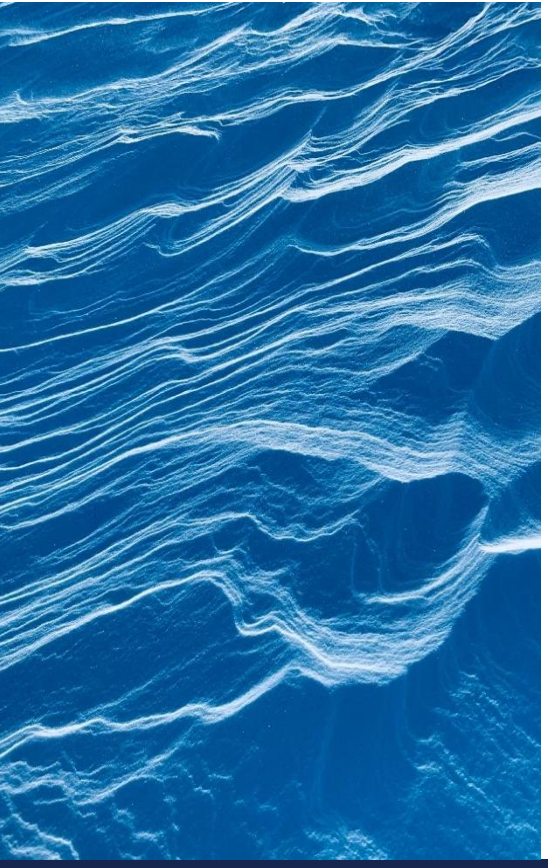
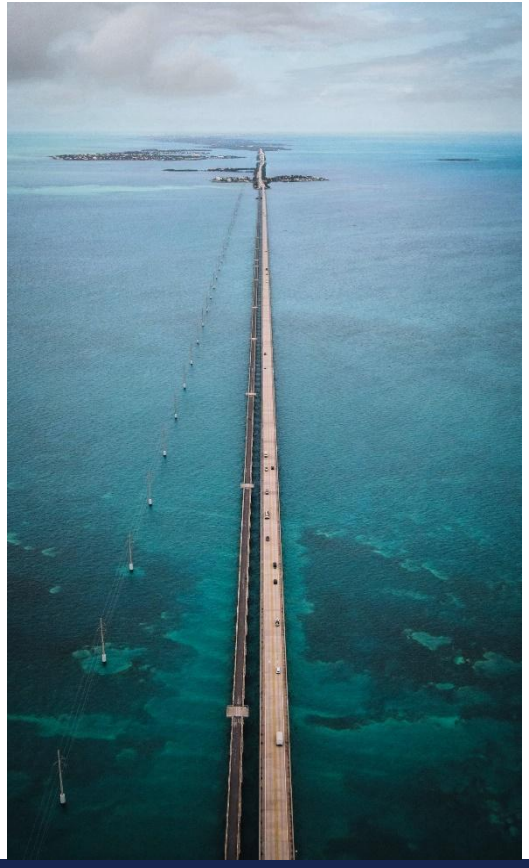




Drainage Strategy

7657_RH20_Pickhurst Lane_07

aegaea
water, civils and environment

Site Address: Land West of Parsons Field Stables
Pickhurst Lane
Pulborough
RH20 1DA

UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

aegaea
water, civils and environment

Document Issue Record

Project: Drainage Strategy

Prepared for: Manorwood Construction Limited

Reference: 7657_RH20_Pickhurst Lane_07

Site Location: Land West of Parsons Field Stables, Pickhurst Lane, Pulborough, RH20 1DA

Issue	Date	Author	Check	Auth.	Comments
1	28/04/2025	Ceri Metcalfe	Daniel Buciak	James Mahoney	First issue
2	02/05/2025	Ceri Metcalfe	Daniel Buciak	James Mahoney	Amended site layout
3	04/07/2025	Ceri Metcalfe	Daniel Buciak	James Mahoney	Amended site layout
4	22/08/2025	Ceri Metcalfe	Daniel Buciak	James Mahoney	Amended site layout

Please Note:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from Aegaea Civil Engineering Limited. All work has been carried out within the terms of the brief using all reasonable skill, care, and diligence. No liability is accepted by Aegaea Civil Engineering Limited for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced. Where reference has been made to probability events, or risk probability, it does not ensure that there is no risk or that there is no residual risk from an extreme, unlikely or unforeseen flood event over the lifetime of the development.

Table of Contents

aegaea

water, civils and environment

1. Introduction

1.1. Aegaea were commissioned by the Client to prepare a Drainage Strategy to support a planning application associated with the proposed development at the below address.

Site Overview

1.2. The site of the proposed development is Land West of Parsons Field Stables, Pickhurst Lane, Pulborough, RH20 1DA.

Figure 1: Site Location

1.3. The proposed development site measures approximately 5,920m^2 (0.592ha), situated and accessed from Pickhurst Lane to the north of the site.

1.4. The topographical survey is included in Appendix A, which illustrates that existing site levels vary between 22.869m Above Ordnance Datum (AOD) north of the site and 18.700m AOD to the south.

1.5. Horsham District Council is the Local Planning Authority (LPA) for the site and West Sussex County Council is the designated Lead Local Flood Authority (LLFA).

1.6. Southern Water are the Sewerage Undertaker for the area.

Development Proposals

1.7. The proposed development comprises of stationing of 2 static caravans for residential purposes and associated day rooms with the formation of hardstanding and associated landscaping.

1.8. The proposed development layout can be seen in Figure 2 below and is contained within Appendix B.

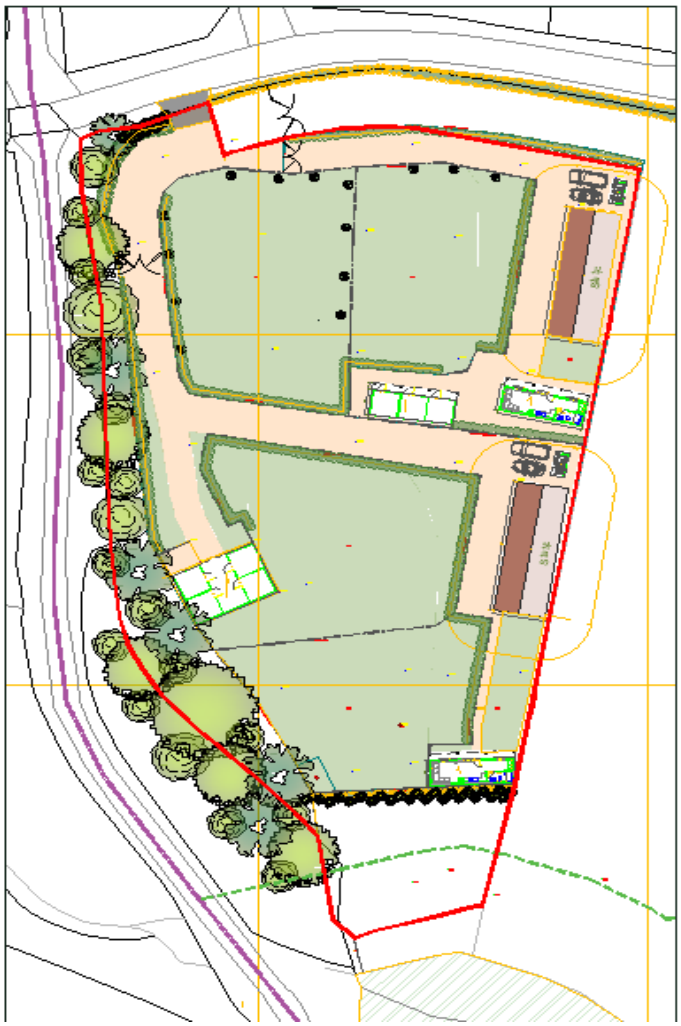


Figure 2: Proposed Site Plan

Ground Conditions

1.9. A review of readily available information indicates that the site is in an area of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage (Soilscapes soil types viewer). British Geological Survey (BGS) data indicates that the bedrock underlying the site is Weald Clay Formation.

1.10. Based on the above, it is considered that the disposal of surface water via infiltration is not feasible and an alternative strategy in line with the SuDS hierarchy is to be sought.

2. Surface Water Drainage Strategy

Existing Drainage System

2.1. No information regarding the existing onsite drainage system has been provided, however, it is assumed that surface water drainage currently discharges via gravity to the ditch located along the southern site boundary.

Proposed Drainage Hierarchy

2.2. Current guidance indicates that the following surface water disposal options should be considered, listed in order of preference:

i. **Disposal via rainwater harvesting:** It is proposed that surface water runoff from the roof areas is to be utilised via a rainwater harvesting system for potable and non-potable usage.

ii. **Disposal via on-site infiltration systems:** As mentioned above, infiltration has been discounted due to unfavourable ground condition.

iii. **Disposal to a watercourse/surface water body:** There is an existing drainage ditch that runs along the southern boundary of the site which it is proposed that surface water flows are to discharge to.

iv. **Disposal to surface water sewer:** There are no public surface water sewers within the proximity of the proposed development.

v. **Disposal to combined sewer:** There are no public surface water sewers within the proximity of the proposed development.

2.3. In accordance with the SuDS hierarchy, it is proposed that surface water flows from roof areas are to be re-used within a rainwater harvesting system. The remaining of the developments surface water flows and any overflows from the rainwater harvesting systems are to discharge at a controlled rate into the existing ditch along the southern site boundary.

Runoff Rates

2.4. An assessment of greenfield runoff rates based on the proposed development impermeable areas (circa 1680m^2) was made and can be found in Appendix C. The greenfield runoff rates for the proposed development site are set out in the Table 1 below.

Return Period	Greenfield Runoff Rate
Q_{BAR}	1.0 l/s
1 in 1 Year	0.86 l/s
1 in 30 Year	2.3 l/s
1 in 100 Year	3.2 l/s

Table 1: Greenfield Runoff Rates

2.5. Based on the greenfield runoff rates above it is proposed that surface water flows are restricted to Q_{BAR} runoff rate of 1 l/s.

Proposed Drainage Strategy

2.6. The use of a rainwater harvesting systems has been proposed for the reuse of surface water flows from all roof areas within the development. Refer to the Water Neutrality Statement produced by Motion for rainwater harvesting calculations and information.

2.7. The use of permeable paving has been proposed to filter water and improve water quality of surface water flows for the proposed development, with a geocellular attenuation tank proposed to attenuate flows prior to discharging at a controlled rate into an existing ditch running along the southern site boundary.

2.8. All on site drainage has been designed to accommodate surface water runoff including all modelled 1 in 100-year storms plus 45% climate change and 10% urban creep.

2.9. The contractor is to consider methods of drainage installation that avoids the loss of existing tress and mitigates existing tree roots wherever possible, i.e. vacuum excavator/airspade, trenchless techniques, etc. If alternative/optimised routes are identified on site this should be reported back to the engineer.

2.10. The proposed drainage layout can be found within Appendix D with supporting drainage calculations can be found in Appendix E.

3. Future Maintenance Strategy

General Maintenance

3.1. The surface water drainage network will be managed throughout the lifetime by the owners of the proposed development in accordance with details set out below.

3.2. All drainage, whether piped or SuDS require regular maintenance. The tables below provide an overview of general maintenance tasks and frequency of which they need to be undertaken.

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Inspect for sediment and debris in catchpit manholes and gullies. Clean out as required	Twice Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional Maintenance	Remove sediment and debris in catchpits, gullies, attenuation devices and inside concrete manhole rings.	As required, based on inspections.
Remedial actions	Reconstruct and/or replace components, if performance deteriorates or failure/blockage occurs.	As required
	Replacement of clogged components (flow restriction)	As required
Monitoring	Inspect silt traps/gullies/catchpits and note rate of sediment accumulation.	Monthly in the first year and then annually
	Check attenuation devices	Annually

General maintenance for Surface Water Drainage Systems as per CIRIA C753.

3.3. The required maintenance for each component making up the drainage system is scheduled in the tables below, based on CIRIA report C753 – The SuDS manual.

Permeable Paving

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

Cellular attenuation tank

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings.	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional Maintenance	Remove sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings.	As required, based on inspections.
Remedial actions	Reconstruct tank and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of tank)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation.	Monthly in the first year and then annually
	Check tank to ensure emptying is occurring	Annually

Maintenance will usually be carried out manually, although a suction tanker can be used for sediment/debris removal for large systems. If maintenance is not undertaken for long periods, deposits can become hard packed and require considerable effort to remove.

Orifice Plate (Flow Control)

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Remove sediment and debris from flow control chambers and upstream manholes. Check for signs of damage, wear and tear. Check any visible fixing bolts.	Monthly (for the first 12 months, then 6 monthly).
Remedial Actions	Clean or replace orifice plate if defects are located or, if performance deteriorates or failure occurs. In the event of the blockage, the blockage/foreign material should be manually removed	As necessary.
Monitoring	Check flow control to ensure emptying is occurring.	Quarterly and post high intensity storm event.

Headwalls (inlets and outlets)

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Inspect inlets, outlets for blockages and clear if required	Monthly (for the first 12 months, then 6 monthly).
	Check for signs of damage, erosion of banks or scour.	
	Inspect structural integrity of head wall structure	
	Check integrity of metal work and replace when needed.	
Occasional Maintenance	In the event of the blockage, the blockage/foreign material should be manually removed	Annual/bi-annual visual checks are basic recommendation
	Galvanised Grates and Handrails	
Remedial Actions	In the event of damage, erosion of banks or scour, rehabilitate as required.	As required
	Repair/rehabilitation of inlets/outlets/overflows	As required
	Re-level uneven surfaces and reinstate design levels	As required

4. Pollution Prevention & Water Quality Management

SuDS Mitigation Indices

4.1. Chapter 26 of the CIRIA C753 The SuDS Manual, provides design advice to meet water quality standards by adopting the SuDS train treatment mechanism and thereby reduce the risk of pollution by evaluating potential pollution hazards at the outset.

4.2. The proposed site layout provides the opportunity to introduce SuDS into the scheme to reduce potential contaminant risk further.

4.3. Runoff from individual property driveways, residential car parks and low traffic roads are generally viewed as low risk (as per Table 26.2 of C753), shown in the tables below.

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Individual property driveways, residential car parks and low traffic roads	Low	0.5	0.4	0.4

Pollutant Hazard Indices

	Mitigation Indices				Indices for Calculation		
	TSS	Metals	Hydrocarbons		TSS	Metals	Hydrocarbons
Permeable Paving	0.7	0.6	0.7	100%	0.7	0.6	0.7
Total Mitigation Indices score					**0.7**	**0.6**	**0.7**
Sufficiency of Pollution Mitigation Indices					Sufficient (No additional mitigation required)		

SuDS Mitigation Indices

4.4. The mitigation indices offered by the proposed SuDS features exceed the hazard indices from roof areas and therefore provides adequate mitigation. It is therefore considered that the proposed SuDS features on site are appropriate and acceptable in terms of water quality.

5. Foul Drainage Strategy

5.1. There are no public foul sewers within the vicinity of the site. Southern Water Asset Mapping is included within Appendix F.

5.2. Discharge to ground, i.e. drainage field, has been discounted due to the above information deeming infiltration techniques unfeasible for the site.

5.3. Based on the above information it is therefore proposed that foul flows from the proposed development are directed to a package treatment plant, prior to the treated flows discharging into the existing ditch located along the southern boundary of the site. Subject to relevant approvals.

5.4. It is proposed that the stable washdown areas are to discharge to onsite cesspools, capacity of the cesspool tanks will be dependent on frequency of use and is subject to detailed design.

Appendix A - Topographical Survey

NOTES
Survey accurate at time of site attendance. Do not scale from printed drawings except for planning purposes.
Although this is a digital survey the accuracy and amount of detail shown is only commensurate with the graphical scale of mapping as specified. Care should be exercised when working to larger scales.

ORDNANCE MAP
Ordnance Survey, (c) Crown Copyright 2025. All rights reserved. Licence number 100022432

National Grid 1:2500 (Accuracy data) Surveying tolerances:
Distances up to 200 metres ±1 in100m
Distances 200 to1,000 metres ±2m
Distances over 1,000 metres ±1 in 500m

0 5 10 15 20
SCALE 1:500

medlams
surveys limited
www.medlams-surveys.co.uk
info@medlams-surveys.co.uk
07717 205 388

project: Land adjacent to Parsonsfield Stables
client: Manorwood
job ref: S3048
title: As built site survey
scale: 1:500@A3
date: April 2025
dwg no: EX101 rev: A

Appendix B - Proposed Site Layout

Ordnance Survey (c) Crown Copyright 2025.
All rights reserved.
Licence number 100022432

Location Plan

1:1250 | EXISTING

This drawing is the copyright of Promethean Planning Ltd but may be used for planning purposes by the Local Authority without breach of copyright.

Do not scale from this drawing unless for Local Authority planning purposes.

All dimensions must be checked on site prior to commencement of works.

Construction (Design and Management) Regulations 2015

This drawing is intended for Planning purposes only and as such does not highlight residual design related health and safety risks.

This information can be provided on request; however, it is anticipated that the full extent of residual risks will be identified during the detailed Building Regulations or construction design Status and prior to construction works commencing on site.

All responsibilities and duties of Principle Designer as stated within the above regulations now revert to the client unless Promethean Planning are appointed to undertake Building Regulations or construction drawings.

PROMETHEAN PLANNING

Suite 114
26 The Hornet
Chichester
West Sussex
PO19 7BB

tel: 01243 201 102
email: enquiries@prometheanplanning.co.uk
web: www.prometheanplanning.co.uk

Address

Land West Of Parsons Field Stables, Pickhurst Lane, Pulborough, West Sussex, RH20 1DA

Drawing No.	2507PI_000
Scale @ A3	1:1250
Job No.	2507PI
Drawn By	MD
Checked By	BK
Drawn On	18.08.2025
Issued On	22.08.2025
Status	Existing
Drawing	Location Plan
Submission	Planning
Revision	001

Application Area: 5980 m²

N

Indicative: 0.0°

1m @ 1:
50
100
200
500
1250

1.8m timber close-boarded fence

1.2m timber post & rail fencing

Bird box

Electric vehicle charging point

The following ecological enhancements will be implemented:

Instillation of a bat box to the mobile home or within a tree positioned approx. 3-5m above ground.

Installation of a bird box to the mobile home or within a tree within the site.

Infilling of any gaps within the existing hedgerows with a native species hedge.

Gaps to be included at the bottom of fences to allow for movement of small mammals across the site.

1no Electric Vehicle (EV) charging point will be provided

1no. Covered and secure cycle parking space will be provided

1no. Refuse and recycling storage facility will be provided

Block Plan

1:500 | EXISTING

Access on to road to be bound material. Works to be subject of a minor works licence

mixed species native hedging to be reinstated to close up widened access, species to match existing hedge maintaining visibility in both directions

Reinstated native hedge

New native hedges

public footpath 1983

close board fencing to not extend north of entrance gate here

wooded strip between the site boundary and the land ownership to be planted with native species hedging and then left to develop naturally and for scrub to soften visual impact of fencing from the PROW

New native hedges

all existing trees to western boundary to be retained

close board fencing along western boundary to be located off set east of ownership boundary to avoid impact on trees

New native hedges

stables

Block Plan

1:500 | PROPOSED

Paddocks increased

Hardstanding reduced

New native hedges

New electric vehicle charging point with secure bike and refuse store

Stables

Utility building

New electric vehicle charging point with secure bike and refuse store

Utility Building

mixed species native hedging to be planted to south of close board fence to reduce visual impact of fence

parcel to south to remain undeveloped and left to develop naturally

15m buffer for Ancient Woodland

extent of Ancient Woodland

This drawing is the copyright of Promethean Planning Ltd but may be used for planning purposes by the Local Authority without breach of copyright.

Do not scale from this drawing unless for Local Authority planning purposes.

All dimensions must be checked on site prior to commencement of works.

Construction (Design and Management) Regulations 2015

This drawing is intended for Planning purposes only and as such does not highlight residual design related health and safety risks.

This information can be provided on request; however, it is anticipated that the full extent of residual risks will be identified during the detailed Building Regulations or construction design Status and prior to construction works commencing on site.

All responsibilities and duties of Principle Designer as stated within the above regulations now revert to the client unless Promethean Planning are appointed to undertake Building Regulations or construction drawings.

PROMETHEAN PLANNING

Suite 114
26 The Hornet
Chichester
West Sussex
PO19 7BB

tel: 01243 201 102
email: enquiries@prometheanplanning.co.uk
web: www.prometheanplanning.co.uk

Address	Land West Of Parsons Field Stables, Pickhurst Lane, Pulborough, West Sussex, RH20 1DA
Drawing No.	2507PI_001
Scale @ A2	As Indicated
Job No.	2507PI
Drawn By	MD
Checked By	BK
Drawn On	18.08.2025
Issued On	22.08.2025
Status	Existing + Proposed
Drawing	Block Plans
Submission	Planning
Revision	003

N

Indicative: 0.0°

1m @ 1:

50
100
200
500
1250

Appendix C - Greenfield Runoff Rates

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

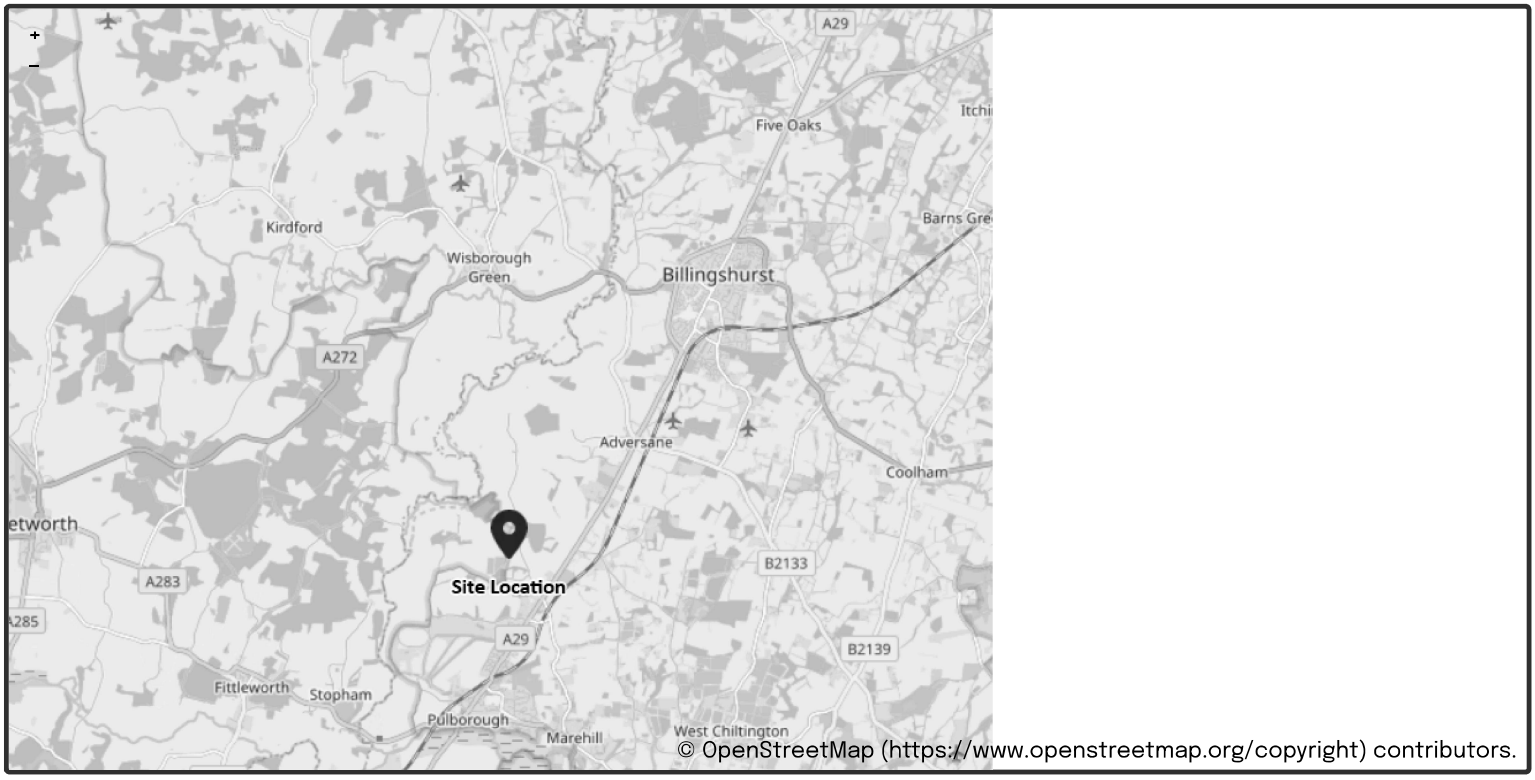
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	04/07/2025
Calculated by	CM
Reference	AEG7657
Model version	2.0.1

Location

Site name	Parsons Field Stables
Site location	Pickhurst Lane



Site easting	505378
Site northing	120906

Site details

Total site area (ha)	0.168 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	845 mm		845
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	1 l/s		

Growth curve factors

	My value		Map value
Hydrological region	7		7
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

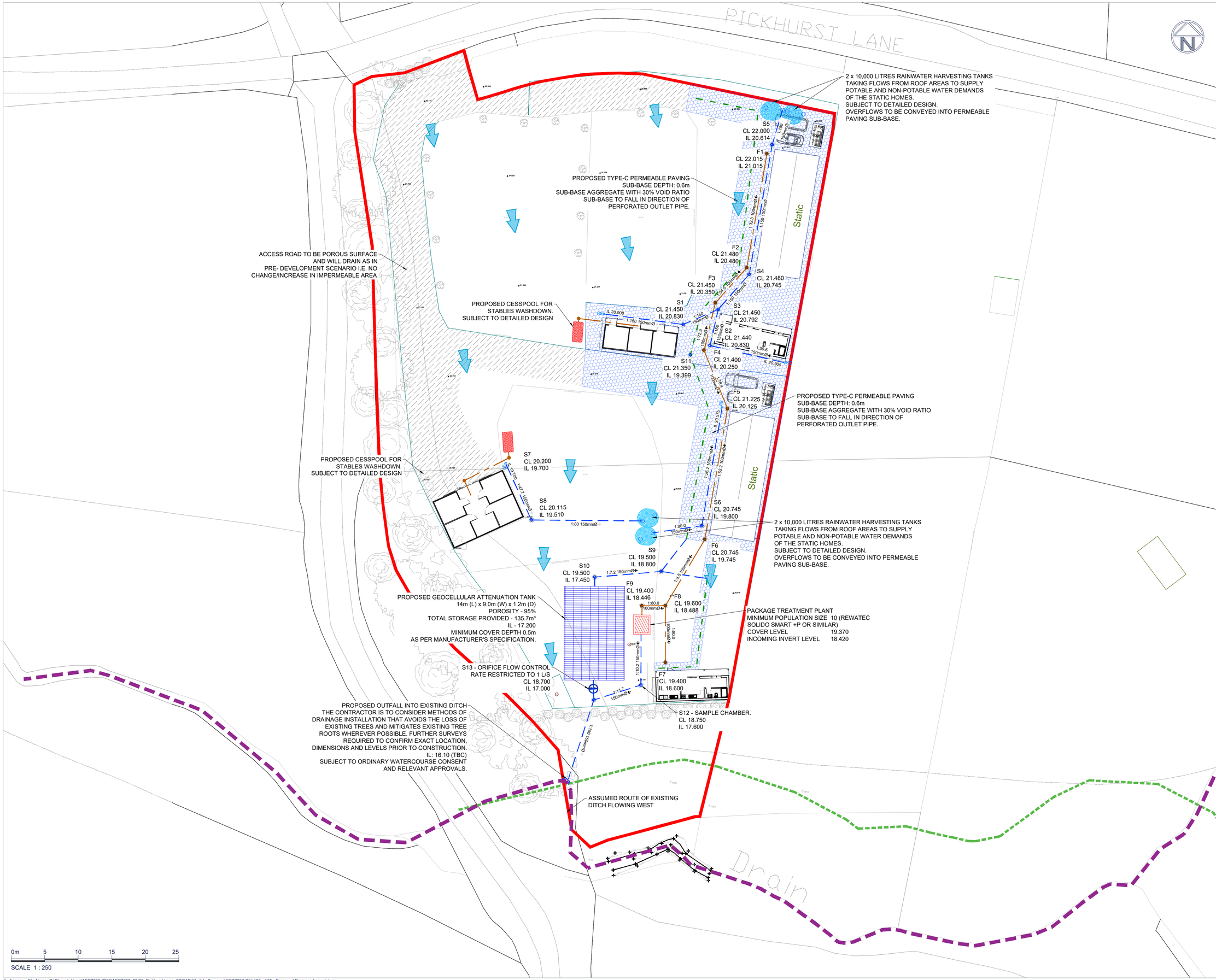
Results

Method	IH124
Flow rate 1 year (l/s)	0.86 l/s
Flow rate 2 year (l/s)	0.89 l/s
Flow rate 10 years (l/s)	1.6 l/s
Flow rate 30 years (l/s)	2.3 l/s
Flow rate 100 years (l/s)	3.2 l/s
Flow rate 200 years (l/s)	3.8 l/s

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix D - Proposed Drainage Layout



DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
THE CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON SITE.
ANY DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING.
THIS DRAWING IS COPYRIGHT AND OWNED BY AEGAEA.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
REFER TO THE RELEVANT CONSTRUCTION (DESIGN AND MANAGEMENT) DOCUMENTATION WHERE APPLICABLE.
IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR, WORKING WHERE APPROPRIATE TO AN APPROVED METHOD STATEMENT.

GENERAL NOTES

1. THIS DRAWING IS INDICATIVE ONLY AND SUBJECT TO CHANGE DURING DETAILED DESIGN AND APPROVALS FROM RELEVANT STATUTORY BODIES.
2. POSITIONS OF EXISTING SERVICES/STATUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CONFIRMED PRIOR TO START ON SITE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AND CHECKED AGAINST ALL ENGINEERING DETAILS, SPECIFICATIONS, GEOTECHNICAL AND OTHER RELEVANT DOCUMENTATION PROVIDED.
4. THIS DRAWING IS SCHEMATIC FOR CLARITY ONLY, POSITIONS OF PIPE RUNS AND MANHOLES MAY VARY ON SITE DUE TO SITE CONDITIONS.
5. WHERE EXISTING OR PROPOSED TREES ARE ADJACENT TO ACCESS ROADS OR DRAINAGE, ROOT BARRIERS (TYPE TO BE APPROVED) ARE REQUIRED TO PREVENT STRUCTURAL DAMAGE.
6. ANY ANOMALY OR CONTRADICTIONS BETWEEN ANY OF THE ABOVE IS TO BE REPORTED IMMEDIATELY.
7. THE DESIGN IS TO COMPLY IN ALL ASPECTS WITH THE CURRENT BRITISH STANDARDS, BUILDING REGULATIONS AND BUILDING LEGISLATION ETC.
8. ALL PIPE SIZES, CHAMBER DEPTHS, SIZE & QUANTITY SUBJECT TO REVIEW AND DETAILED DESIGN. ALL ADOPTED PIPE WORK ROUTING AND ANY EASEMENTS SUBJECT TO FULL DESIGN REVIEW AND APPROVAL BY THE RELEVANT BODIES.
9. DRAINAGE DESIGN SUBJECT TO DETAILED LEVELS AND EXTERNAL WORKS DESIGN.
10. SUBJECT TO DETAILED DESIGN AND APPROVAL.
11. THE CONTRACTOR IS TO CONSIDER METHODS OF DRAINAGE INSTALLATION THAT AVOIDS THE LOSS OF EXISTING TREES AND MITIGATES EXISTING TREE ROOTS WHEREVER POSSIBLE. IF ALTERNATIVE/ OPTIMISED ROUTES ARE IDENTIFIED ON SITE THIS SHOULD BE REPORTED BACK TO THE ENGINEER.

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND NOT FOR CONSTRUCTION SUBJECT TO RELEVANT APPROVALS

LEGEND

- SITE BOUNDARY
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED FOUL DRAINAGE
- PROPOSED RODDING EYE
- PROPOSED SURFACE WATER ORIFICE PLATE
- PROPOSED PERMEABLE PAVING (GRAVEL SURFACING)
- PROPOSED ATTENUATION TANK
- PROPOSED POROUS SURFACE ALONG ACCESS ROAD
- PROPOSED PERMEABLE PAVING OUTLET PERFORATE PIPE
- PROPOSED RAINWATER HARVESTING TANK
- EXISTING DITCH
- OVERLAND FLOW ROUTE

Rev	Date	Description	By
A05	22.08.25	UPDATED TO SUIT AMENDED SITE LAYOUT, OUTFALL ROUTE AND DITCH SURVEY UPDATED	DB
A04	01.07.25	UPDATED TO SUIT AMENDED SITE LAYOUT	CM
A03	02.05.25	UPDATED TO SUIT AMENDED SITE LAYOUT	CM
A02	24.04.25	UPDATED TO SUIT NEW SITE LAYOUT	CM
A01	09.04.25	FIRST ISSUE	CM

Client
MANORWOOD CONSTRUCTION LIMITED

Project
LAND WEST OF PARSONS FIELD STABLES, PICKHURST LANE

Title
PROPOSED DRAINAGE LAYOUT

Project No.	Drawing No.	Revision
AEG7657	CIV-100	A05

Drawn	Checked	Approved	Date	Scale @ A1
CM	DB	JM	APR 2025	1:250

Drawing Status
PLANNING

aegaea
water, civils and environment

FIGURE B18
TYPICAL INSPECTION CHAMBER DETAIL - TYPE D (FLEXIBLE MATERIAL DETAIL)

MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE
IN AREAS SUBJECT TO VEHICLE LOADING 2M, NON-ENTRY

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598-1 AND BS EN 13598-2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

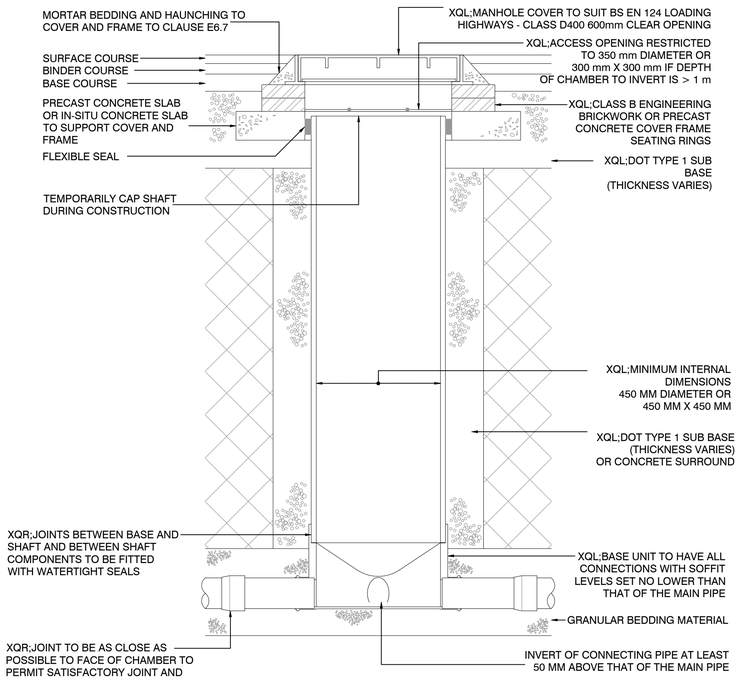
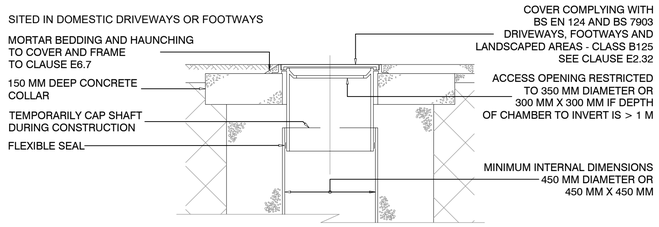


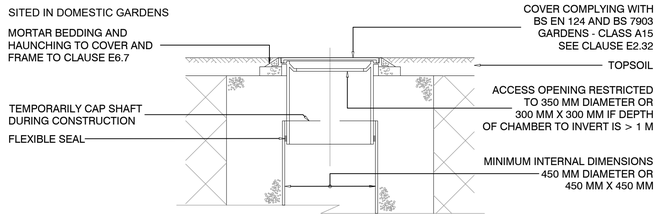
FIGURE B19
ALTERNATIVE TOP DETAILS FOR LIGHT VEHICLE LOADING AND LANDSCAPED AREAS - TYPE D

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598-1 AND BS EN 13598-2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

SITED IN DOMESTIC DRIVEWAYS OR FOOTWAYS

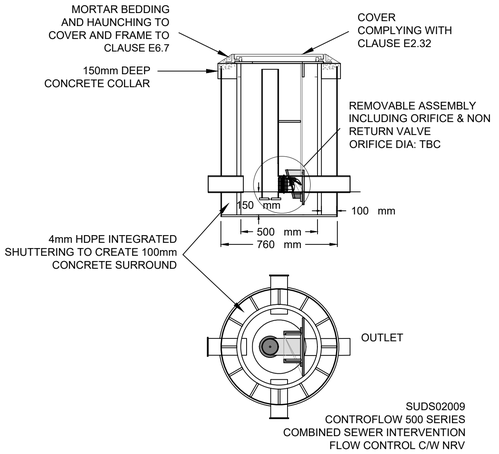


SITED IN DOMESTIC GARDENS

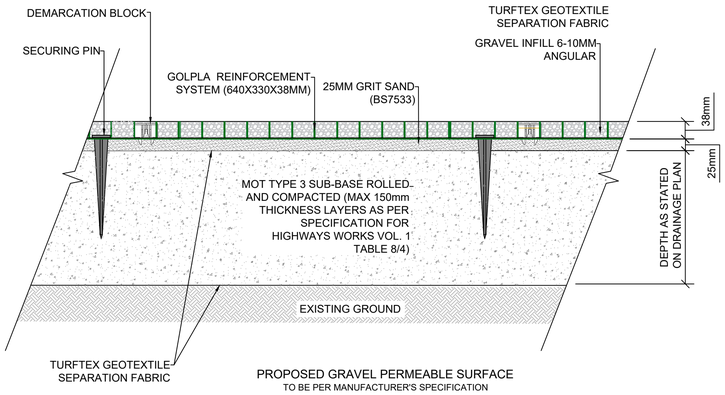


NOTE: WHERE THE ACCESS CHAMBER IS IN THE HIGHWAY THE HIGHWAY AUTHORITY CAN HAVE SPECIFIC REQUIREMENTS

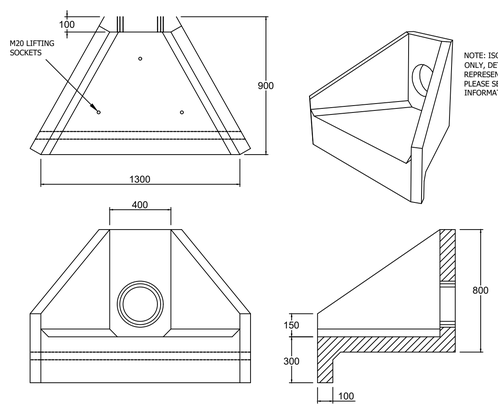
NOT TO SCALE



ORIFICE FLOW CONTROL CHAMBER
DETAIL TO BE CONFIRMED WITH MANUFACTURER FOR SITE SPECIFIC REQUIREMENTS

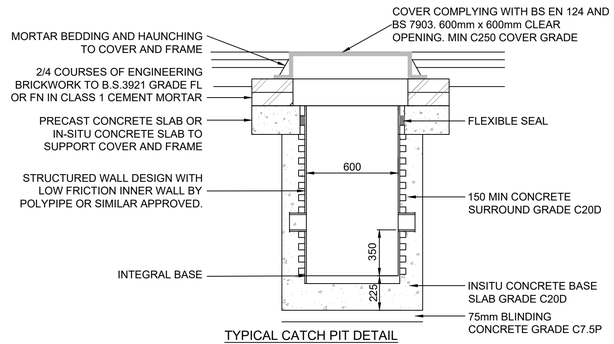


PROPOSED GRAVEL PERMEABLE SURFACE
TO BE PER MANUFACTURER'S SPECIFICATION

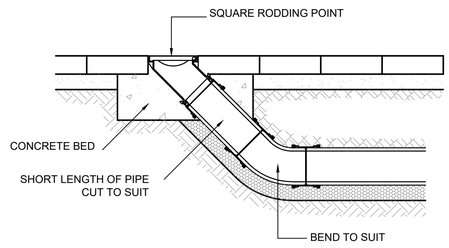


NOTE: ISOMETRIC DRAWING IS FOR REFERENCE ONLY, DETAILS MAY NOT ACCURATELY REPRESENT ACTUAL DESIGN - PLEASE SEE DETAILED VIEWS FOR TECHNICAL INFORMATION

OUTFALL HEADWALL DETAIL
ALTHON H3C HEADWALL

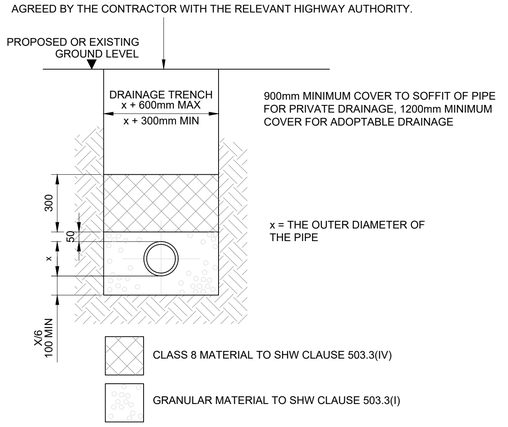


TYPICAL CATCH PIT DETAIL
SCALE 1:20



RODDING EYE DETAIL
NTS

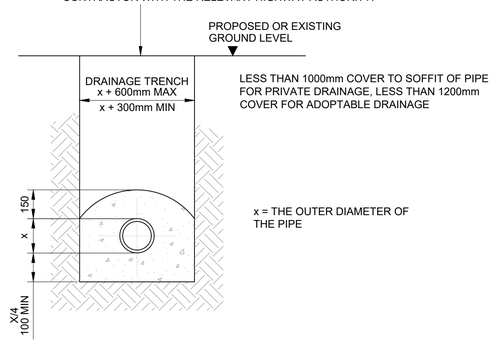
FOR SURFACE FINISH TO DRAINAGE EXCAVATION REFER TO THE EXTERNAL FINISHES PLAN AND THEN RELEVANT HIGHWAY DETAILS. NOTE THAT REINSTATEMENT FOR WORKS IN EXISTING ADOPTED HIGHWAYS ARE TO BE AGREED BY THE CONTRACTOR WITH THE RELEVANT HIGHWAY AUTHORITY.



NOTE: CLASS 'S' BEDDING FOR USE WITH ALL ADOPTABLE DRAINAGE WITH COVER TO SOFFIT OF PIPE GREATER THAN 1200MM. PRIVATE DRAINAGE WITHIN LANDSCAPED AND OTHER NON-TRAFFICKED AREAS WITH COVER GREATER THAN 1000MM TO THE PIPE SOFFIT MAY USE PIPE BEDDING CLASS 'T' REFER TO DRAWING F1 (SHW) HIGHWAY CONSTRUCTION DETAILS.

CLASS 'S' PIPE BEDDING

FOR SURFACE FINISH TO DRAINAGE EXCAVATION REFER TO THE EXTERNAL FINISHES PLAN AND THEN RELEVANT HIGHWAY DETAILS. NOTE THAT REINSTATEMENT FOR WORKS IN EXISTING ADOPTED HIGHWAYS ARE TO BE AGREED BY THE CONTRACTOR WITH THE RELEVANT HIGHWAY AUTHORITY.



NOTE: CLASS 'Z' BEDDING FOR USE WITH ALL ADOPTABLE DRAINAGE WITH COVER TO SOFFIT OF PIPE LESS THAN 1200mm.

CLASS 'Z' PIPE BEDDING

DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
THE CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON SITE.
ANY DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING.
THIS DRAWING IS COPYRIGHT AND OWNED BY AEGAEA.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
REFER TO THE RELEVANT CONSTRUCTION (DESIGN AND MANAGEMENT) DOCUMENTATION WHERE APPLICABLE.
IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR, WORKING WHERE APPROPRIATE TO AN APPROVED METHOD STATEMENT.

GENERAL NOTES

1. THE CONTRACTOR IS TO CHECK AND VERIFY ALL SITE DIMENSIONS AND LEVELS, INCLUDING EXISTING SEWER INVERT LEVELS AND UTILITIES, PRIOR TO START ON SITE.
2. POSITIONS OF EXISTING SERVICES ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CONFIRMED PRIOR TO START ON SITE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AND CHECKED AGAINST ALL, ENGINEERING DETAILS, SPECIFICATIONS, GEOTECHNICAL AND OTHER RELEVANT DOCUMENTATION PROVIDED.
4. POSITIONS OF PIPE RUNS AND MANHOLES MAY VARY ON SITE DUE TO ONGOING STATUTORY UNDERTAKER COMMENTS/SITE CONDITIONS.
5. ANY ANOMALY OR CONTRADICTIONS BETWEEN ANY OF THE ABOVE IS TO BE REPORTED IMMEDIATELY.
6. THE CONTRACTOR IS TO COMPLY IN ALL ASPECTS WITH THE CURRENT BRITISH STANDARDS, BUILDING REGULATIONS AND BUILDING LEGISLATION ETC.
7. WE RECOMMEND INFILTRATION TESTING IS UNDERTAKEN TO THE BASE OF THE INFILTRATION BASIN ONCE CONSTRUCTED TO CONFIRM THE RATE.

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND NOT FOR CONSTRUCTION
SUBJECT TO RELEVANT APPROVALS

Rev	Date	Description	By
A01	09.04.25	FIRST ISSUE	CM

Client
MANORWOOD CONSTRUCTION LIMITED

Project
LAND WEST OF PARSONS FIELD STABLES, PICKHURST LANE

Title
PROPOSED DRAINAGE DETAILS

Project No.	Drawing No.	Revision
AEG7657	CIV-110	A01

Drawn	Checked	Approved	Date	Scale @ A1
CM	DB	JM	MAR 2025	1:100

Drawing Status
PLANNING

aegaea
water, civils and environment

DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
THE CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON SITE.
ANY DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING.
THIS DRAWING IS COPYRIGHT AND OWNED BY AEGAEA.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
REFER TO THE RELEVANT CONSTRUCTION (DESIGN AND MANAGEMENT) DOCUMENTATION WHERE APPLICABLE.
IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR, WORKING WHERE APPROPRIATE TO AN APPROVED METHOD STATEMENT.

GENERAL NOTES

1. THIS DRAWING IS INDICATIVE ONLY AND SUBJECT TO CHANGE DURING DETAILED DESIGN AND APPROVALS FROM RELEVANT STATUTORY BODIES.
2. POSITIONS OF EXISTING SERVICES/STATUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CONFIRMED PRIOR TO START ON SITE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH AND CHECKED AGAINST ALL ENGINEERING DETAILS, SPECIFICATIONS, GEOTECHNICAL AND OTHER RELEVANT DOCUMENTATION PROVIDED.
4. THIS DRAWING IS SCHEMATIC FOR CLARITY ONLY, POSITIONS OF PIPE RUNS AND MANHOLES MAY VARY ON SITE DUE TO SITE CONDITIONS.
5. WHERE EXISTING OR PROPOSED TREES ARE ADJACENT TO ACCESS ROADS OR DRAINAGE, ROOT BARRIERS (TYPE TO BE APPROVED) ARE REQUIRED TO PREVENT STRUCTURAL DAMAGE.
6. ANY ANOMALY OR CONTRADICTIONS BETWEEN ANY OF THE ABOVE IS TO BE REPORTED IMMEDIATELY.
7. THE DESIGN IS TO COMPLY IN ALL ASPECTS WITH THE CURRENT BRITISH STANDARDS, BUILDING REGULATIONS AND BUILDING LEGISLATION ETC.
8. ALL PIPE SIZES, CHAMBER DEPTHS, SIZE & QUANTITY SUBJECT TO REVIEW AND DETAILED DESIGN. ALL ADOPTED PIPE WORK ROUTING AND ANY EASEMENTS SUBJECT TO FULL DESIGN REVIEW AND APPROVAL BY THE RELEVANT BODIES.
9. DRAINAGE DESIGN SUBJECT TO DETAILED LEVELS AND EXTERNAL WORKS DESIGN.
10. SUBJECT TO DETAILED DESIGN AND APPROVAL.
11. THE CONTRACTOR IS TO CONSIDER METHODS OF DRAINAGE INSTALLATION THAT AVOIDS THE LOSS OF EXISTING TREES AND MITIGATES EXISTING TREE ROOTS WHEREVER POSSIBLE. IF ALTERNATIVE/ OPTIMISED ROUTES ARE IDENTIFIED ON SITE THIS SHOULD BE REPORTED BACK TO THE ENGINEER.

THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND NOT FOR CONSTRUCTION SUBJECT TO RELEVANT APPROVALS

Rev	Date	Description	By
A02	22.08.25	UPDATED TO SUIT AMENDED SITE LAYOUT	DB
A01	01.07.25	FIRST ISSUE	CM

Client
MANORWOOD CONSTRUCTION LIMITED

Project
LAND WEST OF PARSONS FIELD STABLES, PICKHURST LANE

Title
CONTRIBUTING AREA PLAN

Project No.	Drawing No.	Revision
AEG7657	CIV-115	A02

Drawn	Checked	Approved	Date	Scale @ A1
CM	DB	JM	APR 2025	1:250

Drawing Status
PLANNING

aegaea
water, civils and environment

© Aegaea - File Name: G:\Shared drives\AEG7000-7999\AEG7657_RH20_Pickhurst Lane_07\CAD\Work In Progress\AEG7657-CIV-115 - A01 - Impermeable Area Plan.dwg

Appendix E - Drainage Calculations

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	✓
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S3	0.009	5.00	21.550	Manhole	600	505381.500	120894.297	0.758
S4	0.001	5.00	21.530	Manhole	600	505389.126	120899.772	0.785
S5	0.012	5.00	22.000	Manhole	600	505389.557	120918.891	1.396
PAVE 1	0.040	5.00	21.500	Manhole	1200	505379.270	120919.042	1.350
S11			21.250	Manhole	600	505377.748	120888.132	1.407
S6	0.011	5.00	20.700	Manhole	600	505379.058	120862.015	0.800
S8	0.009	5.00	20.110	Manhole	600	505353.622	120862.875	0.600
S10			19.500	Manhole	600	505366.504	120851.028	1.500
PAVE 2	0.052	5.00	19.500	Junction		505370.909	120861.820	1.425
S13			18.700	Manhole	1200	505366.133	120836.411	1.700
OUTFALL			18.000	Manhole	1200	505371.729	120811.392	1.900

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/hr)
1.001	S3	S4	6.998	0.600	20.792	20.745	0.047	148.9	150	Circular	5.14	50.0
1.001_1	S4	S5	19.124	0.600	20.745	20.604	0.141	135.6	150	Circular	5.51	50.0
1.002	S5	PAVE 1	10.288	0.600	20.604	20.535	0.069	150.0	150	Circular	5.72	50.0
1.003	PAVE 1	S11	30.947	0.600	20.150	19.843	0.307	100.8	150	Circular	6.24	50.0
1.004	S11	PAVE 2	27.186	0.600	19.843	18.150	1.693	16.1	150	Circular	6.42	50.0
3.000	S6	PAVE 2	8.151	0.600	19.900	18.846	1.054	7.7	150	Circular	5.04	50.0
2.000	S8	PAVE 2	17.319	0.600	19.510	18.395	1.115	15.5	150	Circular	5.11	50.0
1.005	PAVE 2	S10	11.656	0.600	18.075	18.000	0.075	155.4	225	Circular	6.60	50.0
1.006	S10	S13	14.622	0.600	18.000	17.000	1.000	14.6	150	Circular	6.69	50.0
1.007	S13	OUTFALL	25.637	0.600	17.000	16.100	0.900	28.5	150	Circular	6.92	50.0

Name	US Node	DS Node	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.001	S3	S4	0.821	14.5	1.6	0.608	0.635	0.009	0.0	34	0.541
1.001_1	S4	S5	0.861	15.2	1.8	0.635	1.246	0.010	0.0	35	0.579
1.002	S5	PAVE 1	0.818	14.5	4.0	1.246	0.815	0.022	0.0	54	0.698
1.003	PAVE 1	S11	1.001	17.7	11.2	1.200	1.257	0.062	0.0	87	1.059
1.004	S11	PAVE 2	2.526	44.6	11.2	1.257	1.200	0.062	0.0	51	2.111
3.000	S6	PAVE 2	3.646	64.4	2.0	0.650	0.504	0.011	0.0	18	1.637
2.000	S8	PAVE 2	2.569	45.4	1.6	0.450	0.955	0.009	0.0	20	1.222
1.005	PAVE 2	S10	1.046	41.6	24.2	1.200	1.275	0.134	0.0	123	1.085
1.006	S10	S13	2.648	46.8	24.2	1.350	1.550	0.134	0.0	76	2.669
1.007	S13	OUTFALL	1.893	33.5	24.2	1.550	1.750	0.134	0.0	95	2.059

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

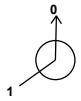
Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.001	6.998	148.9	150	Circular	21.550	20.792	0.608	21.530	20.745	0.635
1.001_1	19.124	135.6	150	Circular	21.530	20.745	0.635	22.000	20.604	1.246
1.002	10.288	150.0	150	Circular	22.000	20.604	1.246	21.500	20.535	0.815
1.003	30.947	100.8	150	Circular	21.500	20.150	1.200	21.250	19.843	1.257
1.004	27.186	16.1	150	Circular	21.250	19.843	1.257	19.500	18.150	1.200
3.000	8.151	7.7	150	Circular	20.700	19.900	0.650	19.500	18.846	0.504
2.000	17.319	15.5	150	Circular	20.110	19.510	0.450	19.500	18.395	0.955
1.005	11.656	155.4	225	Circular	19.500	18.075	1.200	19.500	18.000	1.275
1.006	14.622	14.6	150	Circular	19.500	18.000	1.350	18.700	17.000	1.550
1.007	25.637	28.5	150	Circular	18.700	17.000	1.550	18.000	16.100	1.750

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.001	S3	600	Manhole	Adoptable	S4	600	Manhole	Adoptable
1.001_1	S4	600	Manhole	Adoptable	S5	600	Manhole	Adoptable
1.002	S5	600	Manhole	Adoptable	PAVE 1	1200	Manhole	Adoptable
1.003	PAVE 1	1200	Manhole	Adoptable	S11	600	Manhole	Adoptable
1.004	S11	600	Manhole	Adoptable	PAVE 2		Junction	
3.000	S6	600	Manhole	Adoptable	PAVE 2		Junction	
2.000	S8	600	Manhole	Adoptable	PAVE 2		Junction	
1.005	PAVE 2		Junction		S10	600	Manhole	Adoptable
1.006	S10	600	Manhole	Adoptable	S13	1200	Manhole	Adoptable
1.007	S13	1200	Manhole	Adoptable	OUTFALL	1200	Manhole	Adoptable

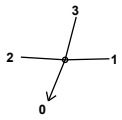
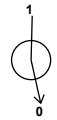
Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S3	505381.500	120894.297	21.550	0.758	600				
						0	1.001	20.792	150
S4	505389.126	120899.772	21.530	0.785	600		1	1.001	20.745	150
							0	1.001_1	20.745	150
S5	505389.557	120918.891	22.000	1.396	600		1	1.001_1	20.604	150
							0	1.002	20.604	150
PAVE 1	505379.270	120919.042	21.500	1.350	1200		1	1.002	20.535	150
							0	1.003	20.150	150
S11	505377.748	120888.132	21.250	1.407	600		1	1.003	19.843	150
							0	1.004	19.843	150
S6	505379.058	120862.015	20.700	0.800	600				
						0	3.000	19.900	150
S8	505353.622	120862.875	20.110	0.600	600				
						0	2.000	19.510	150
S10	505366.504	120851.028	19.500	1.500	600		1	1.005	18.000	225
							0	1.006	18.000	150

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
PAVE 2	505370.909	120861.820	19.500	1.425			1	3.000	18.846	150
							2	2.000	18.395	150
							3	1.004	18.150	150
							0	1.005	18.075	225
S13	505366.133	120836.411	18.700	1.700	1200		1	1.006	17.000	150
							0	1.007	17.000	150
OUTFALL	505371.729	120811.392	18.000	1.900	1200		1	1.007	16.100	150

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440	2160

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	10	0	100	0	10	0
30	0	10	0	100	45	10	0

Node S13 Online Orifice Control

Flap Valve	x	Invert Level (m)	17.000	Design Flow (l/s)	1.0	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Depth (m)	1.700	Diameter (m)	0.022		

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Node PAVE 1 Online Orifice Control

Flap Valve	x	Invert Level (m)	20.150	Design Flow (l/s)	3.0	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Depth (m)	1.400	Diameter (m)	0.025		

Node PAVE 1 Online Weir Control

Flap Valve	x	Invert Level (m)	21.200	Design Flow (l/s)	10.0	Discharge Coefficient	0.590
Replaces Downstream Link	x	Design Depth (m)	0.100	Width (m)	0.600		

Node PAVE 2 Online Orifice Control

Flap Valve	x	Invert Level (m)	18.075	Design Flow (l/s)	3.0	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Depth (m)	1.300	Diameter (m)	0.025		

Node PAVE 2 Online Weir Control

Flap Valve	x	Invert Level (m)	19.300	Design Flow (l/s)	10.0	Discharge Coefficient	0.590
Replaces Downstream Link	x	Design Depth (m)	0.100	Width (m)	0.600		

Node PAVE 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	15.800	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	20.800	Length (m)	29.000	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	266	Slope (1:X)	80.0		

Node PAVE 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	13.500	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	18.800	Length (m)	24.000	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	80.0		

Node S13 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	17.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	126.0	126.0	1.200	126.0	173.7	1.201	0.0	173.7

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Results for 1 year +10% A Critical Storm Duration. Lowest mass balance: 94.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S3	120	20.919	0.127	0.6	0.0360	0.0000	OK
180 minute summer	S4	120	20.919	0.174	0.8	0.0493	0.0000	SURCHARGED
180 minute summer	S5	120	20.919	0.315	1.2	0.0892	0.0000	SURCHARGED
180 minute summer	PAVE 1	120	20.919	0.769	3.6	3.5684	0.0000	SURCHARGED
180 minute summer	S11	120	19.860	0.017	1.1	0.0047	0.0000	OK
15 minute summer	S6	10	19.916	0.016	1.5	0.0045	0.0000	OK
15 minute summer	S8	11	19.527	0.017	1.2	0.0048	0.0000	OK
15 minute summer	S10	11	18.021	0.021	1.2	0.0060	0.0000	OK
360 minute winter	PAVE 2	320	19.061	0.986	3.2	11.0162	0.0000	SURCHARGED
2160 minute summer	S13	1440	17.231	0.231	1.2	27.9682	0.0000	SURCHARGED
2160 minute summer	OUTFALL	1440	16.113	0.013	0.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	S3	1.001	S4	0.7	0.340	0.049	0.1173	
180 minute summer	S4	1.001_1	S5	0.5	0.210	0.035	0.3367	
180 minute summer	S5	1.002	PAVE 1	1.0	0.337	0.070	0.1811	
180 minute summer	PAVE 1	1.003	S11	1.1	0.698	0.064	0.0508	
180 minute summer	S11	1.004	PAVE 2	1.1	0.264	0.025	0.2535	
15 minute summer	S6	3.000	PAVE 2	1.5	1.498	0.023	0.0315	
15 minute summer	S8	2.000	PAVE 2	1.2	0.854	0.026	0.1618	
15 minute summer	S10	1.006	S13	1.2	1.818	0.025	0.0472	
360 minute winter	PAVE 2	1.005	S10	1.3	0.608	0.031	0.0250	
2160 minute summer	S13	1.007	OUTFALL	0.5	0.674	0.014	0.0180	38.9

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 94.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S3	172	21.145	0.353	1.3	0.0999	0.0000	SURCHARGED
180 minute winter	S4	172	21.145	0.400	1.3	0.1132	0.0000	SURCHARGED
180 minute winter	S5	172	21.145	0.541	2.9	0.1531	0.0000	SURCHARGED
180 minute winter	PAVE 1	172	21.145	0.995	8.5	23.7046	0.0000	SURCHARGED
180 minute winter	S11	176	19.861	0.018	1.3	0.0050	0.0000	OK
15 minute summer	S6	10	19.932	0.032	6.5	0.0091	0.0000	OK
15 minute summer	S8	10	19.545	0.035	5.3	0.0098	0.0000	OK
360 minute winter	S10	256	18.028	0.028	3.6	0.0080	0.0000	OK
360 minute winter	PAVE 2	248	19.316	1.241	7.1	35.5811	0.0000	FLOOD RISK
1440 minute winter	S13	1680	17.569	0.569	1.8	68.7364	0.0000	SURCHARGED
1440 minute winter	OUTFALL	1680	16.116	0.016	0.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	S3	1.001	S4	1.2	0.318	0.084	0.1232	
180 minute winter	S4	1.001_1	S5	1.2	0.212	0.082	0.3367	
180 minute winter	S5	1.002	PAVE 1	2.9	0.374	0.199	0.1811	
180 minute winter	PAVE 1	1.003	S11	1.3	0.727	0.073	0.0557	
180 minute winter	S11	1.004	PAVE 2	1.3	0.114	0.029	0.2549	
15 minute summer	S6	3.000	PAVE 2	6.5	1.825	0.101	0.0830	
15 minute summer	S8	2.000	PAVE 2	5.3	0.948	0.116	0.1790	
360 minute winter	S10	1.006	S13	3.6	1.461	0.078	0.1448	
360 minute winter	PAVE 2	1.005	S10	3.6	0.834	0.088	0.0518	
1440 minute winter	S13	1.007	OUTFALL	0.8	0.775	0.022	0.0249	45.5

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 94.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	S3	172	21.204	0.412	1.6	0.1166	0.0000	SURCHARGED
180 minute winter	S4	172	21.204	0.459	1.7	0.1299	0.0000	SURCHARGED
180 minute winter	S5	172	21.204	0.600	3.7	0.1698	0.0000	SURCHARGED
180 minute winter	PAVE 1	172	21.204	1.054	10.5	31.8168	0.0000	FLOOD RISK
180 minute winter	S11	172	19.862	0.019	1.6	0.0055	0.0000	OK
15 minute summer	S6	10	19.936	0.036	8.2	0.0102	0.0000	OK
15 minute summer	S8	10	19.549	0.039	6.7	0.0110	0.0000	OK
240 minute summer	S10	148	18.041	0.041	7.7	0.0117	0.0000	OK
240 minute summer	PAVE 2	148	19.332	1.257	16.3	37.1383	0.0000	FLOOD RISK
2160 minute winter	S13	2280	17.716	0.716	2.4	86.5606	0.0000	SURCHARGED
2160 minute winter	OUTFALL	2280	16.117	0.017	0.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	S3	1.001	S4	1.5	0.335	0.104	0.1232	
180 minute winter	S4	1.001_1	S5	1.6	0.230	0.107	0.3367	
180 minute winter	S5	1.002	PAVE 1	3.6	0.380	0.252	0.1811	
180 minute winter	PAVE 1	1.003	S11	1.6	0.775	0.090	0.0649	
180 minute winter	S11	1.004	PAVE 2	1.6	0.140	0.036	0.2574	
15 minute summer	S6	3.000	PAVE 2	8.2	1.712	0.127	0.0850	
15 minute summer	S8	2.000	PAVE 2	6.7	0.896	0.147	0.1838	
240 minute summer	S10	1.006	S13	7.7	1.612	0.165	0.1511	
240 minute summer	PAVE 2	1.005	S10	7.7	1.041	0.186	0.0880	
2160 minute winter	S13	1.007	OUTFALL	0.8	0.803	0.025	0.0270	73.3

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

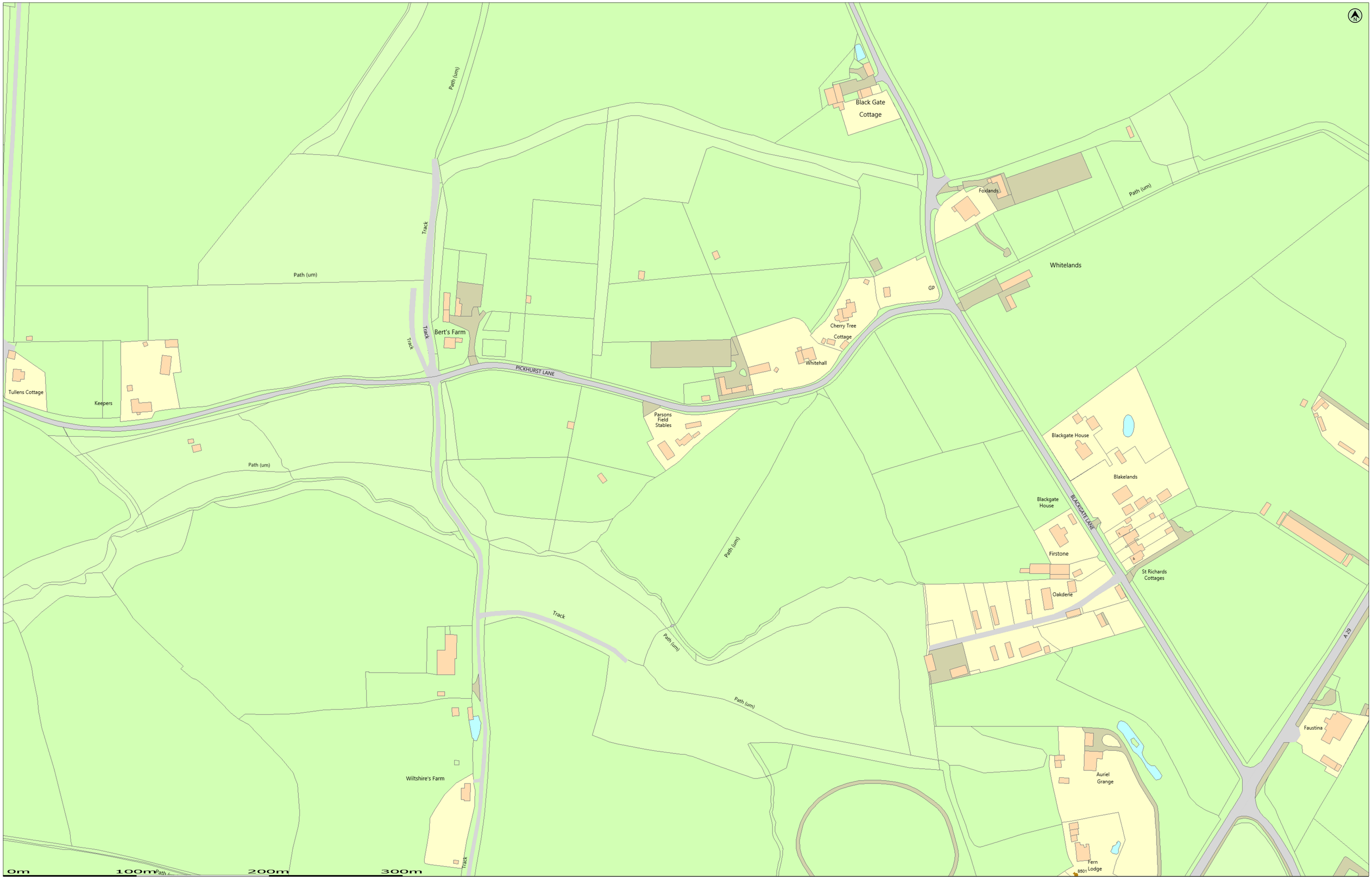
Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 94.46%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	S3	19	21.359	0.567	8.9	0.1604	0.0000	FLOOD RISK
30 minute summer	S4	19	21.339	0.594	9.0	0.1680	0.0000	FLOOD RISK
30 minute summer	S5	19	21.284	0.680	20.1	0.1924	0.0000	SURCHARGED
120 minute summer	PAVE 1	78	21.243	1.093	29.9	37.1732	0.0000	FLOOD RISK
120 minute summer	S11	78	19.894	0.051	11.1	0.0144	0.0000	OK
15 minute summer	S6	10	19.943	0.043	11.8	0.0123	0.0000	OK
15 minute summer	S8	10	19.557	0.047	9.7	0.0133	0.0000	OK
120 minute summer	S10	76	18.080	0.080	25.8	0.0225	0.0000	OK
120 minute summer	PAVE 2	76	19.378	1.303	36.6	41.6639	0.0000	FLOOD RISK
2160 minute winter	S13	2400	18.077	1.077	3.6	130.1231	0.0000	SURCHARGED
2160 minute winter	OUTFALL	2400	16.118	0.018	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	S3	1.001	S4	8.0	0.496	0.554	0.1232	
30 minute summer	S4	1.001_1	S5	8.7	0.492	0.569	0.3367	
30 minute summer	S5	1.002	PAVE 1	19.4	1.101	1.341	0.1811	
120 minute summer	PAVE 1	1.003	S11	11.1	1.308	0.627	0.2628	
120 minute summer	S11	1.004	PAVE 2	11.1	0.817	0.248	0.3110	
15 minute summer	S6	3.000	PAVE 2	11.8	1.752	0.183	0.0890	
15 minute summer	S8	2.000	PAVE 2	9.7	1.028	0.213	0.1933	
120 minute summer	S10	1.006	S13	25.8	2.608	0.552	0.1969	
120 minute summer	PAVE 2	1.005	S10	25.8	1.442	0.621	0.2092	
2160 minute winter	S13	1.007	OUTFALL	1.0	0.854	0.031	0.0312	93.3

Flow+ v14.0 Copyright © 1988-2025 Causeway Technologies Ltd

Appendix F - Southern Water Asset Mapping



(c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 | Date: 10/04/25 | Scale: 1:1250 | Map Centre: 505511,120885 | Data updated: 20/03/25 | Our Ref: 1740796 - 1 | Wastewater Plan A3 Powered by digiGIS

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

Foul Gravity Sewer
Combined Gravity Sewer
Culverted Water Course or Treated Effluent
Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon
Combined Outfall
Surface Water Outfall
Foul Outfall
Surface Water Inlet
Combined Pumping Station
Surface Water Pumping Station
Foul Pumping Station
Water Treatment Works
Section 104 Area
Building Over Agreement Area
Foul Manhole
Combined Manhole
Surface Water Manhole
Side Entry Manhole, Interception Chamber, Dummy Manhole or Surface Water Soakaway

ceri@aegaea.com
Pickhurst Lane

WATER for LIFE from Southern Water.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
8501	F	28.44	27.22	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert