2 Lansdown Road Road,

Worthing, West Sussex,

BN11 4LY

Drainage Maintenance & Management Plan Report

July 2024
First Issue

Issue No 2
62610

Project Title:	2 Lansdown Road, Worthing
Report Title:	Drainage Maintenance & Management Plan Report
Project No:	62610
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Status:	Final
Client Contact Name:	-
Client Company Name:	-
Issued By:	Dixon Hurst Limited Heversham House 18-22 Boundary Road, Hove East Sussex BN3 4EF Tel (01273) 421444 Fax (01273 420008 Email: hove@dhk.co.uk Website: www.dhk.co.uk

Document Production / Approval Record

Issue No: 1	Name	Signature	Date	Position
Prepared by	Jethro Sifflet BEng (Hons)	J.Sifflet	07/05/2024	Senior Civil Engineer
Checked & Approved by	Philip Young BSc (Hons), CEng, MICE FIStructE	P.A Young	07/05/2024	Director

Document Revision Record

Issue No	Date	Details of Revisions
1	16th May 2024	First Issue
2	29th May 2024	Drainage Calculations

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1. INTRODUCTION

1.1 Dixon Hurst Limited have been commissioned by client to to undertake a site specific Drainage Maintenance & Management Design as requested by Adur and Worthing Council in relation to Planning Condition 14 in support of the drain design for the approval planning application AWDM/0289/24 for 2 Lansdowne Road Worthing West Sussex BN11 4LY.

2. EXISTING AND PROPOSED SITES

2.1 The site comprises of land between 2 and 4 Lansdowne Road.

2.2 The site previously formed part of the garden land for one of the residential units at 2 Lansdowne Road, however the application site is now in a separate ownership.

2.3 The site is a rectangular with a number of trees around the site boundary.

3. PROPOSED DEVELOPMENT & DRAINAGE STRATEGY

3.1 Due to the Lewes Nodular Chalk geology and favourable soil infiltration tests discharge of surface water to soakaways is considered to be suitable. Therefore, a site drainage strategy has been developed with the roof area discharging into a soakaway within the rear garden and permeable for the remaining surfaces as show in the site drainage layout contained in Appendix A.

3.2 A Micro Drainage simulation of the SW soakaway and permeable carpark have been using FEH rainfall carried out to demonstrate that the system will cope with the peak 1 in 100 year + 45% critical storm event. The results are contained in the Appendix D.

3.3 Foul drainage for the new dwelling will discharge via a gravity system into the existing foul public sewer in Lansdown Road.

4. WATER QUALITY

4.1 Runoff from roof areas is relatively uncontaminated whilst runoff from lightly trafficked domestic roads and driveways is considered low risk for contamination. Runoff from hardstanding areas across the site will be treated via catch pits, with further treatment provided within soakaways and permeable paving. Such measures will ensure that runoff entering the receiving aquifer is of acceptable quality.

5. MITIGATION MEASURES

5.1 The proposed drainage system has been designed using good design practice to optimise and provide effective stormwater management for the 1 in 100 year (+45%) for a 6 hour duration storm event. In addition water butts may be implemented to provide water sustainability.

5.2 The surface water drainage strategy, provides a robust, deliverable, and sustainable solution in flood risk terms and in relation to the requirements of the National Planning Policy Framework and local planning policies.

5.3 It also seeks to demonstrate that the surface water drainage strategy proposals are entirely consistent with the fundamental principles set out in Part M of the Building Regulations

Adoption/Maintenance

1.1 Long term ownership and maintenance responsibilities for all drainage devices will be secured prior to occupation. It is the responsibility of the developer to put in place suitable management arrangements for the SuDS for the lifetime of the development.

1.2 Regular inspection and maintenance is important for the effective operation of SuDS components as designed. The regular maintenance of the proposed SuDS devices should be carried out in line with the CIRIA C753 The SUDS Manual or as per manufacturer's specification, as tabulated below.

Table 8: Typical Pipe System Maintenance Requirements

Schedule	Maintenance Requirement	Frequency
Regular	Ensuring drainage intakes are clear of debris/silt.	Monthly (or as required).
Occasional	Jet clean sewer lines, to remove grease, grit, sediment and other debris to ensure conveyance capacity is not compromised.	Annually.
Intermittent	CCTV survey of sewer lines to identify any defects/signs of performance degradation such as: • Cracked/deteriorating pipes; • Leaking joints/seals at manholes; • High water lines showing regular high stage in pipes (sign of lack of capacity or downstream constraint); and • Suspected infiltration or exfiltration.	Every 2 – 5 years.
Remedial	Repair defects using suitable methods. Effective temporary repairs may be sufficient in short term until scheduled /capital improvements can be made.	As required.
Monitoring	Record areas of surface ponding/intake bypassing /surcharging (photos, inundated areas, depths) during extreme storm events and investigate the reasoning for this post storm.	As required.

Table 9: Maintenance Schedule for Catchpits, and Channels

Schedule	Maintenance Requirement	Frequency
Regular	• Inspect for accumulation of silt • Inspect for debris and litter • Inspect inlets and outlets for blockages	Every six months
Occasional	• Remove debris and litter • Remove silt	As required.
Remedial	• Repair or replace	As required.

Table 10: Typical Underground Geocellular Storage/Soakaway Tank Maintenance Requirements

Schedule	Maintenance Requirement	Frequency
Regular	Inspect and identify any areas that are not operating correctly. If required, take remedial action. Debris removal from catchment surface (where may cause risks to performance).	Monthly for first 3 months, 6 monthly thereafter. Monthly.
Occasional	Remove sediment from pre-treatment structures.	Annually (or as required).
Remedial	Repair/rehabilitation of inlets, outlet, overflows and vents.	As required.
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually and after large storms.

Table 11: Maintenance Schedule for Permeable Paving

Schedule	Maintenance Requirement	Frequency
Regular	Brushing and vacuuming over whole surface	Once a year after autumn leaf fall
Occasional	Removal of weeds	As required.
Remedial	Remedial work to any depressions or cracked or broken blocks considered a hazard to end users or detrimental to performance.	As required.
	Rehabilitation of surface and upper sub-structure by remedial sweeping.	Every 10 – 15 years or as required
Monitoring	Initial inspection.	Monthly for 3 months after installation
	Inspect for evidence of weed growth or poor operation	Three monthly, 48 hours after large storms in first six months

	• Inspect silt accumulation rates • Monitor inspection chambers	Annually

Access Road

1.3 The proposed surface finish to the access road and carparking area will consist of an permeable paving or tarmacadam surface and will therefore need to be drained via granular subbase reservoir into the ground.

1.4 Where this surface water has been collected, it will be done so via silt traps to reduce risk of contaminants and/or litter being allowed to enter the system and discharge to the system.

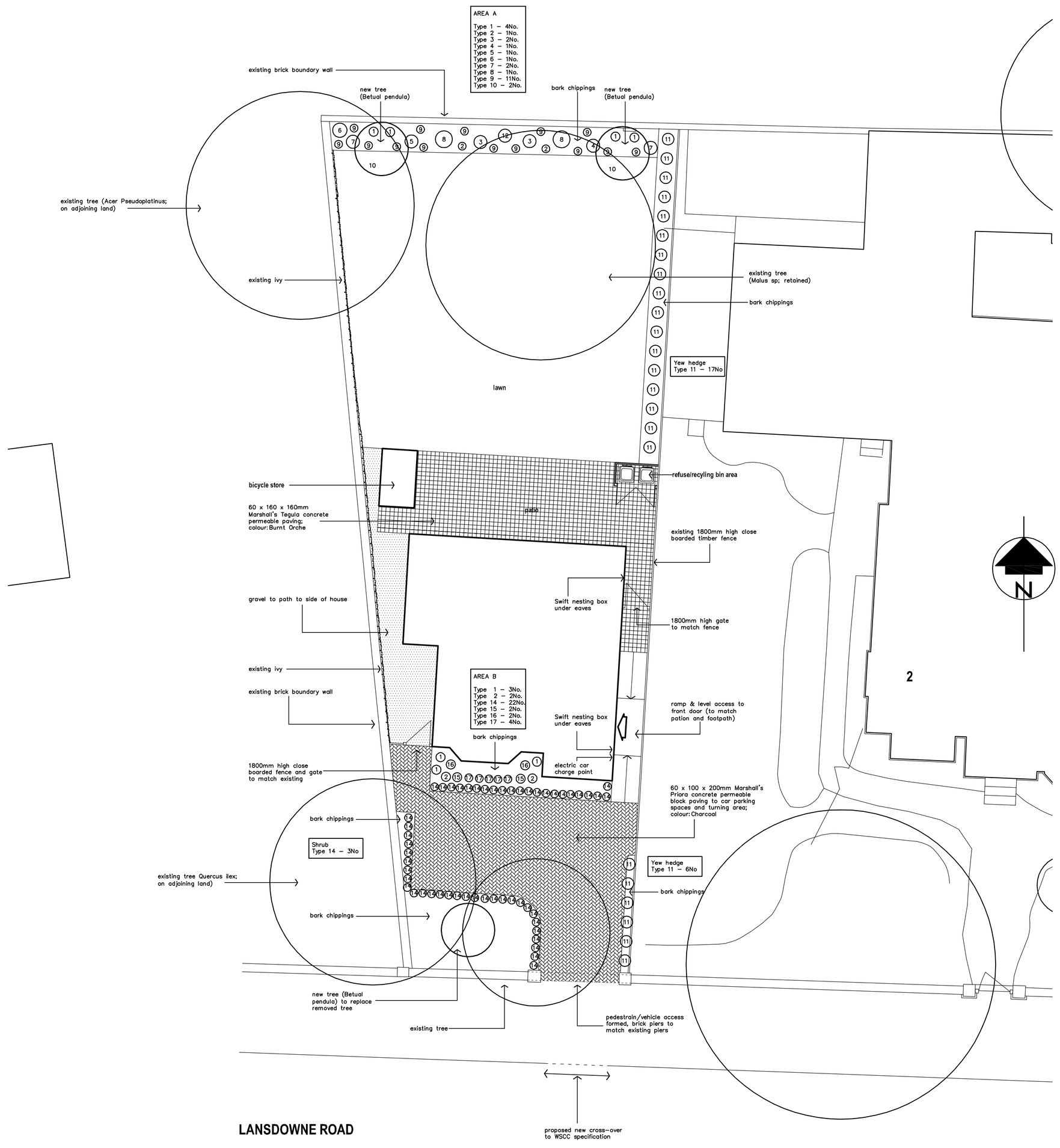
1.5 To further reduce the risk of sediment migration into the access road drainage system, it may be necessary to follow a street cleansing regime in line with local authority plans, if the access road has been adopted.

1.6 Pervious surfaces need to be regularly cleaned of silt and other sediments to preserve their infiltration capability. Advice issued with permeable precast concrete paving has suggested a minimum of three surface sweepings per year. Manufacturers' recommendations should always be followed.

1.7 To ensure the long term effectiveness of the drainage asset, the sediment that accumulates within this system must periodically be removed to prevent it from entering key parts of the network and slowing the operation of the system.

1.8 The frequency of this maintenance operation will vary depending on the density of the site, vegetation, design of the drainage system, other permeable areas and if the site is pre or post construction.

Appendix A



LANDSCAPE PLAN 1:100

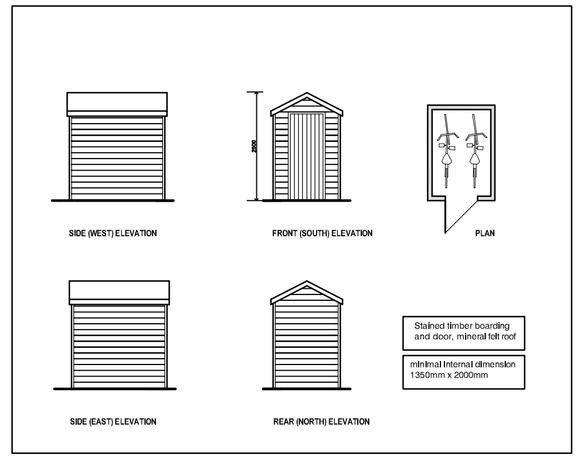
0 1m 5m 10m 15m

scale 1:100

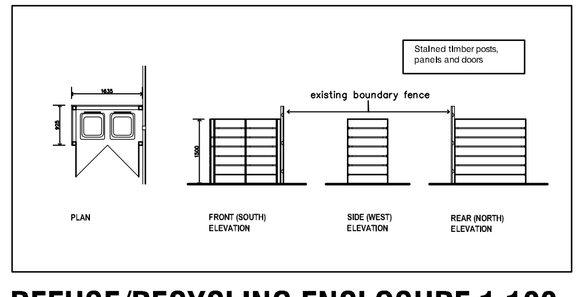
PLANT/TREE SCHEDULE

1	Euphorbia Wulfenii
2	Euphorbia Miners Merlot
3	Miscanthus Gracimilus
4	Miscanthus Indian Summer
5	Miscanthus Red Chief
6	Miscanthus Silver Charm
7	Miscanthus Sinensis Strictus
8	Pampas Grass Cortaderia
9	Pony Tails Grass Dwarf
10	Betula Pendula (Silver Birch)
11	Ligustrum Ovalifolium (Yew Hedge)
12	Choisia Sundance
13	Taxus Baccata (Privet Hedge)
14	Euonymous Macrophylia
15	Giant Agapanthus Purple
16	Giant Agapanthus White
17	Hellebore Foetidus

NOTE: All works in the root protection areas shall be undertaken using No Dig Tree Protection construction using Cellweb or similar approved in accordance with BS 5837: 'Trees in Relation to Design, Demolition and Construction' (2012) and the Arboricultural Advisory and Information Service: Practice Note 12 – 'Through the trees to Development' (APN12).



BICYCLE STORE 1:100



REFUSE/RECYCLING ENCLOSURE 1:100

Revision C – 17 May 2024

Note amended for retained tree adjacent to access as 'existing tree'

Revision B – 16 May 2024

Retained existing tree adjacent to access – type corrected

Revision A – 10 May 2024

Parking area reduced, addition of tree to replace tree removed and shrubs added to enlarged planting area

Print A1 @ 1:100 | PLANNING DRAWING

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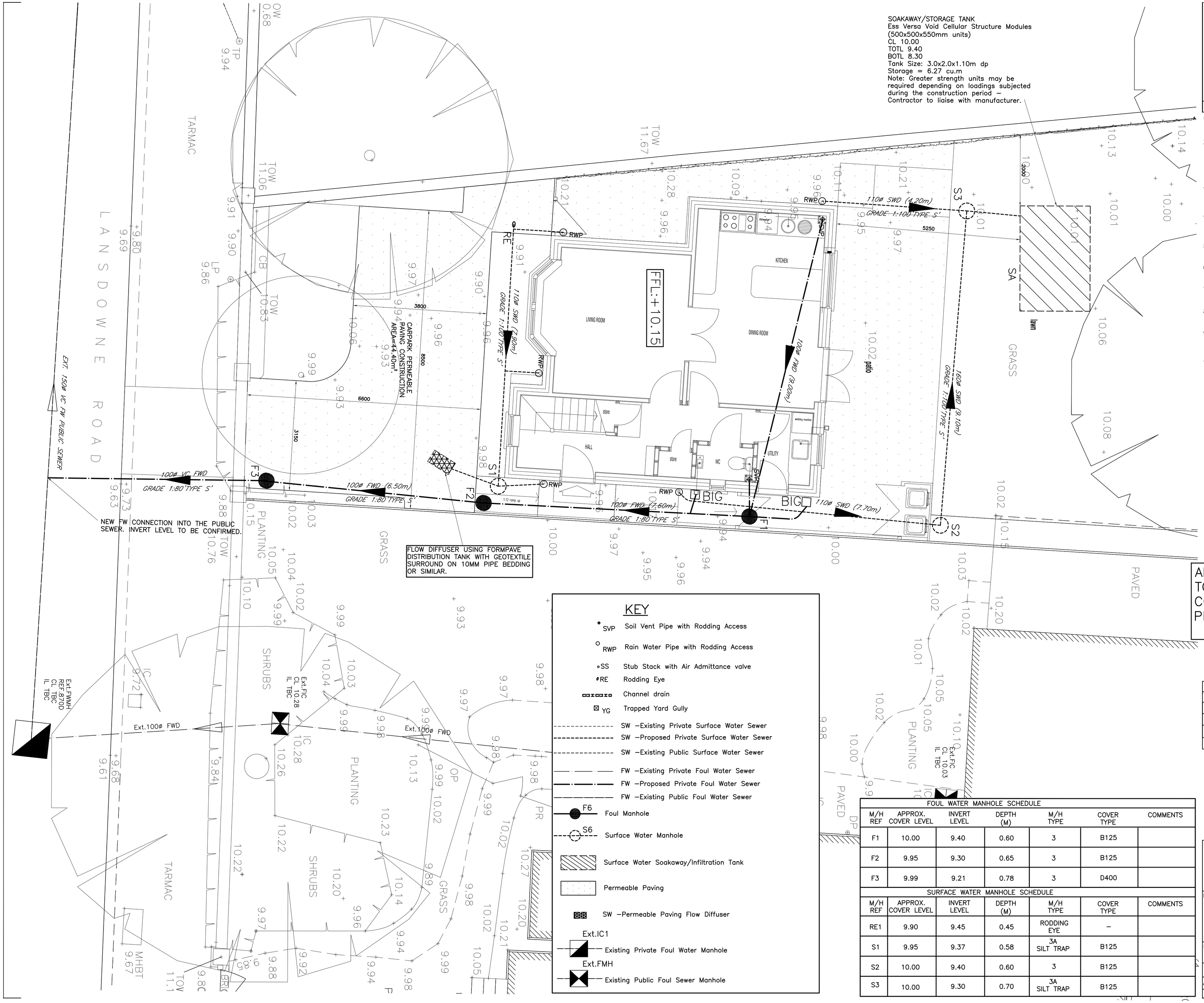
Hutchinson Design Associates
Chartered Architect
Victoria Chambers
170-174, South Coast Road,
Peacehaven,
East Sussex BN10 8JH
Telephone: 01273 724810 e-mail: design@hda-architect.co.uk

CLIENT:
Paul Nash Properties Ltd

DRWG TITLE:
Landscape Plan

PROJECT TITLE:
Land west of 2 Lansdowne Road
Worthing
West Sussex

DATE: February 2024
SCALE: 1:100
DRAWING NO. 1322/10
REVISION NO. C



KEY

- SVP — Soil Vent Pipe with Rodding Access
- RWP — Rain Water Pipe with Rodding Access
- SS — Stub Stack with Air Admittance valve
- RE — Rodding Eye
- Channel drain
- YG — Trapped Yard Gully
- SW –Existing Private Surface Water Sewer
- SW –Proposed Private Surface Water Sewer
- SW –Existing Public Surface Water Sewer
- FW –Existing Private Foul Water Sewer
- FW –Proposed Private Foul Water Sewer
- FW –Existing Public Foul Water Sewer
- F6 — Foul Manhole
- S6 — Surface Water Manhole
- Surface Water Soakaway/Infiltration Tank
- Permeable Paving
- SW –Permeable Paving Flow Diffuser
- Ext.IC1 — Existing Private Foul Water Manhole
- Ext.FMH — Existing Public Foul Sewer Manhole

In addition to these notes, reference shall be made to the specification of works and the relevant Architect's and Specialist's drawings and specifications.

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All dimensions are in millimetres unless noted otherwise.

This drawing has been produced electronically and may have been photo reduced or enlarged when printed or copied. Dimensions on this drawing shall not be scaled. Work only to figured dimensions. Any dimensional discrepancies errors or omissions are to be reported to the engineer immediately.

Levels are in metres unless noted otherwise to Ordnance Survey datum.

The Contractor is responsible for the stability of the building whilst the works are in progress.

NOTES

1. THIS DRAWING IS BASED ON DRAWING NOS. 1272/03 BY HUTCHINSON DESIGN ASSOCIATES.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWING:

   62610/11 DRAINAGE DETAILS
3. CONTRACTOR IS TO TAKE NECESSARY PRECAUTIONS TO ENSURE THAT TRENCHES ARE KEPT CLEAR OF GROUND WATER DURING CONSTRUCTION.
4. ALL DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 7TH EDITION.
5. ALL ADOPTED PIPEWORK TO BE 100ø VITRIFIED CLAY UNLESS NOTED OTHERWISE.
6. ALL PIPEWORK THROUGH WALLS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS.
7. ALL PIPEWORK UNDER ROADS WITH LESS THAN 900MM COVER TO HAVE 150MM CONCRETE SURROUND.
8. MINIMUM GRADIENT TO DRAINS TO BE 1:80 FOR 110ø OR 110ø FW AND 1:100 FOR 110ø SW.
9. POSITIONS OF MANHOLES SHOWN ON THIS DRAWING ARE INDICATIVE ONLY. ACTUAL LOCATIONS TO BE FINALIZED ON SITE.
10. PROVIDE CONCRETE LINTELS OVER OPENINGS WHERE PIPES PASS THROUGH WALLS. ALLOW FOR 150MM CLEARANCE ALL ROUND PIPE.

ALL DIMENSIONS AND LEVELS TO BE CHECKED AND CONFIRMED BY THE ARCHITECT PRIOR TO CONSTRUCTION.

REV	DESCRIPTION	DATE	BY
D	FEH SOAKAWAY/PERMEABLE PAVING	29/06/24	JS
C	FEH SOAKAWAY DESIGN	16/05/24	JS
B	AMENDED NOTES	28/02/24	JS
A	AMENDED DRAINAGE	26/02/24	JS
0	ORIGINAL ISSUE	09/02/24	JS

FOUL WATER MANHOLE SCHEDULE

M/H REF	APPROX. COVER LEVEL	INVERT LEVEL	DEPTH (M)	M/H TYPE	COVER TYPE	COMMENTS
F1	10.00	9.40	0.60	3	B125	
F2	9.95	9.30	0.65	3	B125	
F3	9.99	9.21	0.78	3	D400	

SURFACE WATER MANHOLE SCHEDULE

M/H REF	APPROX. COVER LEVEL	INVERT LEVEL	DEPTH (M)	M/H TYPE	COVER TYPE	COMMENTS
RE1	9.90	9.45	0.45	RODDING EYE	–	
S1	9.95	9.37	0.58	3A SILT TRAP	B125	
S2	10.00	9.40	0.60	3	B125	
S3	10.00	9.30	0.70	3A SILT TRAP	B125	

DIXON HURST
CONSULTING CIVIL & STRUCTURAL ENGINEERS
HEVERSHAM HOUSE, 18–22 BOUNDARY ROAD, HOVE, BN3 4EF
T: (01273) 421444 F: (01273) 420008 E: hove@dhk.co.uk
www.dhk.co.uk
Registered in England No. 3438720 – Registered Office 4 Frederick Terrace, Brighton BN1 1AX.

CONTRACT

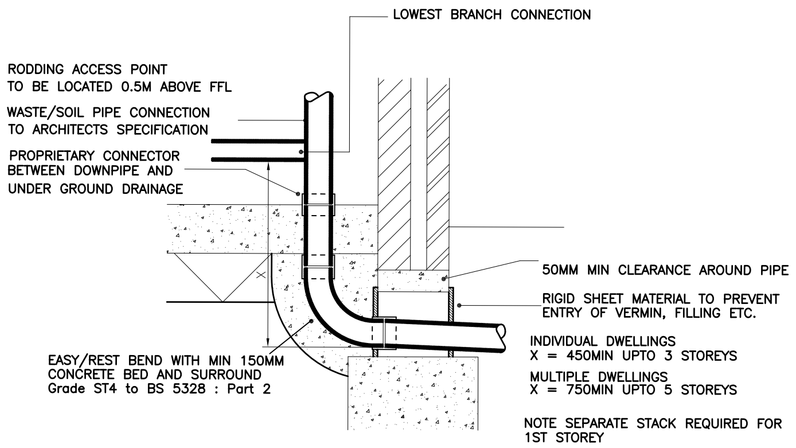
LAND NEXT TO 2 LANSDOWNE ROAD WORTHING, WEST SUSSEX

DRAWING

DRAINAGE LAYOUT

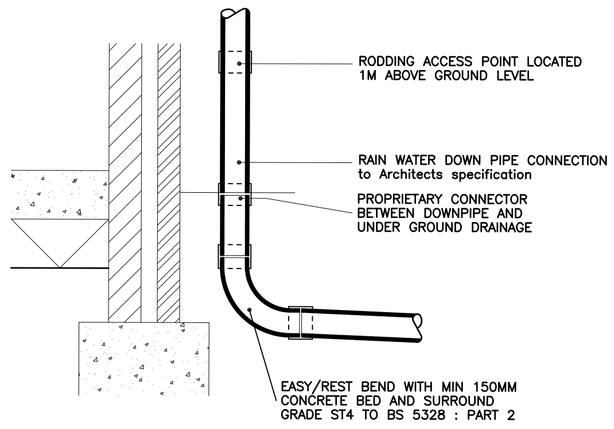
DRAWING No.	REV	CHECKED
62610 / 10	D	
SCALE 1:50 @ A1	DATE FEB 24	DRAWN JS
AutoCAD Ref: 62610–10		APPROVED

This drawing is produced using Autocad: Only written dimensions are to be respected



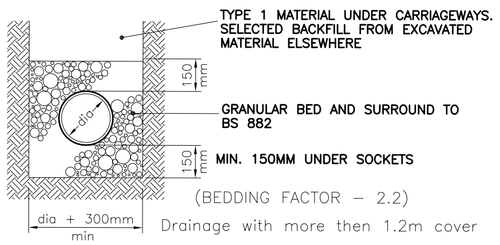
TYPICAL SOIL VENT PIPE DETAILS

SCALE 1:20



TYPICAL RAIN WATER DOWNPIPE DETAIL

SCALE 1:20



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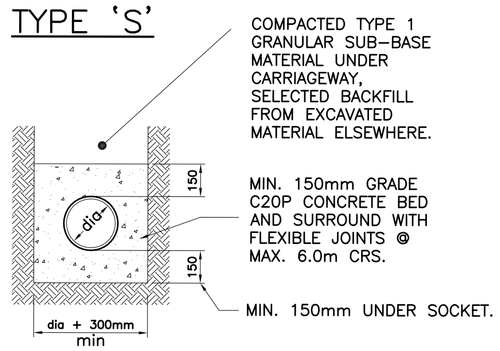
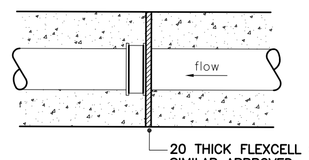


CONCRETE PIPE BEDDING PIPE BEDDING DETAIL

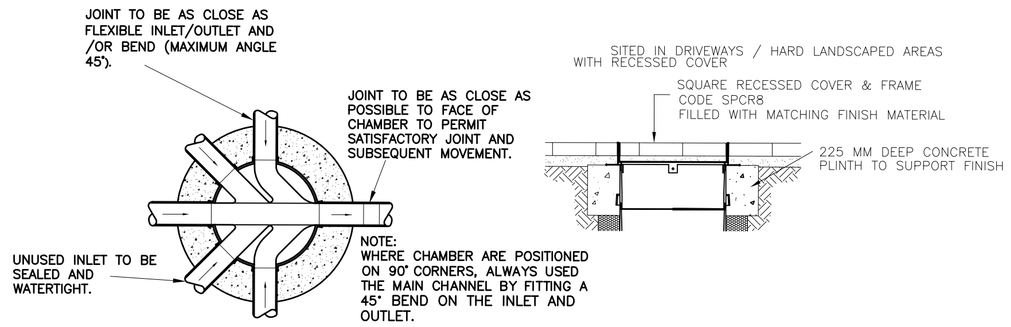
SCALE 1:20



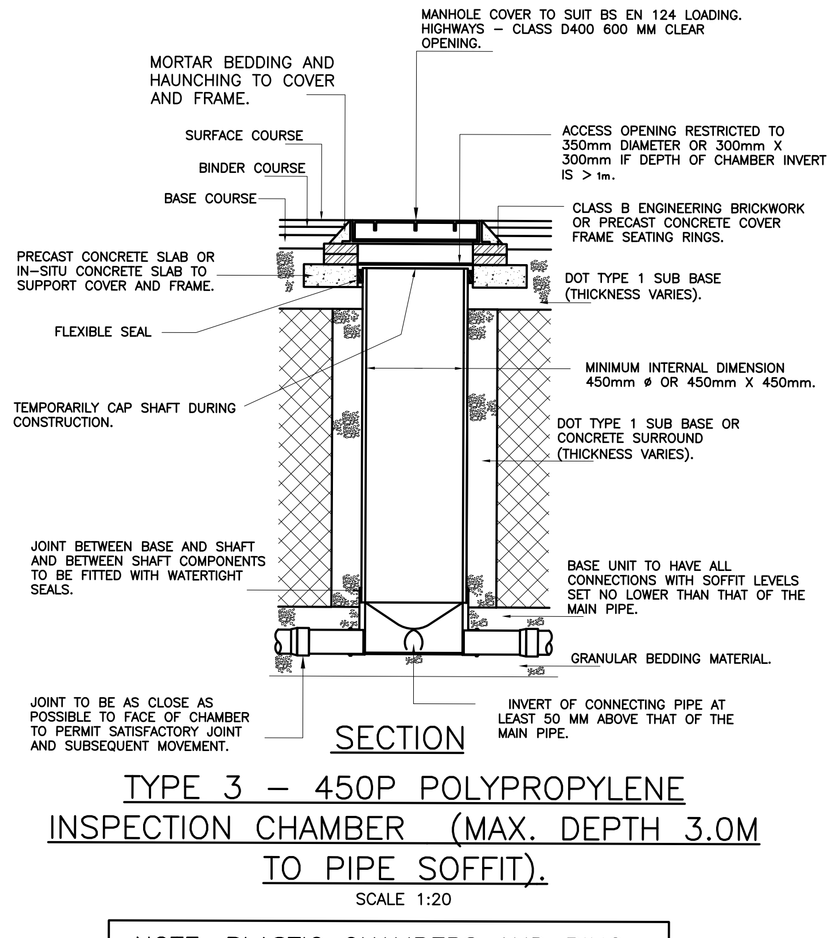
FLEXIBLE JOINT DETAIL
For Sleeved Pipes

TYPICAL PIPE JOINTING DETAIL

SCALE 1:20



PLAN

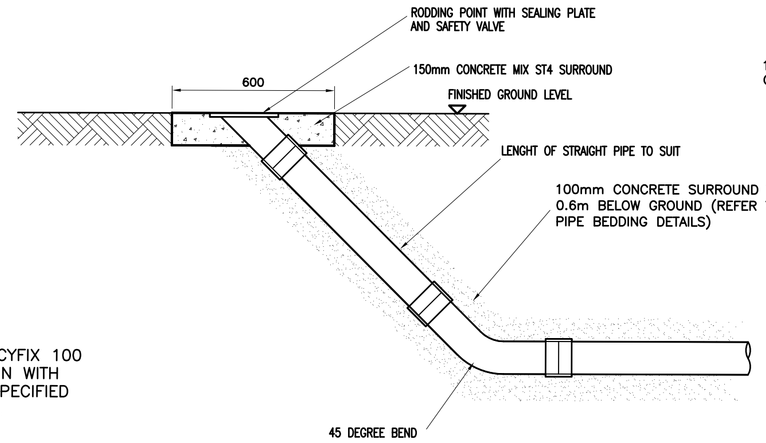


SECTION

TYPE 3 – 450P POLYPROPYLENE INSPECTION CHAMBER (MAX. DEPTH 3.0M TO PIPE SOFFIT).

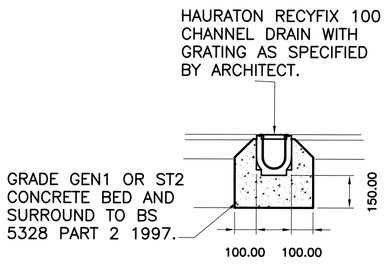
SCALE 1:20

NOTE: PLASTIC CHAMBERS AND RING SHALL COMPLY WITH BS EN 13598–1 AND BS EN 13598–2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL.



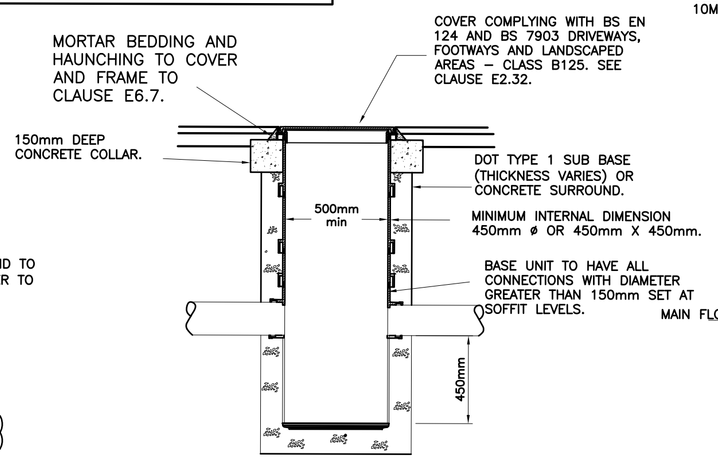
RODDING EYE ACCESS POINT DETAIL

SCALE 1:20



RECYFIX CHANNEL DRAIN (250kN)

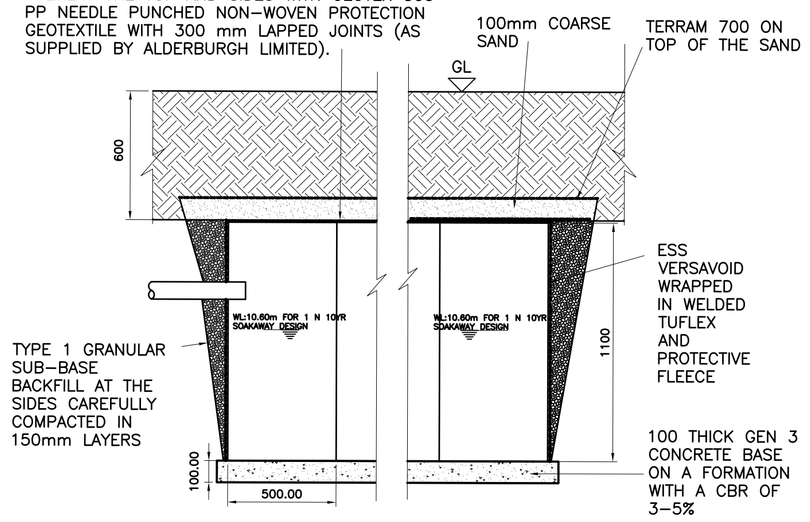
SCALE 1:20



TYPE 3A–500P POLYPROPYLENE SILT TRAP INSPECTION CHAMBER.

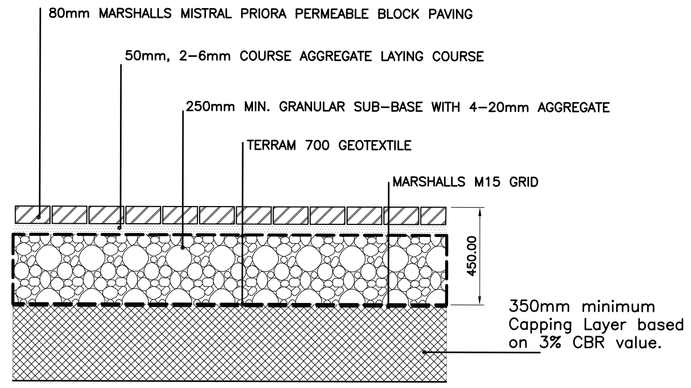
SCALE 1:20

TO PROTECT THE WATERPROOF TUFLEX GEOMEMBRANE DURING BACKFILLING OPERATION, OVERLAY THE TOP AND SIDES WITH GEOTEX 300 PP NEEDLE PUNCHED NON–WOVEN PROTECTION GEOTEXTILE WITH 300 mm LAPPED JOINTS (AS SUPPLIED BY ALDERBURGH LIMITED).



ESS VERSAVOID SOAKAWAY/INFILTRATION TANK UNDER LANDSCAPED AREA

SCALE 1:20



PERMEABLE BLOCK PAVING PARKING BAY CONSTRUCTION DETAIL

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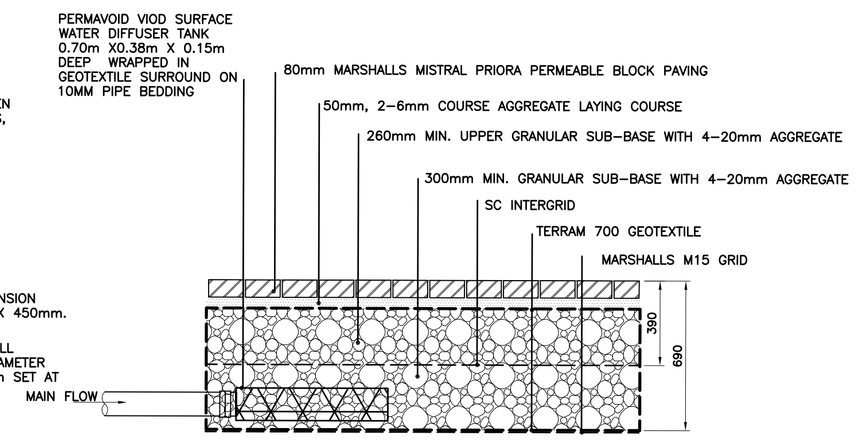
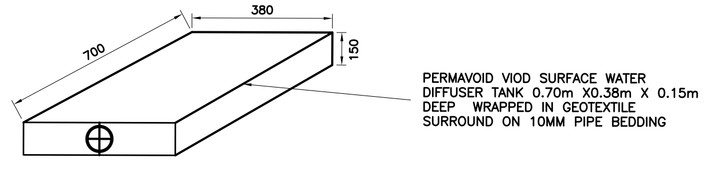


PERMEABLE PAVING SYSTEM SW INLET CONSTRUCTION DETAIL

SCALE 1:20



SURFACE WATER DIFFUSER DETAIL

SCALE 1:20

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REV	DESCRIPTION	DATE	BY
B	AMENDED NOTES	26/02/24	JS
A	AMENDED DRAINAGE DETAILS	26/02/24	JS
0	ORIGINAL ISSUE	09/02/24	JS

DIXON HURST
CONSULTING CIVIL & STRUCTURAL ENGINEERS
HEVERSHAM HOUSE, 18–22 BOUNDARY ROAD, HOVE, BN3 4EF
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www.dhk.co.uk
Registered in England No. 3438720 – Registered Office 4 Frederick Terrace, Brighton BN1 1AX.

CONTRACT

LAND NEXT TO 2 LANSDOWNE ROAD WORTHING, WEST SUSSEX

DRAWING

DRAINAGE DETAILS

DRAWING No.	REV	CHECKED
62610 / 11	B	
SCALE 1:20 @ A1 / DATE FEB 24	DRAWN JS	APPROVED
AutoCAD Ref: 62610–10		

This drawing is produced using Autocad: Only written dimensions are to be respected

Registered User: Single User License © 2020 CivilWeb

DIXON HURST	Project:	Land Next to Lansdowne Road, Worthing	By:
Consulting Civil & Structural Engineers	Calculation:	Soakaway Design	JS
		Infiltration Rate - Test	Approved:
	Sheet Number:	1 Date: Feb-24	JS

Infiltration Test (BRE 365)

Trial Pit Details

Total Pit Depth	1	m
Total Pit Length	1	m
Total Pit Width	0.3	m

Test Results

	Time (Mins)	Water Level (From Base)
1	0	1.00
2	12.5	0.75
3	25	0.50
4	37.5	0.25
5	50	0.00
6		
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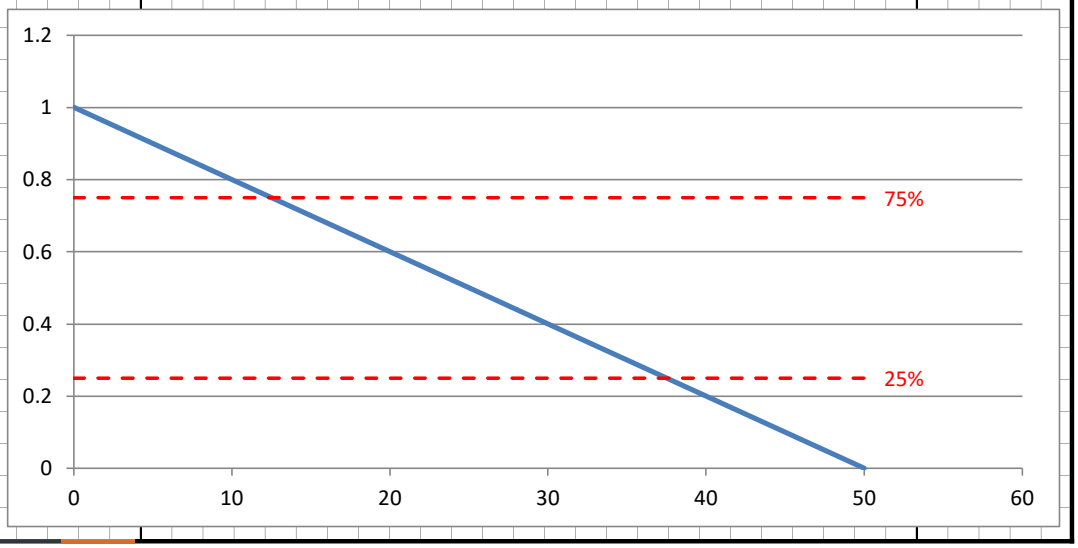

DIXON HURST CONSULTING CIVIL & STRUCTURAL ENGINEERS	**Project:**	Land Next to Lansdowne Road, Worthing			**By:**
	Calculation:	Soakaway Design			JS
		Infiltration Rate - Test 1			**Approved:**
	Sheet Number:	2	**Date:**	Oct-21	JS

Results

Time to reach 75% depth:	12.5	mins
Time to reach 25% depth:	37.5	mins
Soil Infiltration Rate:	**0.0000625**	m/s
	0.225	m/hr

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DIXON HURST Consulting Civil & Structural Engineers	**Project:**	Land Next to Lansdowne Road, Worthing		**By:**
	Calculation:	Soakaway Design		JS
		Infiltration Rate - Test 2		**Approved:**
	Sheet Number:	1 **Date:**	Feb-24	JS

Infiltration Test (BRE 365)

Trial Pit Details

Total Pit Depth	1	m
Total Pit Length	1	m
Total Pit Width	0.3	m

Test Results

	Time (Mins)	Water Level (From Base)
1	0	1.00
2	16	0.75
3	32	0.50
4	48	0.25
5	64	0.00
6		
7		
8		
9		
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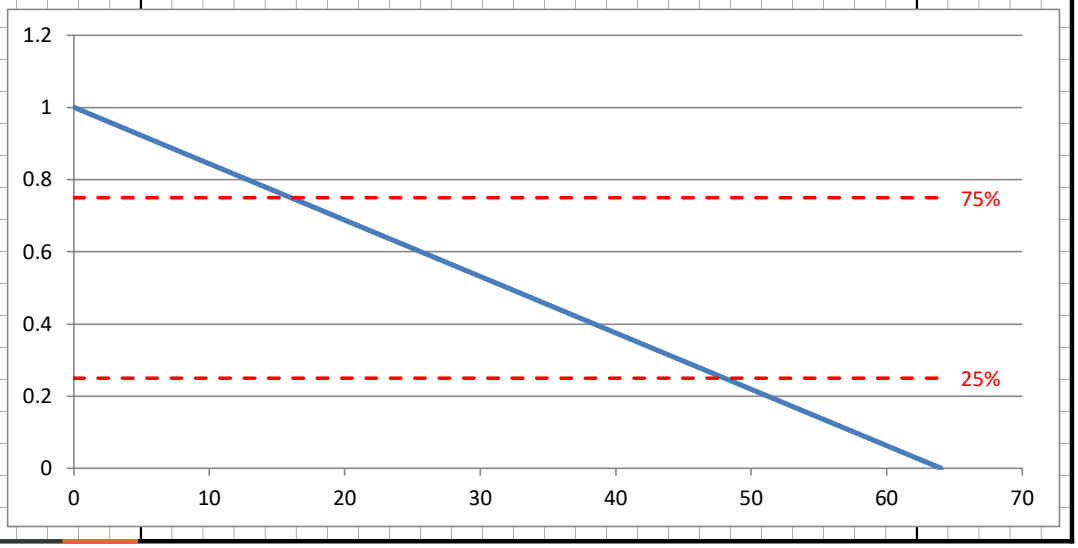

DIXON HURST CONSULTING CIVIL & STRUCTURAL ENGINEERS	**Project:**	Land Next to Lansdowne Road, Worthing			**By:**
	Calculation:	Soakaway Design			JS
		Infiltration Rate - Test 2			**Approved:**
	Sheet Number:	2	**Date:**	Mar-21	JS

Results

Time to reach 75% depth:	16.0	mins
Time to reach 25% depth:	48.0	mins
Soil Infiltration Rate:	**4.88281E-05**	m/s
	0.17578125	m/hr

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DIXON HURST Consulting Civil & Structural Engineers	**Project:**	Land Next to Lansdowne Road, Worthing		**By:**
	Calculation:	Soakaway Design		JS
		Infiltration Rate - Test 3		**Approved:**
	Sheet Number:	1 **Date:**	Feb-24	JS

Infiltration Test (BRE 365)

Trial Pit Details

Total Pit Depth	1	m
Total Pit Length	1	m
Total Pit Width	0.3	m

Test Results

	Time (Mins)	Water Level (From Base)
1	0	1.00
2	15	0.75
3	30	0.50
4	45	0.25
5	60	0.00
6		
7		
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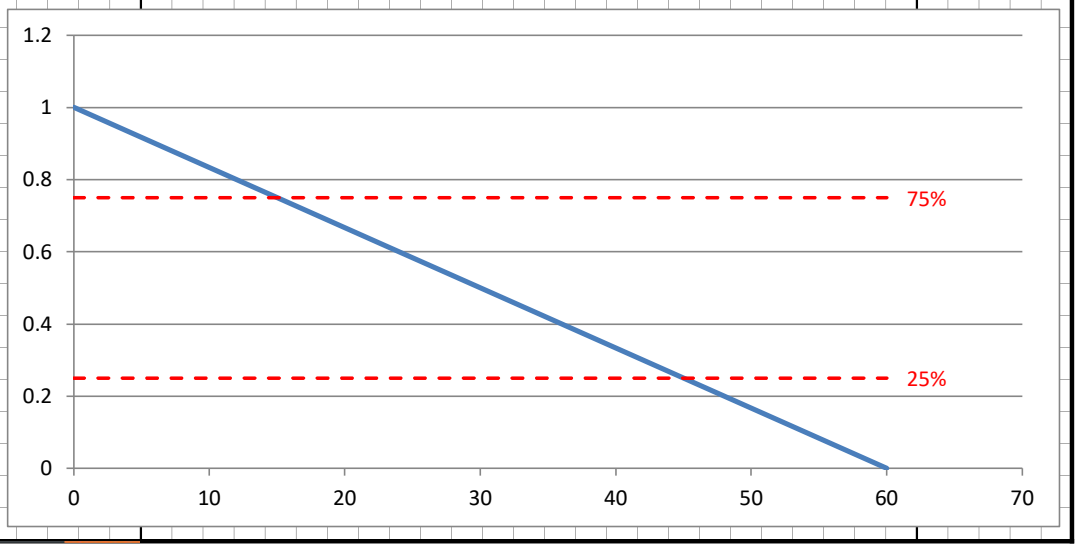

DIXON HURST Consulting Civil & Structural Engineers	**Project:**	Land Next to Lansdowne Road, Worthing	**By:**
	Calculation:	Soakaway Design	JS
		Infiltration Rate - Test 3	**Approved:**
	Sheet Number:	2 **Date:**	JS

Results

Time to reach 75% depth:	15.0	mins
Time to reach 25% depth:	45.0	mins
Soil Infiltration Rate:	**5.20833E-05**	m/s
	0.1875	m/hr

Summary of Results for 1 year Return Period (+45%)

Half Drain Time : 263 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.421	0.121	0.0	0.7	O K
30 min Summer	8.456	0.156	0.0	0.9	O K
60 min Summer	8.499	0.199	0.0	1.1	O K
120 min Summer	8.544	0.244	0.1	1.4	O K
180 min Summer	8.567	0.267	0.1	1.5	O K
240 min Summer	8.583	0.283	0.1	1.6	O K
360 min Summer	8.606	0.306	0.1	1.7	O K
480 min Summer	8.621	0.321	0.1	1.8	O K
600 min Summer	8.630	0.330	0.1	1.9	O K
720 min Summer	8.636	0.336	0.1	1.9	O K
960 min Summer	8.636	0.336	0.1	1.9	O K
1440 min Summer	8.625	0.325	0.1	1.9	O K
2160 min Summer	8.604	0.304	0.1	1.7	O K
2880 min Summer	8.584	0.284	0.1	1.6	O K
4320 min Summer	8.555	0.255	0.1	1.5	O K
5760 min Summer	8.532	0.232	0.1	1.3	O K
7200 min Summer	8.513	0.213	0.1	1.2	O K
8640 min Summer	8.498	0.198	0.0	1.1	O K
10080 min Summer	8.485	0.185	0.0	1.1	O K
15 min Winter	8.421	0.121	0.0	0.7	O K
30 min Winter	8.457	0.157	0.0	0.9	O K
60 min Winter	8.499	0.199	0.0	1.1	O K
120 min Winter	8.545	0.245	0.1	1.4	O K
180 min Winter	8.569	0.269	0.1	1.5	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	35.669	26
30 min Summer	23.451	39
60 min Summer	15.418	68
120 min Summer	10.137	122
180 min Summer	7.932	168
240 min Summer	6.665	196
360 min Summer	5.215	260
480 min Summer	4.382	328
600 min Summer	3.829	396
720 min Summer	3.429	464
960 min Summer	2.828	600
1440 min Summer	2.155	866
2160 min Summer	1.642	1256
2880 min Summer	1.354	1624
4320 min Summer	1.049	2380
5760 min Summer	0.875	3112
7200 min Summer	0.760	3824
8640 min Summer	0.677	4584
10080 min Summer	0.614	5256
15 min Winter	35.669	26
30 min Winter	23.451	39
60 min Winter	15.418	66
120 min Winter	10.137	120
180 min Winter	7.932	174

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Summary of Results for 1 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	8.584	0.284	0.1	1.6	O K
360 min Winter	8.605	0.305	0.1	1.7	O K
480 min Winter	8.616	0.316	0.1	1.8	O K
600 min Winter	8.622	0.322	0.1	1.8	O K
720 min Winter	8.624	0.324	0.1	1.8	O K
960 min Winter	8.617	0.317	0.1	1.8	O K
1440 min Winter	8.596	0.296	0.1	1.7	O K
2160 min Winter	8.566	0.266	0.1	1.5	O K
2880 min Winter	8.541	0.241	0.1	1.4	O K
4320 min Winter	8.506	0.206	0.1	1.2	O K
5760 min Winter	8.480	0.180	0.0	1.0	O K
7200 min Winter	8.461	0.161	0.0	0.9	O K
8640 min Winter	8.446	0.146	0.0	0.8	O K
10080 min Winter	8.435	0.135	0.0	0.8	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	6.665	200
360 min Winter	5.215	274
480 min Winter	4.382	352
600 min Winter	3.829	426
720 min Winter	3.429	498
960 min Winter	2.828	642
1440 min Winter	2.155	916
2160 min Winter	1.642	1308
2880 min Winter	1.354	1700
4320 min Winter	1.049	2460
5760 min Winter	0.875	3176
7200 min Winter	0.760	3896
8640 min Winter	0.677	4664
10080 min Winter	0.614	5352

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	1
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.300 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.17580

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	6.0	6.0	1.200	0.0	17.0
1.100	6.0	17.0			

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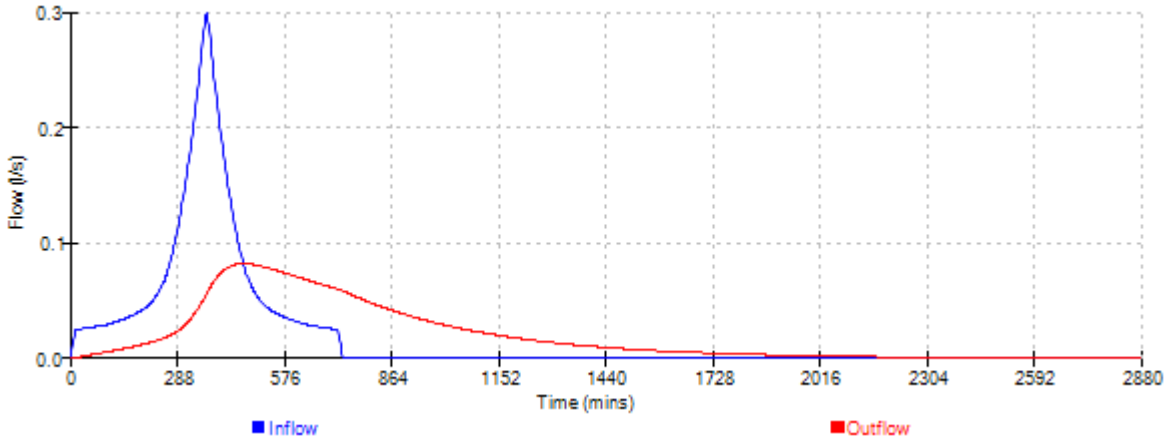
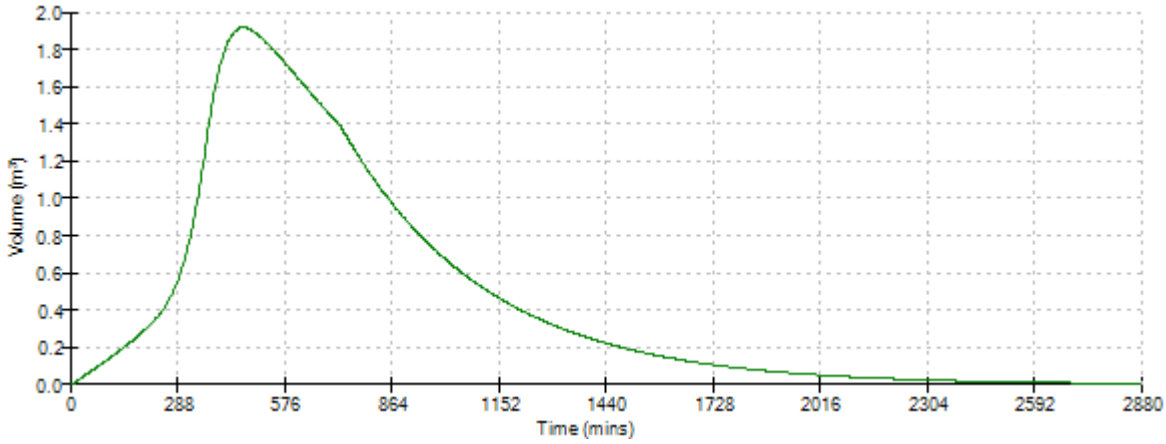
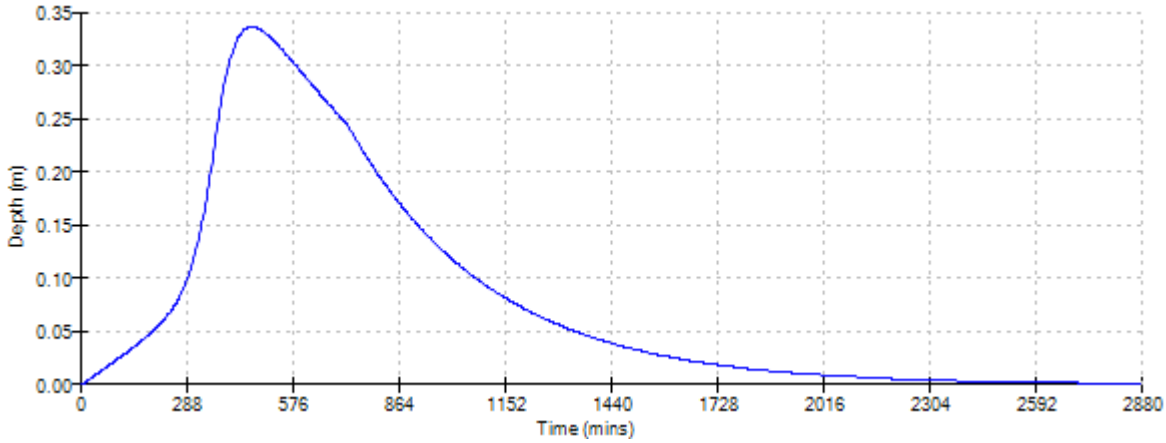
Event: 720 min Summer







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Summary of Results for 30 year Return Period (+45%)

Half Drain Time : 263 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.698	0.398	0.1	2.3	O K
30 min Summer	8.782	0.482	0.1	2.7	O K
60 min Summer	8.875	0.575	0.1	3.3	O K
120 min Summer	8.962	0.662	0.2	3.8	O K
180 min Summer	8.998	0.698	0.2	4.0	O K
240 min Summer	9.022	0.722	0.2	4.1	O K
360 min Summer	9.053	0.753	0.2	4.3	O K
480 min Summer	9.068	0.768	0.2	4.4	O K
600 min Summer	9.075	0.775	0.2	4.4	O K
720 min Summer	9.076	0.776	0.2	4.4	O K
960 min Summer	9.054	0.754	0.2	4.3	O K
1440 min Summer	9.004	0.704	0.2	4.0	O K
2160 min Summer	8.934	0.634	0.2	3.6	O K
2880 min Summer	8.877	0.577	0.1	3.3	O K
4320 min Summer	8.799	0.499	0.1	2.8	O K
5760 min Summer	8.742	0.442	0.1	2.5	O K
7200 min Summer	8.699	0.399	0.1	2.3	O K
8640 min Summer	8.664	0.364	0.1	2.1	O K
10080 min Summer	8.636	0.336	0.1	1.9	O K
15 min Winter	8.698	0.398	0.1	2.3	O K
30 min Winter	8.783	0.483	0.1	2.8	O K
60 min Winter	8.876	0.576	0.1	3.3	O K
120 min Winter	8.965	0.665	0.2	3.8	O K
180 min Winter	9.004	0.704	0.2	4.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	117.169	26
30 min Summer	72.307	39
60 min Summer	44.622	68
120 min Summer	27.537	122
180 min Summer	20.763	168
240 min Summer	16.994	196
360 min Summer	12.813	260
480 min Summer	10.487	328
600 min Summer	8.978	396
720 min Summer	7.907	464
960 min Summer	6.352	600
1440 min Summer	4.665	866
2160 min Summer	3.426	1256
2880 min Summer	2.752	1624
4320 min Summer	2.053	2380
5760 min Summer	1.668	3112
7200 min Summer	1.420	3824
8640 min Summer	1.244	4584
10080 min Summer	1.113	5256
15 min Winter	117.169	26
30 min Winter	72.307	39
60 min Winter	44.622	66
120 min Winter	27.537	120
180 min Winter	20.763	174

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Summary of Results for 30 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	9.023	0.723	0.2	4.1	O K
360 min Winter	9.048	0.748	0.2	4.3	O K
480 min Winter	9.056	0.756	0.2	4.3	O K
600 min Winter	9.054	0.754	0.2	4.3	O K
720 min Winter	9.047	0.747	0.2	4.3	O K
960 min Winter	9.011	0.711	0.2	4.1	O K
1440 min Winter	8.942	0.642	0.2	3.7	O K
2160 min Winter	8.855	0.555	0.1	3.2	O K
2880 min Winter	8.789	0.489	0.1	2.8	O K
4320 min Winter	8.702	0.402	0.1	2.3	O K
5760 min Winter	8.644	0.344	0.1	2.0	O K
7200 min Winter	8.601	0.301	0.1	1.7	O K
8640 min Winter	8.569	0.269	0.1	1.5	O K
10080 min Winter	8.544	0.244	0.1	1.4	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	16.994	200
360 min Winter	12.813	276
480 min Winter	10.487	352
600 min Winter	8.978	426
720 min Winter	7.907	498
960 min Winter	6.352	642
1440 min Winter	4.665	916
2160 min Winter	3.426	1308
2880 min Winter	2.752	1700
4320 min Winter	2.053	2460
5760 min Winter	1.668	3176
7200 min Winter	1.420	3896
8640 min Winter	1.244	4664
10080 min Winter	1.113	5352

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.300 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.17580

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	6.0	6.0	1.200	0.0	17.0
1.100	6.0	17.0			

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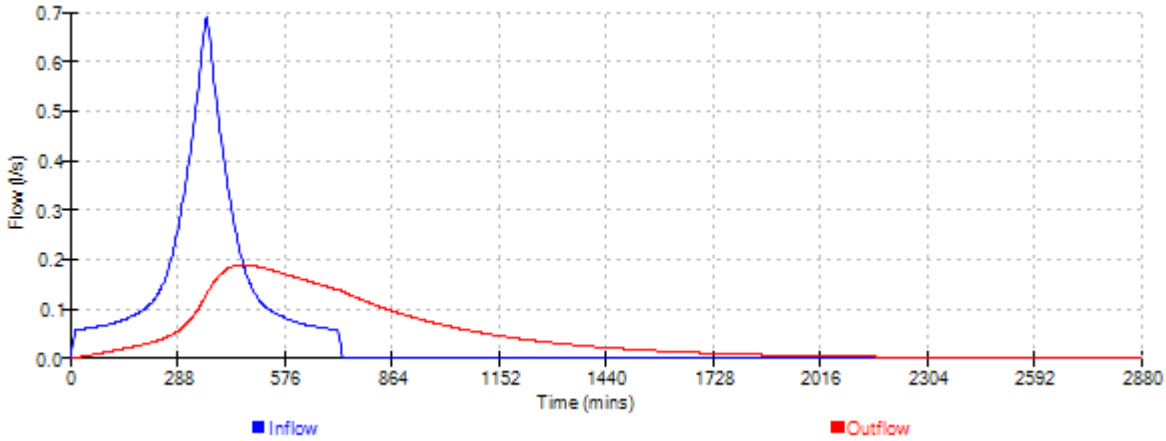
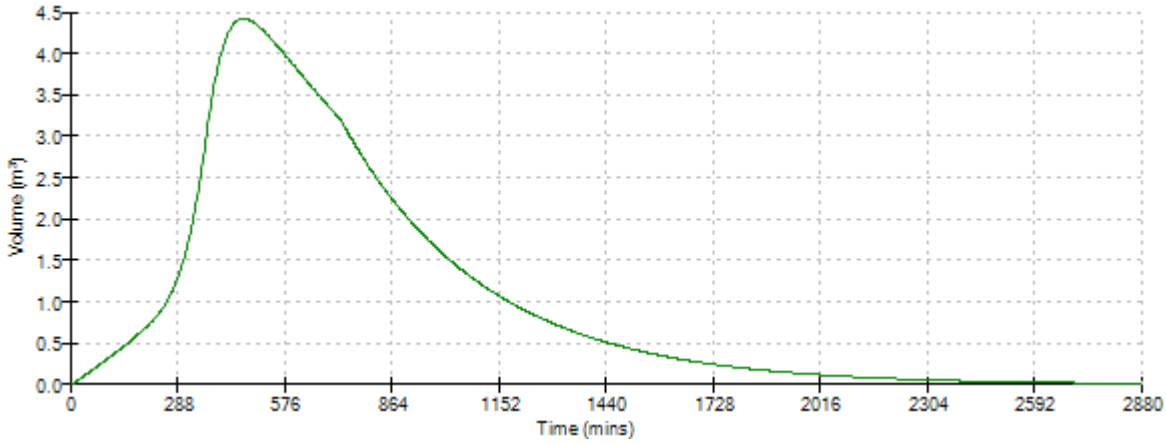
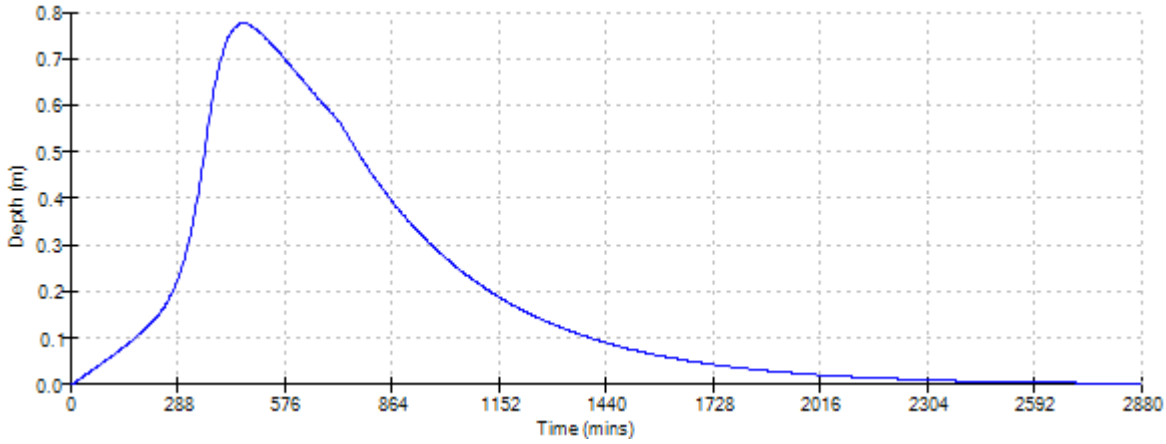
Event: 720 min Summer







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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 263 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.910	0.610	0.1	3.5	O K
30 min Summer	9.023	0.723	0.2	4.1	O K
60 min Summer	9.142	0.842	0.2	4.8	O K
120 min Summer	9.247	0.947	0.2	5.4	O K
180 min Summer	9.287	0.987	0.2	5.6	O K
240 min Summer	9.311	1.011	0.2	5.8	O K
360 min Summer	9.339	1.039	0.3	5.9	O K
480 min Summer	9.351	1.051	0.3	6.0	O K
600 min Summer	9.352	1.052	0.3	6.0	O K
720 min Summer	9.347	1.047	0.3	6.0	O K
960 min Summer	9.308	1.008	0.2	5.7	O K
1440 min Summer	9.229	0.929	0.2	5.3	O K
2160 min Summer	9.126	0.826	0.2	4.7	O K
2880 min Summer	9.044	0.744	0.2	4.2	O K
4320 min Summer	8.936	0.636	0.2	3.6	O K
5760 min Summer	8.858	0.558	0.1	3.2	O K
7200 min Summer	8.799	0.499	0.1	2.8	O K
8640 min Summer	8.753	0.453	0.1	2.6	O K
10080 min Summer	8.715	0.415	0.1	2.4	O K
15 min Winter	8.910	0.610	0.1	3.5	O K
30 min Winter	9.024	0.724	0.2	4.1	O K
60 min Winter	9.144	0.844	0.2	4.8	O K
120 min Winter	9.252	0.952	0.2	5.4	O K
180 min Winter	9.295	0.995	0.2	5.7	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	179.630	26
30 min Summer	108.360	39
60 min Summer	65.367	68
120 min Summer	39.431	122
180 min Summer	29.338	168
240 min Summer	23.787	196
360 min Summer	17.698	260
480 min Summer	14.349	328
600 min Summer	12.194	396
720 min Summer	10.676	464
960 min Summer	8.495	600
1440 min Summer	6.156	866
2160 min Summer	4.461	1256
2880 min Summer	3.550	1624
4320 min Summer	2.614	2380
5760 min Summer	2.103	3112
7200 min Summer	1.777	3824
8640 min Summer	1.549	4584
10080 min Summer	1.378	5256
15 min Winter	179.630	26
30 min Winter	108.360	39
60 min Winter	65.367	66
120 min Winter	39.431	120
180 min Winter	29.338	174

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	9.312	1.012	0.2	5.8	O K
360 min Winter	9.333	1.033	0.3	5.9	O K
480 min Winter	9.334	1.034	0.3	5.9	O K
600 min Winter	9.324	1.024	0.3	5.8	O K
720 min Winter	9.308	1.008	0.2	5.7	O K
960 min Winter	9.251	0.951	0.2	5.4	O K
1440 min Winter	9.147	0.847	0.2	4.8	O K
2160 min Winter	9.023	0.723	0.2	4.1	O K
2880 min Winter	8.931	0.631	0.2	3.6	O K
4320 min Winter	8.812	0.512	0.1	2.9	O K
5760 min Winter	8.733	0.433	0.1	2.5	O K
7200 min Winter	8.677	0.377	0.1	2.1	O K
8640 min Winter	8.635	0.335	0.1	1.9	O K
10080 min Winter	8.602	0.302	0.1	1.7	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	23.787	200
360 min Winter	17.698	276
480 min Winter	14.349	352
600 min Winter	12.194	426
720 min Winter	10.676	498
960 min Winter	8.495	642
1440 min Winter	6.156	916
2160 min Winter	4.461	1308
2880 min Winter	3.550	1704
4320 min Winter	2.614	2460
5760 min Winter	2.103	3176
7200 min Winter	1.777	3904
8640 min Winter	1.549	4664
10080 min Winter	1.378	5352

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

Invert Level (m) 8.300 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.17580

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	6.0	6.0	1.200	0.0	17.0
1.100	6.0	17.0			

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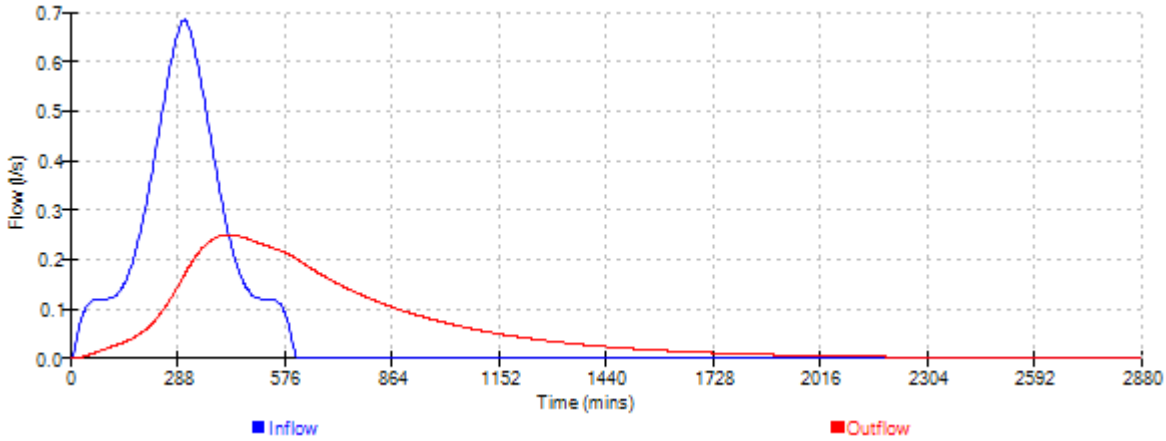
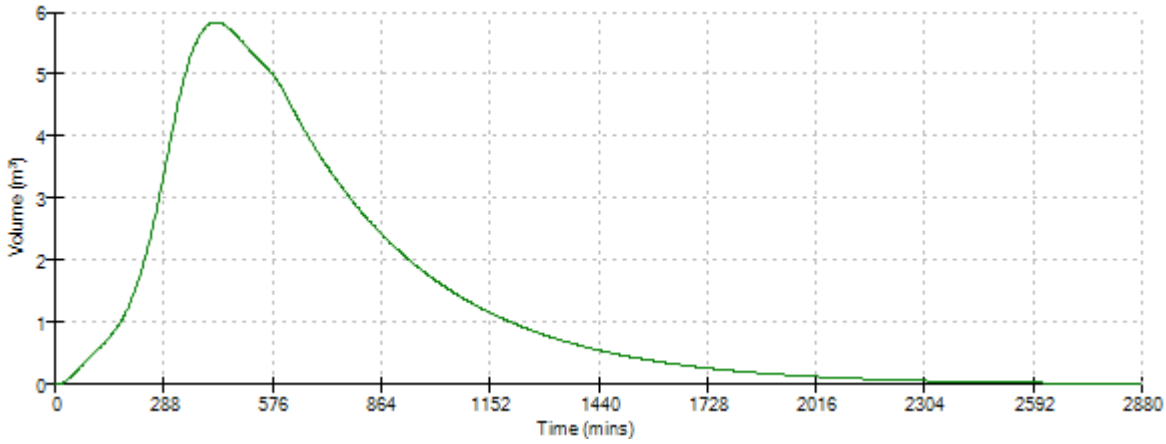
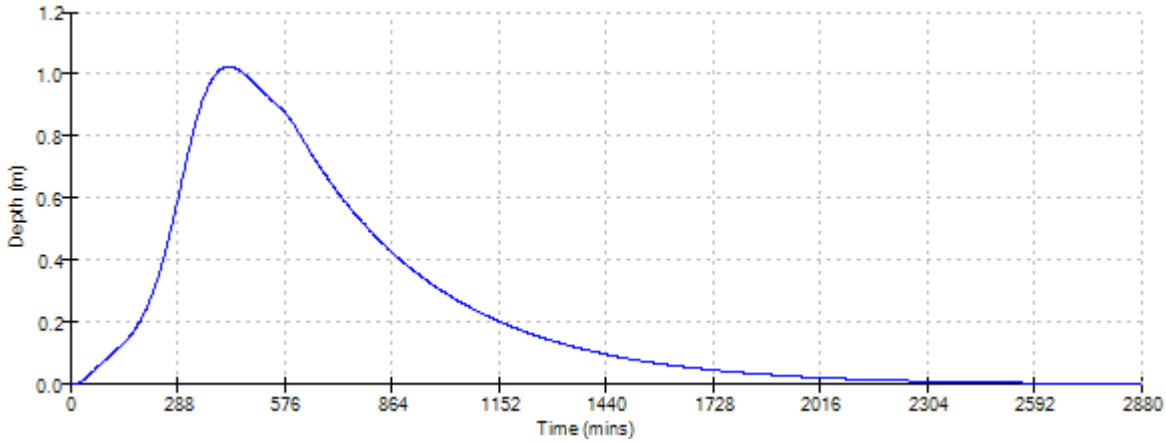
Event: 600 min Winter







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Summary of Results for 1 year Return Period (+45%)

Half Drain Time : 9 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.581	0.101	0.5	0.3	O K
30 min Summer	9.592	0.112	0.5	0.4	O K
60 min Summer	9.596	0.116	0.5	0.4	O K
120 min Summer	9.590	0.110	0.5	0.3	O K
180 min Summer	9.581	0.101	0.5	0.3	O K
240 min Summer	9.574	0.094	0.4	0.3	O K
360 min Summer	9.562	0.082	0.4	0.2	O K
480 min Summer	9.553	0.073	0.3	0.2	O K
600 min Summer	9.546	0.066	0.3	0.1	O K
720 min Summer	9.541	0.061	0.3	0.1	O K
960 min Summer	9.532	0.052	0.2	0.1	O K
1440 min Summer	9.525	0.045	0.2	0.1	O K
2160 min Summer	9.519	0.039	0.1	0.0	O K
2880 min Summer	9.516	0.036	0.1	0.0	O K
4320 min Summer	9.511	0.031	0.1	0.0	O K
5760 min Summer	9.509	0.029	0.1	0.0	O K
7200 min Summer	9.507	0.027	0.1	0.0	O K
8640 min Summer	9.505	0.025	0.1	0.0	O K
10080 min Summer	9.504	0.024	0.1	0.0	O K
15 min Winter	9.580	0.100	0.5	0.3	O K
30 min Winter	9.589	0.109	0.5	0.3	O K
60 min Winter	9.589	0.109	0.5	0.3	O K
120 min Winter	9.576	0.096	0.4	0.3	O K
180 min Winter	9.563	0.083	0.4	0.2	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	35.669	20
30 min Summer	23.451	28
60 min Summer	15.418	44
120 min Summer	10.137	74
180 min Summer	7.932	104
240 min Summer	6.665	136
360 min Summer	5.215	196
480 min Summer	4.382	254
600 min Summer	3.829	314
720 min Summer	3.429	374
960 min Summer	2.828	492
1440 min Summer	2.155	734
2160 min Summer	1.642	1096
2880 min Summer	1.354	1432
4320 min Summer	1.049	2176
5760 min Summer	0.875	2880
7200 min Summer	0.760	3632
8640 min Summer	0.677	4400
10080 min Summer	0.614	5112
15 min Winter	35.669	20
30 min Winter	23.451	28
60 min Winter	15.418	44
120 min Winter	10.137	76
180 min Winter	7.932	106

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Summary of Results for 1 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	9.554	0.074	0.3	0.2	O K
360 min Winter	9.541	0.061	0.3	0.1	O K
480 min Winter	9.532	0.052	0.2	0.1	O K
600 min Winter	9.528	0.048	0.2	0.1	O K
720 min Winter	9.525	0.045	0.2	0.1	O K
960 min Winter	9.521	0.041	0.2	0.0	O K
1440 min Winter	9.516	0.036	0.1	0.0	O K
2160 min Winter	9.512	0.032	0.1	0.0	O K
2880 min Winter	9.509	0.029	0.1	0.0	O K
4320 min Winter	9.505	0.025	0.1	0.0	O K
5760 min Winter	9.503	0.023	0.0	0.0	O K
7200 min Winter	9.501	0.021	0.0	0.0	O K
8640 min Winter	9.500	0.020	0.0	0.0	O K
10080 min Winter	9.499	0.019	0.0	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	6.665	136
360 min Winter	5.215	194
480 min Winter	4.382	254
600 min Winter	3.829	314
720 min Winter	3.429	374
960 min Winter	2.828	496
1440 min Winter	2.155	732
2160 min Winter	1.642	1100
2880 min Winter	1.354	1432
4320 min Winter	1.049	2224
5760 min Winter	0.875	2936
7200 min Winter	0.760	3632
8640 min Winter	0.677	4216
10080 min Winter	0.614	4896

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	1
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 9.900

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.17580	Width (m)	3.8
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	9.0	Slope (1:X)	50.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.480	Cap Volume Depth (m)	0.000

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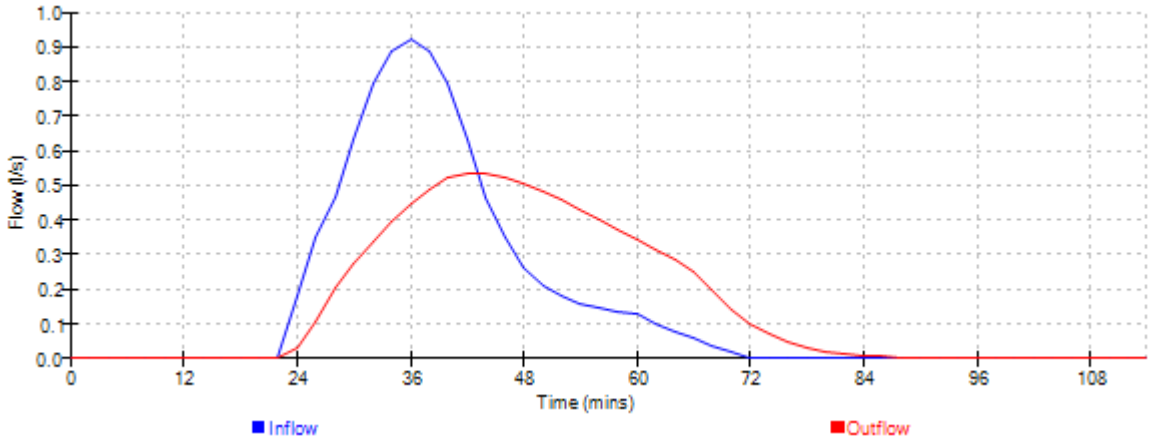
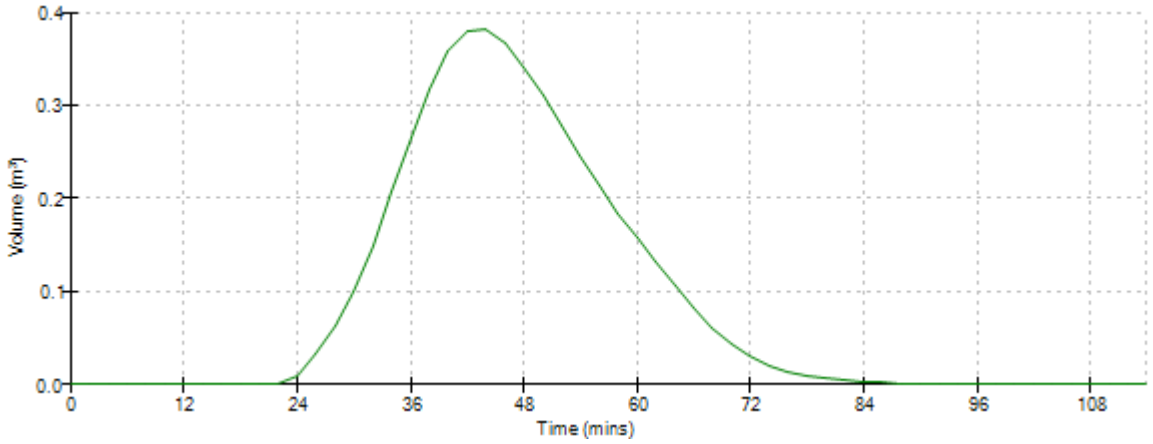
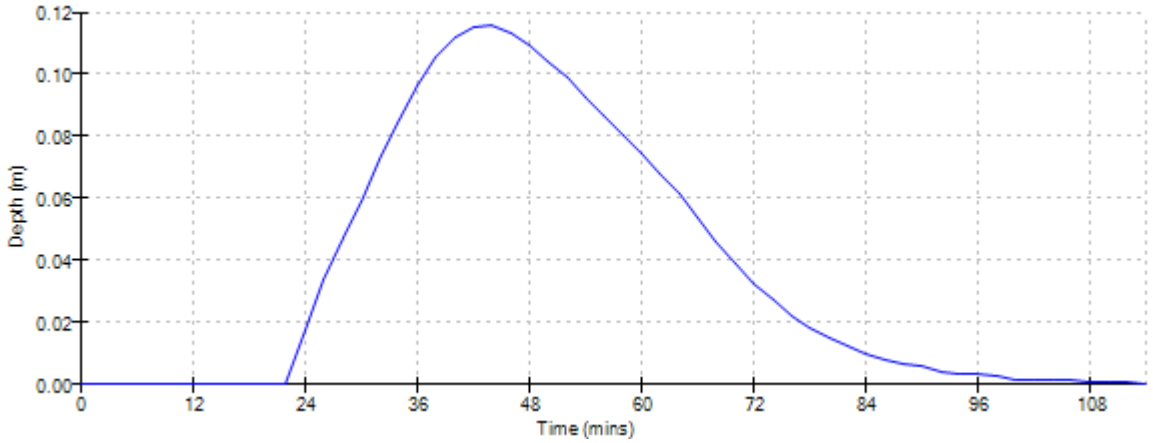
Event: 60 min Summer







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Summary of Results for 30 year Return Period (+45%)

Half Drain Time : 20 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.723	0.243	0.8	1.5	O K
30 min Summer	9.745	0.265	0.8	1.7	O K
60 min Summer	9.748	0.268	0.8	1.8	O K
120 min Summer	9.730	0.250	0.8	1.6	O K
180 min Summer	9.708	0.228	0.8	1.4	O K
240 min Summer	9.686	0.206	0.8	1.2	O K
360 min Summer	9.654	0.174	0.8	0.9	O K
480 min Summer	9.635	0.155	0.7	0.7	O K
600 min Summer	9.621	0.141	0.7	0.6	O K
720 min Summer	9.610	0.130	0.6	0.5	O K
960 min Summer	9.590	0.110	0.5	0.3	O K
1440 min Summer	9.565	0.085	0.4	0.2	O K
2160 min Summer	9.544	0.064	0.3	0.1	O K
2880 min Summer	9.532	0.052	0.2	0.1	O K
4320 min Summer	9.524	0.044	0.2	0.1	O K
5760 min Summer	9.520	0.040	0.1	0.0	O K
7200 min Summer	9.517	0.037	0.1	0.0	O K
8640 min Summer	9.514	0.034	0.1	0.0	O K
10080 min Summer	9.512	0.032	0.1	0.0	O K
15 min Winter	9.722	0.242	0.8	1.5	O K
30 min Winter	9.743	0.263	0.8	1.7	O K
60 min Winter	9.740	0.260	0.8	1.7	O K
120 min Winter	9.707	0.227	0.8	1.4	O K
180 min Winter	9.672	0.192	0.8	1.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	117.169	21
30 min Summer	72.307	31
60 min Summer	44.622	48
120 min Summer	27.537	82
180 min Summer	20.763	114
240 min Summer	16.994	144
360 min Summer	12.813	202
480 min Summer	10.487	262
600 min Summer	8.978	320
720 min Summer	7.907	380
960 min Summer	6.352	500
1440 min Summer	4.665	738
2160 min Summer	3.426	1100
2880 min Summer	2.752	1464
4320 min Summer	2.053	2200
5760 min Summer	1.668	2928
7200 min Summer	1.420	3664
8640 min Summer	1.244	4400
10080 min Summer	1.113	5032
15 min Winter	117.169	21
30 min Winter	72.307	32
60 min Winter	44.622	50
120 min Winter	27.537	84
180 min Winter	20.763	116

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Summary of Results for 30 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	9.647	0.167	0.8	0.8	O K
360 min Winter	9.619	0.139	0.6	0.6	O K
480 min Winter	9.599	0.119	0.6	0.4	O K
600 min Winter	9.584	0.104	0.5	0.3	O K
720 min Winter	9.573	0.093	0.4	0.2	O K
960 min Winter	9.556	0.076	0.4	0.2	O K
1440 min Winter	9.536	0.056	0.3	0.1	O K
2160 min Winter	9.526	0.046	0.2	0.1	O K
2880 min Winter	9.521	0.041	0.2	0.0	O K
4320 min Winter	9.515	0.035	0.1	0.0	O K
5760 min Winter	9.512	0.032	0.1	0.0	O K
7200 min Winter	9.509	0.029	0.1	0.0	O K
8640 min Winter	9.507	0.027	0.1	0.0	O K
10080 min Winter	9.506	0.026	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	16.994	144
360 min Winter	12.813	204
480 min Winter	10.487	264
600 min Winter	8.978	322
720 min Winter	7.907	380
960 min Winter	6.352	500
1440 min Winter	4.665	734
2160 min Winter	3.426	1108
2880 min Winter	2.752	1456
4320 min Winter	2.053	2164
5760 min Winter	1.668	2920
7200 min Winter	1.420	3592
8640 min Winter	1.244	4296
10080 min Winter	1.113	4960

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 9.900

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.17580	Width (m)	3.8
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	9.0	Slope (1:X)	50.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.480	Cap Volume Depth (m)	0.000

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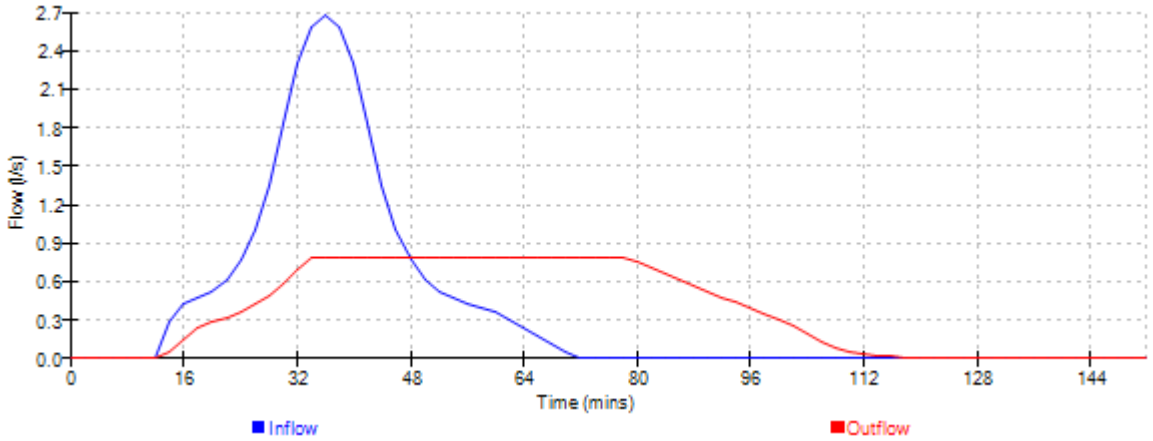
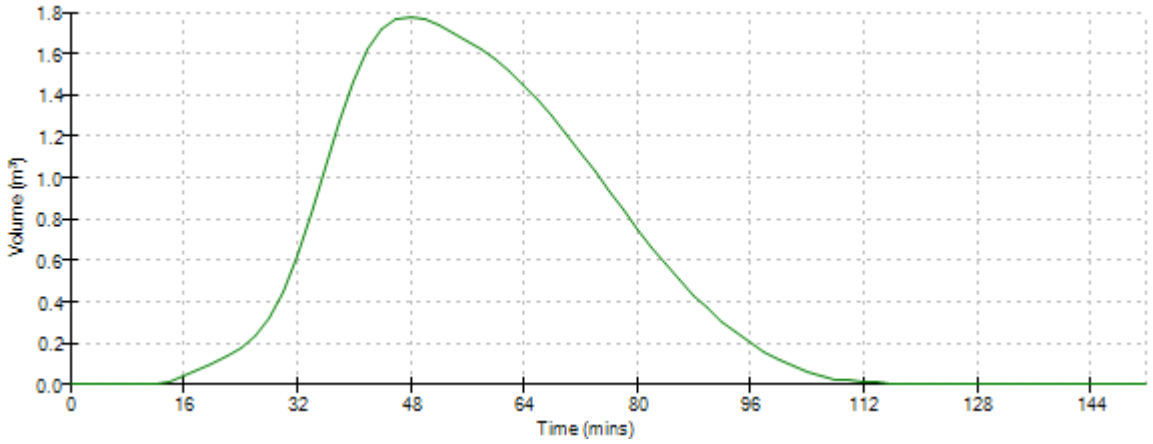
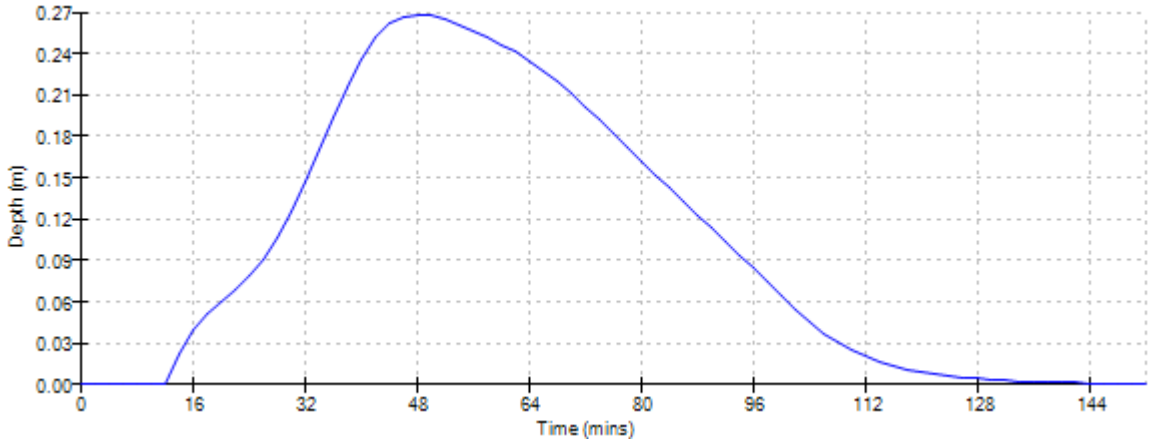
Event: 60 min Summer







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Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 37 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.841	0.361	0.8	2.7	O K
30 min Summer	9.877	0.397	0.8	3.0	O K
60 min Summer	9.883	0.403	0.8	3.1	O K
120 min Summer	9.860	0.380	0.8	2.9	O K
180 min Summer	9.830	0.350	0.8	2.6	O K
240 min Summer	9.800	0.320	0.8	2.3	O K
360 min Summer	9.746	0.266	0.8	1.8	O K
480 min Summer	9.702	0.222	0.8	1.3	O K
600 min Summer	9.669	0.189	0.8	1.0	O K
720 min Summer	9.648	0.168	0.8	0.8	O K
960 min Summer	9.623	0.143	0.7	0.6	O K
1440 min Summer	9.590	0.110	0.5	0.3	O K
2160 min Summer	9.563	0.083	0.4	0.2	O K
2880 min Summer	9.546	0.066	0.3	0.1	O K
4320 min Summer	9.530	0.050	0.2	0.1	O K
5760 min Summer	9.525	0.045	0.2	0.1	O K
7200 min Summer	9.521	0.041	0.2	0.0	O K
8640 min Summer	9.518	0.038	0.1	0.0	O K
10080 min Summer	9.516	0.036	0.1	0.0	O K
15 min Winter	9.840	0.360	0.8	2.7	O K
30 min Winter	9.876	0.396	0.8	3.0	O K
60 min Winter	9.878	0.398	0.8	3.0	O K
120 min Winter	9.839	0.359	0.8	2.7	O K
180 min Winter	9.791	0.311	0.8	2.2	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
15 min Summer	179.630	22
30 min Summer	108.360	33
60 min Summer	65.367	52
120 min Summer	39.431	86
180 min Summer	29.338	120
240 min Summer	23.787	152
360 min Summer	17.698	214
480 min Summer	14.349	274
600 min Summer	12.194	330
720 min Summer	10.676	384
960 min Summer	8.495	502
1440 min Summer	6.156	740
2160 min Summer	4.461	1104
2880 min Summer	3.550	1468
4320 min Summer	2.614	2144
5760 min Summer	2.103	2904
7200 min Summer	1.777	3592
8640 min Summer	1.549	4264
10080 min Summer	1.378	5024
15 min Winter	179.630	22
30 min Winter	108.360	33
60 min Winter	65.367	54
120 min Winter	39.431	90
180 min Winter	29.338	126

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
240 min Winter	9.746	0.266	0.8	1.8	O K
360 min Winter	9.673	0.193	0.8	1.0	O K
480 min Winter	9.639	0.159	0.7	0.7	O K
600 min Winter	9.619	0.139	0.6	0.6	O K
720 min Winter	9.604	0.124	0.6	0.4	O K
960 min Winter	9.581	0.101	0.5	0.3	O K
1440 min Winter	9.554	0.074	0.3	0.2	O K
2160 min Winter	9.534	0.054	0.2	0.1	O K
2880 min Winter	9.526	0.046	0.2	0.1	O K
4320 min Winter	9.520	0.040	0.1	0.0	O K
5760 min Winter	9.516	0.036	0.1	0.0	O K
7200 min Winter	9.513	0.033	0.1	0.0	O K
8640 min Winter	9.511	0.031	0.1	0.0	O K
10080 min Winter	9.509	0.029	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
240 min Winter	23.787	158
360 min Winter	17.698	216
480 min Winter	14.349	268
600 min Winter	12.194	326
720 min Winter	10.676	386
960 min Winter	8.495	502
1440 min Winter	6.156	738
2160 min Winter	4.461	1100
2880 min Winter	3.550	1428
4320 min Winter	2.614	2204
5760 min Winter	2.103	2872
7200 min Winter	1.777	3560
8640 min Winter	1.549	4336
10080 min Winter	1.378	5064

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	GB 513750 103250 TQ 13750 03250
C (1km)	-0.027
D1 (1km)	0.395
D2 (1km)	0.330
D3 (1km)	0.369
E (1km)	0.314
F (1km)	2.364
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time / Area Diagram

Total Area (ha) 0.008

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	4-8	0.003	8-12	0.003

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Model Details

Storage is Online Cover Level (m) 9.900

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.17580	Width (m)	3.8
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	9.0	Slope (1:X)	50.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.480	Cap Volume Depth (m)	0.000

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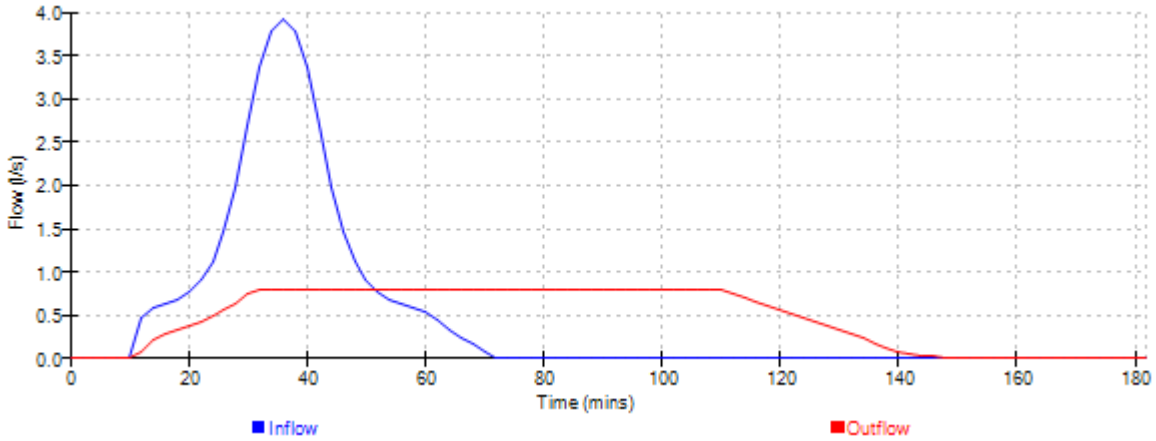
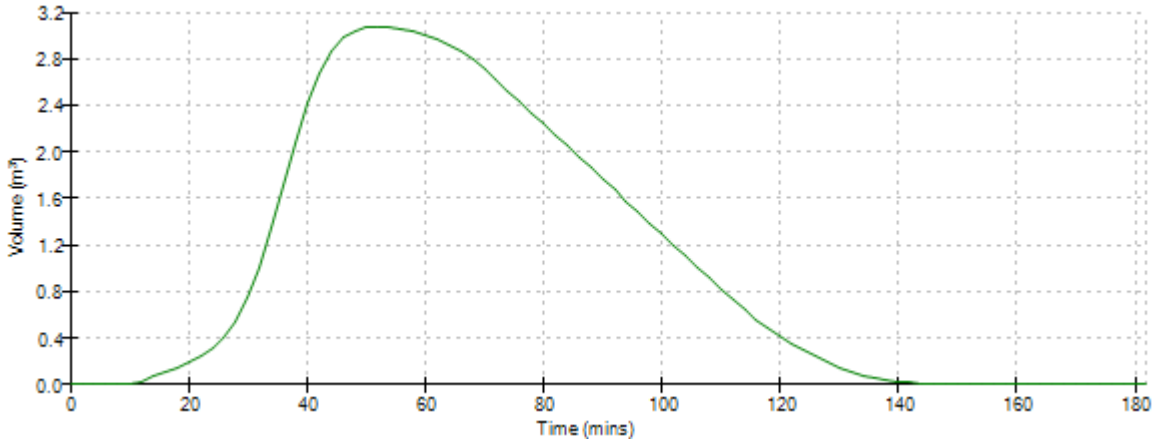
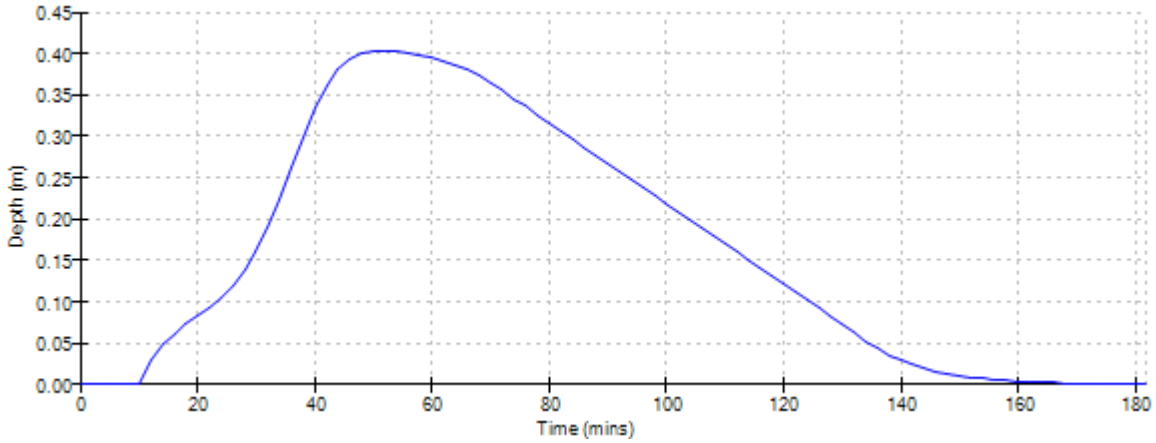
Event: 60 min Summer







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