



Appendix F Wessex Water Records + Correspondence

Jacob De La Croix

From: Mike Gale <Mike.Gale@wessexwater.co.uk>
Sent: 07 May 2025 12:57
To: Jacob De La Croix; Nicky Perkins
Subject: RE: 1610 - West Lavington foul drainage requisition proposal

Hi Jacob,

Obviously, the engineering would need to work, but we are always committed to avoiding pumped flows whenever we can, so yes, a requisition through this land would definitely be an option we would consider.

Once the application has been received, we will carry out the Stage 1 Assessment to determine the route, levels and engineering complexity prior to making you an offer to provide the connection.

Regards



Mike Gale
Development Engineering Manager



Wessex Water
Operations Centre, Claverton Down, Bath BA2 7WW

Email mike.gale@wessexwater.co.uk
Mobile 07768 045001
Web ytl.com | wessexwater.co.uk



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From: Jacob De La Croix <Jacob.DeLaCroix@awpexeter.com>
Sent: 07 May 2025 11:45
To: Mike Gale <Mike.Gale@wessexwater.co.uk>
Subject: 1610 - West Lavington foul drainage requisition proposal

Hi Mike,

I am emailing regarding a new proposed development in West Lavington, Wiltshire, SN10 4HR (SU 00417 53267). Wessex Water have confirmed that the proposed point of connection for this development would be to MH 5201. To achieve connection to this manhole we have two options:

1. Our preferred option is to gravity connect via requisition through third party land to the sewer network just upstream of MH 5201, preferably MH 4202, subject to the IL of this manhole (Refer to attached sketch option 2). This would involve routing through 3rd party garden and driveway and ex. Hedge.
2. The alternative option would be for foul flows to connect to MH 5201 via a pump station within the development (Refer to attached sketch option 2). As well as the cost, land take and sustainability impact, it will still be quite difficult to connect to MH 5201 as the manhole is very shallow (apparently 470mm cover) so it would be difficult to design a manhole break upstream to allow connection to.

Based on the above, can you confirm if you are happy in principle to requisition through the third party land (option 1) and if you have any thoughts on this?

Kind regards,

Jacob De la Croix
Senior Engineer



Ada House, Pynes Hill, Exeter EX2 5TU

office: 01392 409007
direct dial: 01392 325597
email: jacob.delacroix@awpexeter.com
web: www.awpexeter.com

AWP is a regional engineering consultancy providing development planning and infrastructure services to developers and house builders across the south west.

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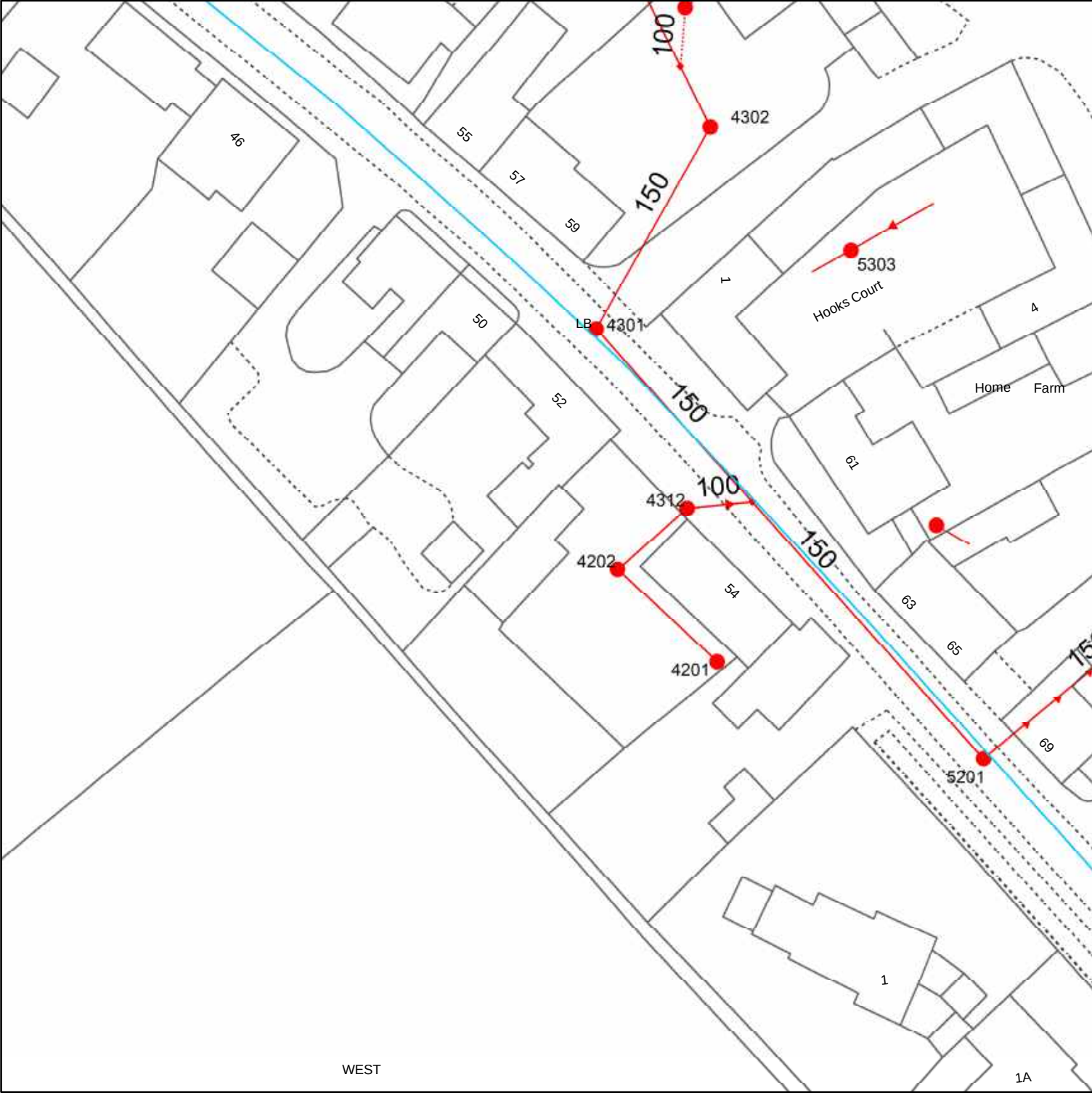
AWP (Exeter) LLP
Registered Office: Ada House, Pynes Hill, Exeter, Devon, EX2 5TU
Registered in England and Wales: Company No. OC453740

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Wessex Water Network Map



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WATER MAINS	SEWERS	STRATEGIC PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES	NON-WESSEX / UNKNOWN
Distribution	Foul	Rising Mains	Standby Rising Mains	EDM	Effluent Disposal	Private Rising Mains
Washout	Surface	Surface	Surface	Vent Column	Overflow	Culverted Watercourse
Raw Water	Combined	Combined	Combined	Rodding Eye	Catchpit	Highway Drain
Abandoned	Abandoned	Abandoned	Abandoned	Flushing Chamber	Soakaway	Use Unknown
Private	Private	Private	Private	Non Return Valve	Air Valve	Status Unknown
FITTINGS	STRUCTURES	Pumping Station - Surface	Pumping Stn - Foul/Combined	Gully	Vent Column	Chamber
Hydrant	Manhole - Foul	Manhole - Surface	Manhole - Combined	Inlet	Outfall	Tunnel
Other	Lamphole	Bifurcation - Foul	Bifurcation - Surface	Bifurcation - Combined	Combined Sewage Overflow	Interceptor
	Hatch Box	Washout				

Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.

Wessex Water
YTL GROUP

Date: 12/01/2024
Centre: 400471, 153302
Scale: 1:625
(when printed at A4 size)



WATER MAINS Distribution Washout Raw Water Abandoned Private FITTINGS Hydrant Other	SEWERS Foul Surface Combined Abandoned Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours. STRUCTURES Manhole - Foul Manhole - Surface Manhole - Combined Inlet Outfall Lamphole Bifurcation - Foul Bifurcation - Surface Bifurcation - Combined Combined Sewage Overflow	PUBLIC 	PRIVATE 	SECTION 104 	OTHER WESSEX PIPES Rising Mains Standby Rising Mains Effluent Disposal Overflow Syphon	NON-WESSEX / UNKNOWN Private Rising Mains Culverted Watercourse Highway Drain Use Unknown Status Unknown	OTHER STRUCTURES Attenuation Tank Storage Tank Chamber Tunnel Interceptor	
Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.							Date: 10/02/2026 Centre: 400510E, 153262N Scale: 1:1,250 (when printed at A2 size)	

Response to: Developer e-mail: mitchell.ayers@awpexeter.com			
Planning Ref:		Our Ref: SU05SW/ 29	Our Email: planning.liaison@wessexwater.co.uk
Proposal:	Residential development of residential 50 dwellings		
Location:	West Lavington, Wiltshire, SN10 4HR	DATE	09/02/2026

Thank you for your pre-development enquiry. Extracts from our records showing the approximate location of our apparatus within the vicinity of the site are attached.

We have reviewed documents submitted in support of the enquiry. We have following comments to make:

Foul Water

Wessex Water will accommodate domestic type foul flows in the public foul sewer with connections made on a size for size basis, Developers fund the cost of connecting to the nearest 'size for size' sewer. The minimum diameter receiving sewer to meet size for size principles for a development of this magnitude is 150mm.

The nearest public foul sewer of suitable diameter or greater is the 150mm dia Public Foul Sewer in High Street connection should be made downstream of FWMH SU00534301 (4301). CL. 84.910; IL. 83.670

The point of connection to the public foul network is by application and agreement and Wessex Water will accommodate domestic type foul flows in the public foul sewer with connections made on a 'size for size' basis, Developers fund the cost of connecting to the nearest 'size for size' foul sewer and Wessex Water will manage the foul sewer network to accommodate foul flows from granted development. We fund this through our infrastructure charging arrangements.

Separated systems of drainage are required: Wessex Water will not accept surface water or land drainage flows to the public foul sewer and treatment works, either directly or indirectly.

Surface Water Drainage (rainwater falling onto, and running off, impermeable surfaces)

Surface water must be disposed of via the SuDS Hierarchy which is subject to Building Regulations and NPPF.

No surface water runoff, land drainage or ground water will be accepted into a public sewer that carries sewerage, either directly or indirectly.

The National Planning Policy Framework (NPPF) mandates that Sustainable Drainage Systems (SuDS) must be incorporated into new developments to manage surface water runoff, mitigate flood risks, and provide additional benefits, including enhanced water quality and green spaces.

In line with the drainage hierarchy outlined in Approved Document H of the Building Regulations, Planning Practice Guidance, and the necessity to address water scarcity, all surface water runoff should aim to be discharged as high up the following hierarchy as feasible:

- Rainwater reuse through harvesting or greywater recycling
- An adequate soakaway or other infiltration system
- A hybrid solution involving infiltration and discharge to a surface water body
- Discharge directly to a surface water body (e.g., an ordinary watercourse)
- Discharge to a surface water sewer, highway drain, or other drainage system

Wessex Water statement on surface water discharge can be accessed via the following link :

<https://developerservices.wessexwater.co.uk/media/m4rjrfmg/wwwds-dev063p-rainwater-drainage-policy.pdf>

Review of the mapping indicates that the site is in an area of high infiltration potential. Infiltration shall be explored for surface water discharge.

Adoption

Wessex Water can adopt SuDS features as part of a surface water sewer network, SuDS schemes will be required to have full S104 technical approval and full planning approval before construction work begins. All drainage design requirements for the site (discharge rates, attenuation, climate change etc.) must be agreed, in consultation with the Local Planning Authority / Lead Local Flood Authority, prior to the submission of a formal S104 application. Adoption is by agreement with Wessex Water. More detailed information and guidance for adoptable standards can be found on our Developer Services Web Pages Sector guidance on sewerage and water adoption agreements (wessexwater.co.uk)

Water Supply

Wessex Water will provide a point of connection for new water mains to be laid into the development site, either through a Section 41 agreement or a self-lay arrangement.

Developers may connect to our water network on a size for size basis at their cost and Wessex Water will undertake any network reinforcement that may be required to accommodate granted development, this is funded through our infrastructure charging arrangements.

There nearest suitable Water distribution main for connection is 4" Dia Water Distribution Main in High Street.

For more details and guidance for applying to connect to our networks please see our website:
<https://www.wessexwater.co.uk/services/building-and-developing/building-multiple-properties-or-large-developments>

Please note: *On site private storage and pump systems will be required for buildings greater than 2 storeys high. No guarantee can be given on a specific pressure or to maintaining that pressure. Normally it will be no less than 10m head of water. (1 bar pressure at 9 litres a minute) on the property boundary.*

New Appointments and Variations (NAVs)

The NAV Market enables developers to choose their water or sewerage undertaker for a specific geographic area. For developers wishing to consider an alternative supplier or seeking further information, a full list of appointees and further guidance can be found on the Developing a new site (wessexwater.co.uk) and Ofwat website.

If you are making a NAV enquiry, there is a Wessex Water dedicated wholesale team that deal with NAV enquiries. Full details are on our website including guidance notes, our policy and contact details
<https://developerservices.wessexwater.co.uk/new-appointments-and-variations>

I trust that you will find the mapping and initial comments of use.

Note: These comments are based upon known circumstances prevailing at the time of writing. A review of the contents of this email is required where 18 months or more have elapsed since issue or in the light of significant changes likely to impact upon the response (e.g. changes in development numbers or phasing). Please email review requests to planning.liaison@wessexwater.co.uk

Jacob De La Croix

From: Mike Gale <Mike.Gale@wessexwater.co.uk>
Sent: 07 May 2025 12:57
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Wessex Water
Operations Centre, Claverton Down, Bath BA2 7WW

Email mike.gale@wessexwater.co.uk
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Jacob De la Croix
Senior Engineer



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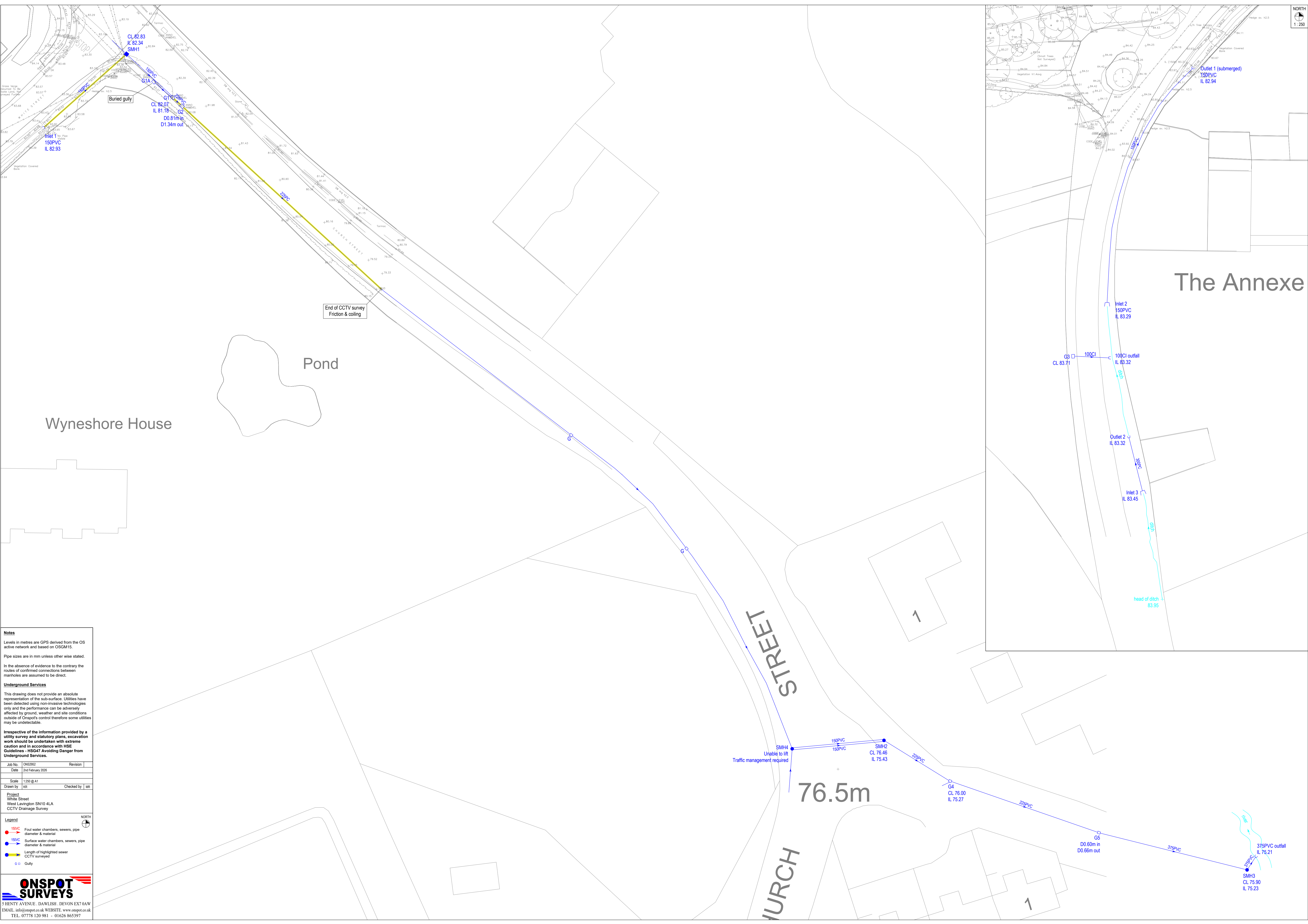
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Appendix G CCTV Drainage Survey



Notes

Levels in metres are GPS derived from the OS active network and based on OSGM15.

Pipe sizes are in mm unless other wise stated.

In the absence of evidence to the contrary the routes of confirmed connections between manholes are assumed to be direct.

Underground Services

This drawing does not provide an absolute representation of the sub-surface. Utilities have been detected using non-invasive technologies only and the performance can be adversely affected by ground, weather and site conditions outside of Onspot's control therefore some utilities may be undetectable.

Irrespective of the information provided by a utility survey and statutory plans, excavation work should be undertaken with extreme caution and in accordance with HSE Guidelines - HSG47 Avoiding Danger from Underground Services.

Job No.	ONS292	Revision	
Date	2nd February 2028		
Scale	1:250 @ A1		
Drawn by	KR	Checked by	MR

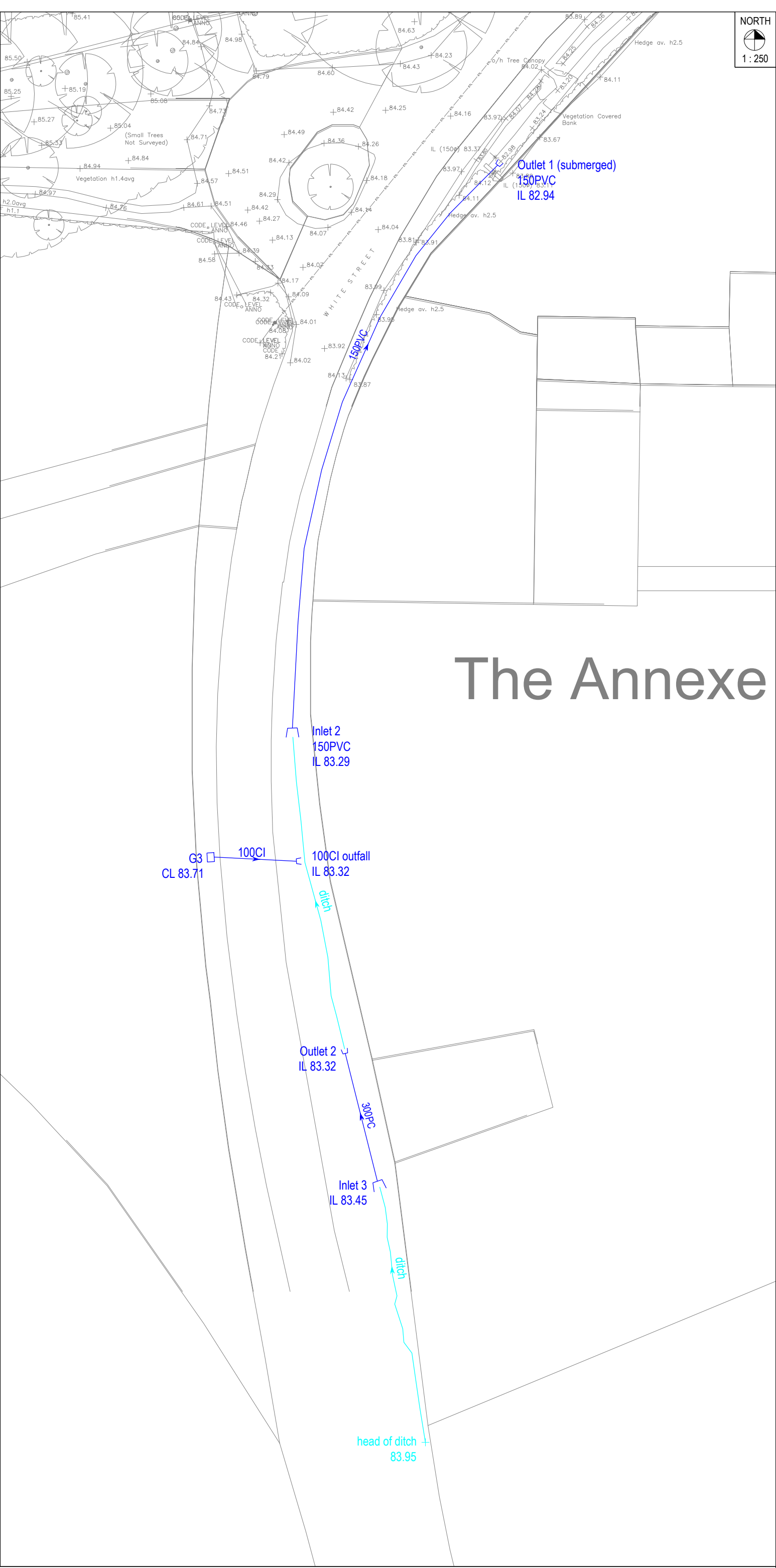
Project
White Street
West Lavington SN10 4LA
CCTV Drainage Survey

Legend

- 150VC Foul water chambers, sewers, pipe diameter & material
- 150VC Surface water chambers, sewers, pipe diameter & material
- Length of highlighted sewer CCTV surveyed
- G Gully

ONSPOT SURVEYS

5 HENTY AVENUE · DAWLISH · DEVON EX7 0AW
EMAIL: info@onspot.co.uk WEBSITE: www.onspot.co.uk
TEL: 07778 120 981 - 01626 865397



Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
---	------------------------------------	-----------------------------	------------------------	----------------------------

Client:	AWP
Contact:	JACOB DE LA CROIX
Department:	-
Address:	ADA HOUSE PYNES HILL EXETER EX2 5TU
Telephone:	01392 325597
Mobile:	-
Email:	Jacob.DeLaCroix@awpexeter.com

Project number:	ONS2952
Site address:	WHITE STREET WEST LAVINGTON SN10 4LA

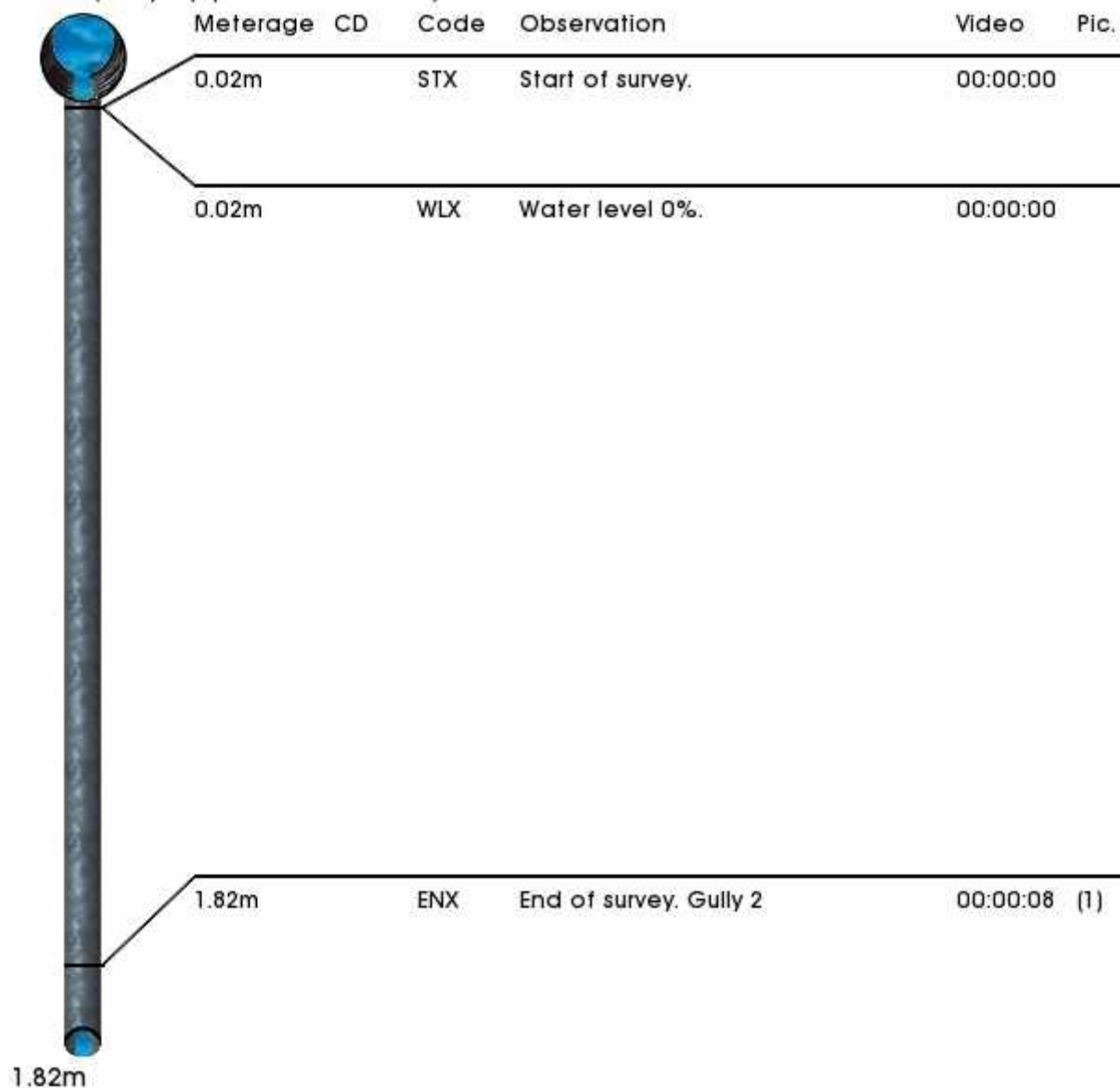
Contractor:	ONSPOT SURVEYS
Contact name:	MARK ROCHELLE
Office:	01626 865397
Mobile:	07778 120 981
Email:	info@onspot.co.uk
Address:	ONSPOT SURVEYS LTD 5 HENTY AVENUE DAWLISH DEVON EX7 0AW

Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
---	------------------------------------	-----------------------------	------------------------	----------------------------

Section: G1 to G2				
Place: West Lavington	Direction: Downstream	Start ref: G1 pipe X		
Road: White Street	Use: Surface	Start depth: 0.89m		
	Pipe Shape: Circular	End ref: G2 pipe A		
	Pipe Material: PVC	End depth: 0.81m		
	Width / Height: 225mm			
Comments:				

0.02m (Gully 1 pipe X downstream)



Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
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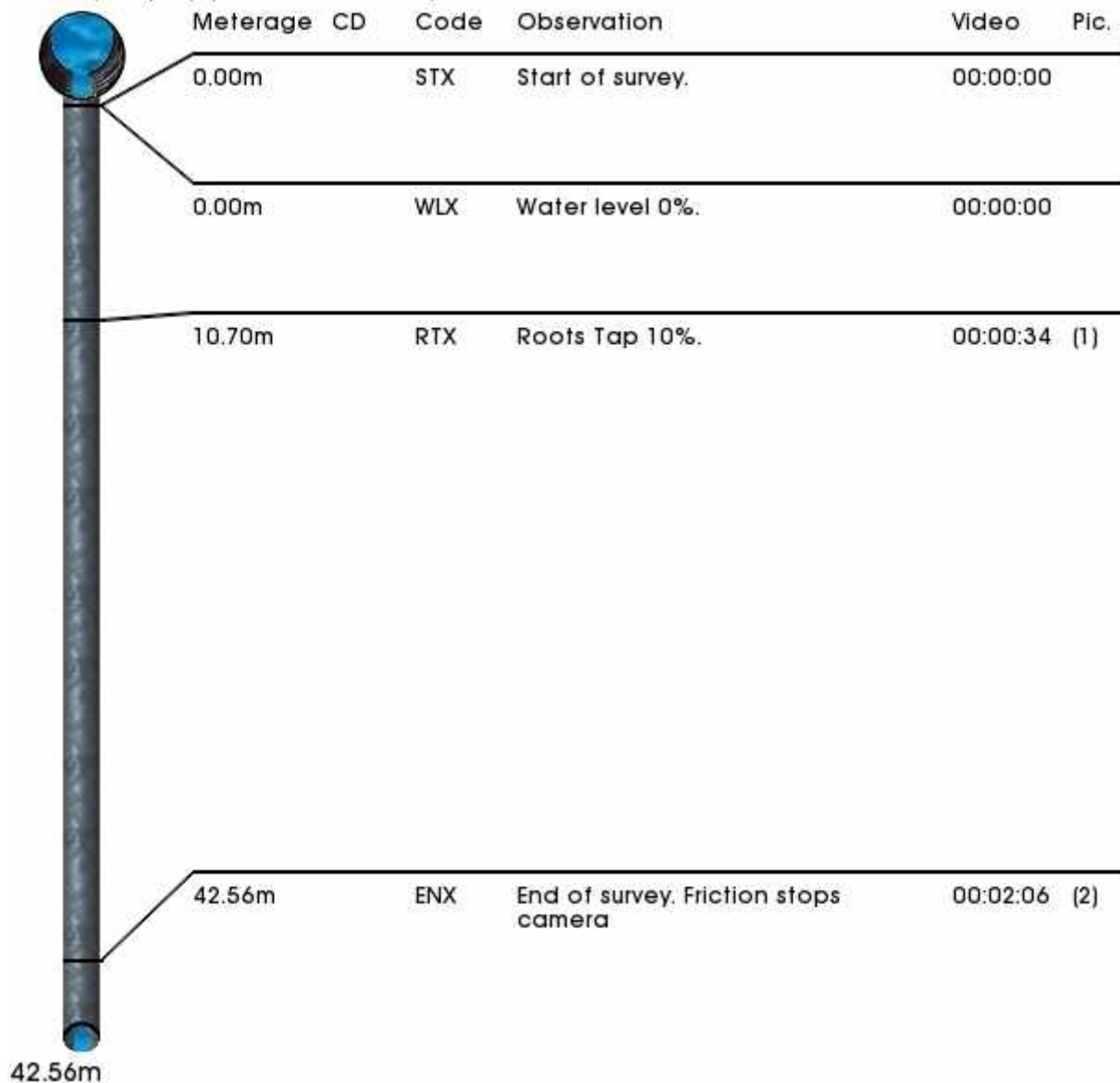
(1)

Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
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Section: G2 downstream				
Place: West Lavington	Direction: Downstream	Use: Surface	Start ref: G2 pipe X	
Road: White Street	Pipe Shape: Circular	Pipe Material: Concrete	Start depth: 1.34m	
	Width / Height: 225mm		End ref:	
			End depth:	
Comments:				

0.00m (Gully 2 pipe X downstream)



Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
---	------------------------------------	-----------------------------	------------------------	----------------------------



(1)



(2)

Project Information

Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
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Section: Inlet 1 to SMH1				
Place: West Lavington	Direction: Downstream	Use: Surface	Start ref: Inlet 1	
Road: White Street	Pipe Shape: Circular	Pipe Material: PVC	Start depth: 0.47m	
	Width / Height: 150mm		End ref: SMH1	
			End depth: 0.47m	
Comments:				

0.00m (Inlett 1)

Meterage	CD	Code	Observation	Video	Pic.
0.00m		STX	Start of survey.	00:00:00	
0.02m		STX	Start of survey.	00:00:01	
0.02m		WLX	Water level 0%.	00:00:02	
1.69m		DBX	Debris 10%.	00:00:20	(1)
12.54m		LVX	Loss of vision.	00:01:21	
18.02m		ENX	End of survey. SMH 1	00:02:55	(2)

Project Information

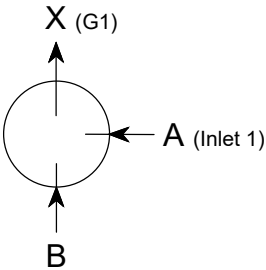
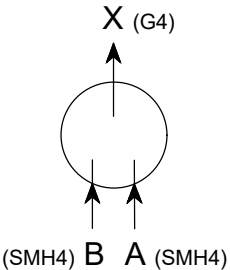
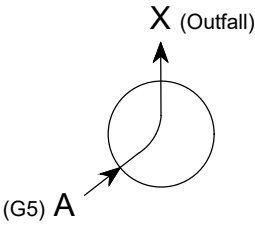
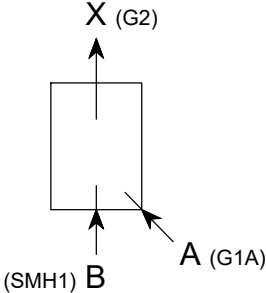
Project name : WEST LAVINGTON	Project number : ONS2952	Date : 02-02-2026	Client : AWP	Operator: ONSPOT
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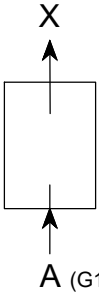
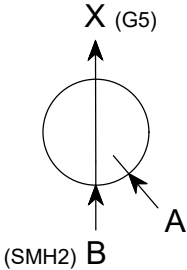
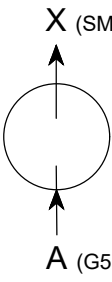
(1)



(2)

Manhole Data						Sheet: 1 of 2	
Site: West Lavington ONS2952						Date: February 2026	
Manhole Number	Cover Level	Diagram		Pipe Diameter	Depth (m)	Invert (m)	Comments
SMH1	82.83		A B C D E F X	150 PVC	0.47	82.36	
				150 PVC	0.49	82.34	
SMH2	76.46		A B C D E F X	150 PVC	1.03	75.43	
				150 PVC	1.03	75.43	
SMH3	75.90		A B C D E F X	375 PVC	0.65	75.25	
				375 PVC	0.67	75.23	
Inlet 1		150PVC inlet to SMH1	A B C D E F X	150 PVC		82.93	
G1	82.07		A B C D E F X	150 PVC	0.83	81.24	Gully
				150 PVC	0.55	81.52	
			X	225 PVC	0.89	81.18	

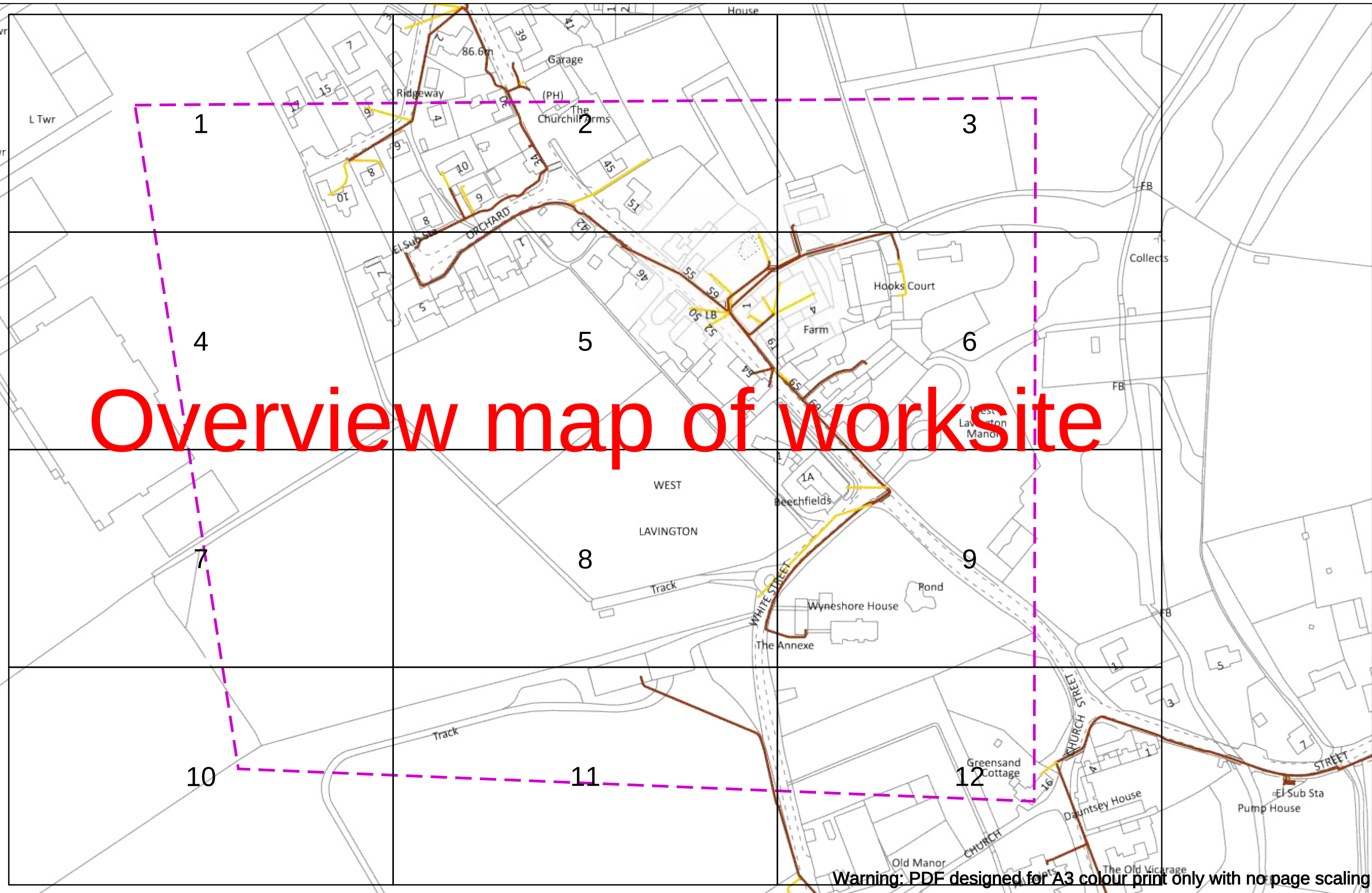
Pipe Materials: VC= vitrified clay PC= precast concrete CI= cast iron DI= ductile iron PVC= plastic PF= pitch fibre BRK= brick ST= stone AC= asbestos cement PE= polyethylene. Codes: UK= unknown G= gully RWP= roofwater pipe RE= rod-eye

Manhole Data						Sheet: 2 of 2	
Site: West Lavington ONS2952						Date: February 2026	
Manhole Number	Cover Level	Diagram		Pipe Diameter	Depth (m)	Invert (m)	Comments
G2			A B C D E F X	225 PVC	0.81		Gully
				225 PC	1.34		
G4	76.00		A B C D E F X	225 PVC	0.68	75.32	Gully
				225 PVC	0.71	75.29	
				225 PVC	0.73	75.27	
G5			A B C D E F X	225 PVC	0.60		Gully
Outfall		375PVC outfall from SMH3	A B C D E F X	375 PVC		75.21	
			A B C D E F X				

Pipe Materials: VC=vitrified clay PC=precast concrete CI=cast iron DI=ductile iron PVC=plastic PF=pitch fibre BRK=brick ST=stone AC=asbestos cement
 PE=polyethylene. Codes: UK=unknown G=gully RWP=roofwater pipe RE=rod-eye



Appendix H Utility Records



Warning: PDF designed for A3 colour print only with no page scaling

Dig Sites Area:  Line: 



Date Requested: 12/01/2024
Job Reference: 32091715
Site Location: 400419 153263
Requested by:
Miss tobi heng
Your Scheme/Reference: West
Lavington

WARNING

There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES GS6 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

Voltages (V)				
LV (Low Voltage) and Services		Up to 1,000V		
HV (High Voltage)		Over 1,000V to 11,000V		
EHV (Extra High Voltage)		22,000V to 132,000V		
Transmission		275,000V and 400,000V		

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
	Services	LV	HV	EHV
Footpath/Unmade	0.45m	0.45m	0.6m	0.75m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.2m

Legend

- Servico Cable
- 1V Main
- 2 - 3.3kV
- 6.6kV
- 11kV
- 22kV
- 33kV
- 66kV
- 132kV
- 275kV
- 400kV
- Fibre Optic
- Water Cable

Distribution Structures (Electric)

- Pole, Existing Location
- Pole Structure, Existing Location - Single
- Pole Structure, Existing Location - H
- Duct Route
- Cross Section Route

Southern Electric Power Distribution plc
Registered Office: No.1 Forbury Place
43 Forbury Road Reading RG1 3JH
Registered In England & Wales No.04094290

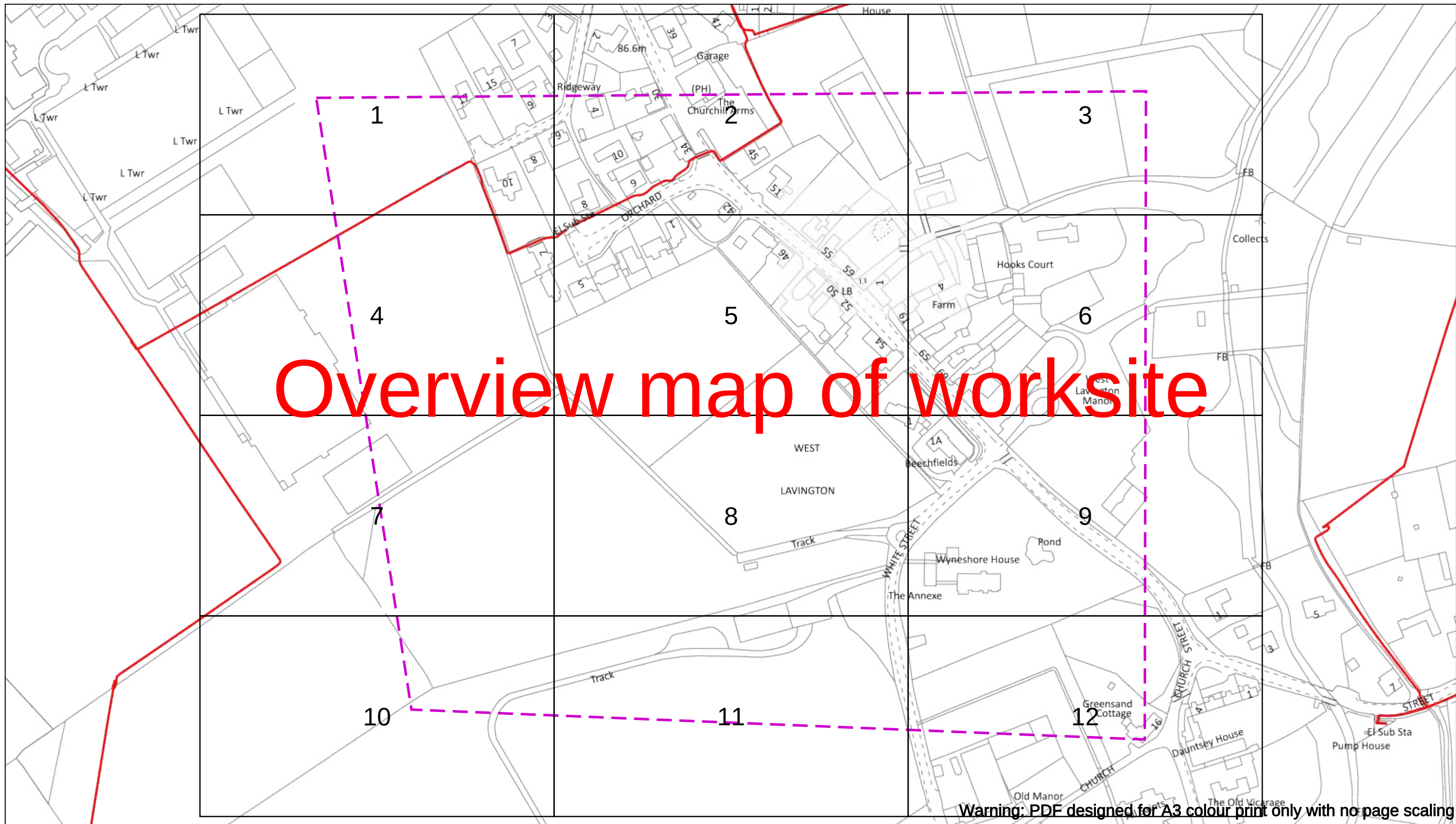
If you're unsure & need to seek advice before commencing excavations please contact:
General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:
Asset.Data@sse.com
 01256 337 294

Scale: 1:2050 (When plotted at A3)

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Dig Sites Area:  Line: 



Date Requested: 12/01/2024
Job Reference: 32091715
Site Location: 400419 153263
Requested by:
Miss tobi heng
Your Scheme/Reference: West
Lavington

WARNING

There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES GS6 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

Voltages (V)				
LV (Low Voltage) and Services		Up to 1,000V		
HV (High Voltage)		Over 1,000V to 11,000V		
EHV (Extra High Voltage)		22,000V to 132,000V		
Transmission		275,000V and 400,000V		
NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
	Services	LV	HV	EHV
Footpath/Unmade	0.45m	0.45m	0.6m	0.9m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.2m

Legend

- Service Cable
- LV Main
- 2 - 3.3kV
- 6.6kV
- 11kV
- 22kV
- 33kV
- 66kV
- 132kV
- 275kV
- 400kV
- Fibre Optic
- Water Cable

Distribution Structures (Electric)

- Pole, Existing Location
- Pole Structure, Existing Location - Single
- Pole Structure, Existing Location - H
- Deck Route
- Cross Section Route

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Registered Office: No.1 Forbury Place
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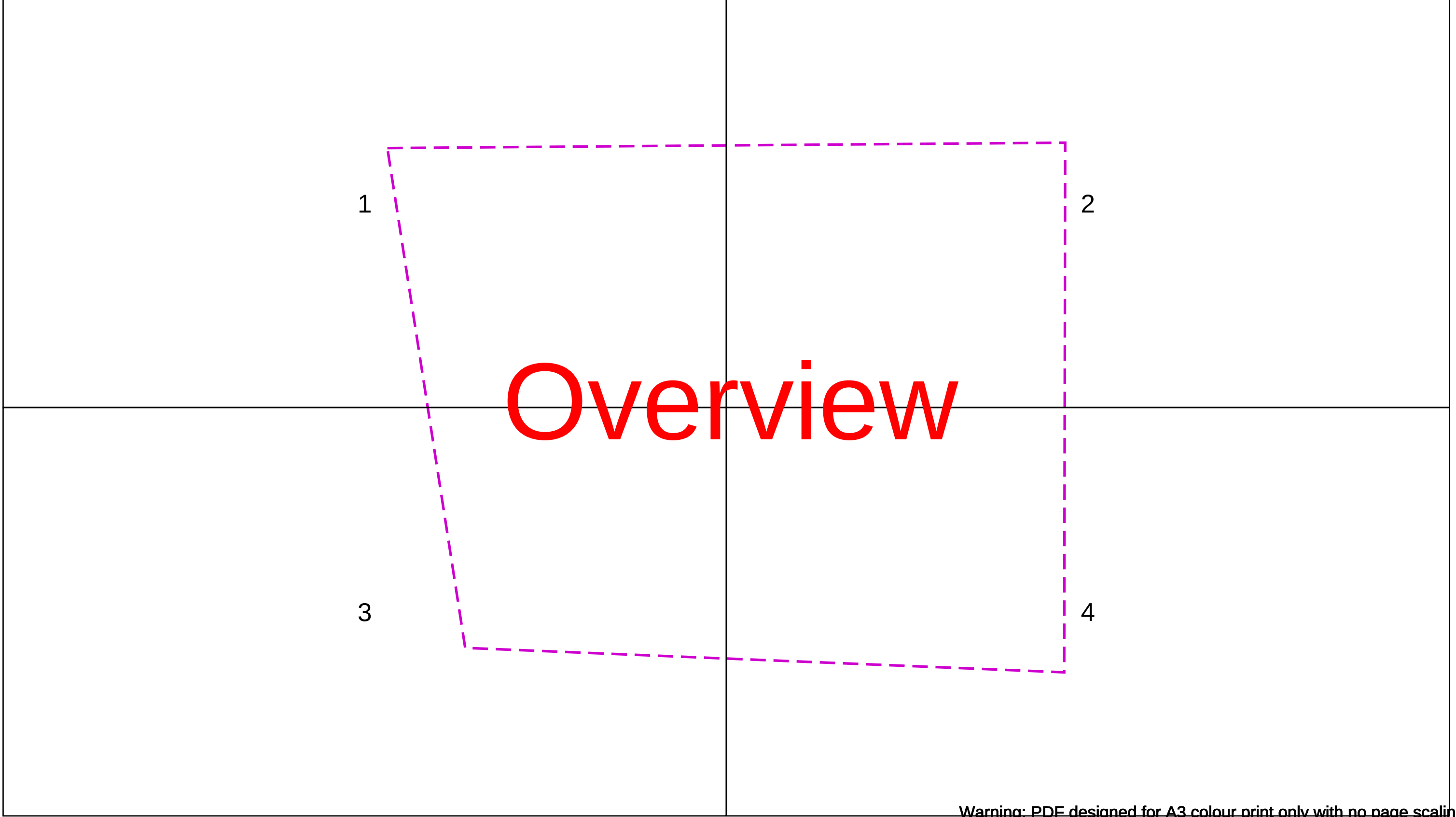
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Contact Us Mapping Enquiries: 02920 278 912 General Enquiries: 0800 912 2999 Date Requested: 12/01/2024 Job Reference: 32091715 Site Location: 400419 153263 Requested by: Miss tobi heng Your Scheme/Reference: West Lavington Scale: 1:2563 (When plotted at A3)	IMPORTANT NOTICES - This information is given as a guide only and its accuracy cannot be guaranteed - The plan only shows those pipes owned by Wales & West Utilities (WWU) as its role as a licensed Gas Transporter - Service pipes, valves, syphons, stub connections etc. may not be shown but their presence should be anticipated - You must use safe digging practices in accordance with HS(G)47 to establish the actual position of mains, services and other apparatus before any mechanical excavation is used - It is your responsibility to ensure this information is provided to all persons working near our plant - If in doubt call the WWU dig team on 02920 278912	In case of an emergency call 0800 111 999 Dig Sites Area:  Line:   Low Pressure (LP) 21mbar – 75mbar  Medium Pressure (MP) 350mbar – 2bar  Intermediate Pressure (IP) 2bar – 7bar  High Pressure (HP) >7bar  Line/Fire Valve Governor Station Change of Diameter End Cap Depth of cover	 Smell gas? Call the Gas Emergency Service on 0800 111 999.  What must 10 days notice Call 029 2027 8912 Before you start work. Investigate Before you dig - make sure you know what's below. Go ahead Done your research? Now you can dig safely.
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Appendix I Proposed Masterplan



Example of Type 5 railings
with conservation kerb

Copyright CG Fry and Son Ltd

[illegible]

Drawing Number SP-P-001		Revision -
Date Dec' 2025	Drawn RMM	Plot Number -
Scale 1:500 at A1		

1.500 at A1



- KEY**
- Red planning application boundary
- Soft Landscape:**
- Existing trees to be retained
 - Existing hedge / scrub to be retained
 - Existing trees to be removed
 - Existing hedge to be removed
 - Existing scrub to be removed
 - Proposed trees (outer line shows canopy width after 25 years)
 - Proposed multi-stem small trees / shrubs
 - Native hedge
 - Front garden landscape
 - Rear gardens
 - Formal shrub planting to public realm
 - Ornamental shrub and perennial planting to public realm
 - Native shrub planting (including edibles)
 - Native wildflower and grass mix
 - Species rich amenity lawn
 - Native wildflower and grass mix to attenuation basin with mown access paths
 - Linear swale - 1m wide shallow dished depression to edge of western boundary
 - Habitat enhancement area for reptiles - phased management of western boundary to allow for reptile mitigation. See ecologists report for further details.
- For indicative planting species, mixes and sizes, refer to Landscape Statement document, as part of this application.

- Hard Landscaping:**
- Gravel paths to public open space

Refer to CGFry and AWP's proposals for hardworks to residential plots and carriageways

- Landscape Features:**
- Linear bench to POS areas
 - Natural stone boulders for retaining elements
 - Natural / incidental play elements
 - Timber sleeper steps
 - Timber sleeper retaining wall - typically 1m high, increasing to 1.75m high at headwall location
 - Reptile hibernacula - reptile hibernacula, constructed from on-site brash and branchwood, brick and stone.

Rev	Description	Dwn by	Chkd by	Date	Notes
01	For discussion	HS	JT	13.01.2026	
02	For discussion	HS	JT	26.01.2026	
03	For discussion	HS	JT	29.01.2026	
04	For discussion	HS	JT	06.02.2026	
05	For discussion	HS	JT	03.03.2026	
06	For discussion	HS	JT	18.03.2026	

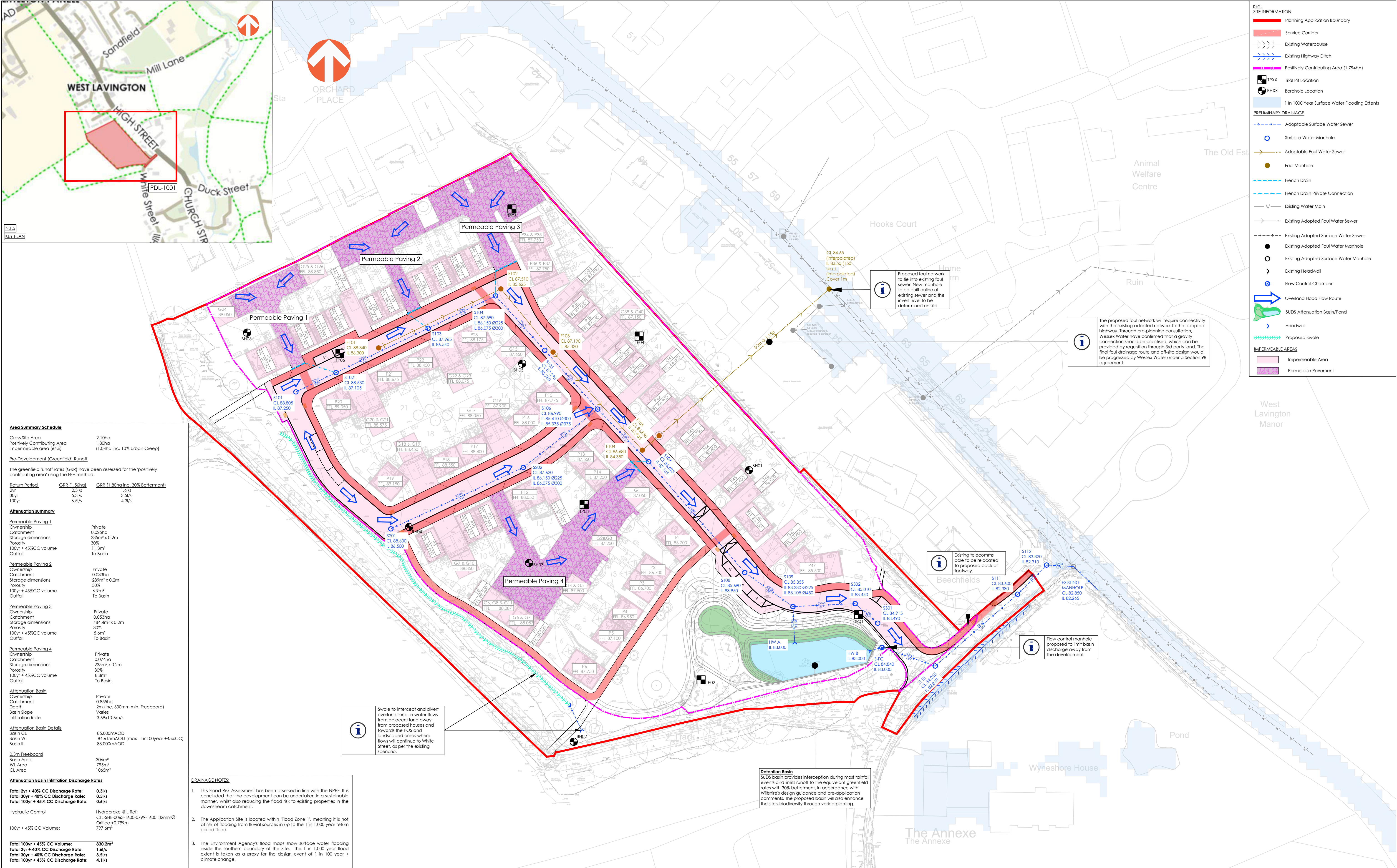
This drawing is protected by copyright. Contractors must check all dimensions on site. Only figure dimensions are to be worked from. Discrepancies must be reported to landscape architect before proceeding.

Notes:





Appendix J Preliminary Drainage Layout



Area Summary Schedule		
Gross Site Area	2.10ha	
Positively Contributing Area	1.80ha	
Impermeable area (64%)	(1.04ha inc. 10% Urban Creep)	
Pre-Development (Greenfield) Runoff		
The greenfield runoff rates (GRR) have been assessed for the 'positively contributing area' using the FEH method.		
Return Period	GRR (1.54ha)	GRR (1.80ha inc. 30% Betterment)
2yr	2.3/s	1.6/s
30yr	5.3/s	3.5/s
100yr	6.3/s	4.3/s
Attenuation summary		
Permeable Paving 1		
Ownership	Private	
Catchment	0.022ha	
Storage dimensions	235m ² x 0.2m	
Porosity	30%	
100yr + 45%CC volume	11.3m ³	
Outfall	To Basin	
Permeable Paving 2		
Ownership	Private	
Catchment	0.033ha	
Storage dimensions	289m ² x 0.2m	
Porosity	30%	
100yr + 45%CC volume	6.9m ³	
Outfall	To Basin	
Permeable Paving 3		
Ownership	Private	
Catchment	0.033ha	
Storage dimensions	484.4m ² x 0.2m	
Porosity	30%	
100yr + 45%CC volume	5.6m ³	
Outfall	To Basin	
Permeable Paving 4		
Ownership	Private	
Catchment	0.074ha	
Storage dimensions	235m ² x 0.2m	
Porosity	30%	
100yr + 45%CC volume	8.8m ³	
Outfall	To Basin	
Attenuation Basin		
Ownership	Private	
Catchment	0.855ha	
Depth	2m (inc. 300mm min. Freeboard)	
Basin Slope	Varies	
Infiltration Rate	3.69x10 ⁻⁴ m/s	
Attenuation Basin Details		
Basin CL	85.000mAO	
Basin WL	84.615mAO (max - 1in100year +45%CC)	
Basin IL	83.000mAO	
0.3m Freeboard		
Basin Area	306m ²	
WL Area	795m ²	
CL Area	1065m ²	
Attenuation Basin Infiltration Discharge Rates		
Total 2yr + 40% CC Discharge Rate:	0.3/s	
Total 30yr + 40% CC Discharge Rate:	0.5/s	
Total 100yr + 45% CC Discharge Rate:	0.4/s	
Hydraulic Control		
Hydrobrake 8LL Ref:		
C11-SHE-0263-1600-0799-1600 32mmØ		
Office +0.799m		
100yr + 45% CC Volume:		
797.6m ³		
Total 100yr + 45% CC Volume:		
830.2m ³		
Total 2yr + 40% CC Discharge Rate:		
1.6/s		
Total 30yr + 40% CC Discharge Rate:		
3.5/s		
Total 100yr + 45% CC Discharge Rate:		
4.1/s		

- GENERAL NOTES:
- No groundwater was encountered in any of the trial pits or boreholes during the investigation.
 - All works depicted are subject to detailed design and associated technical approval processes. All drainage levels and notes shown are preliminary only.
 - Plot levels may vary +/-300mm at detailed design.

- DRAINAGE NOTES:
- This Flood Risk Assessment has been assessed in line with the NPPF. It is concluded that the development can be undertaken in a sustainable manner, whilst also reducing the flood risk to existing properties in the downstream catchment.
 - The Application Site is located within 'Flood Zone 1', meaning it is not at risk of flooding from fluvial sources in up to the 1 in 1,000 year return period flood.
 - The Environment Agency's flood maps show surface water flooding inside the southern boundary of the Site. The 1 in 1,000 year flood extent is taken as a proxy for the design event of 1 in 100 year + climate change.

C	27.03.2026	UPDATED SITE BOUNDARY	FC	JRo	DCH	PROJECT: WHITE STREET, WEST LAVINGTON		
B	24.03.2026	UPDATED LANDSCAPING AND SITE LAYOUTS. HIGHWAY AMENDED TO SUIT	IL	JRo	DCH			
A	18.02.2026	INITIAL ISSUE	IL	JRo	DCH			
REV	DATE	DESCRIPTION	BY	CHK	APD	TITLE: PRELIMINARY DRAINAGE LAYOUT		
CLIENT:  C.G.FRY & SON						PROJECT No: 1610	DRAWING No: 02-PDL-1001	REV: C
DRAWING STATUS: PLANNING APPLICATION								
SCALE @ A1: metres								

AWP [Exeter] LLP, Ada House, Pynes Hill, Exeter, EX2 5TU
Tel: 01392 409007 Web: www.awpexeter.com



Appendix K Causeway Flow Results

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.823	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1.001	0.048	5.00	88.805	1200	400334.209	153281.767	1.555
Perm Pave 1	0.025	5.00	88.050		400329.440	153300.555	0.250
S1.002	0.083	5.00	88.530	1200	400345.864	153287.373	1.425
Perm Pave 2	0.033	5.00	87.900		400360.000	153315.553	0.250
S1.003	0.066	5.00	87.965	1200	400372.437	153300.331	1.425
Perm Pave 3	0.053	5.00	87.550		400390.742	153327.017	0.250
S1.004	0.092	5.00	87.590	1200	400392.742	153309.946	1.515
S1.005	0.049	5.00	87.290	1350	400406.895	153294.120	1.510
S2.001	0.097	5.00	88.600	1200	400361.787	153241.829	2.100
S2.002	0.085	5.00	87.620	1350	400400.294	153259.719	1.545
S1.006	0.080	5.00	86.990	1350	400422.353	153277.014	1.655
Perm Pave 4	0.074	5.00	86.750		400425.229	153260.181	0.250
S1.007	0.012	5.00	86.695	1350	400436.153	153265.735	1.590
S1.008	0.103	5.00	85.690	1350	400464.520	153228.971	2.040
S3.001	0.010	5.00	84.915	1200	400503.353	153214.000	1.425
S3.002	0.023	5.00	85.010	1200	400496.786	153219.920	1.572
S1.009	0.014	5.00	85.355	1350	400478.704	153219.228	2.473
Basin			85.050	1200	400479.392	153208.212	2.050
Flow Control			85.050	1200	400504.570	153207.308	2.050
S1.010	0.000		84.265	1200	400518.753	153201.065	1.425
S1.011	0.000		83.320	1200	400552.746	153231.532	1.011
Existing MH			82.900	1200	400560.227	153231.002	0.635
Outfall			83.000	1200			

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.000	S1.001	S1.002	12.933	0.600	87.250	87.105	0.145	89.2	225	5.16	50.0
1.000	Perm Pave 1	S1.002	21.060	0.600	87.800	87.105	0.695	30.3	225	5.15	50.0
1.001	S1.002	S1.003	29.564	0.600	87.105	86.540	0.565	52.3	225	5.43	50.0
3.000	Perm Pave 2	S1.003	19.657	0.600	87.650	86.540	1.110	17.7	225	5.10	50.0
1.002	S1.003	S1.004	22.466	0.600	86.540	86.150	0.390	57.6	225	5.64	50.0
4.000	Perm Pave 3	S1.004	17.188	0.600	87.300	86.150	1.150	14.9	225	5.08	50.0
1.003	S1.004	S1.005	21.231	0.600	86.075	85.780	0.295	72.0	300	5.84	50.0
1.004	S1.005	S1.006	23.056	0.600	85.780	85.410	0.370	62.3	300	6.03	50.0
5.000	S2.001	S2.002	42.460	0.600	86.500	86.150	0.350	121.3	225	5.60	50.0
5.001	S2.002	S1.006	28.031	0.600	86.075	85.410	0.665	42.2	300	5.79	50.0
1.005	S1.006	S1.007	17.823	0.600	85.335	85.105	0.230	77.5	375	6.17	50.0
6.000	Perm Pave 4	S1.007	12.255	0.600	86.500	85.105	1.395	8.8	225	5.05	50.0
1.006	S1.007	S1.008	46.436	0.600	85.105	83.950	1.155	40.2	375	6.44	50.0
1.007	S1.008	S1.009	17.208	0.600	83.950	83.257	0.693	24.8	375	6.52	50.0
7.000	S3.001	S3.002	8.841	0.600	83.490	83.438	0.052	171.0	225	5.15	50.0
7.001	S3.002	S1.009	18.095	0.600	83.438	83.332	0.106	171.0	225	5.45	50.0
1.008	S1.009	Basin	11.037	0.600	83.182	83.000	0.182	60.6	375	9.37	50.0
1.009	Basin	Flow Control	25.194	0.600	83.000	83.000	0.000	0.0	225	9.79	50.0
1.010	Flow Control	S1.010	15.496	0.600	83.000	82.840	0.160	97.0	225	9.98	50.0
1.011	S1.010	S1.011	45.648	0.600	82.840	82.309	0.531	86.0	225	10.52	50.0
1.012	S1.011	Existing MH	7.500	0.600	82.309	82.265	0.044	171.0	225	10.65	50.0

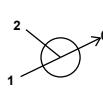
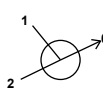
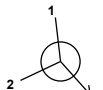
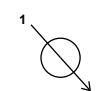
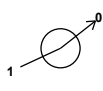
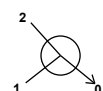
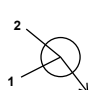
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
2.000	1.385	55.1	7.1	1.330	1.200	0.048	0.0
1.000	2.385	94.8	3.7	0.025	1.200	0.025	0.0
1.001	1.812	72.0	23.2	1.200	1.200	0.156	0.0
3.000	3.124	124.2	4.9	0.025	1.200	0.033	0.0
1.002	1.726	68.6	37.9	1.200	1.215	0.255	0.0
4.000	3.402	135.2	7.9	0.025	1.215	0.053	0.0
1.003	1.855	131.1	59.5	1.215	1.210	0.400	0.0
1.004	1.995	141.0	66.8	1.210	1.280	0.449	0.0
5.000	1.186	47.1	14.4	1.875	1.245	0.097	0.0
5.001	2.428	171.6	27.1	1.245	1.280	0.182	0.0
1.005	2.060	227.5	105.7	1.280	1.215	0.711	0.0
6.000	4.441	176.6	11.0	0.025	1.365	0.074	0.0
1.006	2.864	316.4	118.5	1.215	1.365	0.797	0.0
1.007	3.648	403.0	133.8	1.365	1.723	0.900	0.0
7.000	0.997	39.6	1.5	1.200	1.347	0.010	0.0
7.001	0.997	39.6	4.9	1.347	1.798	0.033	0.0
1.008	2.330	257.3	140.8	1.798	1.675	0.947	0.0
1.009	1.000	39.8	140.8	1.825	1.825	0.947	0.0
1.010	1.327	52.8	140.8	1.825	1.200	0.947	0.0
1.011	1.411	56.1	140.8	1.200	0.786	0.947	0.0
1.012	0.997	39.6	140.8	0.786	0.410	0.947	0.0

Pipeline Schedule

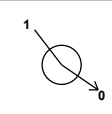
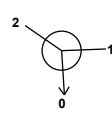
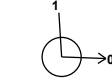
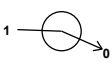
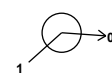
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
2.000	12.933	89.2	225	Pipe	88.805	87.250	1.330	88.530	87.105	1.200
1.000	21.060	30.3	225	Pipe	88.050	87.800	0.025	88.530	87.105	1.200
1.001	29.564	52.3	225	Pipe	88.530	87.105	1.200	87.965	86.540	1.200
3.000	19.657	17.7	225	Pipe	87.900	87.650	0.025	87.965	86.540	1.200
1.002	22.466	57.6	225	Pipe	87.965	86.540	1.200	87.590	86.150	1.215
4.000	17.188	14.9	225	Pipe	87.550	87.300	0.025	87.590	86.150	1.215
1.003	21.231	72.0	300	Pipe	87.590	86.075	1.215	87.290	85.780	1.210
1.004	23.056	62.3	300	Pipe	87.290	85.780	1.210	86.990	85.410	1.280
5.000	42.460	121.3	225	Pipe	88.600	86.500	1.875	87.620	86.150	1.245
5.001	28.031	42.2	300	Pipe	87.620	86.075	1.245	86.990	85.410	1.280
1.005	17.823	77.5	375	Pipe	86.990	85.335	1.280	86.695	85.105	1.215
6.000	12.255	8.8	225	Pipe	86.750	86.500	0.025	86.695	85.105	1.365
1.006	46.436	40.2	375	Pipe	86.695	85.105	1.215	85.690	83.950	1.365
1.007	17.208	24.8	375	Pipe	85.690	83.950	1.365	85.355	83.257	1.723
7.000	8.841	171.0	225	Pipe	84.915	83.490	1.200	85.010	83.438	1.347
7.001	18.095	171.0	225	Pipe	85.010	83.438	1.347	85.355	83.332	1.798
1.008	11.037	60.6	375	Pipe	85.355	83.182	1.798	85.050	83.000	1.675
1.009	25.194	0.0	225	Pipe	85.050	83.000	1.825	85.050	83.000	1.825
1.010	15.496	97.0	225	Pipe	85.050	83.000	1.825	84.265	82.840	1.200
1.011	45.648	86.0	225	Pipe	84.265	82.840	1.200	83.320	82.309	0.786
1.012	7.500	171.0	225	Pipe	83.320	82.309	0.786	82.900	82.265	0.410

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	S1.001	1200	Manhole	Adoptable	S1.002	1200	Manhole	Adoptable
1.000	Perm Pave 1		Manhole	Adoptable	S1.002	1200	Manhole	Adoptable
1.001	S1.002	1200	Manhole	Adoptable	S1.003	1200	Manhole	Adoptable
3.000	Perm Pave 2		Manhole	Adoptable	S1.003	1200	Manhole	Adoptable
1.002	S1.003	1200	Manhole	Adoptable	S1.004	1200	Manhole	Adoptable
4.000	Perm Pave 3		Manhole	Adoptable	S1.004	1200	Manhole	Adoptable
1.003	S1.004	1200	Manhole	Adoptable	S1.005	1350	Manhole	Adoptable
1.004	S1.005	1350	Manhole	Adoptable	S1.006	1350	Manhole	Adoptable
5.000	S2.001	1200	Manhole	Adoptable	S2.002	1350	Manhole	Adoptable
5.001	S2.002	1350	Manhole	Adoptable	S1.006	1350	Manhole	Adoptable
1.005	S1.006	1350	Manhole	Adoptable	S1.007	1350	Manhole	Adoptable
6.000	Perm Pave 4		Manhole	Adoptable	S1.007	1350	Manhole	Adoptable
1.006	S1.007	1350	Manhole	Adoptable	S1.008	1350	Manhole	Adoptable
1.007	S1.008	1350	Manhole	Adoptable	S1.009	1350	Manhole	Adoptable
7.000	S3.001	1200	Manhole	Adoptable	S3.002	1200	Manhole	Adoptable
7.001	S3.002	1200	Manhole	Adoptable	S1.009	1350	Manhole	Adoptable
1.008	S1.009	1350	Manhole	Adoptable	Basin	1200	Manhole	Adoptable
1.009	Basin	1200	Manhole	Adoptable	Flow Control	1200	Manhole	Adoptable
1.010	Flow Control	1200	Manhole	Adoptable	S1.010	1200	Manhole	Adoptable
1.011	S1.010	1200	Manhole	Adoptable	S1.011	1200	Manhole	Adoptable
1.012	S1.011	1200	Manhole	Adoptable	Existing MH	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1.001	400334.209	153281.767	88.805	1.555	1200		0	2.000	87.250	225
Perm Pave 1	400329.440	153300.555	88.050	0.250			0	1.000	87.800	225
S1.002	400345.864	153287.373	88.530	1.425	1200		1 2	2.000 1.000	87.105 87.105	225 225
Perm Pave 2	400360.000	153315.553	87.900	0.250			0	1.001	87.105	225
S1.003	400372.437	153300.331	87.965	1.425	1200		1 2	3.000 1.001	86.540 86.540	225 225
Perm Pave 3	400390.742	153327.017	87.550	0.250			0	1.002	86.540	225
S1.004	400392.742	153309.946	87.590	1.515	1200		1 2	4.000 1.002	86.150 86.150	225 225
S1.005	400406.895	153294.120	87.290	1.510	1350		0	1.003	86.075	300
S2.001	400361.787	153241.829	88.600	2.100	1200		1	1.003	85.780	300
S2.002	400400.294	153259.719	87.620	1.545	1350		0	1.004	85.780	300
S1.006	400422.353	153277.014	86.990	1.655	1350		1 2	5.000 5.000	86.500 86.150	225 225
Perm Pave 4	400425.229	153260.181	86.750	0.250			0	5.001	86.075	300
S1.007	400436.153	153265.735	86.695	1.590	1350		1 2	5.001 1.004	85.410 85.410	300 300
							0	1.005	85.335	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1.008	400464.520	153228.971	85.690	2.040	1350		1 1.006	83.950	375
							0 1.007	83.950	375
S3.001	400503.353	153214.000	84.915	1.425	1200		0 7.000	83.490	225
S3.002	400496.786	153219.920	85.010	1.572	1200		1 7.000	83.438	225
							0 7.001	83.438	225
S1.009	400478.704	153219.228	85.355	2.473	1350		1 7.001	83.332	225
							2 1.007	83.257	375
							0 1.008	83.182	375
Basin	400479.392	153208.212	85.050	2.050	1200		1 1.008	83.000	375
							0 1.009	83.000	225
Flow Control	400504.570	153207.308	85.050	2.050	1200		1 1.009	83.000	225
							0 1.010	83.000	225
S1.010	400518.753	153201.065	84.265	1.425	1200		1 1.010	82.840	225
							0 1.011	82.840	225
S1.011	400552.746	153231.532	83.320	1.011	1200		1 1.011	82.309	225
							0 1.012	82.309	225
Existing MH	400560.227	153231.002	82.900	0.635	1200		1 1.012	82.265	225
Outfall			83.000		1200				

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	2 year (l/s)	1.6
Rainfall Events	Singular	Drain Down Time (mins)	1440	30 year (l/s)	3.5
Summer CV	0.823	Additional Storage (m³/ha)	0.0	100 year (l/s)	4.3
Winter CV	0.823	Starting Level (m)		Check Discharge Volume	✓
Analysis Speed	Detailed	Check Discharge Rate(s)	✓	100 year 360 minute (m³)	

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	40	0	0
30	40	0	0
100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.98
Greenfield Method	FEH	Growth Factor 100 year	2.42
Positively Drained Area (ha)	1.795	Betterment (%)	30
SAAR (mm)	733	QMed	2.4
Host	1	QBar	2.5
BFIHost	0.742	Q 2 year (l/s)	1.6
Region	8	Q 30 year (l/s)	3.5
QBar/QMed conversion factor	1.075	Q 100 year (l/s)	4.3
Growth Factor 2 year	0.88		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)	1.795	Storm Duration (mins)	360
Soil Index	1	Betterment (%)	30
SPR	0.10	PR	
CWI		Runoff Volume (m³)	

Node Flow Control Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	83.000	Product Number	CTL-SHE-0064-1600-0700-1600
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	1.6	Min Node Diameter (mm)	1200

Node Flow Control Online Orifice Control

Flap Valve	x	Design Depth (m)	0.782	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.7		
Invert Level (m)	83.718	Diameter (m)	0.031		

Node Perm Pave 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	87.800	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.200
Safety Factor	2.0	Width (m)	23.500	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node Perm Pave 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	87.650	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.200
Safety Factor	2.0	Width (m)	28.900	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node Perm Pave 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	87.300	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.200
Safety Factor	2.0	Width (m)	24.220	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Perm Pave 4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	86.500	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.200
Safety Factor	2.0	Width (m)	33.375	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.01328	Safety Factor	5.0	Invert Level (m)	83.000
Side Inf Coefficient (m/hr)	0.01328	Porosity	1.00	Time to half empty (mins)	1080

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	306.0	306.0	0.750	415.0	415.0	1.500	795.0	795.0
0.250	340.0	340.0	1.000	514.0	514.0	1.750	881.0	881.0
0.500	377.0	377.0	1.250	582.0	582.0	2.000	1065.0	1065.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1.001	10	87.291	0.041	4.0	0.0460	0.0000	OK
30 minute summer	Perm Pave 1	21	87.817	0.017	1.8	0.4861	0.0000	OK
15 minute summer	S1.002	11	87.165	0.060	11.4	0.0677	0.0000	OK
30 minute summer	Perm Pave 2	21	87.667	0.017	2.4	0.6298	0.0000	OK
15 minute summer	S1.003	11	86.621	0.081	17.6	0.0911	0.0000	OK
15 minute summer	Perm Pave 3	13	87.322	0.022	4.4	0.8645	0.0000	OK
15 minute summer	S1.004	11	86.171	0.096	27.1	0.1084	0.0000	OK
15 minute summer	S1.005	11	85.880	0.100	31.0	0.1425	0.0000	OK

15 minute summer	S2.001	11	86.562	0.062	8.0	0.0704	0.0000	OK
15 minute summer	S2.002	11	86.135	0.060	14.6	0.0860	0.0000	OK

15 minute summer	S1.006	11	85.466	0.131	51.7	0.1874	0.0000	OK
30 minute summer	Perm Pave 4	20	86.522	0.022	5.5	1.2421	0.0000	OK
15 minute summer	S1.007	11	85.214	0.109	55.7	0.1558	0.0000	OK
15 minute summer	S1.008	12	84.056	0.106	63.9	0.1515	0.0000	OK

15 minute winter	S3.001	9	83.554	0.064	1.7	0.0722	0.0000	OK
15 minute summer	S3.002	9	83.542	0.104	3.5	0.1181	0.0000	OK

15 minute summer	S1.009	9	83.525	0.343	66.2	0.4915	0.0000	OK
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960 minute summer	Basin	735	83.376	0.376	15.8	125.2157	0.0000	SURCHARGED
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960 minute summer	Flow Control	720	83.376	0.376	2.5	0.4251	0.0000	SURCHARGED
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Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1.001	2.000	S1.002	4.0	0.602	0.072	0.0859	
30 minute summer	Perm Pave 1	1.000	S1.002	1.0	0.423	0.011	0.0955	
15 minute summer	S1.002	1.001	S1.003	11.3	1.082	0.156	0.3135	
30 minute summer	Perm Pave 2	3.000	S1.003	1.4	0.369	0.011	0.1294	
15 minute summer	S1.003	1.002	S1.004	17.6	1.420	0.257	0.2787	
15 minute summer	Perm Pave 3	4.000	S1.004	2.6	1.324	0.019	0.0334	
15 minute summer	S1.004	1.003	S1.005	27.1	1.362	0.207	0.4223	
15 minute summer	S1.005	1.004	S1.006	30.8	1.565	0.218	0.4540	
15 minute summer	S2.001	5.000	S2.002	7.8	0.878	0.165	0.3753	
15 minute summer	S2.002	5.001	S1.006	14.6	1.478	0.085	0.2763	
15 minute summer	S1.006	1.005	S1.007	51.7	1.703	0.227	0.5414	
30 minute summer	Perm Pave 4	6.000	S1.007	3.6	0.529	0.020	0.1214	
15 minute summer	S1.007	1.006	S1.008	55.8	2.154	0.176	1.2027	
15 minute summer	S1.008	1.007	S1.009	62.1	2.561	0.154	0.8831	
15 minute summer	S3.001	7.000	S3.002	-2.4	0.284	-0.060	0.0997	
15 minute summer	S3.002	7.001	S1.009	5.9	0.590	0.150	0.4919	
15 minute summer	S1.009	1.008	Basin	79.8	2.568	0.310	0.5884	
360 minute winter	Basin	1.009	Flow Control	2.9	0.084	0.074	1.0020	
960 minute summer	Basin	Infiltration		0.3				
360 minute summer	Flow Control	1.010	S1.010	1.6	0.606	0.030	0.0410	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	S1.010	304	82.866	0.026	1.6	0.0295	0.0000	OK
180 minute summer	S1.011	304	82.341	0.032	1.6	0.0359	0.0000	OK
180 minute summer	Existing MH	304	82.296	0.031	1.6	0.0000	0.0000	OK
Outfall								
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	S1.010	1.011	S1.011	1.6	0.540	0.029	0.1358	
180 minute summer	S1.011	1.012	Existing MH	1.6	0.483	0.040	0.0249	82.6

Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 99.81%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1.001	10	87.312	0.062	8.7	0.0697	0.0000	OK
30 minute summer	Perm Pave 1	21	87.825	0.025	4.0	1.0308	0.0000	OK
15 minute summer	S1.002	11	87.196	0.091	25.2	0.1024	0.0000	OK
30 minute summer	Perm Pave 2	21	87.675	0.025	5.3	1.3152	0.0000	OK
15 minute summer	S1.003	11	86.669	0.129	39.0	0.1461	0.0000	OK
15 minute summer	Perm Pave 3	13	87.332	0.032	9.6	1.8317	0.0000	OK
15 minute summer	S1.004	11	86.228	0.153	60.2	0.1728	0.0000	OK
15 minute summer	S1.005	11	85.939	0.159	68.6	0.2271	0.0000	OK

15 minute summer	S2.001	10	86.595	0.095	17.5	0.1078	0.0000	OK
15 minute summer	S2.002	10	86.162	0.087	32.3	0.1247	0.0000	OK

15 minute summer	S1.006	11	85.544	0.209	114.2	0.2993	0.0000	OK
15 minute summer	Perm Pave 4	13	86.533	0.033	13.4	2.6505	0.0000	OK
15 minute summer	S1.007	11	85.273	0.168	123.5	0.2408	0.0000	OK
15 minute summer	S1.008	11	84.115	0.165	141.2	0.2367	0.0000	OK

960 minute winter	S3.001	930	83.722	0.232	0.2	0.2622	0.0000	SURCHARGED
960 minute winter	S3.002	930	83.722	0.284	0.6	0.3210	0.0000	SURCHARGED

960 minute winter	S1.009	930	83.722	0.540	18.3	0.7725	0.0000	SURCHARGED
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960 minute winter	Basin	930	83.722	0.722	35.5	258.5518	0.0000	SURCHARGED
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960 minute winter	Flow Control	930	83.722	0.722	3.1	0.8160	0.0000	SURCHARGED
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Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1.001	2.000	S1.002	8.6	0.733	0.157	0.1534	
30 minute summer	Perm Pave 1	1.000	S1.002	2.4	0.556	0.025	0.1694	
15 minute summer	S1.002	1.001	S1.003	24.8	1.308	0.345	0.5692	
30 minute summer	Perm Pave 2	3.000	S1.003	3.3	0.467	0.026	0.2367	
15 minute summer	S1.003	1.002	S1.004	39.1	1.726	0.569	0.5083	
15 minute summer	Perm Pave 3	4.000	S1.004	5.8	1.642	0.043	0.1315	
15 minute summer	S1.004	1.003	S1.005	60.1	1.629	0.459	0.7840	
15 minute summer	S1.005	1.004	S1.006	68.5	1.908	0.486	0.8277	
15 minute summer	S2.001	5.000	S2.002	17.1	1.087	0.362	0.6667	
15 minute summer	S2.002	5.001	S1.006	32.0	1.563	0.187	0.6643	
15 minute summer	S1.006	1.005	S1.007	114.3	2.059	0.503	0.9896	
15 minute summer	Perm Pave 4	6.000	S1.007	8.0	0.736	0.045	0.2151	
15 minute summer	S1.007	1.006	S1.008	123.4	2.606	0.390	2.1990	
15 minute summer	S1.008	1.007	S1.009	140.4	2.966	0.348	1.0783	
15 minute winter	S3.001	7.000	S3.002	-5.7	0.365	-0.145	0.3058	
15 minute winter	S3.002	7.001	S1.009	13.9	0.582	0.351	0.7072	
15 minute summer	S1.009	1.008	Basin	150.6	2.966	0.585	0.6186	
15 minute summer	Basin	1.009	Flow Control	5.4	0.332	0.135	0.9829	
960 minute winter	Basin	Infiltration		0.3				
960 minute winter	Flow Control	1.010	S1.010	1.6	0.606	0.030	0.0411	

Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 99.81%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S1.010	930	82.866	0.026	1.6	0.0296	0.0000	OK
960 minute winter	S1.011	930	82.341	0.032	1.6	0.0359	0.0000	OK
960 minute winter	Existing MH	930	82.296	0.031	1.6	0.0000	0.0000	OK

Outfall

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	S1.010	1.011	S1.011	1.6	0.541	0.029	0.1361	
960 minute winter	S1.011	1.012	Existing MH	1.6	0.483	0.041	0.0249	195.5

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1.001	12	87.910	0.660	23.1	0.7469	0.0000	SURCHARGED
15 minute summer	Perm Pave 1	13	87.865	0.065	20.5	3.8513	0.0000	OK
15 minute summer	S1.002	12	87.887	0.782	63.3	0.8844	0.0000	SURCHARGED
30 minute summer	Perm Pave 2	20	87.695	0.045	14.4	3.0201	0.0000	OK
15 minute summer	S1.003	12	87.667	1.127	89.8	1.2745	0.0000	FLOOD RISK
30 minute summer	Perm Pave 3	20	87.353	0.053	23.1	4.7552	0.0000	OK
15 minute summer	S1.004	12	87.033	0.958	135.7	1.0833	0.0000	SURCHARGED
15 minute summer	S1.005	12	86.644	0.864	150.2	1.2368	0.0000	SURCHARGED
15 minute summer	S2.001	11	86.686	0.186	46.6	0.2105	0.0000	OK
15 minute summer	S2.002	12	86.249	0.174	85.7	0.2483	0.0000	OK
15 minute summer	S1.006	12	86.101	0.766	263.0	1.0960	0.0000	SURCHARGED
30 minute summer	Perm Pave 4	20	86.554	0.054	32.2	6.8365	0.0000	OK
15 minute summer	S1.007	12	85.670	0.565	281.4	0.8089	0.0000	SURCHARGED
15 minute summer	S1.008	12	84.560	0.610	320.6	0.8730	0.0000	SURCHARGED
960 minute winter	S3.001	930	84.240	0.750	0.3	0.8484	0.0000	SURCHARGED
960 minute winter	S3.002	930	84.240	0.802	0.9	0.9072	0.0000	SURCHARGED
960 minute winter	S1.009	930	84.240	1.058	29.1	1.5142	0.0000	SURCHARGED
960 minute winter	Basin	930	84.240	1.240	36.3	518.1533	0.0000	SURCHARGED
960 minute winter	Flow Control	930	84.239	1.239	3.5	1.4010	0.0000	SURCHARGED

Long Term
Storage
Requirement
Met

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1.001	2.000	S1.002	21.8	0.864	0.396	0.5144	
15 minute summer	Perm Pave 1	1.000	S1.002	13.1	0.910	0.138	0.5178	
15 minute summer	S1.002	1.001	S1.003	55.7	1.495	0.773	1.1758	
30 minute summer	Perm Pave 2	3.000	S1.003	10.9	0.589	0.087	0.4459	
15 minute summer	S1.003	1.002	S1.004	86.0	2.163	1.253	0.8935	
30 minute summer	Perm Pave 3	4.000	S1.004	16.4	1.799	0.121	0.4025	
30 minute summer	S1.004	1.003	S1.005	132.6	1.883	1.011	1.4951	
30 minute summer	S1.005	1.004	S1.006	150.1	2.155	1.064	1.6236	
15 minute summer	S2.001	5.000	S2.002	45.5	1.333	0.965	1.4488	
15 minute summer	S2.002	5.001	S1.006	84.5	1.514	0.492	1.5788	
15 minute summer	S1.006	1.005	S1.007	257.0	2.380	1.130	1.9658	
30 minute summer	Perm Pave 4	6.000	S1.007	22.6	0.879	0.128	0.2886	
15 minute summer	S1.007	1.006	S1.008	281.7	2.895	0.890	5.1218	
15 minute summer	S1.008	1.007	S1.009	321.3	2.913	0.797	1.8980	
15 minute winter	S3.001	7.000	S3.002	-12.6	-0.500	-0.317	0.3516	
15 minute winter	S3.002	7.001	S1.009	-19.7	-0.501	-0.496	0.7197	
15 minute summer	S1.009	1.008	Basin	340.3	3.500	1.322	1.2173	
15 minute winter	Basin	1.009	Flow Control	7.2	0.406	0.181	1.0020	
960 minute winter	Basin	Infiltration		0.4				
960 minute winter	Flow Control	1.010	S1.010	3.5	0.759	0.066	0.0709	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.86%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S1.010	930	82.878	0.038	3.5	0.0427	0.0000	OK
960 minute winter	S1.011	930	82.356	0.047	3.5	0.0530	0.0000	OK
960 minute winter	Existing MH	930	82.310	0.045	3.5	0.0000	0.0000	OK

Outfall

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	S1.010	1.011	S1.011	3.5	0.672	0.062	0.2365	
960 minute winter	S1.011	1.012	Existing MH	3.5	0.601	0.088	0.0433	359.2

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1.001	10	88.152	0.902	30.3	1.0197	0.0000	SURCHARGED
30 minute summer	Perm Pave 1	22	87.962	0.162	46.8	10.7268	0.0000	OK
15 minute summer	S1.002	10	88.095	0.990	80.0	1.1195	0.0000	SURCHARGED
15 minute summer	Perm Pave 2	13	87.765	0.115	41.4	9.1221	0.0000	OK
15 minute summer	S1.003	11	87.824	1.284	95.1	1.4518	0.0000	FLOOD RISK
15 minute summer	Perm Pave 3	13	87.391	0.091	46.0	10.3300	0.0000	OK
15 minute summer	S1.004	11	87.422	1.347	144.3	1.5230	0.0000	FLOOD RISK
15 minute summer	S1.005	11	87.184	1.404	159.4	2.0087	0.0000	FLOOD RISK
15 minute summer	S2.001	11	87.594	1.094	61.3	1.2375	0.0000	SURCHARGED
15 minute summer	S2.002	11	87.068	0.993	104.6	1.4217	0.0000	SURCHARGED
15 minute summer	S1.006	11	86.772	1.437	286.6	2.0567	0.0000	FLOOD RISK
30 minute summer	Perm Pave 4	20	86.564	0.064	42.8	8.7833	0.0000	OK
15 minute summer	S1.007	12	86.279	1.174	310.1	1.6796	0.0000	SURCHARGED
15 minute summer	S1.008	11	84.962	1.012	367.2	1.4483	0.0000	SURCHARGED
960 minute winter	S3.001	930	84.513	1.023	0.4	1.1573	0.0000	SURCHARGED
960 minute winter	S3.002	930	84.513	1.075	1.2	1.2161	0.0000	SURCHARGED
960 minute winter	S1.009	930	84.513	1.331	38.6	1.9050	0.0000	SURCHARGED
960 minute winter	Basin	930	84.513	1.513	38.4	706.8314	0.0000	SURCHARGED
960 minute winter	Flow Control	930	84.511	1.511	4.0	1.7093	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	S1.001	2.000	S1.002	30.0	0.894	0.544	0.5144	
15 minute summer	Perm Pave 1	1.000	S1.002	-37.1	1.320	-0.391	0.7339	
30 minute winter	S1.002	1.001	S1.003	59.9	1.507	0.832	1.1758	
15 minute summer	Perm Pave 2	3.000	S1.003	31.8	1.028	0.256	0.5918	
15 minute winter	S1.003	1.002	S1.004	95.3	2.396	1.388	0.8935	
15 minute summer	Perm Pave 3	4.000	S1.004	34.0	1.940	0.252	0.4711	
15 minute summer	S1.004	1.003	S1.005	144.7	2.054	1.103	1.4951	
15 minute summer	S1.005	1.004	S1.006	161.2	2.289	1.143	1.6236	
15 minute summer	S2.001	5.000	S2.002	53.4	1.343	1.133	1.6887	
15 minute summer	S2.002	5.001	S1.006	100.3	1.538	0.584	1.9739	
15 minute summer	S1.006	1.005	S1.007	275.4	2.497	1.211	1.9658	
30 minute summer	Perm Pave 4	6.000	S1.007	31.3	1.066	0.177	0.3004	
15 minute summer	S1.007	1.006	S1.008	309.9	2.810	0.980	5.1218	
15 minute summer	S1.008	1.007	S1.009	365.6	3.315	0.907	1.8980	
15 minute winter	S3.001	7.000	S3.002	9.2	0.248	0.231	0.3516	
30 minute summer	S3.002	7.001	S1.009	21.5	0.719	0.543	0.7197	
15 minute summer	S1.009	1.008	Basin	391.4	3.776	1.521	1.2173	
15 minute winter	Basin	1.009	Flow Control	10.3	0.398	0.258	1.0020	
960 minute winter	Basin	Infiltration		0.6				
960 minute winter	Flow Control	1.010	S1.010	4.0	0.791	0.076	0.0786	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	S1.010	930	82.881	0.041	4.0	0.0459	0.0000	OK
960 minute winter	S1.011	930	82.360	0.051	4.0	0.0572	0.0000	OK
960 minute winter	Existing MH	930	82.313	0.048	4.0	0.0000	0.0000	OK

Outfall

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
960 minute winter	S1.010	1.011	S1.011	4.0	0.700	0.072	0.2627	
960 minute winter	S1.011	1.012	Existing MH	4.0	0.626	0.101	0.0481	445.3



Appendix L CV, Interception, Long-Term Storage Calculations

Volumetric Correction Factor (Cv) Calculation

Project No.	1610	
Project Title	White Street, West Lavington	
Client	C G Fry & Son Ltd.	
Calcs by	R Leever	
Reviewed by	B Fenton	
Date	16.10.2025	
Revision	A	

UKWIR UK runoff model based on equation 24.8 from CIRIA C753 - The SuDS Manual (2015);

$$PR = \sum_{n=1}^N \left[IF_n \times PIMP_n + (1 - IF_n) \times PIMP_n \times \frac{PI_{pv}^\beta}{PF_{pv}} \right] + \left[(1 - PIMP_{TOTAL}) \times \frac{(NAPI_s + PI_s)^{Cr} \times SPR}{PF_s} \right]$$

A_{total}	Area positively drained to the network	1.800	ha
A_{imp}	Impermeable area drained to the network	1.02	ha (inc. urban creep)
SPR	Standard Percentage Runoff	0.10	(Based on BFIHost 19)

Where:

Impermeable	IF	Average Impermeability Factor	0.8	(0.8 CIRIA753)
	PIMP	Drained area that is impermeable	56.9	% $PIMP = A_{imp} / A_{total}$
	PI_{pv}	Precipitation Index	0.0	(0 for design storms)
	β	Power coefficient	0.5	(paved surface 0.5)
	PF_{pv}	Soil Store Depth	10.0	mm (paved surface 10mm)
Permeable	NAPI_s	Antecedent precipitation index	10.0	(design rainfall CIRIA753)
	PI_s	Precipitation index	0.8	(pervious surface 0.8)
	Cr	Power coefficient	1.0	(pervious surface 1.0)
	SPR	Standard Percentage Runoff	0.100	(Ref. to WRAP map)
	PF_s	Soil Store Depth	35.0	mm (pervious surface 35mm)

IF	PIMP	IF	PIMP	PI _{pv}	β	PF _{pv}	PIMP	NAPI _s	PI _s	Cr	SPR	PF _s
PR =	0.8 x	0.57 +	(1 - 0.8) x	0.57 x	(0.0 ^ 0.5 / 10)	)]	+	[(1 - 0.57) x	(10 + 0.8) ^	1.0 x	0.1 /	35.0]

	Percentage Runoff Impermeable		Percentage Runoff Permeable
PR =	80.0%	x (A _{imp} / A _{total})	+ 3.1% x (1 - A _{imp} / A _{total})

PR Average Percentage Runoff across the whole Positively Drained Area **46.8%**

$$Cv = \frac{PR}{PIMP} \rightarrow Cv \times A_{imp} = PR \times A_{total}$$

Eq. 7.21 HR Wallingford Procedure Vol 1

Cv Volumetric correction factor to include permeable areas within the model **0.823**

NOTE: The Cv value should be applied for both summer and winter design storms

Interception Calculation

Project No.	1610
Project Title	White Street, West Lavington
Client	C G Fry & Son Ltd.
Calcs by	JDLC
Reviewed by	JDLC
Date	15/10/2025
Revision	A



Interception Delivery Equation based on Box 24.3 from CIRIA C753 - The SuDS Manual (2015);

$$A_{imp} (PR \times i) = A_{veg} (C \times f + ET) \frac{i \times 365}{SAAR \times r}$$

Interception Volume to loss per day days between rainfall events

Imp area drained to the network 10,200 m² (inc. urban creep)

Imp area already intercepted 0 m² (e.g., perm paving)

A_{imp} Imp area requiring interception 10,200 m²

Where;

		Summer	Winter	
Runoff	PR	Percentage Runoff during frequent event	50%	(CIRIA753)
	i	Interception Rainfall Depth	5 mm	
Total Loss	SAAR	Standard Average Annual Runoff	733 mm	
	r	Retained Events	80% 50%	(CIRIA753)
	f	Infiltration Rate	1.00E-07 m/s	(10 ⁻⁷ m/s if unlined)
	C	Infiltration Conversion from m/s to mm/day	8.64E+07	(infiltr. to mm/day)
	ET	Evapotranspiration Rate	3 0 mm/day	(CIRIA753)

Summer

A_{imp}	PR	i	A_{veg}	C	f	ET	i	SAAR	r
10200	(50% × 5)	=	A_{veg}	(8.64E+07 × 1.00E-07 + 3)	×	(5 × 365)	/	(733 × 80%)	
Runoff to retain Loss per day Eff. days (on avg) between events									
A_{imp}	2.5 mm/event	=	A_{veg}	11.6 mm/day	×	3.11 days/event			

Winter

A_{imp}	PR	i	A_{veg}	C	f	ET	i	SAAR	r
10200	(50% × 5)	=	A_{veg}	(8.64E+07 × 1.00E-07 + 0)	×	(5 × 365)	/	(733 × 50%)	
Runoff to retain Loss per day Eff. days (on avg) between events									
A_{imp}	2.5 mm/event	=	A_{veg}	8.6 mm/day	×	4.98 days/event			

		Summer	Winter	
$A_{veg,req}$	Interception Factor	14.5	17.2	m ²
A_{veg}	Interception Area Required	703.9	592.7	m ²
V_{int}	Interception Area Provided	704.0		(flat vegetated area)
n_{soil}	Interception Volume to Retain	25.5		m ³
d_{soil}	Porosity of Interception Storage	20%		(20% for soil CIRIA753)
	Interception Storage Depth Required	181		mm (storage below outlet)

Long Term Storage (LTS) Volume Calculation

Project No.	1610
Project Title	White Street, West Lavington
Client	CG Fry
Calcs by	BG
Reviewed by	JDLC
Date	17.05.2025
Revision	A



LTS calculation method based on equation 24.10 from CIRIA C753 - The SuDS Manual (2015);

$$Vol_{xs} = RD \times A \times 10 [PIMP/100 \times (\alpha \times Cv) + (1-PIMP/100) \times (\beta \times SPR) - SPR]$$

Where: Vol_{xs} Extra runoff volume from a dev. site compared to the greenfield equivalent during the 100 yr 6 hr storm

RD	Rainfall Depth	62.2	mm (for 100 year 6 hour storm)
A	Site Area	1.800	ha (Exc. large undeveloped areas)
	Impermeable Catchment	1.02	ha
PIMP	Percentage Impermeable	56.7	%
α	Proportion Impermeable to Network	1.0	
IF	Impermeability Factor	0.80	
	Permeable Catchment	0.78	ha
	Permeable Catchment to Network	0.62	ha
β	Proportion Perm. to Network	0.8	
SPR	Soil Proportion Runoff	0.10	(Ref. to WRAP map)

$Vol_{xs} =$	RD	A		PIMP	α	Cv		PIMP	β	SPR	SPR
	62	1.80	x 10 x (	57 / 100)	x (	1.00 x 0.80)	+ (	1 - 57 / 100)	x (	0.79 x 0.10)	- 0.10)

Volume_{xs} **434.43**

LTS Discharge Rate **3.60** (2 l/s/ha)

As above, assuming all permeable surfaces do not enter the drainage system

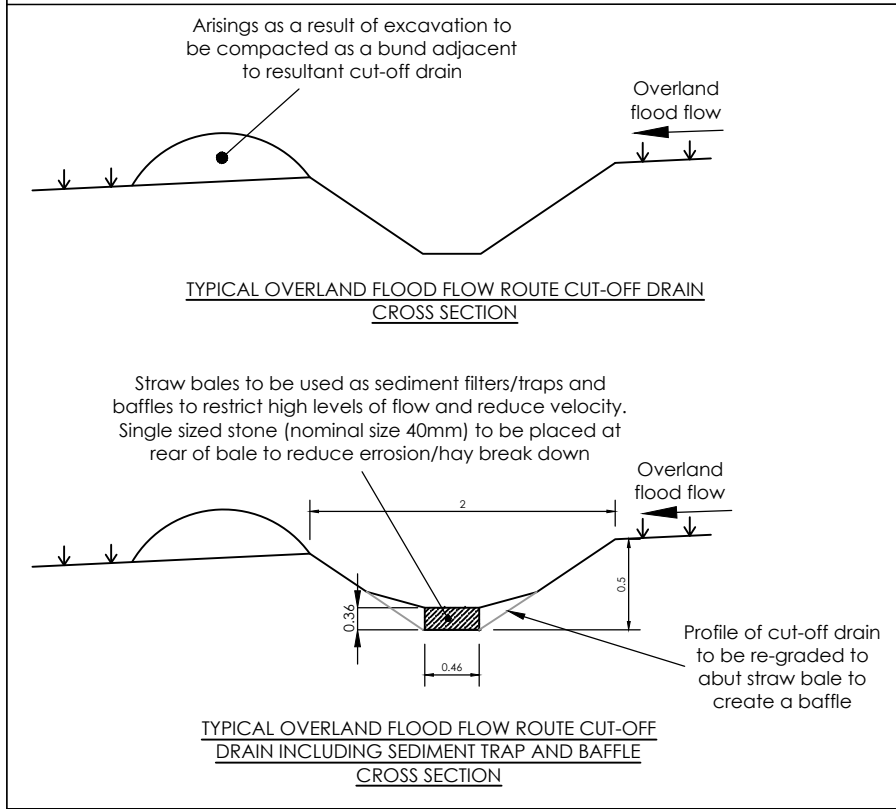
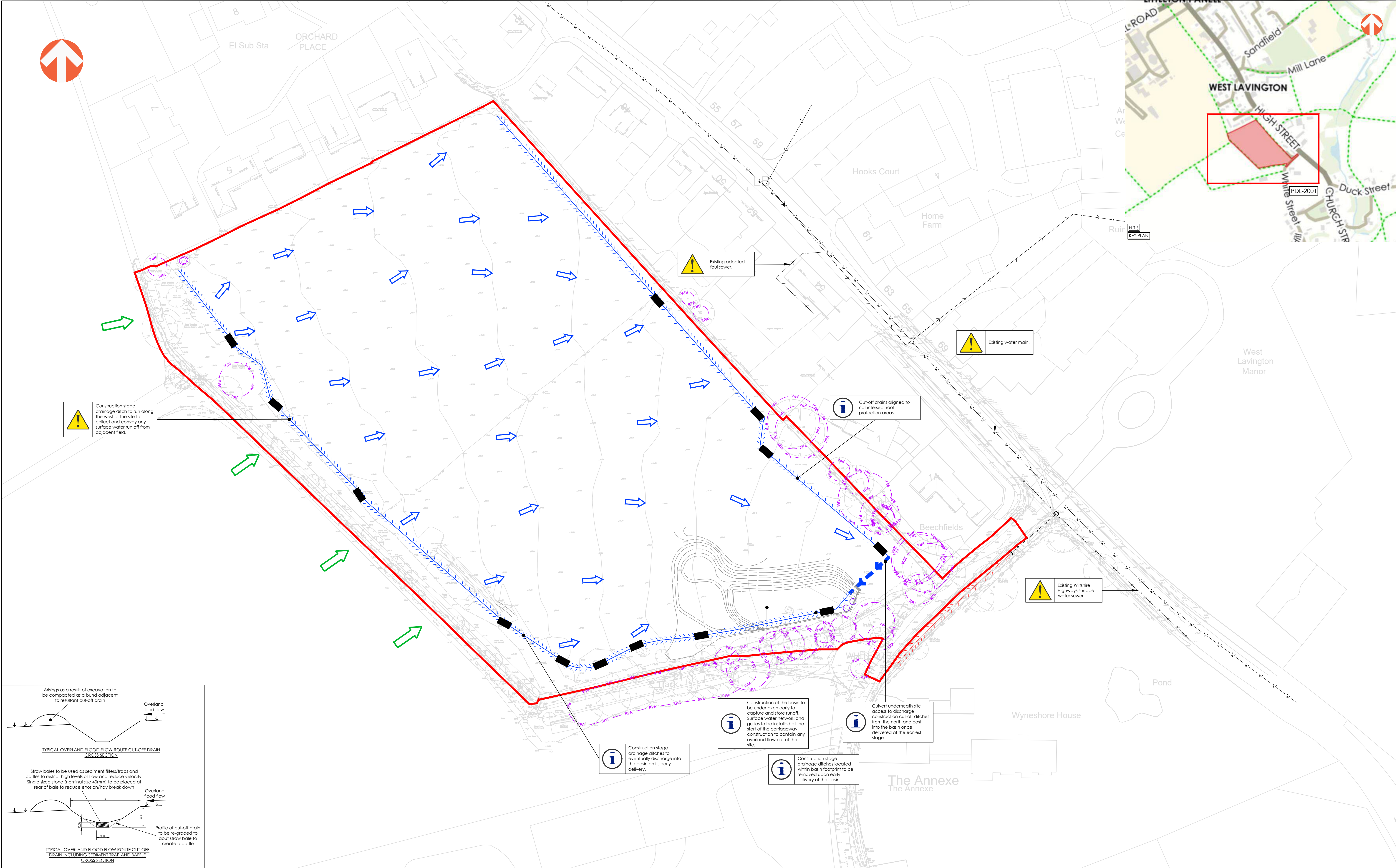
Vol_{xs} = 395.84

As above, assuming all permeable surfaces enter the drainage system

Vol_{xs} = 444.39



Appendix M Construction Stage Drainage Plan



KEY:	
SITE INFORMATION	
	Planning Application Boundary
	Overland Flood Flow Route
	Overland Flood Flow From Adjacent Field
	Existing Highway Ditch
	Proposed Cut-Off Drain (Straw Bales to be Placed At Regular Intervals As Shown)
	Proposed Culvert
	Straw Bale
	Root Protection Area
	Existing Adopted Surface Water Sewer
	Existing Water Main
	Existing Adopted Foul Water Sewer
	Existing Adopted Foul Water Manhole
	Existing Adopted Surface Water Manhole
	Existing Headwall

- NOTES:**
- Prior to the topsoil strip of the development site, all indicated cut-off ditches, straw bales, stone and/or any other measures indicated on this plan are required to be installed and operational to ensure no silt laden flows leave the development site.
 - Construction stage basin to be installed to capture and store runoff. Surface water network and gullies to be installed at the start of the carriageway construction to contain any overland flow out of the site.
 - As the development construction progresses it is the responsibility of the contractor to modify and amend the runoff protection measures as necessary to suit the build phasing to ensure no silt laden runoff leaves the development boundary.
 - As the permanent highways and sewers are constructed, the temporary ditches are to be removed to allow construction to continue. Any exceedance flow from construction work will then be directed into the newly installed sewer network.
 - To avoid silt laden flows throughout construction of the drainage system the contractor should take necessary precautions to prevent silts reaching the point of discharge. This will include temporary wrapping of gullies with a Terom geotextile membrane to prevent silts from entering the drainage system at source, along with silt traps and water quality control procedures to limit silts entering the conveyance ditch and basin.
 - Please see drainage plan 1610-02-PDL-1001 for details of the permanent drainage system.
 - Construction site compound location is to be confirmed after the planning process has been agreed.

PROJECT:		WHITE STREET, WEST LAVINGTON	
TITLE:		CONSTRUCTION PHASE DRAINAGE LAYOUT	
PROJECT No:	1610	DRAWING No:	02-PDL-2001
REV:	B	SCALE @ A1:	0 1:500 25 metres
CLIENT:		C.G.FRY & SON	
DRAWING STATUS:		PLANNING APPLICATION	



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Appendix N Drainage Maintenance Plan Report

White Street, West Lavington

C G Fry & Son LTD

Drainage Maintenance Plan



White Street, West Lavington

Drainage Maintenance Plan

Job Title	White Street, West Lavington
Project Number	1610
Date	24 March 2026
Revision	A
Client	C G Fry & Son Ltd
Prepared by	M Ayers
Checked by	J De La Croix
Authorised by	C Yalden
File Reference	P:\1610 White Street, West Lavington\C Documents\Reports\1610 White Street, West Lavington – Drainage Maintenance Plan

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1 Introduction

- 1.1 The function and performance of the proposed drainage system rely on the correct implementation of this Drainage Maintenance Plan. If this plan is not followed, the quality, performance and standard of protection offered by the drainage system(s) may deteriorate over time.
- 1.2 The approach and measures outlined by this Drainage Maintenance Plan must be understood by those responsible for maintenance. If any relevant party has concerns that the Drainage Maintenance Plan is not being followed appropriately, or that the plan requires adjustments to the proposed actions and/or their frequencies, it is recommended that they contact the respective party responsible for maintenance.

2 Adopted Drainage

- 2.1 The adopted site drainage has been designed and installed in accordance with Water Authority and/or Highway Authority guidelines and specifications.
- 2.2 This Water Authority adopts the drainage infrastructure under Section 104 of the Water Industry Act. The Highway Authority adopts the drainage infrastructure under S38 of the Highways Act.
- 2.3 Once adopted the Water Authority and Highway Authority maintain the drainage infrastructure in line with their own maintenance regimes.

3 Overview of Maintenance required for Sustainable Drainage Systems (SuDS)

- 3.1 It is important to ensure that thought is given to the long term maintenance of SuDS features during the feasibility and planning stages. By ensuring SuDS features are correctly monitored and maintained throughout their lifetime, the amount of deterioration in performance that could occur over time is prevented or limited. This ensures that the feature will continue to work at full capacity as required in the design.
- 3.2 The type of required maintenance is determined by many factors, including;
 - Type of SuDS scheme
 - The size of the contributing catchment relating to each SuDS component
 - Land-use associated with contributing catchment
 - Level of construction ongoing within the contributing catchment
 - Planting types
 - Habitat types that have been created
 - Amenity and visual requirements of the area
- 3.3 Maintenance regimes should be regularly assessed to make sure that the approach is still meeting the drainage, landscape and any other objectives.

- 3.4 In accordance with CIRIA C753 – 'The SuDS Manual', maintenance can be split into three main categories; Regular maintenance (including inspections and monitoring), Occasional maintenance and Remedial maintenance.
- 3.5 Regular maintenance covers basic tasks which are carried out on a predictable and frequent schedule. Such activities include inspections, vegetation management and litter/debris removal.
- 3.6 Occasional maintenance includes tasks which are likely to be required infrequently and cannot be predicted as easily as regular maintenance tasks. This covers tasks such as sediment removal.
- 3.7 Remedial maintenance covers tasks which are required to resolve faults within the system found during regular inspections. Although in good design the requirement of this type of maintenance is limited, faults still occur. These faults and the corresponding maintenance actions required are generally site specific and difficult to predict.
- 3.8 Detailed information for the maintenance required for the SuDS features applicable to this project can be found in the following sections of this document.

4 Private Drainage

4.1 The private drainage will be designed and installed in accordance with Part H of the Building Regulations. Once the drainage is approved by Building Control it is maintained by the respective Property Owner or appointed Management Company.

4.2 This private drainage would be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months, then six monthly
	Remove debris from gullies, manholes, headwalls and flow controls.	Every 6 months
	Remove debris from catchpits upstream of private attenuation/soakaways.	Every 6 months
	Inspect gullies, manholes, headwalls, flow controls, attenuation and soakaways.	Annually
	Jetting of pipes.	Every 5 years
	Internal inspection of pipes (CCTV).	Every 10 years
Occasional Maintenance	Repair/rehabilitate gullies, pipes, manholes, headwalls and flow controls.	As required
	Repair/rehabilitate private attenuation/soakaways.	As required

5 Swales

- 5.1 Swales are used to convey surface water drainage or intercept overland run-off from both urban and rural catchments.
- 5.2 Swales are designed in accordance with CIRIA guidelines and should be maintained by the respective appointed Management Company using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Litter and debris removal.	Monthly, or as required
	Grass cutting – to retain specified design height.	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect infiltration surfaces for ponding, compaction and silt accumulation. Record areas where water is ponding for > 48 hours.	Monthly or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 year, then half yearly
Occasional Maintenance	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	Annually, or if bare soil is exposed over 10% or more of the swale treatment area
	Repair erosion or other damage by re-turfing or reseedling.	As required

Maintenance Schedule	Required Action	Recommended Frequency
Remedial Actions	Re-level uneven surfaces and reinstate design levels.	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip.	As required
	Remove and dispose of oils or petrol residues using safe, standard practices.	As required

6 Pervious Pavements

- 6.1 Pervious Pavements must be specified to accord with the respective site conditions and must be installed in accordance with the manufacturer recommendations.
- 6.2 The operation and maintenance of pervious pavements should also be to the manufacturers recommendations. This is expected to be maintained by the respective appointed Management Company, generally in line with the following regime as per CIRIA C753 – ‘The SuDS Manual’;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Brushing and vacuuming.	Once a year, after autumn leaf fall or reduced frequency as required, based on site-specific observations of clogging or manufacturers recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this is most likely to collect sediment.
Occasional Maintenance	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required – once per year on less frequently used pavements
	Stabilise and mow contributing and adjacent areas.	As required
Remedial Actions	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	As required
	Remediate any landscaping which, through vegetation maintenance or soil	As required

Maintenance Schedule	Required Action	Recommended Frequency
	slip, has been raised to within 50 mm of the level of the paving.	
	Rehabilitation of surface and upper sub-structure by remedial sweeping.	Very 10 – 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial Inspection.	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth/. If required take remedial action.	3-monthly, 48 h after large storms
	Inspect Silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Monitor inspection chambers.	Annually

7 Detention Basins

- 7.1 Detention basins store stormwater runoff at the surface and provide flow control via attenuation. They can also facilitate settling of some particulate pollutants.
- 7.2 Detention basins are designed in accordance with CIRIA guidelines and should be maintained by the respective appointed Management Company using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Litter and debris removal.	Monthly
	Grass cutting – for spillways and access routes.	Monthly (during growing season), or as required
	Grass cutting- meadow grass in and around basin.	Half yearly (spring before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc. for evidence of physical damage.	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequency.	Monthly (for first year), then annually or as required
	Check penstocks and other mechanical devices.	Annually
	Tidy all dead growth before start of growing season.	Annually
	Remove sediment from inlets, outlets and forebay.	Annually, or as required

Maintenance Schedule	Required Action	Recommended Frequency
	Manage wetland plants in outlet pool – where provided.	Annually
Occasional Maintenance	Re-seed areas of poor vegetation growth.	As required
	Prune and trim trees and remove cuttings.	2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair of erosion or other damage by re-seeding or re-turfing.	As required
	Realignment of rip-rap.	As required
	Repair/rehabilitation of inlets, outlets and overflows.	As required
	Re-level uneven surfaces and reinstate design levels.	As required

8 Schedule of Changes

8.1 This schedule has been provided to enable those responsible for maintenance of the drainage systems to document changes made to the actions and frequencies of maintenance, in direct response to changing site/drainage conditions.

Drainage Feature	Change of Action	Change of Frequency	Comments