

Surface Water Drainage Statement

16 Worthing Road, Ferring, BN16 1AZ

Client

Randall & Chishall Construction Ltd
19 First Avenue
Worthing BN16 1AZ
Ref: 7338A

Consulting Engineers

GTA Civils & Transport Ltd
66a Church Walk
Burgess Hill
West Sussex
RH15 9AS

1.0 INTRODUCTION

This statement has been prepared for Randall & Chisnall Construction Ltd in relation to a proposal at 16 Worthing Road, Ferring, BN16 1AZ.

The statement sets out a Surface Water Drainage Strategy in compliance with local and national SuDS policy in order to address Pre-commencement Condition 10 of Application Ref: EP/121/17/PL as approved by Arun District Council.

No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

2.0 EXISTING AND PROPOSED SITES

This site is a rectangular plot of area 0.11ha situated on the south side of Worthing Road (B2140) – refer to Site Location Plan in Appendix A. The southern boundary backs on to Langmead Recreation Ground and bounding the site to the east and west are neighbouring properties of the same road.

The site contains a single detached residential dwelling with associated garage.

Topography: the site is fairly flat with boundary levels in the region of +10.00m AOD, although the front garden and driveway are set lower at minimum +9.500m AOD – refer to Topographical Survey in Appendix B.

Geology: from the Geotechnical Assessment Report No. R18-12714 by Ashdown Site Investigation, borehole logs to maximum depths of 3m recorded a geology of River Terrace Deposits over White Chalk – refer to borehole logs in Appendix C.

Existing drainage: is unknown but is assumed to discharge to the public sewer in Worthing Road, which according to Southern Water's records is a foul sewer of diameter 225mm – refer to sewer records in Appendix D. There are no surface water sewers close to the site.

Proposed site: the proposal is to construct a block of 6No flats in replacement of the existing structures – refer to Appendix E.

3.0 SURFACE WATER DRAINAGE STRATEGY

As part of the Geotechnical Assessment by Ashdown Site Investigation, falling head soakage tests were undertaken on the 24 January 2018, the results of which are contained in Appendix C. The results of the infiltration tests indicate that the River Terrace Deposits and White Chalk Subgroup possess moderate infiltration characteristics. The lowest infiltration rate recorded in the River Terrace Deposits was 8.6×10^{-5} m/s, and this figure has been used to inform the drainage strategy design.

The Site Drainage Plan is contained in Appendix F and shows all surface water runoff draining to ground via a porous sub-base located under the parking area to the front of the proposed flats. The parking area itself is shown surfaced in permeable paving.

Surface water from the roofs and hardstanding areas (other than the parking) are piped into the porous sub-base via distribution blocks i.e. cellular crates, which allow drained runoff to diffuse efficiently through the sub-base medium.

Micro Drainage results – refer to Appendix G – show that a volume of 13.4m.cu of infiltration storage is required to drain the runoff from the proposed roofs and hardstanding areas following a 1 in 100 storm with +40% climate change allowance. The Site Drainage plan in Appendix F shows an infiltration storage volume of 14.7m.cu under the 189m.sq area of permeable paving provided by 260mm depth of 30% voids' sub-base ($189 \times 0.260 \times 0.3 = 14.7$).

Pollution control: before draining to ground, all surface water runoff will pass through and be filtered by the sub-base medium under car park, the which will comprise 10-63mm open-graded crushed rock.

Groundwater: monitoring results from November to March by Ashdown Site Investigation are contained in Appendix C. The maximum level recorded was at 1m below ground level in window sampler WS1 which is at ground level +9.63m AOD. Maximum groundwater level to AOD is therefore +8.63m. The base level of the infiltration sub-base is set at +9.63m (reference Site Drainage plan, Appendix F), which is 1m above the highest recorded groundwater level ($9.63 - 8.63 = 1.00$).

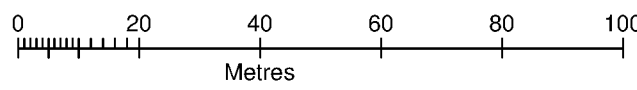
Second Issue: 02 June 2020

APPENDIX A – SITE LOCATION PLAN



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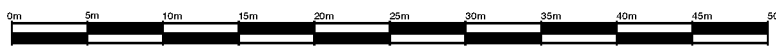
Location Plan as existing - 1:1250 @ A1



scale bar - 1:1250 @ A1



Block Plan As Proposed - 1:500 @ A1



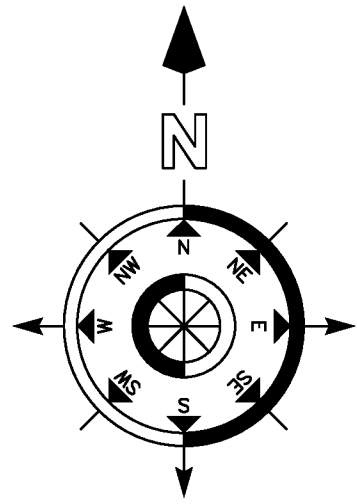
scale bar - 1:500 @ A1

NOTES

- DO NOT SCALE OFF THIS DRAWING EXCEPT FOR PLANNING PURPOSES
- CHECK ALL DIMENSIONS ON SITE BEFORE ANY WORK IS COMMENCED
- ALL GOODS MATERIALS AND WORKMANSHIP MUST CONFORM WITH CURRENT BUILDING REGULATIONS, BRITISH STANDARDS AND CODES OF PRACTICE
- COPYRIGHT OF THIS DRAWING IS RETAINED BY THE ARCHITECT AND IT MUST NOT BE REPRODUCED WITHOUT WRITTEN CONSENT

REV	DATE	BY	AMENDMENT
 folkes architects L 01903 88820 T 01903 815466 info@folkesarchitects.co.uk THE DESIGN STUDIO 94 High Street Shrewton West Sussex BN14 9SD			
CLIENT Randall & Chisnall Construction Ltd			
JOB TITLE Proposed Development 16 Worthing Road East Preston Littlehampton BN16 1AZ			
DRAWING TITLE Location & Block Plans PLANNING SSUE			
DATE Aug '17	SCALE as indicated	DRAWN BY ec	
		CHECKED BY mf	
JOB NO. 1681	DRAWING NO. 2.06	REVISION	

APPENDIX B – TOPOGRAPHICAL SURVEY



NOTES
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LEGEND

BANKING

BUSHES & HEDGES

MARSH

TREES

GATES

RETAINING WALL

SLORING MASONRY

FENCE

WALL

BUILDING

OPEN SIDED BUILDING

GLASS ROOFED

CONTOURS

OVERHEAD WIRES

ABBREVIATIONS

(WHERE APPLICABLE)

AIR VALVE

BED LEVEL

BEULHA BEACON

BOLLARD

BRITISH TELECOM BOX

BRICKWORK

BUS STOP

CABLE TV

COVER LEVEL

CABLE MARKER

CONCRETE POST

DOWN PIPE

DROP KERB

EAVES LEVEL

ELECTRICITY CABLE PIT

ELECTRICITY CONTROL BOX

GARTHER ROAD

FIRE HYDRANT

FLOWER BED

FOOTPATH

FLOOR LEVEL

FLAG STAFF

GAS VALVE

GATE STOP

GULLY

GULLY OUTLET

INSPECTION COVER

INVERT LEVEL

LAMP POST

LETTER BOX

BUILDING

ACCESS WATCH

ARCH HEAD HEIGHT

ARCH HEAD LEVEL

ARCH SPRINGER HEIGHT

ARCH SPRINGER LEVEL

BEAM

BEAM HEIGHT

BEAM HEAD LEVEL

BEAM SOFFIT LEVEL

COLUMN

CILL TO HEAD

CEILING LEVEL

DOOR HEAD

DOOR HEAD LEVEL

FIRE ALARM

FLOOR TO CILL

FALSE CEILING

FLOOR TO CEILING HEIGHT

FINISHED FLOOR LEVEL

HOSE REEL

ROOF LEVEL

RAUCTION

RAIN WATER PIPE

MANHOLE

MARKER

NOTICE BOARD

NAME PLATE

OVERHEAD WIRES

PARKING METER

RIDGE LEVEL

ROAD SIGN

RODGING EYE

RETAINING WALL

SLUCE VALVE

STOP COCK

SOFFIT LEVEL

SPOT LEVEL

STRUCTURAL SLAB LEVEL

STATION

TREE STUMP

TELEGRAPH POLE

TELEPHONE CALL BOX

TOP OF KERB

TURNSTILE

TOP OF WALL

TRAFFIC LIGHT

UNDERGROUND

UNABLE TO LIFT

UNABLE TO SURVEY

VENT PIPE

WATER LEVEL

WATER METER

WASH OUT

WASTE PIPE

WATER VALVE

WINDOW CILL LEVEL

SKYLIGHT

SOIL AND VENT PIPE

THRESHOLD LEVEL

WASH BASIN

WATER TANK

FENCES

BARBED WIRE FENCE

CORRUGATED IRON FENCE

CLOSE BOARD FENCE

CHAIN LINK FENCE

CHESTNUT PALING FENCE

FENCE POST

INTERWOVEN FENCE

LARCH LAF FENCE

MISCELLANEOUS FENCING

PALISADE FENCE

POST AND CHAIN FENCE

POST AND RAIL FENCE

TUBULAR STEEL RAIL

WIRE MESH FENCE

Note:
Survey is based on arbitrary height datum of +10.00 metres Stn A

REV	DATE	BY	AMENDMENT



folkes architects

THE DESIGN STUDIO
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Dewsbury
West Yorkshire
WF4 4SD

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info@folkesarchitects.co.uk

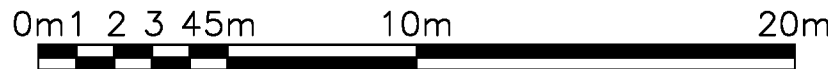
CLIENT
Randall & Chisnall Construction Ltd

JOB TITLE
16 Worthing Road
East Preston
West Sussex
BN16 1AZ

DRAWING TITLE
Topographical Survey

DATE	SCALE	DRAWN BY
31.03.17	1:200 @ A1	DJ
		CHECKED BY MF

JOB NO.	DRAWING NO.	REVISION
1681	1.01	



SCALE 1:200

TOPOGRAPHICAL SURVEY OVERLAID WITH OS MAP

APPENDIX C – EXTRACTS FROM GEOTECHINICAL ASSESSMENT REPORT



ASHDOWN SITE INVESTIGATION
L.I.M.I.T.E.D

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Swanborough Farm,
Swanborough,
Lewes,
East Sussex
BN7 3PF
Tel: 01273 483119 Fax: 01273 483104
email: contact@ashdownsi.co.uk

DRAWN BY:	DATE:	SCALE (at A3):
TSH	Jan 2018	1:250
SITE:		
16 Worthing Road East Preston West Sussex		
REPORT REF.:	FIGURE NO.:	
R18-12714	2	
DRAWING TITLE:		
Site Plan		

The infiltration rates derived from the tests are summarised in the following table.

Table 4. Calculated Infiltration Rates

Exploratory Hole	Test Response Zone Depth (m)		Stratum	Infiltration Rate (f) (m/sec)	Driving Head of Water (m)
	Top	Bottom			
TP01 – Test 1	0.41	0.85	River Terrace Deposits	3.4×10^{-4}	-
TP01 – Test 2	0.40	0.85	River Terrace Deposits	2.1×10^{-4}	-
TP01 – Test 3	0.40	0.85	River Terrace Deposits	8.6×10^{-5}	-
WS02 – Test 1	2.00	3.00	White Chalk Subgroup	1.1×10^{-5}	1.0
WS02 – Test 2	2.00	3.00	White Chalk Subgroup	1.1×10^{-5}	1.0

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests indicate that the near surface River Terrace Deposits and White Chalk Subgroup soils possess moderate infiltration characteristics. However, it is noted that chalk deposits were not encountered within the upper 3m of the majority of the site and the fine grained River Terrace Deposits may possess poorer infiltration rates due to their high fines content (clay and silt). It would therefore be prudent to undertake larger scale testing at the proposed soakaway locations in order to establish the soil infiltration rate that may be achievable at these locations. The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To minimise the risk of subsidence, point discharging infiltration systems (conventional ring or trench soakaways) should be constructed a minimum of 10m away from proposed or existing buildings. Where dissolution features are known to be prevalent, point discharging infiltration systems should preferably be avoided, but where this is not practical the guidance recommends that they should be sited at least 20m away from any foundations.

In the event that discharge to ground via infiltration systems is proposed, it is recommended that designers of the system provide for the prevention of pollution of groundwater. In this regard attention is drawn to guidance provided within BRE 365 and by the Environment Agency which requires a contamination risk assessment to be carried out in order to assess the potential risk to groundwater. Further works would be required in order to undertake a groundwater contamination risk assessment of the site. Appropriate consideration should also be given to whether there is a need for inclusion of interceptors and oil separators. The Local Authority and/or relevant water company should be consulted in relation to consent for discharge of water from rooftops, areas of hardstanding and roadways to drains.

**Ashdown Site Investigation Ltd.
February 2018**

Site Name: 16 Worthing Road, East Preston, West Sussex

Job Number: R18-12714

Start Date: 24/01/2018

End Date: 24/01/2018

Borehole Number:
WS01

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend	Depth	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm				
D	0.20						0.00	Topsoil over,
							0.30	MADE GROUND: Light brown slightly gravelly silty clay. Gravel is subangular to subrounded fine to medium brick, concrete, flint and chalk.
D	0.60							Firm light orange brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium flint. (River Terrace Deposits)
H	0.70		60					
U	0.80	1.00						
V	1.00		90				1.00	
								Stiff light orange brown mottled light grey and dark brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium flint and ironstone. (River Terrace Deposits)
D	1.50							becoming firm below 1.50m depth.
H	1.50		50					
H	1.60		40					
U	1.80	2.00						
V	2.00		60				2.10	Firm light grey mottled light orange brown slightly gravelly silty CLAY. Sand is fine. Gravel is subangular to rounded fine to medium flint. (River Terrace Deposits)
H	2.30		40					
D	2.50							
H	2.60		40					
U	2.80	3.00					3.00	End of borehole at 3.00m

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: ML

Site Name: 16 Worthing Road, East Preston, West Sussex

Job Number: R18-12714

Start Date: 24/01/2018

End Date: 24/01/2018

Borehole Number:

WS03

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend		Depth		Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm							
D	0.10							0.00		Topsoil.	
								0.30		Firm light orange brown mottled light grey and dark brown slightly sandy slightly gravelly silty CLAY. Sand is fine to medium. Gravel is subangular fine to medium ironstone. (River Terrace Deposits)	
D	0.60										
H	0.60		40								
H	0.90		60								
V	1.00		80								
H	1.20		50								
D	1.40										
H	1.70		25								
V	2.00		50								
H	2.30		40								
D	2.60									End of borehole at 3.00m	
H	2.60		90								
D	2.90										
V	3.00		120					3.00			

Remarks

Groundwater: Borehole dry on completion.

Excavation Method: WLS

Stability: Borehole stable on completion.

Borehole Diameter: Various

Notes: n/a

Made By: ML

Site Name: 16 Worthing Road, East Preston, West Sussex

Job Number: R18-12714

Start Date: 24/01/2018

End Date: 24/01/2018

Borehole Number: **WS04**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend		Depth		Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm							
				0 5 10 15 20 25 30				0.00		Topsoil.	
D	0.30							0.25		Soft light orange brown silty CLAY with frequent rootlets. (River Terrace Deposits - Undifferentiated)	
H	0.40		<25								
H	0.70		35								
D	0.80										
V	1.00		90					1.00		Firm light orange brown mottled light grey slightly gravelly silty CLAY. Gravel is subangular fine ironstone. (River Terrace Deposits - Undifferentiated) becoming slightly sandy below 1.10m depth. Sand is fine.	
H	1.30		40								
H	1.80		40								
V	2.00		60								
D	2.10										
H	2.20		60								
H	2.70		75							becoming stiff below 2.70m depth.	
D	2.80										
V	3.00		80					3.00		End of borehole at 3.00m	

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: ML

Site Name: 16 Worthing Road, East Preston, West Sussex

Job Number: R18-12714

Start Date: 24/01/2018

End Date: 24/01/2018

Borehole Number: **WS05**

Sheet 1 of 1

Standpipe		Samples and In Situ Testing		Dynamic Probe		Legend		Depth		Stratum Description	
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Blows/100mm							
D	0.30							0.00		Topsoil over,	
										MADE GROUND: Dark brown slightly gravelly silty clay. Gravel is subangular to subrounded fine to medium brick, concrete, chalk and flint.	
H	0.60		25					0.40		Soft light brown mottled light grey and dark brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine ironstone. (River Terrace Deposits - Undifferentiated)	
D	0.70										
V	1.00		90							becoming stiff at 1.00m depth.	
H	1.30		50							becoming firm below 1.30m depth.	
H	1.60		50								
U	1.80	2.00									
V	2.00		60					2.00		Firm light orange brown mottled light grey silty CLAY. (River Terrace Deposits - Undifferentiated)	
H	2.30		40								
D	2.40										
H	2.70		50								
U	2.80	3.00									
V	3.00		60					3.00		End of borehole at 3.00m	

Remarks
Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: ML

Site Name: 16 Worthing Road, East Preston, West Sussex

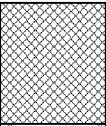
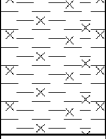
Job Number: R18-12714

Start Date: 24/01/2018

End Date: 24/01/2018

Trial Pit Number: **TP01**

Sheet 1 of 1

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
D	0.30				0.00	Topsoil over, MADE GROUND: Light grey brown slightly gravelly silty clay. Gravel is subangular to subrounded fine to medium brick, concrete, flint, slag and chalk.
D	0.70				0.40	Stiff light orange brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium flint and chalk. (River Terrace Deposits - Undifferentiated)
V	0.80		120		0.85	End of trial pit at 0.85m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

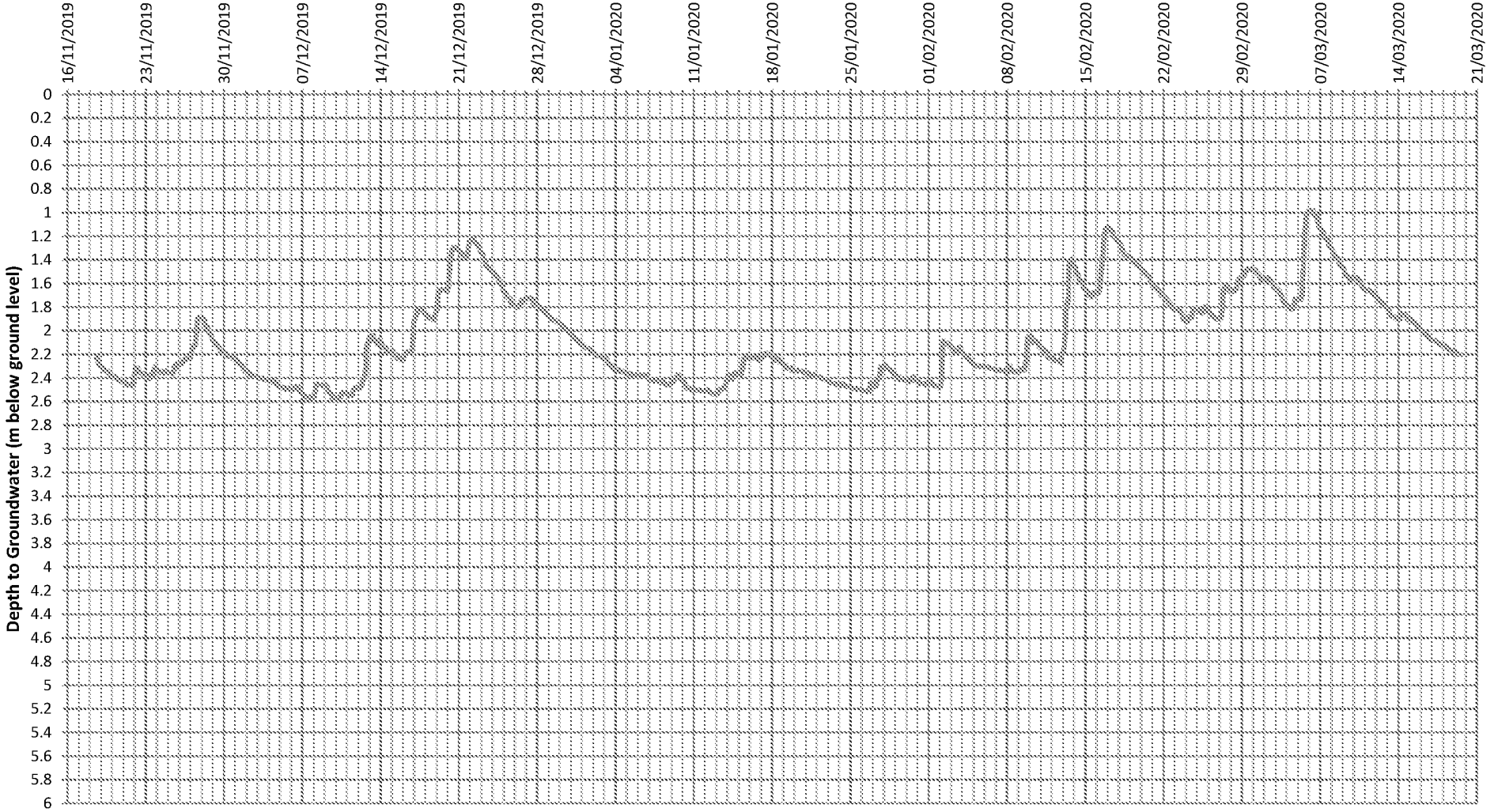
Pit Width: 0.30m

Made By: ML

Ashdown Site Investigation Limited

Site: 16 Worthing Road, East Preston, West Sussex	Report No. P14285
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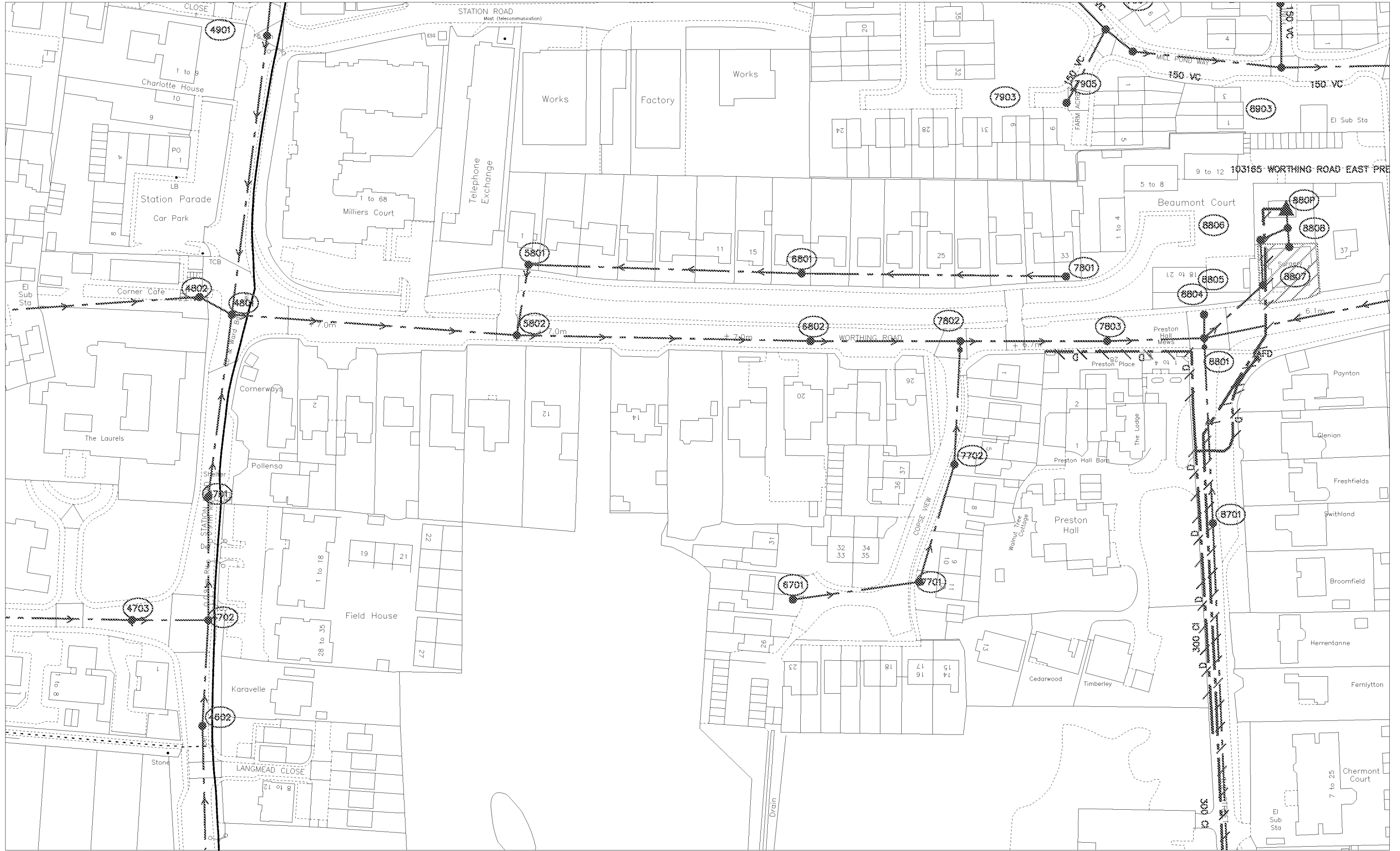
Groundwater Monitoring Results - WS1



APPENDIX D – SEWER RECORDS SOUTHERN WATER

SEWER RECORDS PAGE 1 OF 2

102938



102650

506398

O.S. REF.

TQ0602NE

Title: 331309_16 Worthing Road Ferrin

Drawn by: ahmadr

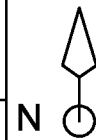
Scale: 1:1250

Date: 14/03/2019

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy.

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

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 Southern Water

506869

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
4602X	8.24	5.5	175	VC	CIRC																		
4701X	7.62	4.97	175	VC	CIRC																		
4702X	7.97	5.3	175	VC	CIRC																		
4703X	7.86	5.52	150	VC	CIRC																		
4801X	6.95	3.02	200	VC	CIRC																		
4802X	6.83	3.91	150	VC	CIRC																		
4901X	5.77	3.58	175	VC	CIRC																		
5801X	7.18	4.98	150	VC	CIRC																		
5802X	7.37	2.75	200	VC	CIRC																		
6701X	7.72	5.87	150	VC	CIRC																		
6801X	7.36	5.78	150	VC	CIRC																		
6802X	7.1	2.37	200	VC	CIRC																		
7701X	7.51	5.3	150	VC	CIRC																		
7702X	7.58	4.63	150	VC	CIRC																		
7801X	7.49	6.99	150	VC	CIRC																		
7802X	6.98	2.27	200	VC	CIRC																		
7803X	6.44	1.96	225	VC	CIRC																		
7903X	7.23	5.661	150	VC	CIRC																		
7904X	7.19	5.484	150	VC	CIRC																		
7905X	7.23	5.402	150	VC	CIRC																		
8701X	6.54	4.24	150	VC	CIRC																		
8801X	6.42	1.76	225	VC	CIRC																		
8804X	6.35	5.07	150	VC	CIRC																		
8805X	6.5		225	CP	CIRC																		
8806X	7.03		OTHER	BRC	CIRC																		
8807X	7.23	1.16	225	CP	CIRC																		
8902X	7.33	5.23	150	VC	CIRC																		
8903X	6.81	5.077	150	VC	CIRC																		

LINE STYLES / COLOURS

Brown	----- Foul
	----- Foul Syphon Sewer
	----- Foul Vacuum Main
	----- Foul Rising Main
Red	----- Combined
	----- Combined Syphon Sewer
	----- Combined Rising Main
Orange	----- Lateral Drain
	----- Building Over Agreement Area
Dark Blue	----- Treated Effluent
Purple	----- Sludge
	----- Sewer Catchment
	----- Section 104 Area
Light Blue	----- Surface Water
	----- Surface Water Rising Main
Yellow	----- Private
Green	----- Access Shaft
	----- Decommissioned

MATERIALS

AK	Alkaline
BAC	Bonded Asbestos Cement
BRC	Brick (Common)
BRE	Brick (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DI	Ductile Iron
GRG	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry in regular Courses
MAR	Masonry in random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Matrix
SI	Spun Iron
ST	Steel
VC	Verified Clay
XXX	Other
ZZZ	Unknown

Manhole (SW)
Manhole (F&C)
Lamp hole (SW)
Lamp hole (F&C)
Pumping Station (SW)
Pumping Station (F&C)
Side entry manhole (SW)
Side entry manhole (F&C)
Blind shaft (SW)
Blind shaft (F&C)
Ejector station (SW)
Ejector station (F&C)
Watertight door (SW)
Watertight door (F&C)
Flushing ch. Min-e (SW)
Flushing ch. Min-e (F&C)
Flushing ch. No-e (SW)
Flushing ch. No-e (F&C)
Demonstration Chamber

LEGEND - SEWERS

Washout (SW)
Washout (F&C)
Rodding Eye (SW)
Rodding Eye (F&C)
Gauging point (SW)
Gauging point (F&C)
Intercept chamber (SW)
Intercept chamber (F&C)
Storm Tank (SW)
Storm Tank (F&C)
Vortex chamber (SW)
Vortex chamber (F&C)
Label ellipse
Dummy/S24 manhole
Outfall
Penstock chamber
Demiboards
Storm Overflow
Backdrop manhole

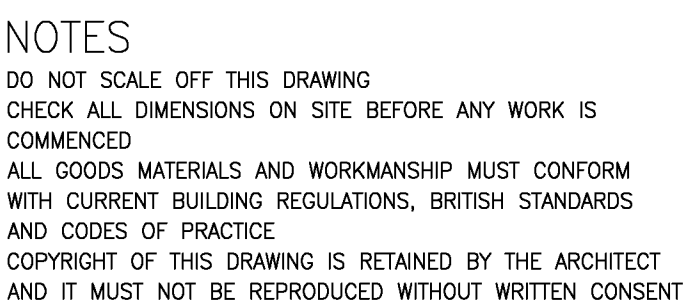
Other (s)
Other
Change In sewer (s)
Change In sewer
Rafflux valve
Flap valve
Cascade
Anode
Valve
Closed Valve
Air Valve
Hatch box (SW)
Hatch box (F&C)
Direction arrow
Emptying valve
Catchpit
Soakaway
Inlet
Balancing Pond

Wastewater treatment works
Marine treatment works
Outfall headworks
Vent
Vent column
Tidal storage tank
Blank end
Head of Public Sewer
Micro Pumping Station
SHAPES (S)
A Arched
B Barrel
C Circular
E Egg
H Horseshoe
R Rectangular
S Square
T Trapezoidal
U U Shape
X Other

NODE REFERENCING SYSTEM
1st digit: hundred metre easting identifier
2nd digit: hundred metre northing identifier
3rd digit: sewer type identifier
4th digit: next sequential node

Drawn by:	ahmadr	
Title:	331309_16 Worthing Road Ferrin	
Date:	14/03/2019	

APPENDIX E – PROPOSED SITE PLAN



WORTHING ROAD

existing brickwork wall to be demolished to allow construction of new entrance

existing dropped kerbs to be retained and increased in width to serve new vehicular/pedestrian access

hatched areas denotes extent of newly constructed brickwork & fire wall - to match existing

soft landscaping to street frontage to be designed and maintained to a maximum height of 600mm to prevent obstruction of visibility safety

Bin Store

09 - visitor

08 - visitor

07 - visitor

06

05

04

03

02

01

distance from Fire Tender to Flat 5 - 43.9m access distance

existing planting to be removed and replaced with new screening and semi-mature specimen trees

existing 1.20m high boundary walling to be retained

position of electric car charging point/bollard

no. 14

new natural screening planted to provide privacy from picture window on the eastern elevation of the extension to no. 14

dashed line denotes extent of existing structures to be demolished

no. 18

existing mature natural screening to be retained, with existing close board fencing replaced with new close board fencing

dashed line denotes extent of existing planting to be removed

light green hatching denotes existing mature screening to be retained and cut back to allow for creation of parking bays

new permeable paving to roadway and car parking bays

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m

scale bar - 1:100 @ A1

scale bar - 1:100 @ A1

C	24.10.17	ec	bin store amended following planners comments
B	27.09.17	ec	feature windows omitted and rooflights added to first floor flats
A	16.08.16	ec	PLANNING ISSUE
REV	DATE	BY	AMENDMENT



THE DESIGN STUDIO
94 High Street
Steyning
West Sussex
BN44 3RD

CLIENT

Randall & Chisnall Construction Ltd

JOB TITLE

Proposed Development
16 Worthing Road
East Preston
Littlehampton
BN16 1AZ

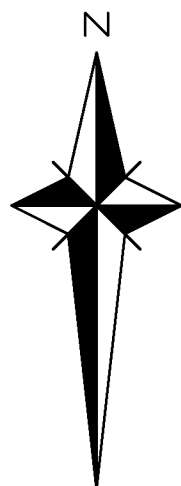
DRAWING TITLE

Proposed Site Plan

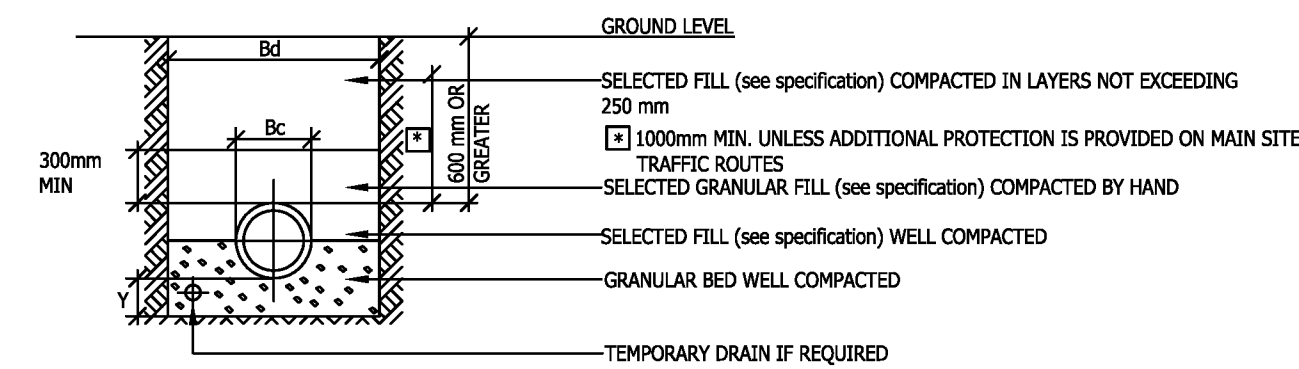
PLANNING ISSUE

DATE	SCALE	DRAWN BY ec
Aug '17	1:100 @ A1	CHECKED BY mf
JOB NO.	DRAWING NO.	REVISION
1681	2.01	C

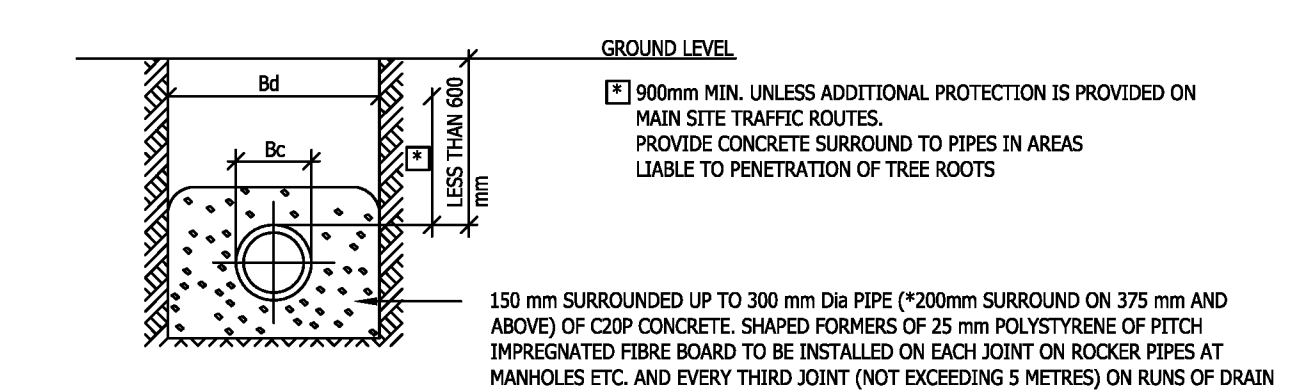
APPENDIX F – SITE DRAINAGE PLAN AND DETAILS

[illegible]

CLASS B GRANULAR BED



CONCRETE BED & SURROUND (C.B.S.)

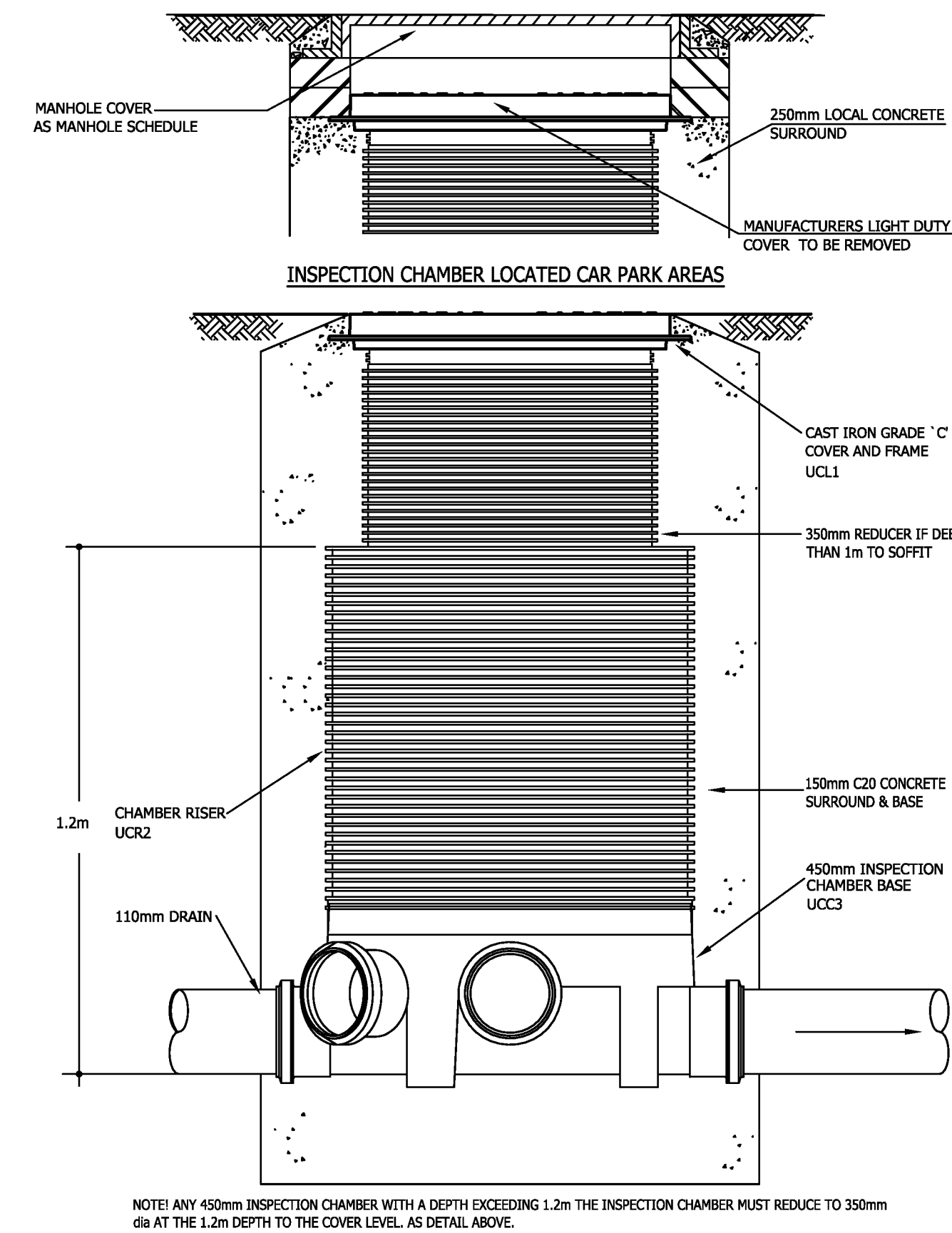


- DIMENSION Y =
- IN ROCK, CONCRETE OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, LARGE FLINTS OR STONES OR OTHER IRREGULAR HARD SPOTS THAT RESULT IN UNEVEN TRENCH BOTTOM Y=1/4 Bc OR 200 mm WHICH EVER IS THE GREATER, BUT NOT LESS THAN 50mm UNDER COLLARS
- NOTES
- IN SOILS THAT PERMIT AN EVEN TRENCH BOTTOM TO BE EXCAVATED Y=1/6 Bc OR 150 mm WHICH EVER IS GREATER, BUT NOT LESS THAN 50 mm UNDER COLLARS
 - 1) FOR PIPES EXCEEDING 600 mm DIA REFER TO ENGINEER
 - 2) IN WET OR SOFT GROUND SEEK GUIDANCE FROM ENGINEER
 - 3) THE BEDDINGS MAY BE MODIFIED FOR CERTAIN SUB-SOIL CONDITIONS AT THE ENGINEERS DISCRETION
 - 4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL PROTECTION IN AREAS SUBJECT TO LOADS FROM SITE TRAFFIC. THE CONTRACTOR SHALL IDENTIFY THESE ZONES AND RESTRICT TRAFFIC ELSEWHERE
 - 5) SEE ALSO BS 8301
 - 6) FOR GREATER TRENCH WIDTHS SEEK GUIDANCE FROM ENGINEER

PIPE SIZE	Bd TRENCH WIDTH
100 mm	0.6 m
150 mm	0.6 m
225 mm	0.7 m
300 mm	0.8 m
375 mm	1.1 m
400 mm	1.1 m
450 mm	1.2 m
500 mm	1.2 m
600 mm	1.4 m

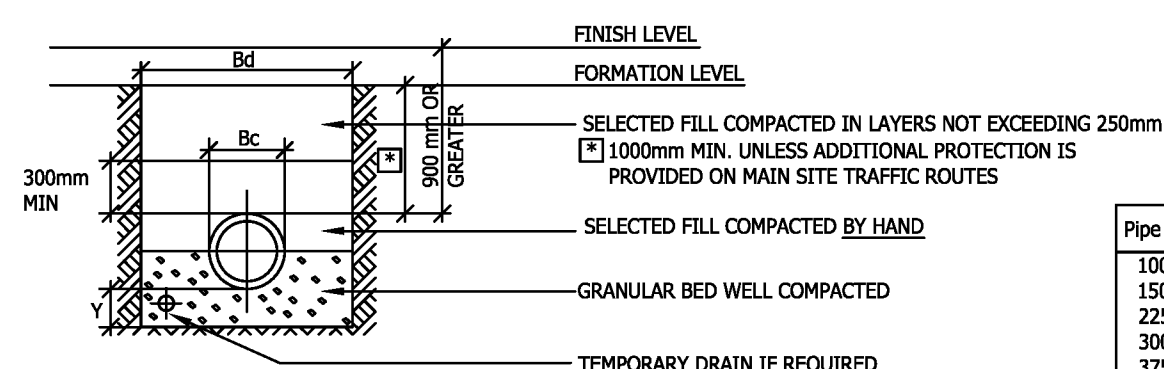
GRANULAR MATERIAL	PIPE SIZE	AGGREGATE
100 mm	10 mm	SINGLE SIZE
150 mm	10 OR 14-5 mm	GRADED
375 mm	10, 14, 20 SINGLE SIZE OR	20-25 mm GRADED
400 mm	10, 14, 20 OR 40 mm SINGLE	CRUSHED ROCK OR 40-45 mm GRADED
500 mm	10, 14, 20 OR 40 mm SINGLE	CRUSHED ROCK OR 40-45 mm GRADED
600 mm	10, 14, 20 OR 40 mm SINGLE	CRUSHED ROCK OR 40-45 mm GRADED

BEDDING DETAILS LANDSCAPE AREAS

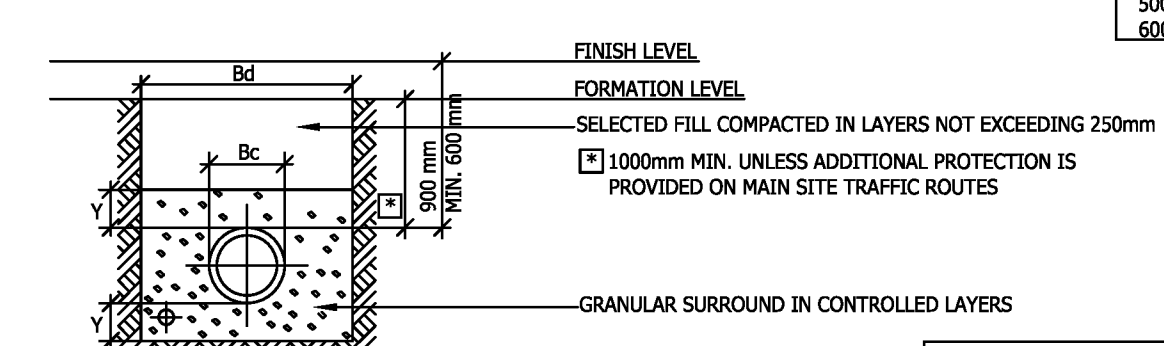


450mm INSPECTION CHAMBER

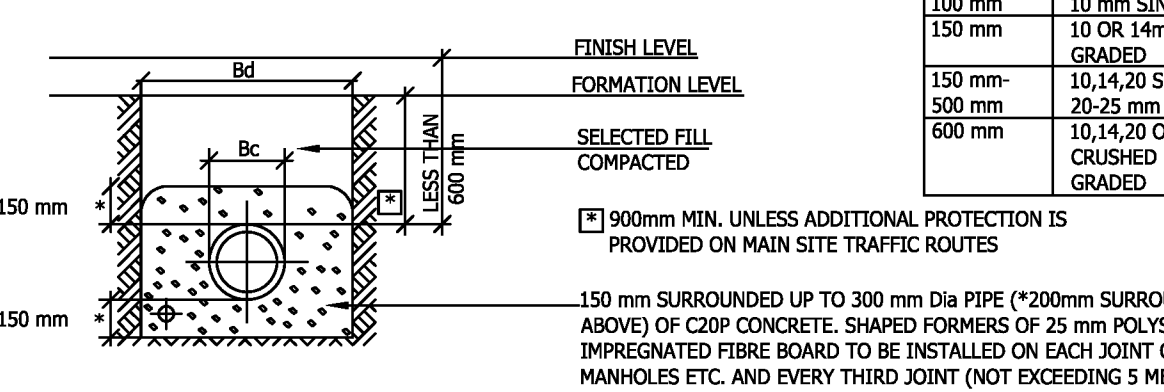
CLASS B GRANULAR BED



CLASS S GRANULAR SURROUND

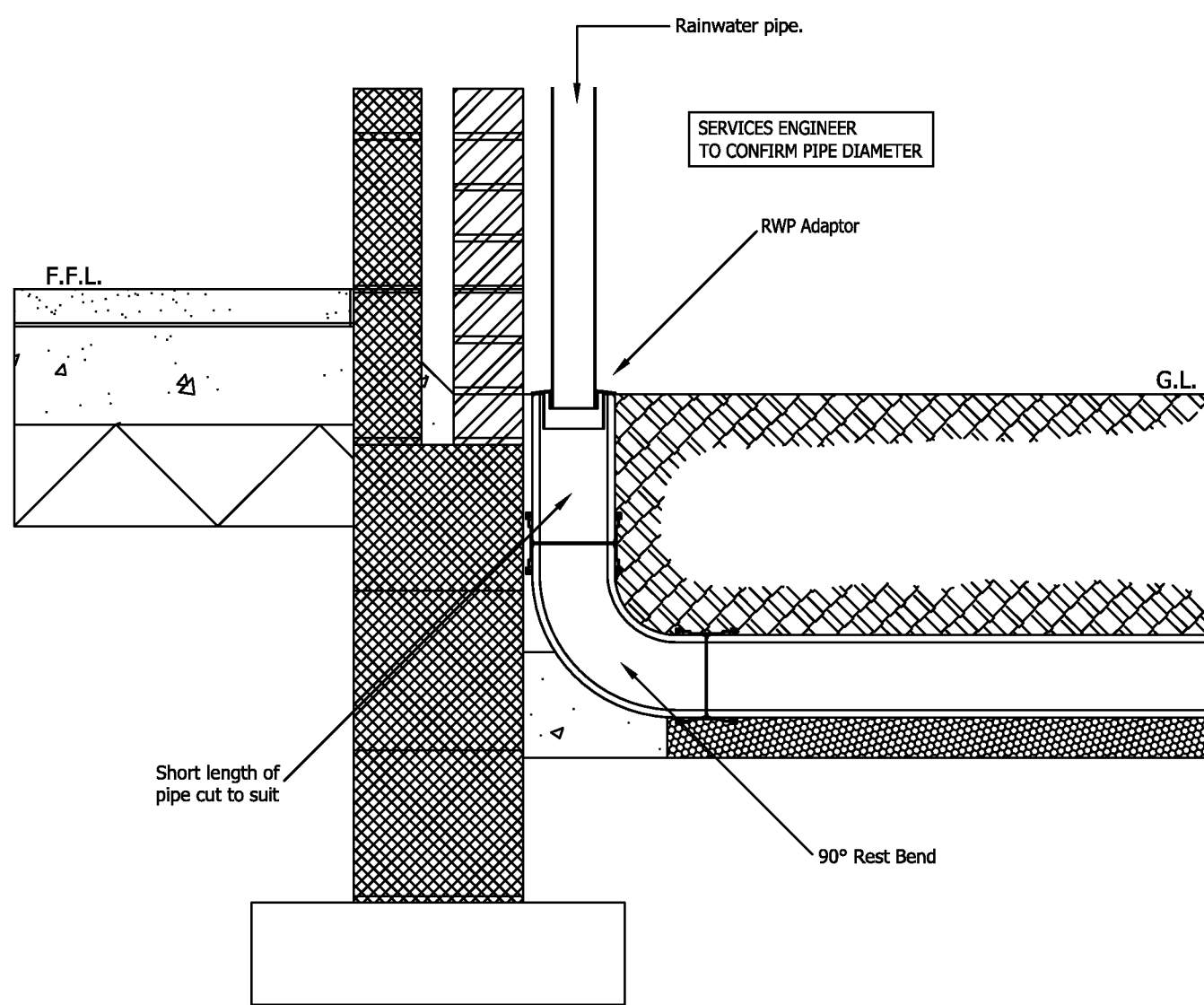


CONCRETE BED & SURROUND (C.B.S.)

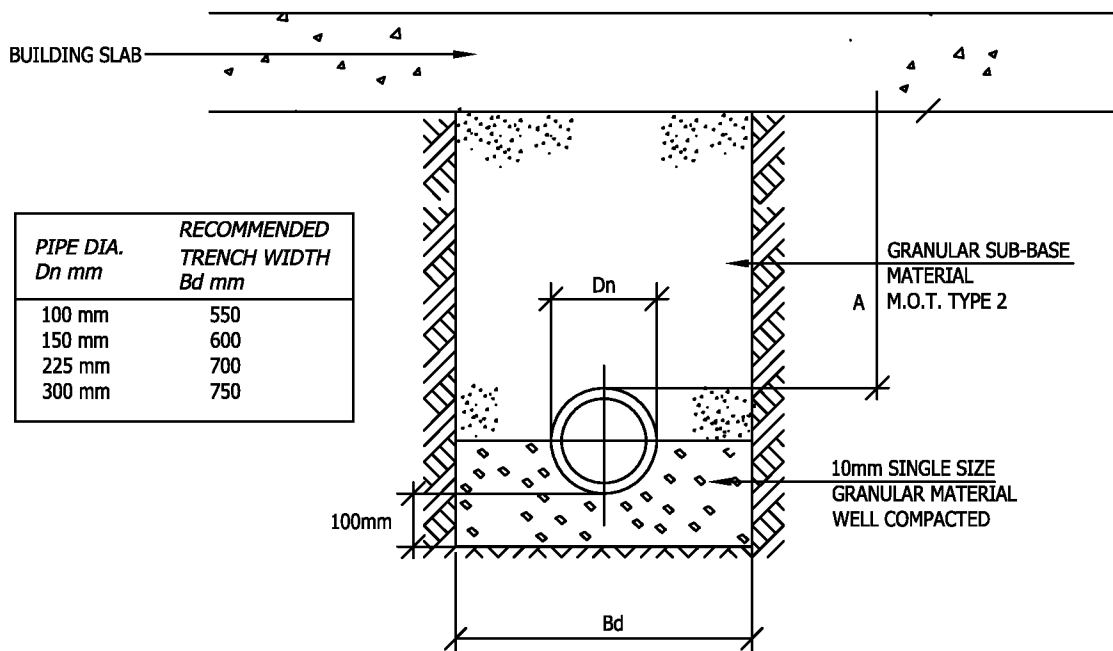


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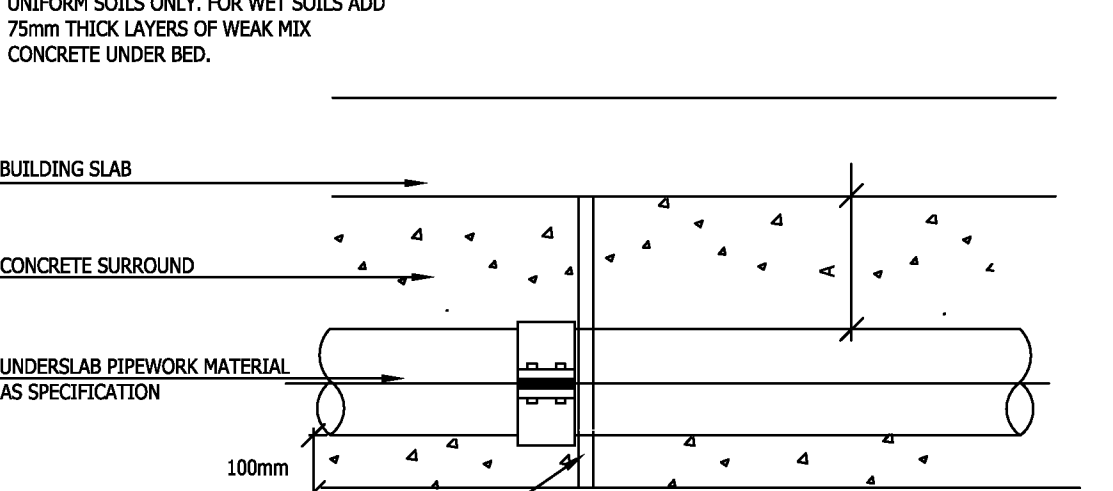
BEDDING DETAILS LIGHT TRAFFIC AREAS



DOMESTIC RAINWATER PIPE CONNECTION TO DRAIN

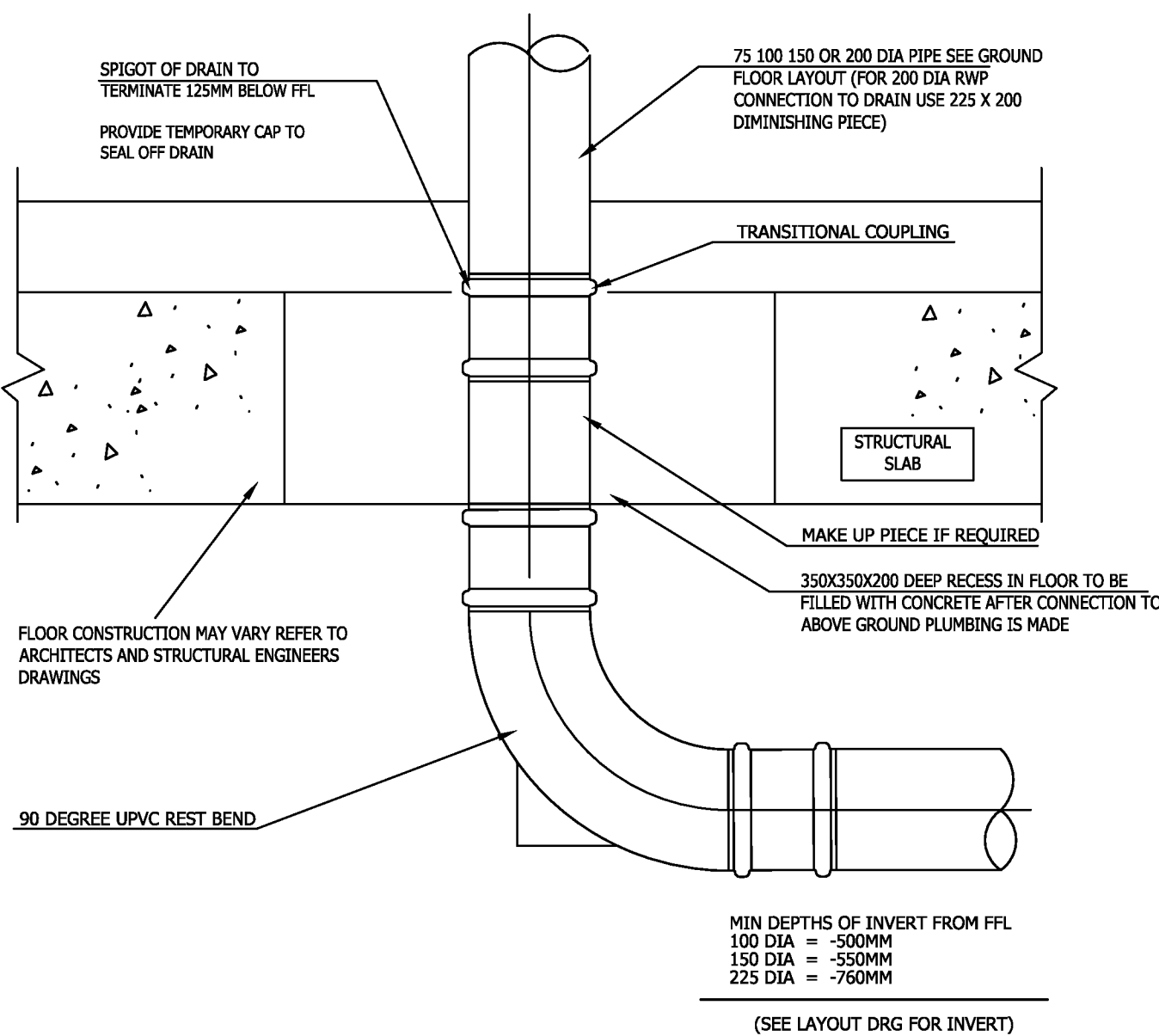


GRANULAR BED ('A' IS GREATER THAN 300mm)

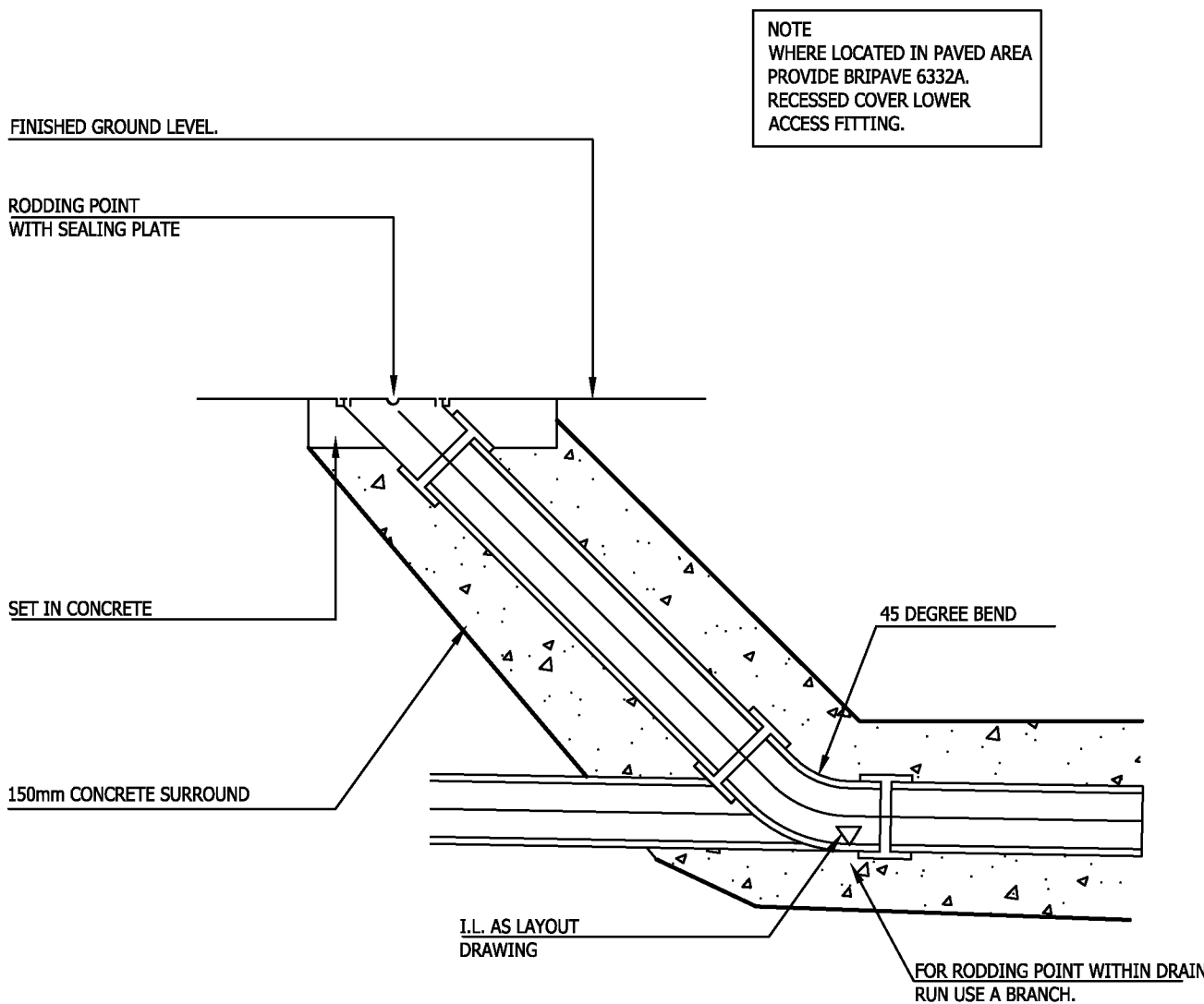


CONCRETE SURROUND ('A' IS LESS THAN 300mm)

BEDDING DETAILS FOR PIPE UNDERBUILDING



DRAIN POINT TERMINATION



RODDING POINT SHALLOW DRAIN RUN

GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations, record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. Any discrepancies shall be notified to gta prior to works commencing.
2. Tender or billing drawings shall not be used for construction or the ordering of materials.
3. Do not scale. All dimensions and levels to be site confirmed.
4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements.
5. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.
6. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

NOTE
WHERE LOCATED IN PAVED AREA
PROVIDE BRIPAVE 6332A
RECESSED COVER LOWER
ACCESS FITTING.

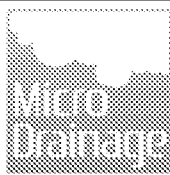
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Rev	Amendments		Date	Dsn	Chk
Status			PRELIMINARY		
Client: RANDALL & CHISNALL CONSTRUCTION LTD					
Architect			FOLKES ARCHITECTS		
Project			16 WORTHING ROAD FERRING, BN16 1AZ		
Title SITE DRAINAGE DETAILS SHEET 1 OF 2					
Date MAY 2020			Scale @ A1		
Clients Ref.			Project Ref. 7338		
 civils & transport Gloucester House, 66a Church Walk, Burgess Hill, West Sussex, RH15 9AS Tel.01444 871444 Web: www.gtacivils.co.uk					
Drawing Number 7338/1701				Rev. P1	

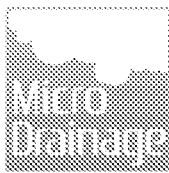


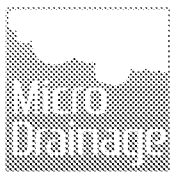
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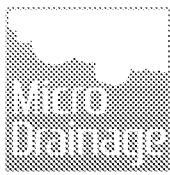
P2	DRAINAGE CHANNEL DETAIL ADDED	02.06.2020	JR	MR	
P1	INITIAL ISSUE	06.05.2020	JR	MR	
Rev	Amendments	Date	Dsn	Chk	
Status					
PRELIMINARY					
Client					
RANDALL & CHISNALL CONSTRUCTION LTD					
Architect					
FOLKE ARCHITECTS					
Project					
16 WORTHING ROAD FERRING, BN16 1AZ					
Title					
SITE DRAINAGE DETAILS SHEET 2 OF 2					
Date		Scale @ A1			
MAY 2020					
Clients Ref.		Project Ref.		7338	
 Gloucester House, 616 Church Walk, Burgess Hill, West Sussex, RH15 9AS Tel.01444 871444 Web: www.gtacivils.co.uk					
Drawing Number				Rev.	
7338/1702				P2	

APPENDIX G – MICRO DRAINAGE OUTPUT SHEETS

GTA Civils Ltd				Page 1																																																																																																																																																																																																																			
66a Church Walk Burgess Hill West Sussex RH15 9AS		16 Worthing Road Porous sub-base 1 in 100 year+40%																																																																																																																																																																																																																					
Date 02/06/2020 File Porous car park.srcx		Designed by JR Checked by																																																																																																																																																																																																																					
Micro Drainage		Source Control 2018.1																																																																																																																																																																																																																					
Summary of Results for 100 year Return Period (+40%) Half Drain Time : 22 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>9.800</td><td>0.170</td><td>5.4</td><td>9.7</td><td>○ K</td></tr><tr><td>30 min Summer</td><td>9.833</td><td>0.203</td><td>5.4</td><td>11.5</td><td>○ K</td></tr><tr><td>60 min Summer</td><td>9.840</td><td>0.210</td><td>5.4</td><td>11.9</td><td>○ K</td></tr><tr><td>120 min Summer</td><td>9.793</td><td>0.163</td><td>5.4</td><td>9.2</td><td>○ K</td></tr><tr><td>180 min Summer</td><td>9.752</td><td>0.122</td><td>5.4</td><td>6.9</td><td>○ K</td></tr><tr><td>240 min Summer</td><td>9.720</td><td>0.090</td><td>5.4</td><td>5.1</td><td>○ K</td></tr><tr><td>360 min Summer</td><td>9.683</td><td>0.053</td><td>5.4</td><td>3.0</td><td>○ K</td></tr><tr><td>480 min Summer</td><td>9.672</td><td>0.042</td><td>4.6</td><td>2.4</td><td>○ K</td></tr><tr><td>600 min Summer</td><td>9.666</td><td>0.036</td><td>3.9</td><td>2.0</td><td>○ K</td></tr><tr><td>720 min Summer</td><td>9.661</td><td>0.031</td><td>3.4</td><td>1.8</td><td>○ K</td></tr><tr><td>960 min Summer</td><td>9.655</td><td>0.025</td><td>2.7</td><td>1.4</td><td>○ K</td></tr><tr><td>1440 min Summer</td><td>9.648</td><td>0.018</td><td>2.0</td><td>1.0</td><td>○ K</td></tr><tr><td>2160 min Summer</td><td>9.643</td><td>0.013</td><td>1.4</td><td>0.8</td><td>○ K</td></tr><tr><td>2880 min Summer</td><td>9.641</td><td>0.011</td><td>1.2</td><td>0.6</td><td>○ K</td></tr><tr><td>4320 min Summer</td><td>9.638</td><td>0.008</td><td>0.9</td><td>0.5</td><td>○ K</td></tr><tr><td>5760 min Summer</td><td>9.637</td><td>0.007</td><td>0.7</td><td>0.4</td><td>○ K</td></tr><tr><td>7200 min Summer</td><td>9.636</td><td>0.006</td><td>0.6</td><td>0.3</td><td>○ K</td></tr><tr><td>8640 min Summer</td><td>9.635</td><td>0.005</td><td>0.6</td><td>0.3</td><td>○ K</td></tr><tr><td>10080 min Summer</td><td>9.635</td><td>0.005</td><td>0.5</td><td>0.3</td><td>○ K</td></tr><tr><td>15 min Winter</td><td>9.827</td><td>0.197</td><td>5.4</td><td>11.2</td><td>○ K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>152.216</td><td>0.0</td><td>15</td></tr><tr><td>30 min Summer</td><td>101.752</td><td>0.0</td><td>25</td></tr><tr><td>60 min Summer</td><td>64.903</td><td>0.0</td><td>42</td></tr><tr><td>120 min Summer</td><td>37.581</td><td>0.0</td><td>76</td></tr><tr><td>180 min Summer</td><td>27.232</td><td>0.0</td><td>106</td></tr><tr><td>240 min Summer</td><td>21.625</td><td>0.0</td><td>136</td></tr><tr><td>360 min Summer</td><td>15.557</td><td>0.0</td><td>190</td></tr><tr><td>480 min Summer</td><td>12.291</td><td>0.0</td><td>248</td></tr><tr><td>600 min Summer</td><td>10.233</td><td>0.0</td><td>308</td></tr><tr><td>720 min Summer</td><td>8.811</td><td>0.0</td><td>368</td></tr><tr><td>960 min Summer</td><td>6.963</td><td>0.0</td><td>490</td></tr><tr><td>1440 min Summer</td><td>5.012</td><td>0.0</td><td>734</td></tr><tr><td>2160 min Summer</td><td>3.632</td><td>0.0</td><td>1100</td></tr><tr><td>2880 min Summer</td><td>2.906</td><td>0.0</td><td>1456</td></tr><tr><td>4320 min Summer</td><td>2.147</td><td>0.0</td><td>2184</td></tr><tr><td>5760 min Summer</td><td>1.749</td><td>0.0</td><td>2904</td></tr><tr><td>7200 min Summer</td><td>1.501</td><td>0.0</td><td>3624</td></tr><tr><td>8640 min Summer</td><td>1.331</td><td>0.0</td><td>4368</td></tr><tr><td>10080 min Summer</td><td>1.209</td><td>0.0</td><td>5000</td></tr><tr><td>15 min Winter</td><td>152.216</td><td>0.0</td><td>16</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	9.800	0.170	5.4	9.7	○ K	30 min Summer	9.833	0.203	5.4	11.5	○ K	60 min Summer	9.840	0.210	5.4	11.9	○ K	120 min Summer	9.793	0.163	5.4	9.2	○ K	180 min Summer	9.752	0.122	5.4	6.9	○ K	240 min Summer	9.720	0.090	5.4	5.1	○ K	360 min Summer	9.683	0.053	5.4	3.0	○ K	480 min Summer	9.672	0.042	4.6	2.4	○ K	600 min Summer	9.666	0.036	3.9	2.0	○ K	720 min Summer	9.661	0.031	3.4	1.8	○ K	960 min Summer	9.655	0.025	2.7	1.4	○ K	1440 min Summer	9.648	0.018	2.0	1.0	○ K	2160 min Summer	9.643	0.013	1.4	0.8	○ K	2880 min Summer	9.641	0.011	1.2	0.6	○ K	4320 min Summer	9.638	0.008	0.9	0.5	○ K	5760 min Summer	9.637	0.007	0.7	0.4	○ K	7200 min Summer	9.636	0.006	0.6	0.3	○ K	8640 min Summer	9.635	0.005	0.6	0.3	○ K	10080 min Summer	9.635	0.005	0.5	0.3	○ K	15 min Winter	9.827	0.197	5.4	11.2	○ K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	152.216	0.0	15	30 min Summer	101.752	0.0	25	60 min Summer	64.903	0.0	42	120 min Summer	37.581	0.0	76	180 min Summer	27.232	0.0	106	240 min Summer	21.625	0.0	136	360 min 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2880 min Summer	9.641	0.011	1.2	0.6	○ K																																																																																																																																																																																																																		
4320 min Summer	9.638	0.008	0.9	0.5	○ K																																																																																																																																																																																																																		
5760 min Summer	9.637	0.007	0.7	0.4	○ K																																																																																																																																																																																																																		
7200 min Summer	9.636	0.006	0.6	0.3	○ K																																																																																																																																																																																																																		
8640 min Summer	9.635	0.005	0.6	0.3	○ K																																																																																																																																																																																																																		
10080 min Summer	9.635	0.005	0.5	0.3	○ K																																																																																																																																																																																																																		
15 min Winter	9.827	0.197	5.4	11.2	○ K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
15 min Summer	152.216	0.0	15																																																																																																																																																																																																																				
30 min Summer	101.752	0.0	25																																																																																																																																																																																																																				
60 min Summer	64.903	0.0	42																																																																																																																																																																																																																				
120 min Summer	37.581	0.0	76																																																																																																																																																																																																																				
180 min Summer	27.232	0.0	106																																																																																																																																																																																																																				
240 min Summer	21.625	0.0	136																																																																																																																																																																																																																				
360 min Summer	15.557	0.0	190																																																																																																																																																																																																																				
480 min Summer	12.291	0.0	248																																																																																																																																																																																																																				
600 min Summer	10.233	0.0	308																																																																																																																																																																																																																				
720 min Summer	8.811	0.0	368																																																																																																																																																																																																																				
960 min Summer	6.963	0.0	490																																																																																																																																																																																																																				
1440 min Summer	5.012	0.0	734																																																																																																																																																																																																																				
2160 min Summer	3.632	0.0	1100																																																																																																																																																																																																																				
2880 min Summer	2.906	0.0	1456																																																																																																																																																																																																																				
4320 min Summer	2.147	0.0	2184																																																																																																																																																																																																																				
5760 min Summer	1.749	0.0	2904																																																																																																																																																																																																																				
7200 min Summer	1.501	0.0	3624																																																																																																																																																																																																																				
8640 min Summer	1.331	0.0	4368																																																																																																																																																																																																																				
10080 min Summer	1.209	0.0	5000																																																																																																																																																																																																																				
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66a Church Walk Burgess Hill West Sussex RH15 9AS		16 Worthing Road Porous sub-base 1 in 100 year+40%			
Date 02/06/2020 File Porous car park.srcx		Designed by JR Checked by			
Micro Drainage		Source Control 2018.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.863	0.233	5.4	13.2	○ K
60 min Winter	9.866	0.236	5.4	13.4	○ K
120 min Winter	9.795	0.165	5.4	9.3	○ K
180 min Winter	9.734	0.104	5.4	5.9	○ K
240 min Winter	9.692	0.062	5.4	3.5	○ K
360 min Winter	9.670	0.040	4.4	2.3	○ K
480 min Winter	9.662	0.032	3.5	1.8	○ K
600 min Winter	9.657	0.027	3.0	1.5	○ K
720 min Winter	9.653	0.023	2.5	1.3	○ K
960 min Winter	9.649	0.019	2.0	1.0	○ K
1440 min Winter	9.643	0.013	1.4	0.7	○ K
2160 min Winter	9.640	0.010	1.1	0.5	○ K
2880 min Winter	9.638	0.008	0.8	0.4	○ K
4320 min Winter	9.636	0.006	0.6	0.3	○ K
5760 min Winter	9.635	0.005	0.5	0.3	○ K
7200 min Winter	9.634	0.004	0.5	0.2	○ K
8640 min Winter	9.634	0.004	0.4	0.2	○ K
10080 min Winter	9.633	0.003	0.4	0.2	○ K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	101.752	0.0	27		
60 min Winter	64.903	0.0	46		
120 min Winter	37.581	0.0	80		
180 min Winter	27.232	0.0	112		
240 min Winter	21.625	0.0	136		
360 min Winter	15.557	0.0	190		
480 min Winter	12.291	0.0	250		
600 min Winter	10.233	0.0	308		
720 min Winter	8.811	0.0	370		
960 min Winter	6.963	0.0	488		
1440 min Winter	5.012	0.0	736		
2160 min Winter	3.632	0.0	1068		
2880 min Winter	2.906	0.0	1424		
4320 min Winter	2.147	0.0	2176		
5760 min Winter	1.749	0.0	2936		
7200 min Winter	1.501	0.0	3776		
8640 min Winter	1.331	0.0	4424		
10080 min Winter	1.209	0.0	5024		
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<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Porous Car Park Structure</u> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">Infiltration Coefficient Base (m/hr)</td> <td style="width: 20%;">0.31000</td> <td style="width: 20%;">Width (m)</td> <td style="width: 20%;">13.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>14.0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>52.5</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>9.630</td> <td>Membrane Depth (m)</td> <td>0</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.31000	Width (m)	13.5	Membrane Percolation (mm/hr)	1000	Length (m)	14.0	Max Percolation (l/s)	52.5	Slope (1:X)	0.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	9.630	Membrane Depth (m)	0
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