

Detailed Surface Water Drainage Strategy

at

81/ 81a Whinbush Road,
Hitchin,
SG5 1PZ

For:

Viva Property Group Limited

Private and Confidential

Ref: 5551 24 01 15 Rpt 06 Rev A TI BB

Sevenoaks Environmental Consultancy Ltd,
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Association of Geotechnical &
Geoenvironmental Specialists



Sevenoaks
Environmental
Consultancy Ltd

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Client : Sevenoaks Environmental Consultancy

Rev	Date	Prepared by	Checked by	Approved by
-	12/01/24	CL	BB	MN

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1.0 INTRODUCTION

- 1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Sevenoaks Environmental Consultancy to prepare a surface water and foul water design to support planning proposal REF2/02953/FP.
- 1.2 The proposals are for Erection of 3 storey buildings comprising 8 residential apartments with associated parking and private amenity space following demolition of existing car workshop building. Alterations to existing dwelling 81A including single storey rear extension, insertion of rear dormer window to facilitate loft conversion and alterations to fenestration following demolition of existing attached rear office building at 81 And 81A Whinbush Road Hitchin Hertfordshire SG5 1PZ.
- 1.3 A previous strategy has been compiled by MCEC, covering an initial, outline strategy.
- 1.4 Site investigation discovered infiltration rates on site too poor to support infiltration SuDS. A CCTV survey conducted shows existing drainage onsite, presumed to connect into a nearby sewer. This has been shown to be combined storm and foul (with a rwp downpipe shown connected to the drainage) and is proposed to be reused.
- 1.5 MCEC have created a network model to assess the required storage capacities for the proposed development. The rainfall model used for detailed storage calculations is the FEH22 rainfall model. Storms have been modelled up to, and including, the 1in100yr rainfall event with 40% climate change allowance in accordance with best practice. Peak offsite runoff is to be discharged into existing drainage onsite at as-close-as-feasible to greenfield runoff rates via a mixture of attenuation tanks and type C permeable pavement in accordance with the SuDS Hierarchy, Ciria SUDS Manual and local guidance.
- 1.6 The calculations show potential runoff from the 1in100yr+40% runoff rainfall event can be accommodated within the proposed attenuation devices.
- 1.7 New foul drainage is proposed to be laid to the front of the existing properties and to connect into the existing combined drainage at the front of the site prior to the existing offsite connection.
- 1.8 The nearby sewers are combined sewers (according to Anglian Water sewer records in Appendix V) and any new connections offsite would need to be approved by Anglian Water prior to construction.

2.0 SURFACE WATER DRAINAGE STRATEGY

- 2.1 This detailed drainage submission has been produced in line with the CIRIA SuDS manual and follows the drainage hierarchy. As an infiltration test on site showed infiltration rates unsuitable for infiltration SuDS, a strategy based on attenuation and controlled discharge to sewers has been proposed.
- 2.2 A CCTV survey has been conducted and shows an existing drainage connection is present. This has been shown to be combined storm and foul (with a rwp downpipe shown connected to the drainage) and is proposed to be reused. The CCTV plan is included within Appendix III along with the site sewer records.
- 2.3 The proposed surface water drainage design (Appendix I) is based around attenuating storm water and discharging at a controlled rate.
- 2.4 It is proposed all external hardstanding be constructed of permeable pavement. This will provide treatment, attenuation and conveyance of storm water. As there is a fall of circa 400mm across the site the upper/rear parking area is to have no formal attenuation subbase due to the slope of the site. The lower parking area will have a subbase depth of 0.3m and an area of 52m² giving a storage volume of 4.68m³.
- 2.5 A permavoid tank beneath the upper parking area will provide additional attenuation storage require to manage rainfall for storm events up to and including the 1in100yr+CC rainfall event. The storage is proposed be high load/low cover Polypipe Permavoid crate and to have a plan area of 5x10m and a depth of 0.375m giving a storage volume of 17.8m³.
- 2.6 Runoff from the proposed new paving hardstanding and new build roofs is proposed to be attenuated by the permavoid and permeable pavement. The existing 81A property is proposed to drain as existing.
- 2.7 Runoff from the site is proposed to be limited by a hydrobrake to a maximum of 0.9l/s for the 1 in 100 year+40%CC event. This is as close to greenfield rates as considered feasible for this site as the hydrobrake proposed has the minimum aperture sized recommended by Ciria of 50mm.
- 2.8 Runoff is to be discharged to existing drainage onsite, which connects to nearby sewers. Existing pipes are to be refurbished and confirmed clear before reuse.
- 2.9 The nearby sewers are combined sewers (according to Anglian Water sewer records in Appendix III) and any new connections would need to be approved by Anglian Water prior to construction.
- 2.10 See attached Meridian Civils drainage layout drawing CIV01/02/ and associated calculations.

3.0 FOUL WATER DRAINAGE STRATEGY

- 3.1 As the nearby sewer are combined sewers (according to Anglian Water sewer records in Appendix III) foul water is proposed to discharged to the existing drainage on site.
- 3.2 Foul water is proposed to run along the front of the new properties. Soil vent pipes are proposed around the new properties with foul water connecting into the main run along the front of the properties.
- 3.3 New foul drainage is to connected to existing drainage onsite, which connects to nearby sewers. Existing pipes are to be refurbished and confirmed clear before reuse. The CCTV plan is included within Appendix III along with the site sewer records.
- 3.4 The nearby sewers are combined sewers (according to Anglian Water sewer records in Appendix III) and any new connections would need to be approved by Anglian Water prior to construction.
- 3.5 See attached Appendix I for Meridian Civils drainage layout drawing MC0324/CIV01&02 and included in Appendix II and associated calculations.

4.0 MANAGEMENT AND MAINTENANCE

- 4.1 All onsite SuDS and drainage systems will be privately maintained by the client or their managing agent. A long term maintenance regime should be agreed with the site owners and managing agents before occupation.
- 4.2 In addition to a long term maintenance regime it is recommended that all drainage elements implemented on site should be inspected following the first rainfall event post construction and monthly for the first quarter following construction

PROPOSED SCHEDULE OF MAINTENANCE FOR BELOW GROUND DRAINAGE				
Item	Visual Inspection	Cleanse / De-sludge	CCTV Survey	Comments
Foul Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Surface Water Drainage System (pipework, chambers etc.)	5 years	10 years	10 years	Cleansing to be carried as necessary
Gullies/Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Storm water catchpits	1 year		N/A	Cleansing to be carried as necessary
Geocellular Tank	0.5 year	1 year	-	See manufacturers guidelines
Hydrobrake	0.5 year	As required	N/A	Following any significant storm event, the chamber and flow control mechanism should be visually inspected to ensure no blockage has occurred. Follow manufacturer's recommendations

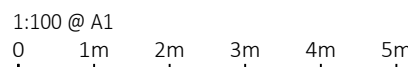
5.0 CONCLUSION

- 5.1 Site investigation discovered infiltration rates on site too poor to support infiltration SuDS. A CCTV survey conducted shows existing drainage onsite, presumed to connect into a nearby sewer. This is proposed to be reused.
- 5.2 MCEC have created a network model to assess the required storage capacities for the proposed development. The rainfall model used for detailed storage calculations is the FEH22 rainfall model. Storms have been modelled up to, and including, the 1in100yr rainfall event with 40% climate change allowance in accordance with best practice.
- 5.3 Peak offsite runoff is to be discharged into existing drainage onsite at as-close-as-feasible to greenfield runoff rates via a mixture of attenuation tanks and Type C permeable pavement in accordance with the SuDS Hierarchy, Ciria SUDS Manual and local guidance.
- 5.4 The calculations show potential runoff from the 1in100yr+40% runoff rainfall event can be accommodated within the proposed attenuation devices.
- 5.5 The nearby sewers are combined sewers (according to Anglian Water sewer records in Appendix V) and both foul water and storm water drainage from the site is proposed to be discharged to the existing offsite drainage connection present on site.

APPENDIX I Drainage Design Drawings

4. MANHOLE COVERS AND FRAMES
 - a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
 - b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

 PROPOSED SW PIPE RUN
 PROPOSED TYPE 3 SW INSPECTION CHAMBER
 PROPOSED HYDROBRAKE MANHOLE
 PERMEABLE PAVING - WITH 300mm ATTENUATION SUBBASE
 PROPOSED SW ROODING EYE
 PROPOSED SW RAINWATER PIPE
 RWP ROUTED THROUGH WATER BUTT
 JUNCTION/DUMMY SW MANHOLE - NEEDED TO RUN MODEL
 EXISTING SW PUBLIC INSPECTION CHAMBER / MANHOLE - RETAINED
 PROPOSED ROOFED AREA
 EXISTING CONTOUR 0.2m INTERVAL
 SITE BOUNDARY
 PERMEABLE PAVING - NO ATTENUATION SUBBASE
 GEOCELLULAR ATTENUATION - TANKED
 PROPOSED FW SOLVENT PIPE
 PROPOSED TYPE 3 FW INSPECTION CHAMBER
 PROPOSED TYPE 4 FW INSPECTION CHAMBER
 PROPOSED FW PIPE RUN
 CATCHPIT CHAMBER/MANHOLE



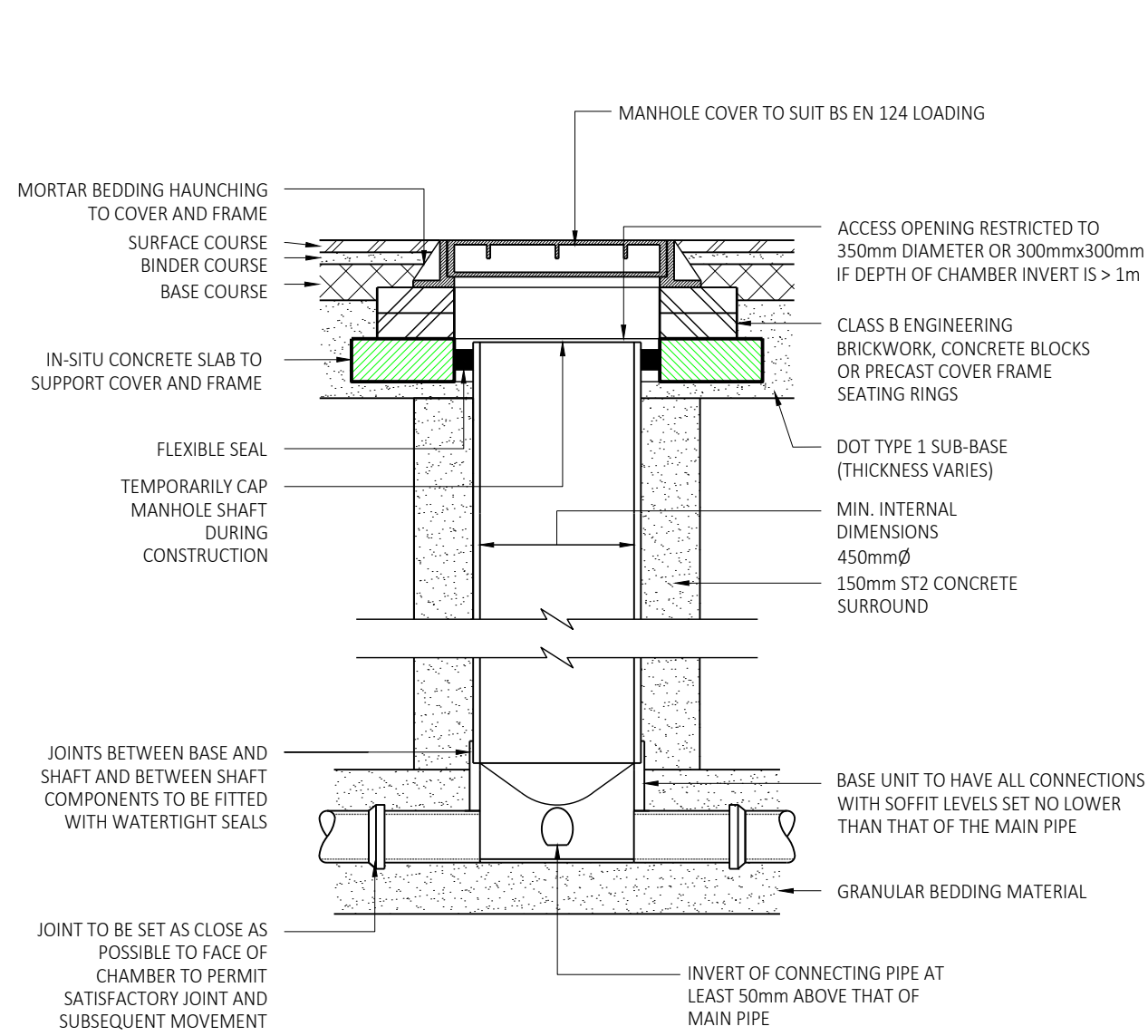
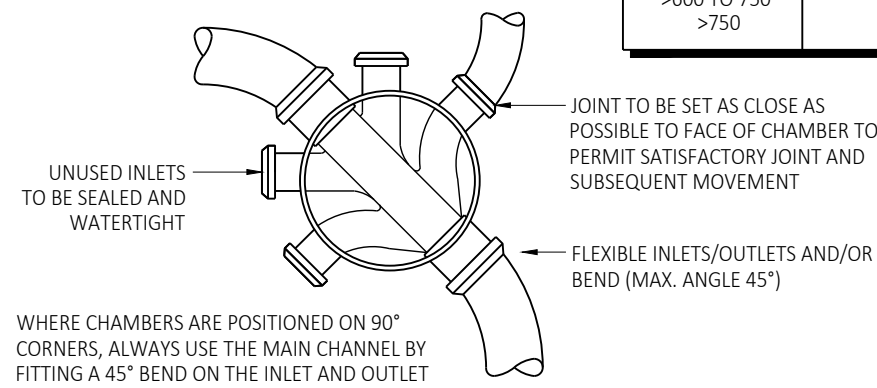
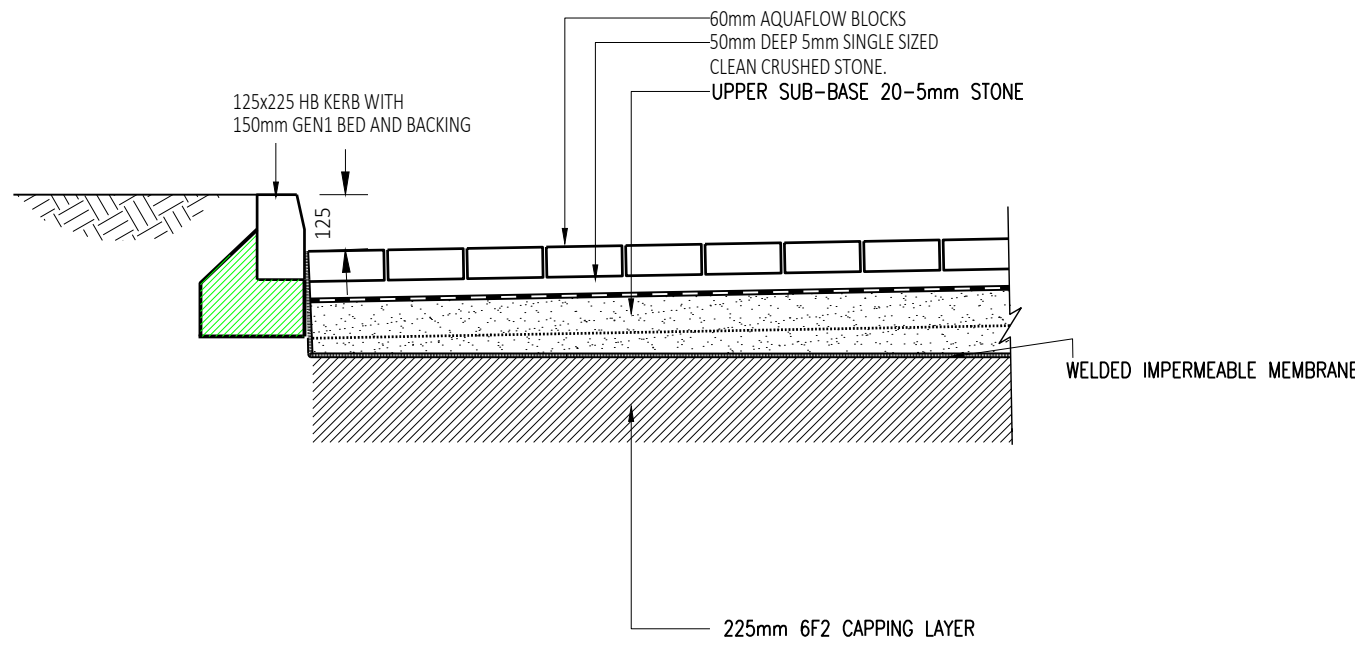


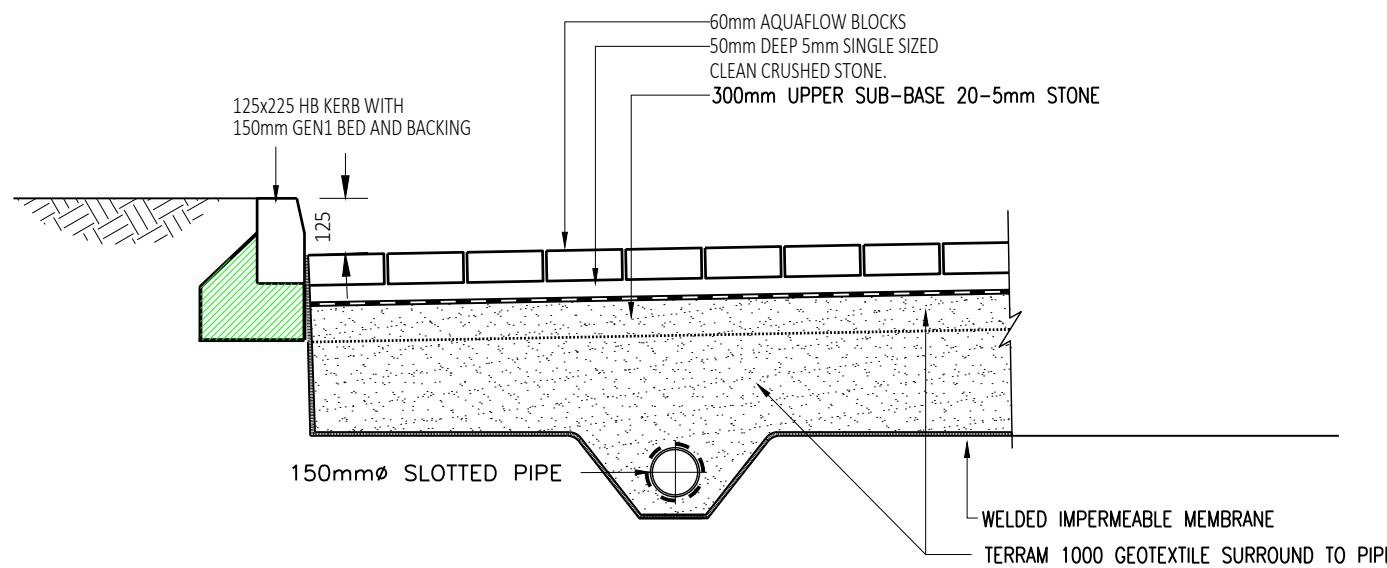
TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2



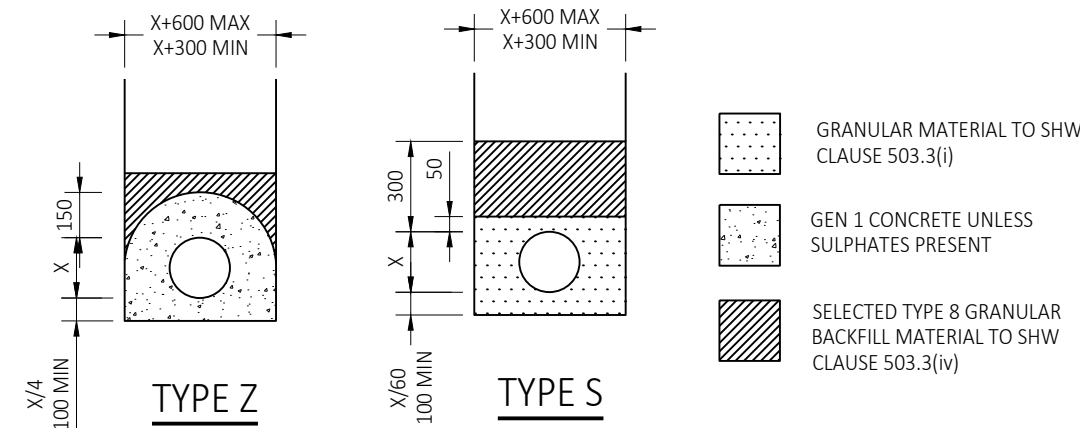
TYPE 3 ACCESS CHAMBER - FLEXIBLE MATERIAL
(MAX. DEPTH 3m, NON-ENTRY)



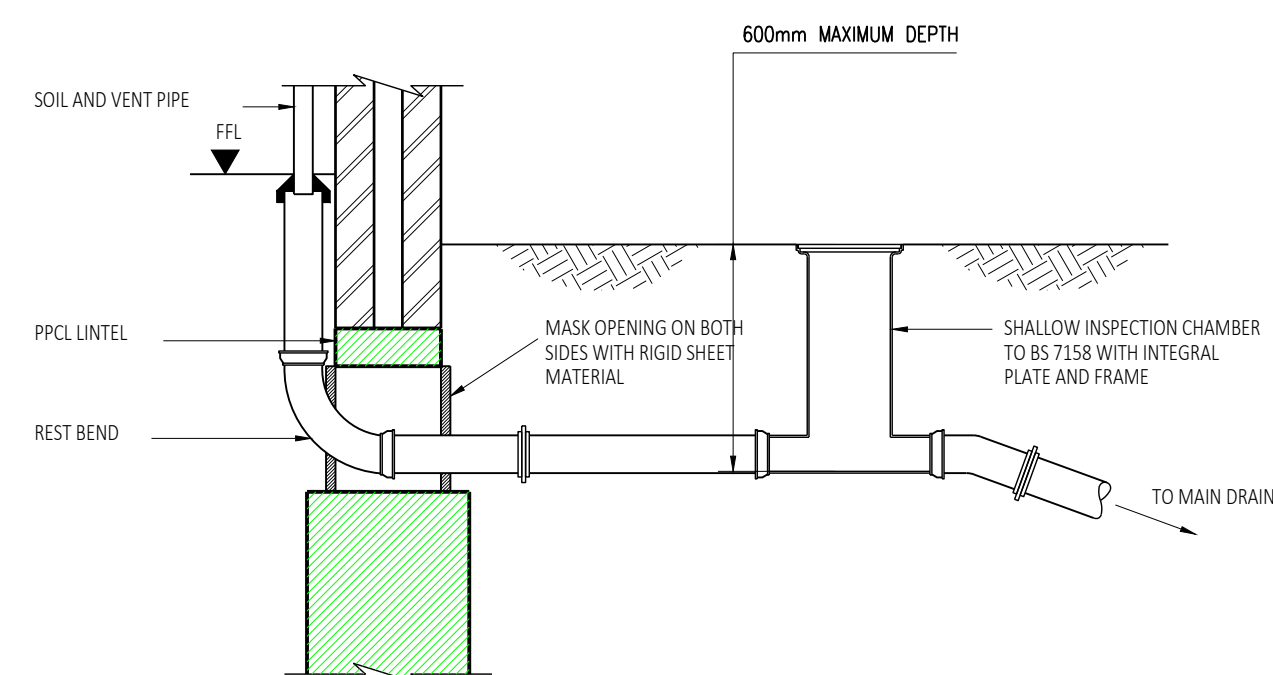
PERMEABLE ACCESS AND CARPARK PAVING -
MINIMAL SUBGRADE STORAGE



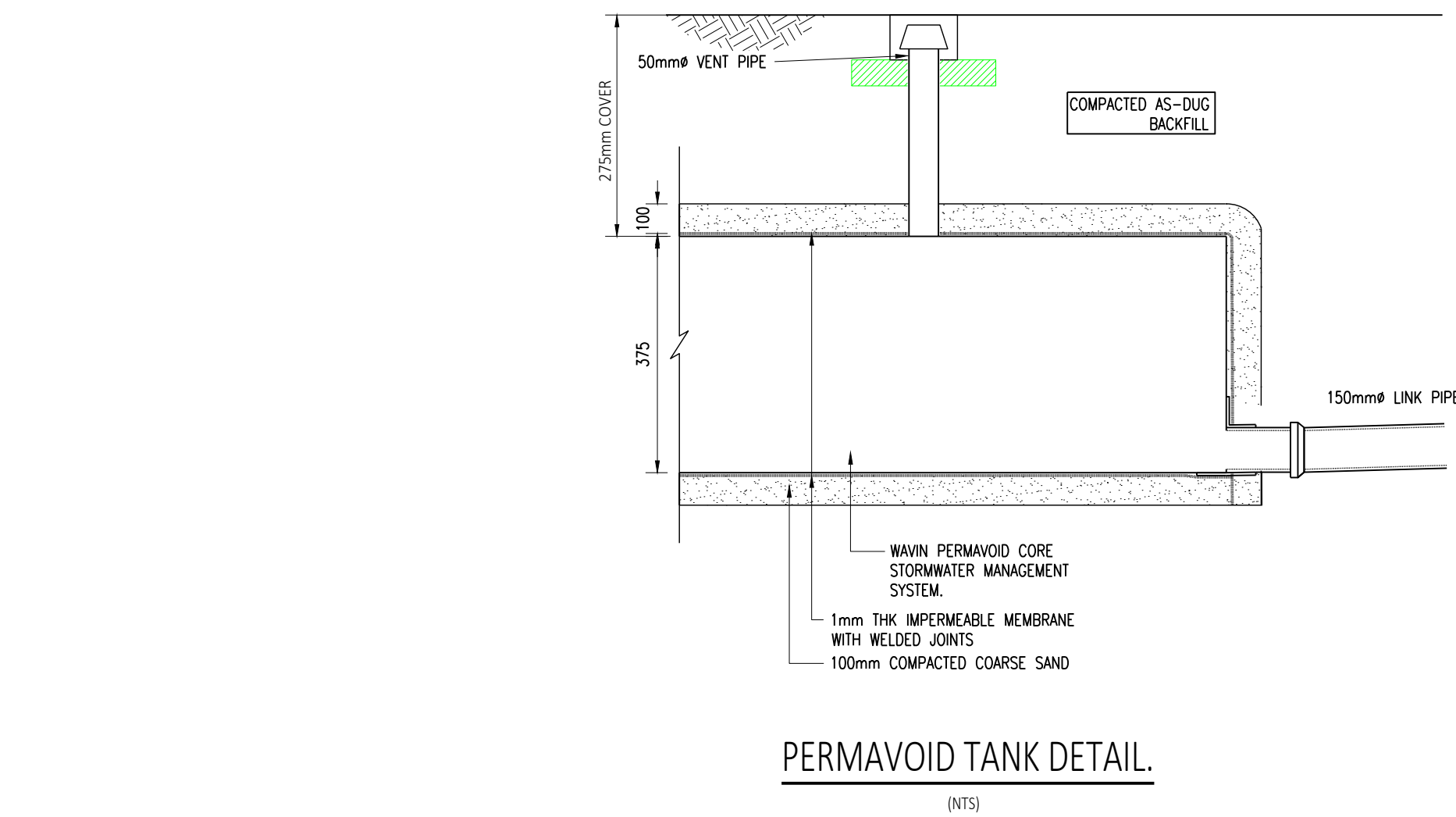
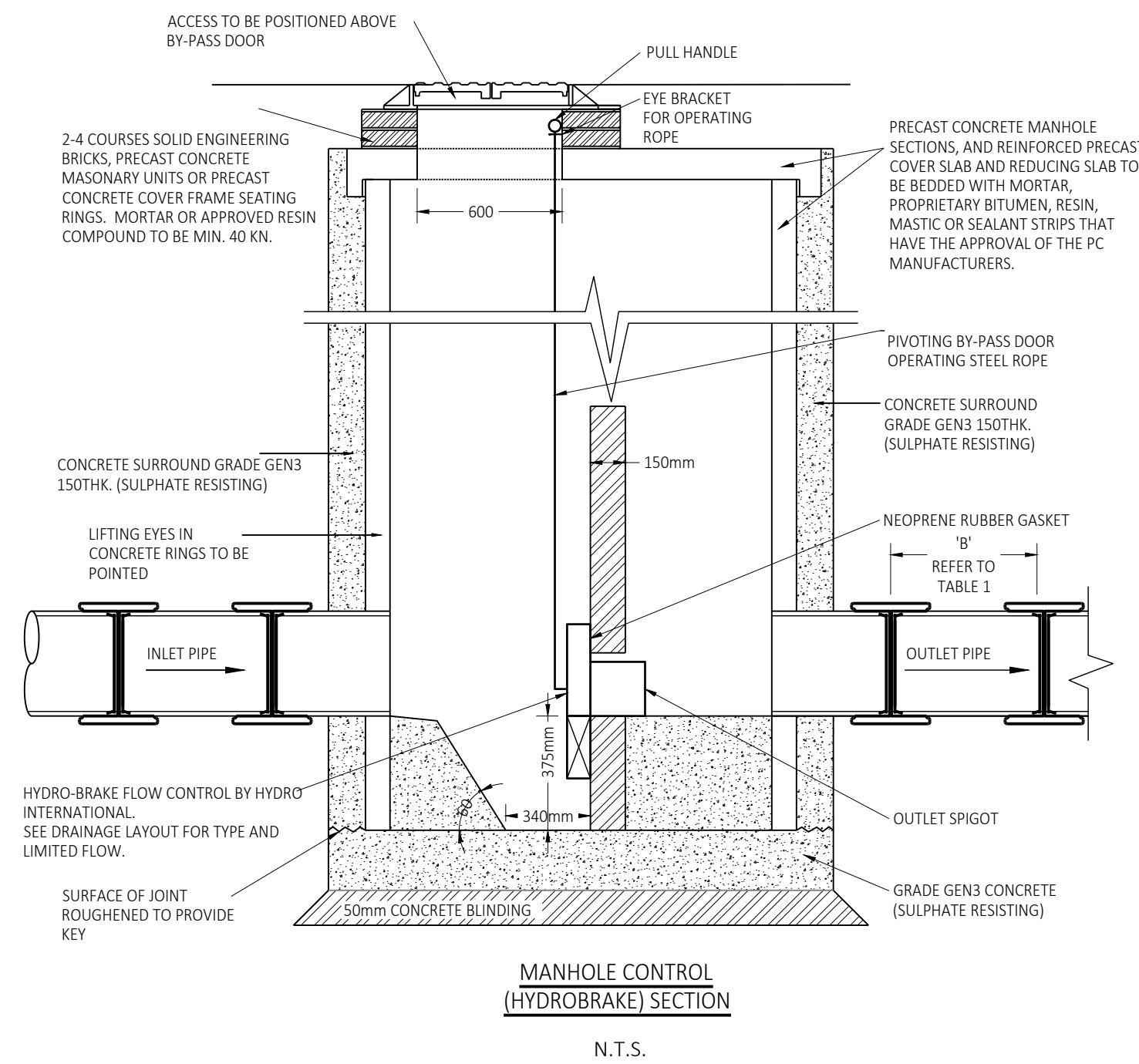
PERMEABLE ACCESS AND CARPARK PAVING -
SUBGRADE USED AS STORAGE



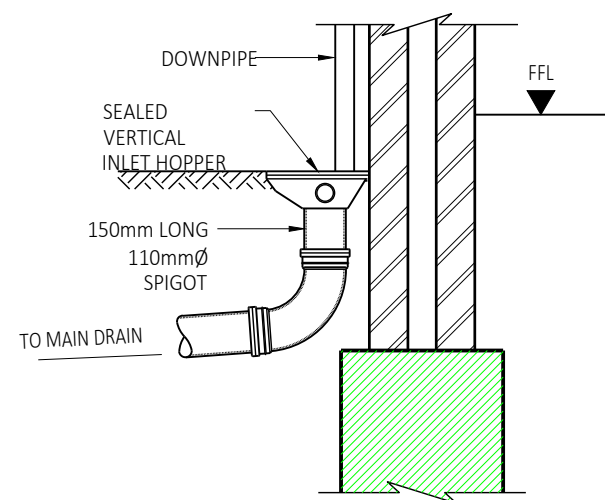
TRENCH AND BEDDING DETAILS
IN TRAFFICKED AREAS:
TYPE S WHERE COVER >900mm
TYPE Z WHERE COVER >900mm
IN NON-TRAFFICKED AREAS:
TYPE S WHERE COVER >600mm
TYPE Z WHERE COVER <600mm



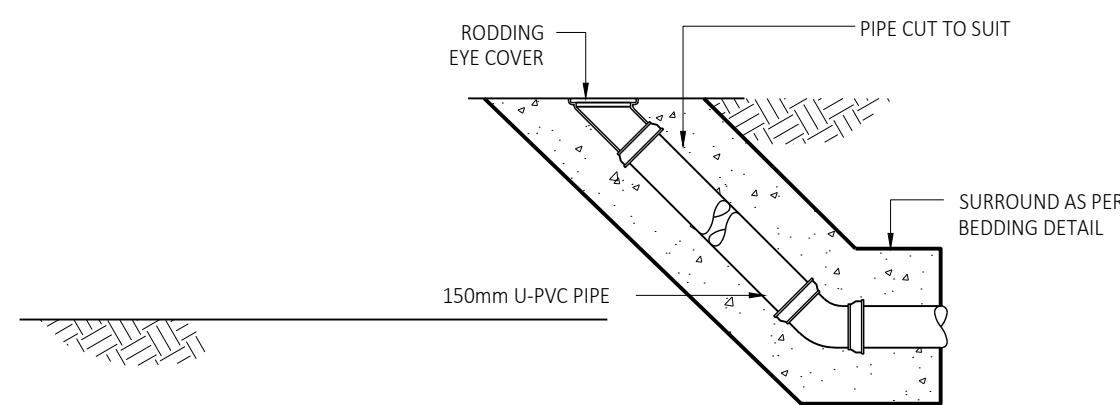
FOUL CONNECTION TO MAIN DRAINAGE.



PERMAVOID TANK DETAIL.



RWP CONNECTION.



RODDING EYE DETAIL.

- GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. CDM REGULATIONS 2015. ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
f. CDM REGULATIONS 2015. FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.
- CONSTRUCTION NOTE
a. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERTAKING THE WORKS.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY MERIDIAN DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED.
- BELOW GROUND DRAINAGE
a. UPVC-U PIPES TO BS 4660: 2000 AND PLASTIC INSPECTION CHAMBERS AND FITTINGS TO BS EN 13598-1:2020. CLAY PIPES TO BS EN 295-1:2013. CONCRETE MANHOLE AND INSPECTION CHAMBERS TO BS EN 1917:2002.
b. ALL ADAPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH SEWERAGE SECTOR GUIDANCE App C - DESIGN AND CONSTRUCTION GUIDANCE AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
d. ALL PRIVATE FOUL SEWER PIPES TO BE 100mm DIAMETER FROM SOIL STACKS UNLESS OTHERWISE STATED ON THE DRAWING AND 150mm WHERE SERVING MORE THAN 9 PROPERTIES.
e. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
f. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
g. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
h. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REBURIED IF NECESSARY.
i. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
j. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.
- MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

PO	For Construction	AW	22/12/23
REV:	DESCRIPTION:	BY:	DATE:
STATUS: Preliminary			
MERIDIAN CIVIL ENGINEERING CONSULTANCY			
CLIENT: Sevenoaks Environmental Consultancy			
SITE: 81 Whinbush Road, Hitchin Hertfordshire, SG5 1PZ			
TITLE: Foul and Surface Water Standard Details			
SCALE AT: 1:1	DATE: 22/12/23	DRAWN: AW	CHECKED: MN
PROJECT NO: MC0324	DRAWING NO: CIV02	REVISION: PO	

APPENDIX II Hydraulic Calculations



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
✓ 4		5.00	59.800	Manhole	SW_RE	150	75.786	-90.272	0.750
✓ 3			59.450	Manhole	SW_Standard	450	79.487	-73.637	0.580
✓ 2	0.002	5.00	59.700	Manhole	SW_Standard	600	93.703	-73.885	0.750
✓ 2.1		5.00	59.800	Manhole	SW_RE	150	93.765	-86.418	0.750
✓ HB1	0.020	5.00	59.500	Manhole	Adoptable	1200	81.864	-72.554	0.650
✓ EX1			59.500	Manhole	Adoptable	450	81.183	-71.410	0.658
✓ Carpark Storage	0.037	5.00	59.700	Junction			93.031	-72.580	0.825
✓ Depth/Area 1		5.00	59.700	Junction			95.582	-73.904	0.700

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	1440	Check Discharge Volume	x
Analysis Speed	Normal	Additional Storage (m³/ha)	0.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	40	0	0

Node HB1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.002	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0051-8000-0300-8000
Invert Level (m)	58.850	Min Outlet Diameter (m)	0.075
Design Depth (m)	0.300	Min Node Diameter (mm)	1200
Design Flow (l/s)	0.8		

Node Carpark Storage Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	58.950	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	404	Depth (m)	0.300
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	3.500		

Node Depth/Area 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	59.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	188

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	60.0	0.0	0.375	60.0	0.0	0.376	0.0	0.0

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	4	184	59.326	0.276	1.2	0.0050	0.0000	SURCHARGED
180 minute summer	3	160	59.325	0.455	3.0	0.0724	0.0000	FLOOD RISK
180 minute summer	2	160	59.326	0.376	8.4	0.1064	0.0000	SURCHARGED
180 minute summer	2.1	180	59.325	0.275	0.4	0.0049	0.0000	SURCHARGED
240 minute summer	HB1	180	59.332	0.482	8.0	0.5451	0.0000	FLOOD RISK
180 minute summer	EX1	180	58.866	0.024	1.0	0.0000	0.0000	OK
180 minute summer	Carpark Storage	180	59.325	0.450	7.1	2.3854	0.0000	SURCHARGED
180 minute summer	Depth/Area 1	180	59.325	0.325	7.9	18.5091	0.0000	SURCHARGED

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	4	3.000	3	-1.2	-0.069	-0.023	0.6778	
180 minute summer	3	3.001	HB1	-3.0	-0.155	-0.066	0.1039	
180 minute summer	2	1.001	HB1	-8.0	0.205	-0.168	0.4738	
180 minute summer	2.1	1.000	2	-0.4	-0.068	-0.027	0.2206	
240 minute summer	HB1	1.002	EX1	0.9	0.402	0.024	0.0032	36.0
180 minute summer	Carpark Storage	4.000	HB1	5.7	0.179	0.233	0.4442	
180 minute summer	Depth/Area 1	2.000	2	-7.9	0.476	-0.093	0.0747	

APPENDIX III Supplementary Documents



Happy Drains

We're so happy. Oh, so happy.

Service@happydrains.co.uk
01273 456789
C1008983

Report

C1008983

2023-07-18

MSCC5_DOMESTIC

81 Whinbush Road, Hitchin, Hertfordshire, SG5 1PZ, United Kingdom

Supplier

Organisation Happy Drains
Engineer Nathan Mead

Client

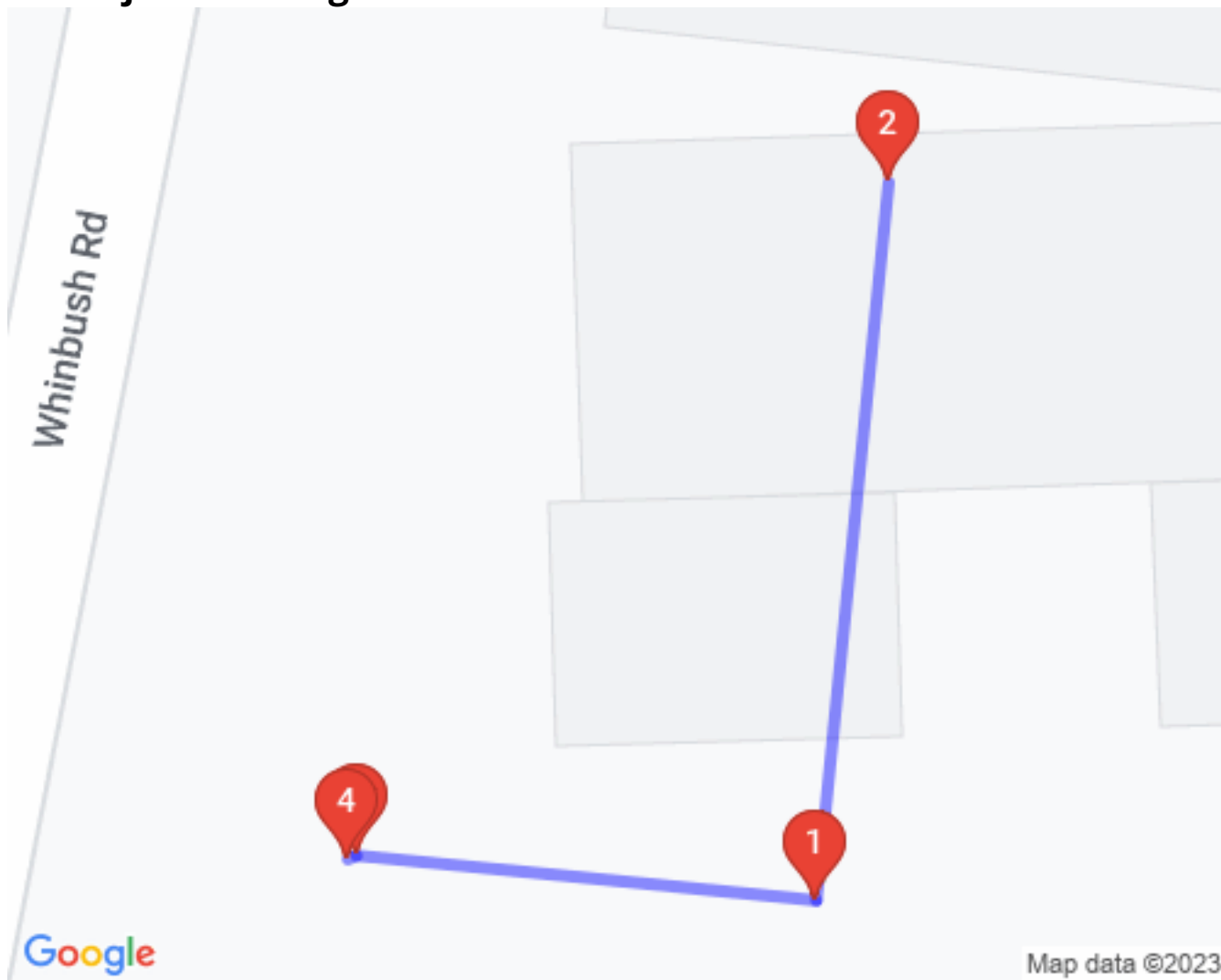
Name Sevenoaks Consultancy Ltd
Contact phone number +44 01892822922
Address 81 Whinbush Road, Hitchin, Hertfordshire, SG5 1PZ, United Kingdom
Job reference C1008983

[View interactive
report](#)

Produced using Drainify



Project drawing



81 Whinbush Road, Hitchin, Hertfordshire, SG5 1PZ, United Kingdom

- ① MH-1
- ② UNP-1
- ③ UNP-2
- ④ UNP-3



Happy Drains

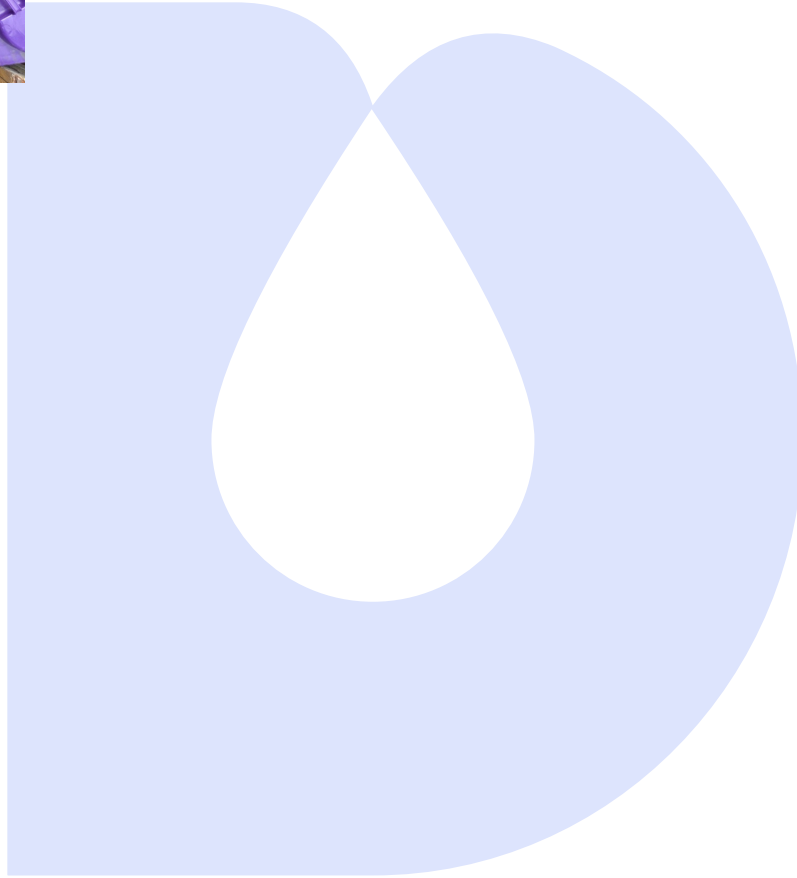
We're so happy. Oh, so happy.

Service@happydrains.co.uk
01273 456789
C1008983

Site photography



Getting strongest signal on the cat here, this is the right hand corner of the garden, collapse should be located here





Project drawing

Grade A

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

Grade B

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

Grade C

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

Section 1	SERVICE A	STRUCTURAL A
Section 2	SERVICE A	STRUCTURAL A
Section 3	SERVICE A	STRUCTURAL A



Survey measurements

Number of sections

3

Total length of sewer network

27.54m

Total length of inspections

27.54m

Total abandoned inspections

X 1

Number of section inspection photos

7

Number of section inspection videos

3



Section 1 - At a glance

Length
5.94m

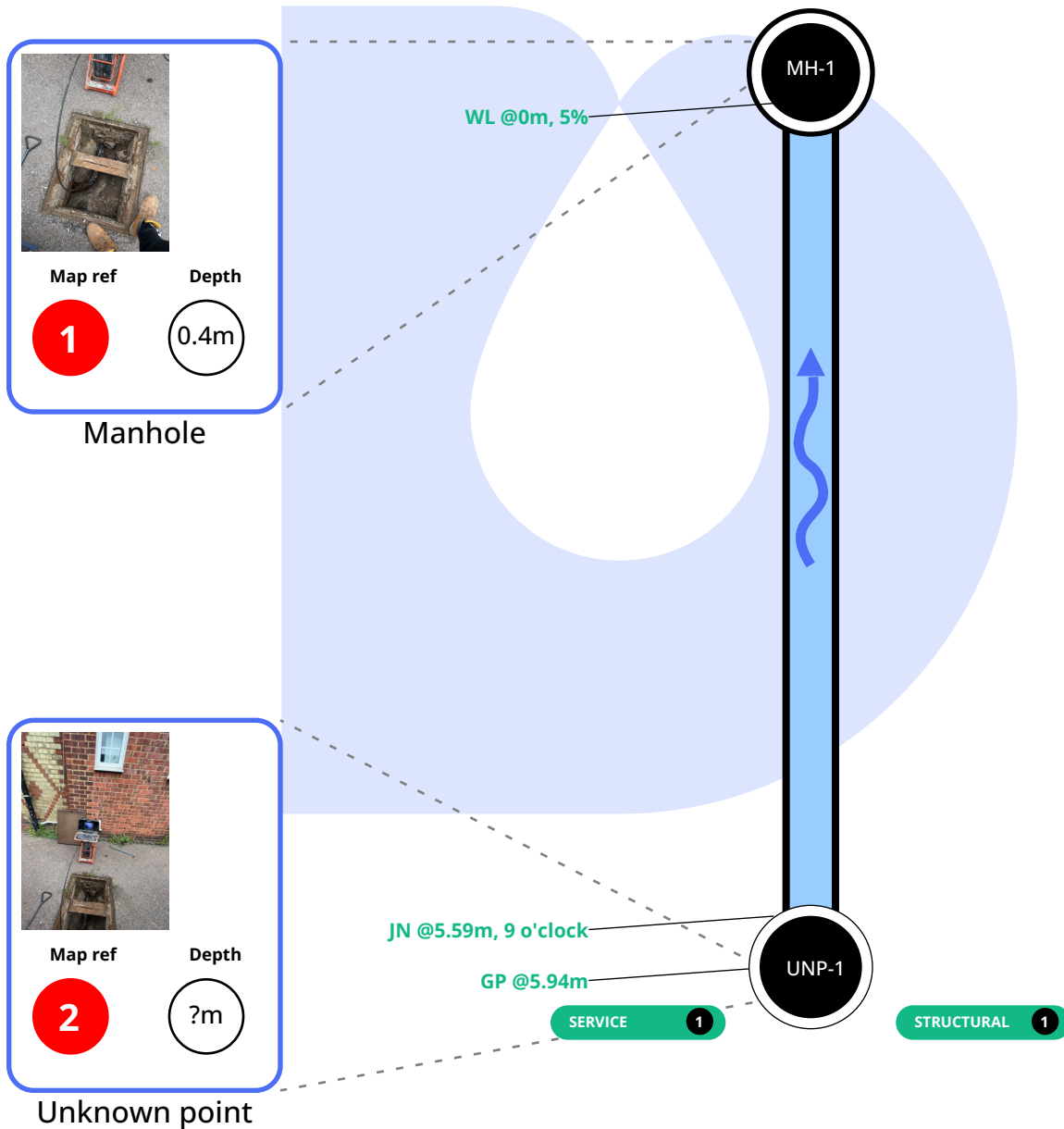
Diameter
100mm

Use
Foul

Material
Vitrified Clay

Shape
Circular

Pipe type
Section





Section 1 - Observations

WL (Water Level)



Distance: 0m
Amount: 5%

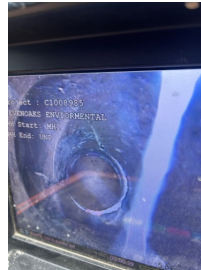
SERVICE

A

STRUCTURAL

A

JN (Junction)



Distance: 5.59m
Clock reference: 9
Diameter: 100mm

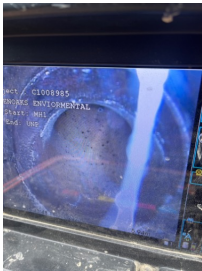
SERVICE

A

STRUCTURAL

A

GP (General photography)



Distance: 5.94m

SERVICE

A

STRUCTURAL

A



Section 2 - At a glance

Length
10.8m

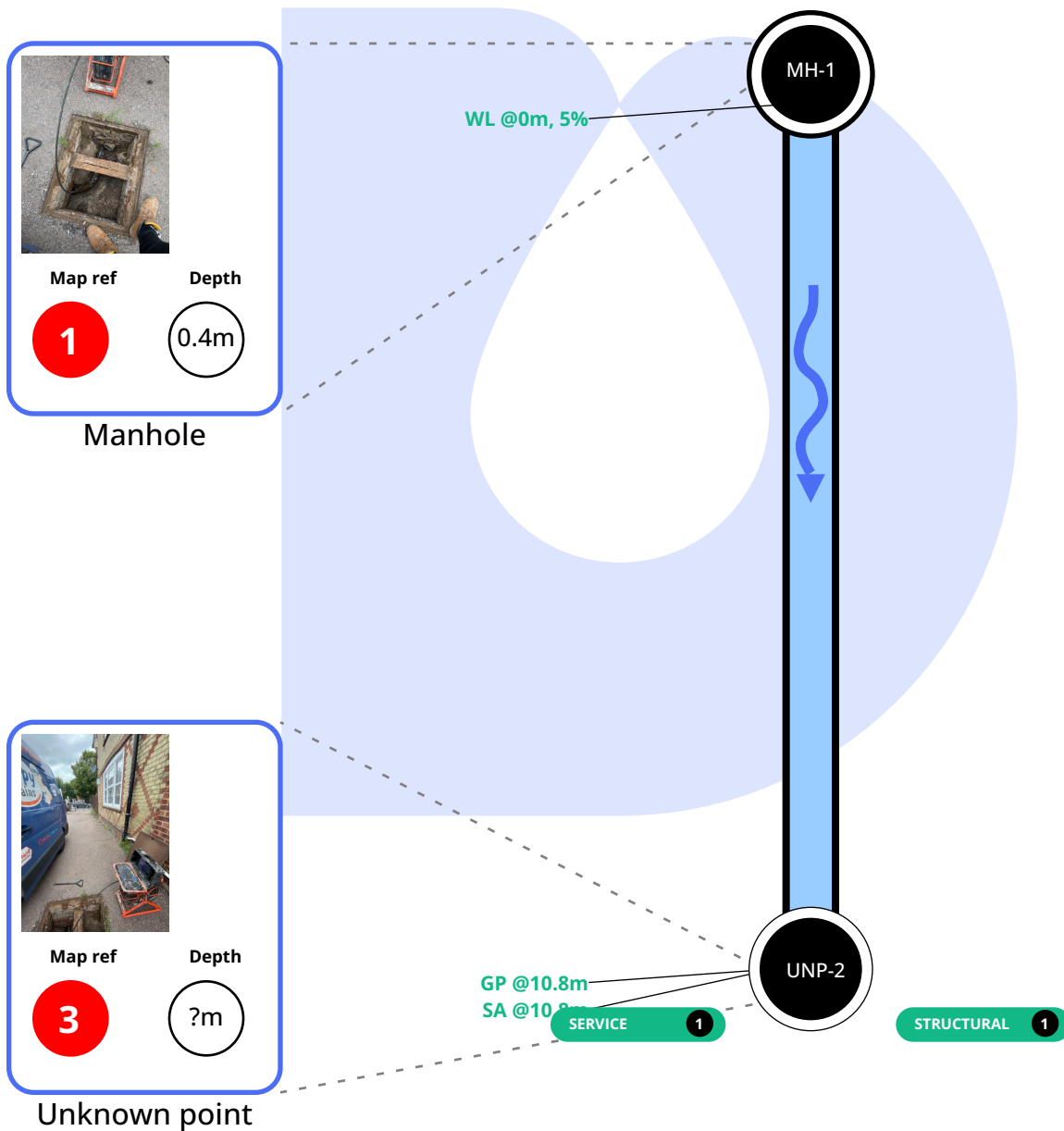
Diameter
100mm

Use
Foul

Material
Vitrified Clay

Shape
Circular

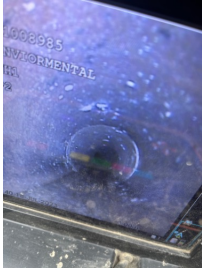
Pipe type
Section





Section 2 - Observations

WL (Water Level)



Distance: 0m
Amount: 5%

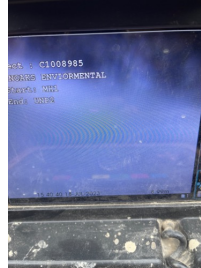
SERVICE

A

STRUCTURAL

A

GP (General photography)



Distance: 10.8m

SERVICE

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SA (Survey Abandoned)



Distance: 10.8m
Remarks: Survey abandoned,
possible fence post through
pipe, causing partial collapse

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Section 3 - At a glance

Length
10.8m

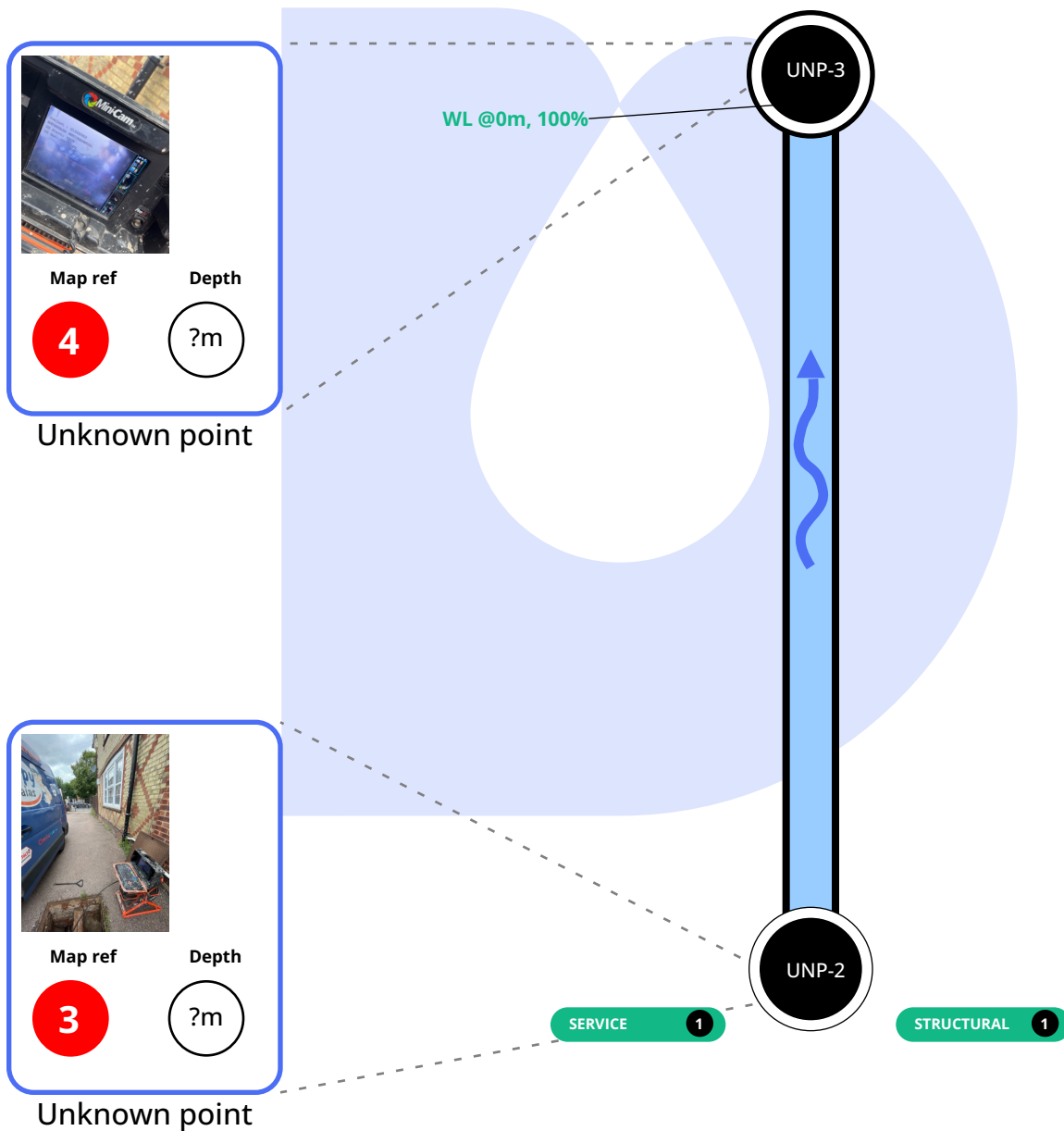
Diameter
100mm

Use
Foul

Material
Pitch Fibre

Shape
Circular

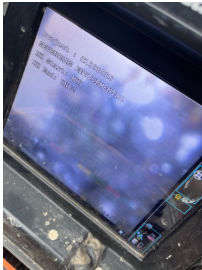
Pipe type
Section





Section 3 - Observations

WL (Water Level)



Distance: 0m
Amount: 100%

SERVICE

A

STRUCTURAL

A



Happy Drains

We're so happy. Oh, so happy.

Service@happydrains.co.uk
01273 456789
C1008983

Disclaimer

The results in this report are considered the views of the suitably qualified engineer(s) you have employed to undertake the investigation. These findings are of on the day and time of the work.

This software has to be used by a qualified operative following the formal drainage standards of that specific geo-locations.

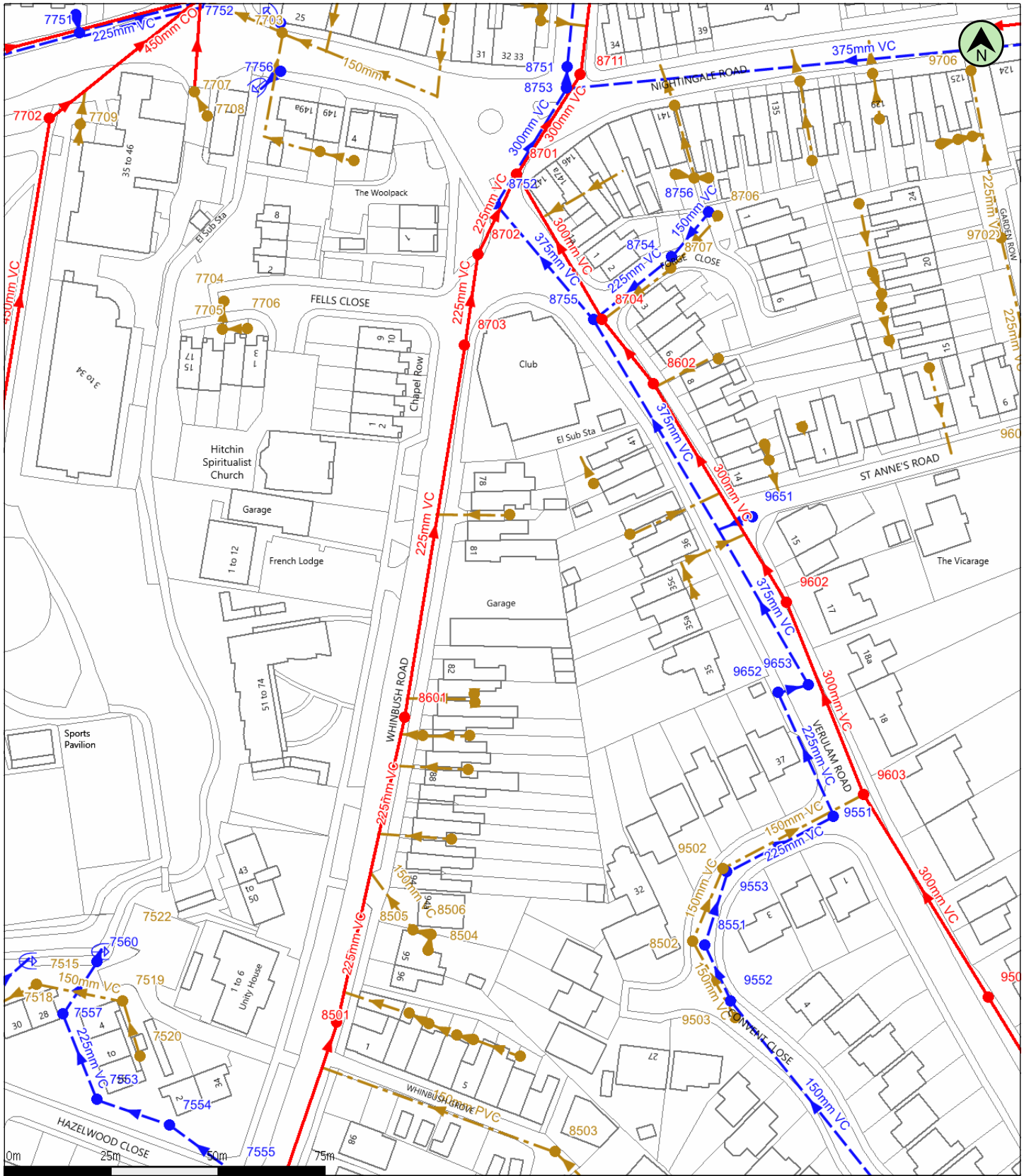
Visual investigations are an inspection of inside a drain/pie/sewer or conduit. CCTV drainage engineers are generally not qualified to comment other than pipe condition. They can only suggest required remedial actions appropriate for the pipes surveyed and not the structural integrity of a building.

A CCTV drainage survey is only part of a greater investigation of ground movement. Subsidence, for example, is a structural building issue which can have multiple causes

Pressure testing may be appropriate in certain cases, and you should be guided by a qualified professional, such as a structural engineer of the equivalent in your area.

If you have a specific requirement, please specify the data to capture any tolerances, and if possible, we will meet those requirements.

Where coordinates form part of this report, they may be of limited accuracy. A qualified technician can achieve pinpoint accuracy using 'Sonde and Trace' precision spotting techniques for record purposes or before excavations and installations.



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Data updated: 30/06/23 Map Centre: 518851,229650 Our Ref: 1224750 - 3 Powered by digdat

Foul Sewer	Outfall*	Sewage Treatment Works	payments.utilitiesolutions@atkinsglobal.com 207323 
Surface Sewer	Inlet*	Public Pumping Station	
Combined Sewer	Manhole*	Decommissioned Pumping Station	
Final Effluent			
Rising Main*			
Private Sewer*			
Decommissioned Sewer*			

*(Colour denotes effluent type)

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2023 Ordnance Survey 100022432. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
7702	C	58.27	55.77	2.5
8501	C	60.41	57.9	2.51
8601	C	59.8	57.49	2.31
8602	C	59.22	56.69	2.53
8701	C	57.69	55.72	1.97
8702	C	57.9	55.87	2.03
8703	C	58.23	56.18	2.05
8704	C	58.7	56.78	1.92
8711	C	57.802	55.672	2.13
9501	C	65.52	63.21	2.31
9602	C	63.01	60.43	2.58
9603	C	64.32	61.75	2.57
7515	F	59.26	57.76	1.5
7519	F	59.8	58.25	1.55
7520	F	59.71	58.47	1.24
7703	F	-	-	-
7704	F	-	-	-
7705	F	-	-	-
7706	F	-	-	-
7707	F	-	-	-
7708	F	-	-	-
7709	F	-	-	-
8502	F	63.79	62.43	1.36
8503	F	62.31	60.86	1.45
8504	F	60.92	60.31	0.61
8505	F	60.92	60.195	0.725
8506	F	60.9	60.26	0.64
8706	F	60.26	58.38	1.88
8707	F	59.23	57.27	1.96
9502	F	63.87	62.3	1.57
9503	F	64.09	62.55	1.54
9702	F	59.5	58.37	1.13
9706	F	58.805	57.665	1.14
7553	S	59.63	59.04	0.59
7554	S	60.03	59.43	0.6
7555	S	60.62	59.83	0.79
7557	S	59.71	58.48	1.23
7560	S	58.73	57.93	0.8
7751	S	57.75	56.58	1.17
7755	S	57.34	56.5	0.84
7756	S	57.28	56.65	0.63
7757	S	57.73	56.68	1.05
8551	S	63.72	62.81	0.91
8751	S	57.72	55.83	1.89
8752	S	57.72	56.02	1.7
8753	S	57.79	55.87	1.92
8754	S	59.29	57.75	1.54
8755	S	58.72	57.16	1.56

