	Free Discharge
Manhole (3)	Outlet	Pipe (15)	Free Discharge
Manhole (4)	Outlet	Pipe (13)	Free Discharge
Manhole (5)	Outlet	Pipe (16)	Free Discharge
Manhole (6)	Outlet	Pipe (14)	Free Discharge
Manhole (7)	Outlet	Pipe (18)	Free Discharge
Manhole (8)	Outlet	Pipe (19)	Free Discharge
Manhole (9)	Outlet	Pipe (20)	Free Discharge
Manhole (10)	Outlet	Pipe (21)	Free Discharge
Manhole (11)	Outlet	Pipe (23)	Free Discharge
Manhole (12)	Outlet	Pipe (22)	Free Discharge
Manhole (13)	Outlet	Pipe (24)	Free Discharge
Manhole (14)	Outlet	Pipe (25)	Free Discharge

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving

Type : Porous Paving

Dimensions	
Exceedance Level (m)	58.600
Depth (m)	0.600
Base Level (m)	58.000
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	16.458
Long. Slope (1:X)	10000.00
Width (m)	7.186
Total Volume (m³)	17.740

Inlets	
Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (8)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (10)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (19)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	Pipe
Outlet Type	Free Discharge

Advanced	
Conductivity (m/hr)	10000.0



Porous Paving (1)

Type : Porous Paving

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Dimensions	
Exceedance Level (m)	58.600
Depth (m)	0.610
Base Level (m)	57.990
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	15.550
Long. Slope (1:X)	10000.00
Width (m)	7.194
Total Volume (m³)	17.115

Inlets

Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (9)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)	
Inlet Type	Point Inflow
Incoming Item(s)	Pipe
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)	
Inlet Type	Point Inflow
Incoming Item(s)	Pipe (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (20)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (23)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (5)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (21)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (6)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (24)
Bypass Destination	(None)
Capacity Type	No Restriction

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024			
Report Details: Type: Stormwater Controls Storm Phase: Phase	Designed by: BMK		Checked by:	Approved By:
Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN				

Outlets

Outlet

Outgoing Connection	Pipe (2)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (2)

Type : Porous Paving

Dimensions

Exceedance Level (m)	58.600
Depth (m)	0.600
Base Level (m)	58.000
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	12.304
Long. Slope (1:X)	10000.00
Width (m)	6.017
Total Volume (m³)	11.105

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (1)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (25)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (26)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (22)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (1)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (3)

Type : Porous Paving

Dimensions

Exceedance Level (m)	58.450
Depth (m)	0.650
Base Level (m)	57.800
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	17.483
Long. Slope (1:X)	200.00
Width (m)	5.884
Total Volume (m³)	16.974

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (11) Pipe (2)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (29)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (3)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (4)

Type : Porous Paving

Dimensions	
Exceedance Level (m)	58.450
Depth (m)	0.670
Base Level (m)	57.780
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	14.783
Long. Slope (1:X)	1000.00
Width (m)	5.866
Total Volume (m³)	14.829

Inlets	
Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (12) Pipe (3)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (28)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	Pipe (4)
Outlet Type	Free Discharge

Advanced	
Conductivity (m/hr)	10000.0



Porous Paving (5)

Type : Porous Paving

Dimensions	
Exceedance Level (m)	58.450
Depth (m)	0.680
Base Level (m)	57.770
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	15.917
Long. Slope (1:X)	1000.00
Width (m)	5.686
Total Volume (m³)	15.747

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Catchment Area (13)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Lateral Inflow
Incoming Item(s)	Catchment Area (14)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Lateral Inflow
Incoming Item(s)	Pipe (4)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (18)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (6)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (18)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (23)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (5)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (6)

Type : Porous Paving

Dimensions	
Exceedance Level (m)	58.400
Depth (m)	0.640
Base Level (m)	57.760
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	18.943
Long. Slope (1:X)	1000.00
Width (m)	7.428
Total Volume (m³)	22.796

Inlets	
Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	Pipe (5)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (3)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)	
Inlet Type	Point Inflow
Incoming Item(s)	Pipe (25)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	Pipe (6)
Outlet Type	Free Discharge

Advanced	
Conductivity (m/hr)	10000.0

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (7)

Type : Porous Paving

Dimensions	
Exceedance Level (m)	58.400
Depth (m)	0.660
Base Level (m)	57.740
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	20.654
Long. Slope (1:X)	1000.00
Width (m)	7.124
Total Volume (m³)	24.720

Inlets	
Inlet	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (15)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Pipe (6)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (7)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	Pipe (7)
Outlet Type	Free Discharge

Advanced	
Conductivity (m/hr)	10000.0

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (8)

Type : Porous Paving

Dimensions

Exceedance Level (m)	58.400
Depth (m)	0.680
Base Level (m)	57.720
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	10.404
Long. Slope (1:X)	1000.00
Width (m)	4.495
Total Volume (m³)	8.138

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Pipe (7)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (8)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Porous Paving (9)

Type : Porous Paving

Dimensions

Exceedance Level (m)	58.400
Depth (m)	0.710
Base Level (m)	57.690
Paving Layer Depth (mm)	100
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	20.100
Long. Slope (1:X)	1000.00
Width (m)	8.336
Total Volume (m³)	30.662

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (16) Pipe (8)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (6)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe (12)
Outlet Type	Free Discharge

Advanced

Conductivity (m/hr)	10000.0
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Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
Report Details: Type: Connections Storm Phase: Phase		Designed by: BMK	Checked by:		Approved By:
		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe (2)	11.059	Pipe	58.205		0.6	150	58.602	57.990
Pipe (3)	8.020	Pipe	400.993		0.6	150	58.537	57.800
Pipe (4)	8.752	Pipe	875.224		0.6	150	58.465	57.780
Pipe (5)	3.741	Pipe	374.132		0.6	150	58.466	57.770
Pipe (6)	9.752	Pipe	487.615		0.6	150	58.419	57.760
Pipe (7)	4.312	Pipe	215.578		0.6	150	58.422	57.740
Pipe (8)	18.015	Pipe	600.511		0.6	150	58.410	57.720
Pipe (9)	6.427	Pipe	107.115		0.6	150	58.400	57.650
Pipe (10)	23.202	Pipe	290.019		0.6	150	58.580	57.590
Pipe (11)	48.627	Pipe	286.041		0.6	150	58.670	57.510
Pipe (12)	6.585	Pipe	164.628		0.6	150	58.420	57.690
Pipe	5.126	Pipe	512.565		0.6	150	58.602	58.000
Pipe (1)	6.074	Pipe	607.357		0.6	150	58.601	58.000
Pipe (13)	3.402	Pipe	17.010		0.6	100	58.400	57.950
Pipe (14)	12.838	Pipe	513.506		0.6	100	58.400	57.775
Pipe (15)	3.453	Pipe	19.730		0.6	100	58.400	57.950
Pipe (16)	13.008	Pipe	520.312		0.6	100	58.400	57.800
Pipe (17)	3.440	Pipe	22.930		0.6	100	58.400	57.950
Pipe (18)	1.832	Pipe	-91.603		0.6	100	58.400	57.750
Pipe (19)	12.416	Pipe	146.066		0.6	100	58.400	58.060
Pipe (20)	13.234	Pipe	150.385		0.6	100	58.400	57.975
Pipe (21)	10.529	Pipe	121.019		0.6	100	58.650	57.887
Pipe (22)	17.513	Pipe	122.471		0.6	100	58.650	58.030
Pipe (23)	2.074	Pipe	69.121		0.6	100	58.650	57.800
Pipe (24)	18.426	Pipe	149.803		0.6	100	58.550	57.941
Pipe (25)	8.719	Pipe	150.335		0.6	100	58.550	57.818

Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Part Family	Lock	Flow Restriction (L/s)
Pipe (2)	58.537	57.800		None	
Pipe (3)	58.465	57.780		None	
Pipe (4)	58.466	57.770		None	
Pipe (5)	58.419	57.760		None	
Pipe (6)	58.422	57.740		None	
Pipe (7)	58.410	57.720		None	
Pipe (8)	58.420	57.690		None	
Pipe (9)	58.580	57.590		None	5.5
Pipe (10)	58.670	57.510		None	
Pipe (11)	58.620	57.340		None	
Pipe (12)	58.400	57.650		None	
Pipe	58.602	57.990		None	
Pipe (1)	58.602	57.990		None	
Pipe (13)	58.400	57.750		None	
Pipe (14)	58.400	57.750		None	
Pipe (15)	58.400	57.775		None	
Pipe (16)	58.400	57.775		None	
Pipe (17)	58.400	57.800		None	
Pipe (18)	58.466	57.770		None	
Pipe (19)	58.400	57.975		None	
Pipe (20)	58.650	57.887		None	
Pipe (21)	58.650	57.800		None	
Pipe (22)	58.650	57.887		None	
Pipe (23)	58.466	57.770		None	
Pipe (24)	58.550	57.818		None	
Pipe (25)	58.419	57.760		None	

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: BMK	Checked by:		Approved By:
		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Porous Paving		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (1)	Porous Paving (2)		Time of Concentration	0.003	100	0	100	0.003
Catchment Area (2)	Manhole (13)		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (3)	Porous Paving (6)		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (4)	Manhole (2)		Time of Concentration	0.005	100	0	100	0.005
Catchment Area (5)	Manhole (3)		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (6)	Porous Paving (9)		Time of Concentration	0.019	100	0	100	0.019
Catchment Area (7)	Porous Paving (7)		Time of Concentration	0.032	100	0	100	0.032
Catchment Area (8)	Porous Paving		Time of Concentration	0.013	100	0	100	0.013
Catchment Area (9)	Porous Paving (1)		Time of Concentration	0.009	100	0	100	0.009
Catchment Area (10)	Porous Paving		Time of Concentration	0.012	100	0	100	0.012
Catchment Area (11)	Porous Paving (3)		Time of Concentration	0.011	100	0	100	0.011
Catchment Area (12)	Porous Paving (4)		Time of Concentration	0.010	100	0	100	0.010
Catchment Area (13)	Porous Paving (5)		Time of Concentration	0.009	100	0	100	0.009
Catchment Area (14)	Porous Paving (5)		Time of Concentration	0.014	100	0	100	0.014
Catchment Area (15)	Porous Paving (7)		Time of Concentration	0.021	100	0	100	0.021
Catchment Area (16)	Porous Paving (9)		Time of Concentration	0.017	100	0	100	0.017
Catchment Area (17)	Manhole (8)		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (18)	Porous Paving (5)		Time of Concentration	0.010	100	0	100	0.010
Catchment Area (19)	Porous Paving		Time of Concentration	0.005	100	0	100	0.005
Catchment Area (20)	Porous Paving (1)		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (21)	Porous Paving (1)		Time of Concentration	0.005	100	0	100	0.005
Catchment Area (22)	Porous Paving (2)		Time of Concentration	0.003	100	0	100	0.003
Catchment Area (23)	Porous Paving (1)		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (24)	Porous Paving (1)		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (25)	Porous Paving (2)		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (26)	Porous Paving (2)		Time of Concentration	0.008	100	0	100	0.008
Catchment Area (27)	Manhole (12)		Time of Concentration	0.011	100	0	100	0.011
Catchment Area (28)	Porous Paving (4)		Time of Concentration	0.006	100	0	100	0.006
Catchment Area (29)	Porous Paving (3)		Time of Concentration	0.005	100	0	100	0.005
TOTAL		0.0		0.288				0.288

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024			
	Designed by: BMK	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Phase	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Outfall	Free Discharge		

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX	Date: 15/07/2024		
	Designed by: BMK	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN		



Runoff Type	Dynamic
Output Interval (mins)	1
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
		Designed by: BMK	Checked by:		Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FSR: 100 years: +40 %: 15 mins: Summer	0.01	4.4	1.917
Catchment Area (1)	FSR: 100 years: +40 %: 15 mins: Summer	0.00	1.9	0.835
Catchment Area (2)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	4.7	2.024
Catchment Area (3)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	4.6	2.003
Catchment Area (4)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	3.7	1.594
Catchment Area (5)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	5.7	2.483
Catchment Area (6)	FSR: 100 years: +40 %: 15 mins: Summer	0.02	13.5	5.845
Catchment Area (7)	FSR: 100 years: +40 %: 15 mins: Summer	0.03	22.0	9.549
Catchment Area (8)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	9.0	3.892
Catchment Area (9)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	6.1	2.656
Catchment Area (10)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	8.5	3.673
Catchment Area (11)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	7.4	3.204
Catchment Area (12)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	6.7	2.916
Catchment Area (13)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	6.5	2.825

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: BMK	Checked by:		Approved By:
		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			

Catchment Area (14)	FSR: 100 years: +40 %: 15 mins: Summer	0.01	10.1	4.374
Catchment Area (15)	FSR: 100 years: +40 %: 15 mins: Summer	0.02	14.5	6.303
Catchment Area (16)	FSR: 100 years: +40 %: 15 mins: Summer	0.02	12.2	5.292
Catchment Area (17)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	4.0	1.869
Catchment Area (18)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	5.8	2.693
Catchment Area (19)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.1	1.453
Catchment Area (20)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.3	1.511
Catchment Area (21)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	2.9	1.353
Catchment Area (22)	FSR: 100 years: +40 %: 15 mins: Winter	0.00	1.7	0.803
Catchment Area (23)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.8	1.745
Catchment Area (24)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.5	1.599
Catchment Area (25)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	4.6	2.104
Catchment Area (26)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	4.4	2.056
Catchment Area (27)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	6.2	2.883
Catchment Area (28)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.3	1.525
Catchment Area (29)	FSR: 100 years: +40 %: 15 mins: Winter	0.01	3.0	1.396

Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
Report Details: Type: Junctions Summary Storm Phase: Phase		Designed by: BMK	Checked by:		Approved By:
		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			



FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
Manhole	FSR: 100 years: +40 %: 120 mins: Summer	58.580	57.590	57.666	0.076	5.0	0.022	0.000	5.0	47.308	OK
Manhole (1)	FSR: 100 years: +40 %: 1440 mins: Winter	58.670	57.510	57.585	0.075	5.0	0.021	0.000	5.0	288.359	OK
Outfall	FSR: 100 years: +40 %: 1440 mins: Winter	58.620	57.340	57.412	0.072	5.0	0.000	0.000	5.0	288.359	OK
Flow Control	FSR: 100 years: +40 %: 360 mins: Winter	58.400	57.650	58.172	0.522	5.1	0.148	0.000	5.0	151.652	Flood Risk
Manhole (2)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.950	58.324	0.374	0.7	0.027	0.000	0.6	3.563	Flood Risk
Manhole (3)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.950	58.324	0.374	1.0	0.027	0.000	0.9	5.655	Flood Risk
Manhole (4)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.950	58.324	0.374	0.1	0.027	0.000	0.0	0.221	Flood Risk
Manhole (5)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.800	58.324	0.524	0.6	0.037	0.000	0.5	3.173	Flood Risk
Manhole (6)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.775	58.324	0.549	1.4	0.039	0.000	1.3	8.393	Flood Risk
Manhole (7)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.750	58.324	0.574	1.3	0.041	0.000	1.1	8.191	Flood Risk
Manhole (8)	FSR: 100 years: +40 %: 30 mins: Winter	58.400	58.060	58.327	0.267	3.1	0.019	0.000	2.6	2.351	Flood Risk
Manhole (9)	FSR: 100 years: +40 %: 240 mins: Winter	58.400	57.975	58.324	0.349	0.7	0.056	0.000	0.6	4.156	Flood Risk
Manhole (10)	FSR: 100 years: +40 %: 240 mins: Winter	58.650	57.887	58.324	0.437	1.7	0.069	0.000	1.6	10.507	Surcharged
Manhole (11)	FSR: 100 years: +40 %: 240 mins: Winter	58.650	57.800	58.324	0.524	1.6	0.083	0.000	1.5	10.117	Surcharged
Manhole (12)	FSR: 100 years: +40 %: 15 mins: Winter	58.650	58.030	58.365	0.335	6.2	0.053	0.000	4.9	2.802	Flood Risk
Manhole (13)	FSR: 100 years: +40 %: 240 mins: Winter	58.550	57.941	58.307	0.366	0.8	0.058	0.000	0.7	4.575	Flood Risk
Manhole (14)	FSR: 100 years: +40 %: 240 mins: Winter	58.550	57.818	58.307	0.489	0.7	0.078	0.000	0.6	4.205	Flood Risk

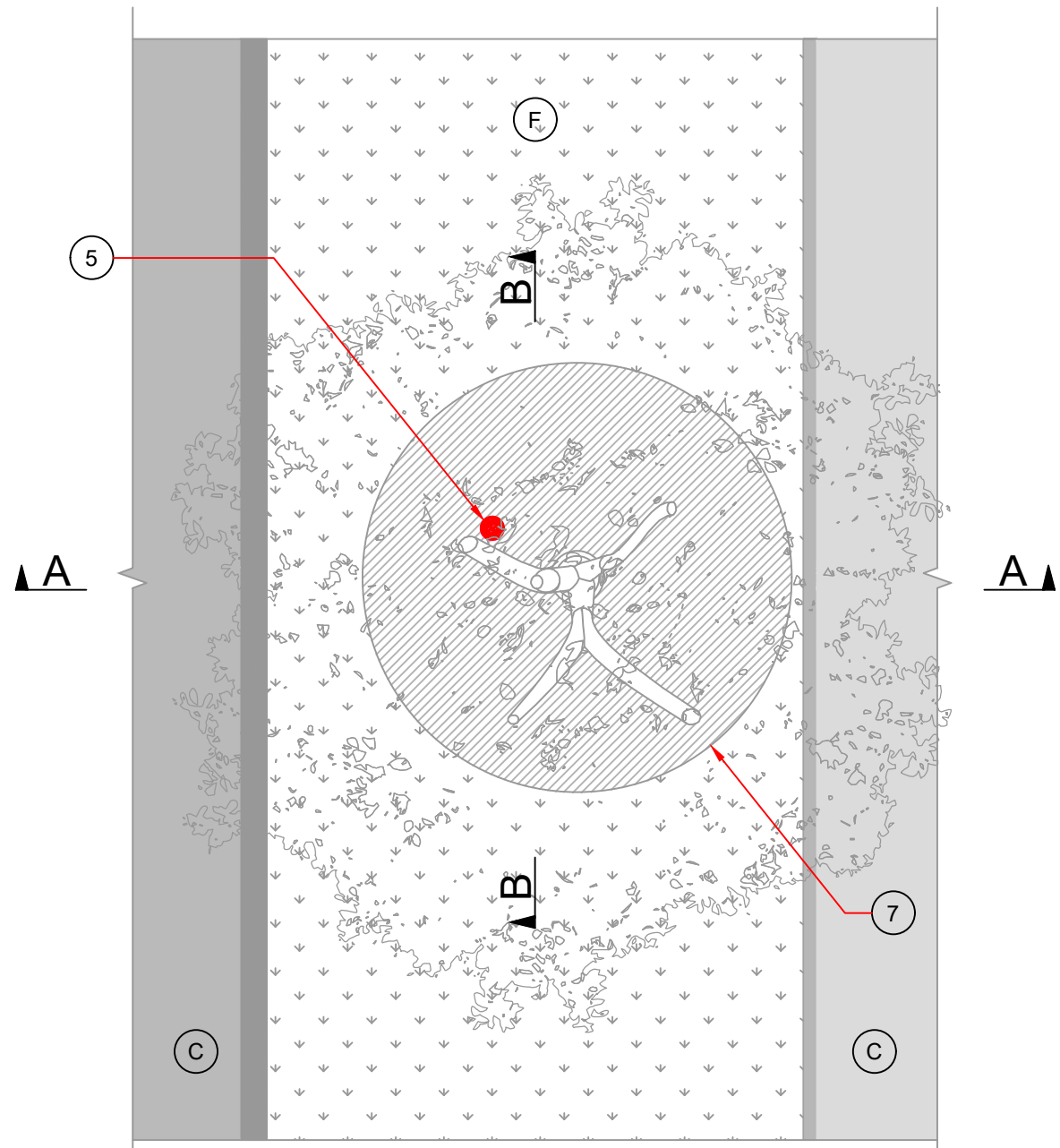
Project: Tanked Permeable Paving Amethyst Lane Reading, RG30 2EX		Date: 15/07/2024			
		Designed by: BMK	Checked by:		Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Infrastruct CS The Stable, High Cogges Farm Witney, OX29 6UN			



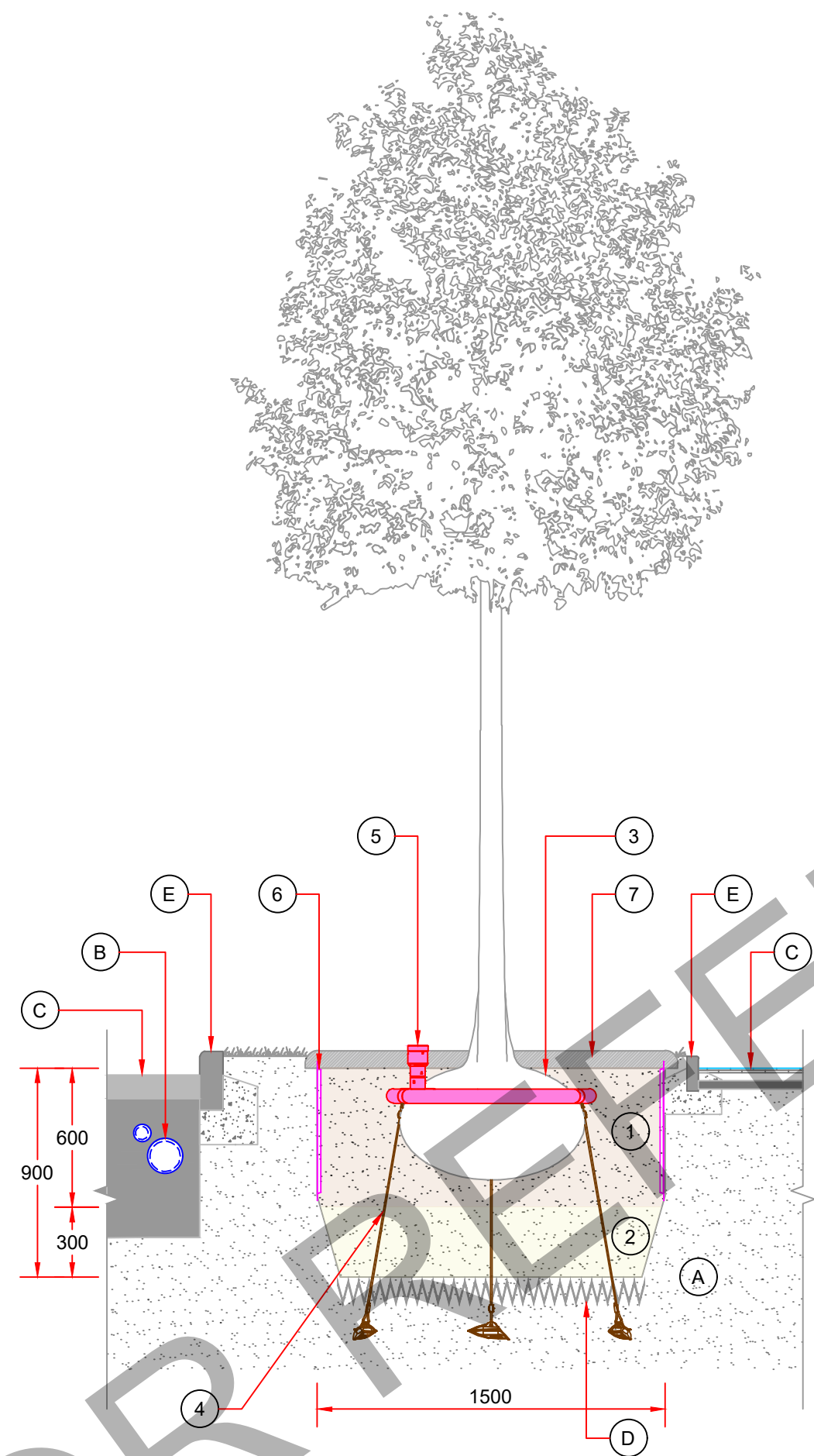
FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. DS Depth

Stormwater Control	Storm Event	Max. Avg. Level (m)	Max. Avg. Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)	Status
Porous Paving	FSR: 100 years: +40 %: 240 mins: Winter	58.391	0.391	4.5	13.872	1.8	19.854	68	21.804	OK
Porous Paving (1)	FSR: 100 years: +40 %: 240 mins: Winter	58.377	0.387	6.1	12.973	3.1	44.857	36	24.200	OK
Porous Paving (2)	FSR: 100 years: +40 %: 240 mins: Winter	58.389	0.389	2.4	8.630	0.7	9.963	109	22.288	OK
Porous Paving (3)	FSR: 100 years: +40 %: 240 mins: Winter	58.310	0.510	4.9	15.751	3.2	45.875	58	7.203	OK
Porous Paving (4)	FSR: 100 years: +40 %: 240 mins: Winter	58.326	0.546	4.0	14.215	3.4	47.143	70	4.142	OK
Porous Paving (5)	FSR: 100 years: +40 %: 240 mins: Winter	58.309	0.539	7.4	14.641	5.8	78.853	27	7.028	OK
Porous Paving (6)	FSR: 100 years: +40 %: 240 mins: Winter	58.286	0.526	6.7	22.207	4.9	74.409	64	2.586	OK
Porous Paving (7)	FSR: 100 years: +40 %: 360 mins: Winter	58.251	0.511	8.1	22.547	5.8	136.107	38	8.790	OK
Porous Paving (8)	FSR: 100 years: +40 %: 360 mins: Winter	58.226	0.506	5.8	7.095	5.0	132.542	13	12.817	OK
Porous Paving (9)	FSR: 100 years: +40 %: 360 mins: Winter	58.182	0.492	8.0	24.756	5.1	152.070	40	19.263	OK

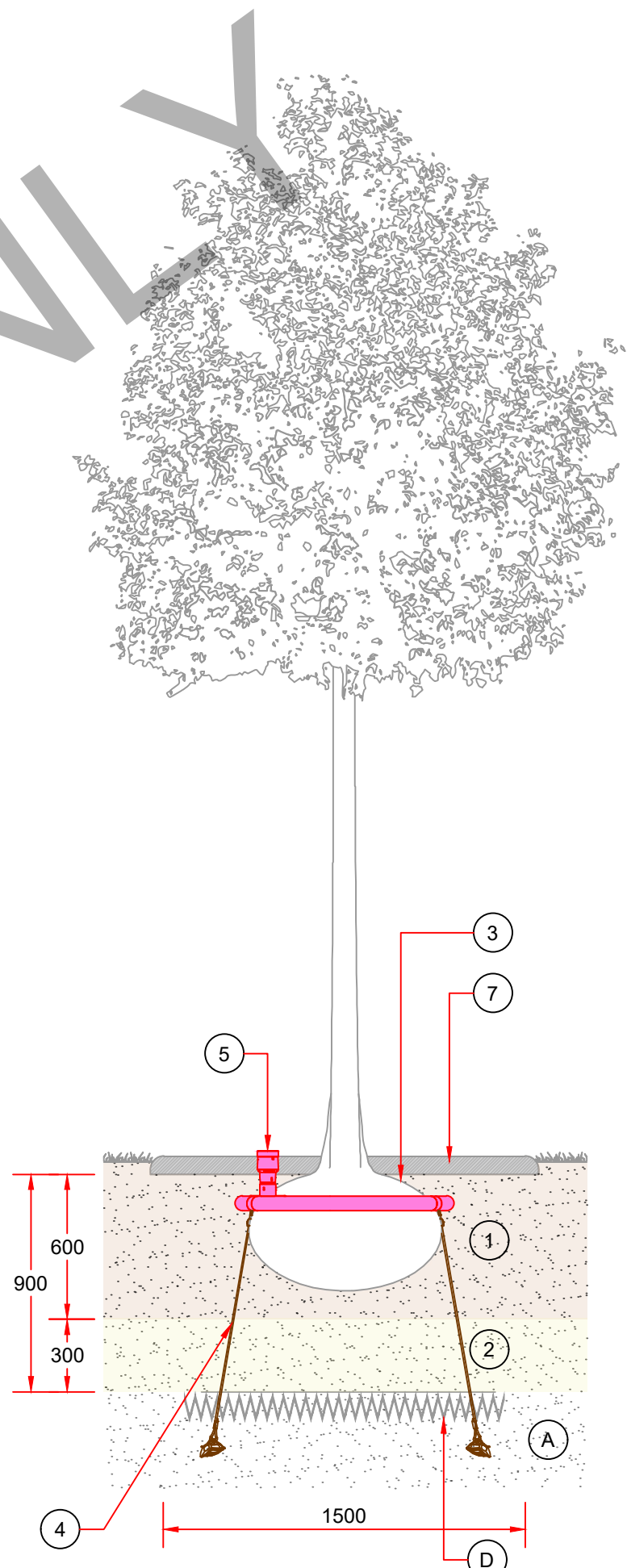
Appendix E - GreenBlue Urban Tree Pit details



PLAN VIEW



SECTION A-A



SECTION A-A

PACKAGE INCLUDES THE FOLLOWING GREENBLUE URBAN PRODUCTS PER TREE:

1. ROOTSOIL 20 TOP SOIL FOR USE WITHIN 600mm OF SOIL PROFILE - ROOTSOIL20
2. ROOTSOIL SUB SOIL FOR USE WITHIN SOIL PROFILES 600mm OR DEEPER - ROOTSOILSUBA
3. ROOTSTART PROFESSIONAL MYCORRHIZA FUNGI ALLOW 200g PER TREE - RSPMF2.5LA
4. ARBORGUY LARGE DRIVE IN COMPOSITE STRAPPED ANCHOR SYSTEM - SASLCB
5. ROOTRAIN URBAN IRRIGATION SYSTEM - RRURB1A
6. REROOT 600 ROOT BARRIER 600mm DEEP WITH ROOT DEFLECTING RIBS. USE RERJTA REROOT JOINTING TAPE FOR ANY OVERLAPS - RER600A
7. ARBORMULCH BARK MULCH - GBUMULCHA

NOTES:

- A. EXISTING GROUND
- B. SERVICE PIPE
- C. BUILD-UP TO SUIT ENGINEER DESIGNS AND REQUIREMENTS
- D. LOOSEN AND SHAPE BASE AS SHOWN TO AID ROOT PENETRATION DRAINAGE
- E. KERB (AS PER STANDARD)
- F. SOFT LANDSCAPE AREA

NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. GROUND INVESTIGATION SHOULD BE UNDERTAKEN PRIOR TO CONSTRUCTION STAGE. INFILTRATION TESTING TO BE UNDERTAKEN TO BRE365 STANDARDS AND MONITORING OF GROUND WATER LEVEL TO BE UNDERTAKEN TO ASSESS THE MAXIMUM WATER LEVEL.
3. GREENBLUE PRODUCTS SHOWN IN THE COLORS ARE INDICATIVE ONLY ORIGINAL COLOR VARIES.

C	FEB2022	Standard Drawing GBU 3102	EB	SF	SF	SF	SF
Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd	

DRAWING STATUS

APPROVED

CLIENT

GREENBLUE URBAN

SCHEME TITLE

TREE PRODUCT PACKAGES

DRAWING TITLE

TREE PIT FOR SEMI MATURE
TREE IN SOFT PLANTING

DRAWING UNITS U.N.O.
ALL DIMENSIONS IN MILLIMETERS
UNLESS STATED OTHERWISE

SCALE AT A1 (841x594mm)

1:25@A1

DRAWING No. GBU-STANDARD-3102

REV. C

GreenBlue
URBAN

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Website: www.greenblueurban.com

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