MERIDIAN

CIVIL ENGINEERING CONSULTANCY

44 BRIGHTON ROAD,

LANCING,

BN15 8ET

SURFACE WATER DRAINAGE STRATEGY

JANUARY 2023

Ref: MC0096

CONTENTS

1.0 INTRODUCTION 2
2.0 DESIGN INFORMATION FOR CONDITION 3 2
3.0 CONCLUSION 4

APPENDICES

APPENDIX I Site Investigation 2021
APPENDIX II Surface Water Drainage Design Drawings
APPENDIX III Hydraulic Calculations

Client : Inature

Rev	Date	Prepared by	Checked by	Approved by
P0	Jan 2023	Bojidar Boiadjiev	BB	MN
P1	08.02.2023	Bojidar Boiadjiev	BB	MN

Please Note:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from Meridian Civil Engineering Consultancy Ltd. All work has been carried out within the terms of the brief using all reasonable skill, care and diligence. No liability is accepted by Meridian Civil Engineering Consultancy Ltd for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced.

1.0 INTRODUCTION

1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Inature to prepare a document pack to collate information required for discharge of condition 3, Planning Ref: AWDM/0836/22 with Adur District Council. The proposals are for the construction of a new 2-bedroom detached dwelling. See Appendix I for proposals by architect.

1.2 Planning condition 3 states:

Notwithstanding the details shown on the proposed site plan, development shall not commence, other than works of site survey and investigation, until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The design should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring to establish highest annual ground water levels and winter infiltration testing to BRE DG365, or similar approved, will be required to support the design of any Infiltration drainage. No building / No part of the extended building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity..

2.0 DESIGN INFORMATION FOR CONDITION 3

2.1 The proposed drainage strategy for the site is based on following the SuDS hierarchy as set out in the National Flood Risk and Coastal Change Guidance and in the local Adur and Worthing Councils Supplementary Requirements for Surface Water Drainage Proposals. According to the drainage hierarchy, infiltration is the most preferred method for managing surface water runoff.

2.2 The proposals for managing the surface water runoff from the site are to utilise infiltration techniques. The strategy is based on the ground investigation information conducted for the site at Land North of 1 to 28 The Haven, Brighton Road (site extent shown in purple in Figure 1 below), which was given planning permission in May 2022 with planning reference AWDM/0384/22 – the data from the adjacent site has been made public on the planning portal.

2.3 The nearby site investigation included infiltration tests and groundwater monitoring. The closest infiltration test to the site is approximately 87m away from 44 Brighton Road as indicated in Figure 1 below. The lowest measured infiltration rate for Land North of 1 to 28 The Haven is $2.1x10^{-5}$m/s and the highest groundwater level measured corresponded to a depth of 1.98m below ground level. The existing site level of approximately 5.6mAOD is proposed to be retained for the proposed finished surface. It should be noted that topographic levels at site have been estimated using 1m LIDAR data from the Environment Agency.



Figure 1: Ground Investigations at Land North of 1 to 28 The Haven in relation to 44 Brighton Road

Redline – boundary of 44 Brighton Road; Purple line – boundary of Land North of 1 to 28 The Haven; Blue Cross – infiltration test location; Red Circle – groundwater level monitoring well location

2.4 Based on the information summarised above, the proposals for the surface water drainage for the new dwelling at 44 Brighton Road assume an infiltration rate of $2.1x10^{-5}$m/s and soakaways bases sited no lower than 0.98m below ground level (thus leaving 1m of freeboard to highest recorded groundwater level in line with CIRIA SuDS Manual).

2.5 Infiltration rates and groundwater levels are required to be tested at the location of the proposed soakaway prior to commencement of drainage works on site and the design adjusted if needed depending on the rates to ensure compliance with the assumed design parameters.

2.6 The runoff from the roof of the proposed dwelling is proposed to be directed to a soakaway located in the back garden of the new house. All new or resurfaced hardstanding surfaces around the new dwelling are to be of permeable construction allowing water to be treated and drain into the ground. The proposed drainage strategy is provided in Appendix II

2.7 Supporting calculations for the proposed surface water drainage design are shown in Appendix III. These are based on using the 1:100+45% rainfall event and utilising the FEH rainfall model. The calculations demonstrate that all roof runoff from the 1:100+45% rainfall event would remain underground and not result in flooding.

2.8 The size of the proposed soakaway would be 10.5m2 in plan area and thickness of 630mm providing a total volume of 6.2m3 and a half-drain time of 315min. The critical storm duration is the 240 minutes winter event.

2.9 The primary risk to water quality is from the trafficked areas. This is proposed to be treated through providing permeable paving for all new or resurfaced hardstanding areas.

2.10 The Pollution Hazard Indices are summarised in Table 4 – Summary of Pollution Hazard Indices for different Land Use below (based on Table 26.2 of The SuDS Manual):

POLLUTION HAZARD INDICES FOR DIFFERENT LAND USE CLASSIFICATIONS				
LAND USE	**Pollution Hazard Level**	**Total Suspended Solids**	**Metals**	**Hydrocarbons**
Residential Roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads)	Low	0.5	0.4	0.4

Table 6: Summary of Pollution hazard Indices for different Land Use

2.11 The Mitigation Indices of the proposed SuDS techniques are summarised in Table 6 below.

INDICATIVE SuDS MITIGATION INDICES FOR DISCHARGES TO SURFACE WATER			
SuDS Component	**Total Suspended Solids**	**Metals**	**Hydrocarbons**
Permeable Paving	0.7	0.6	0.7

Table 7: Indicative SuDS Mitigation Indices.

2.12 Additionally, a catchpit is proposed upstream of the soakaway to reduce the sediment and litter loading to the soakaway.

2.13 A maintenance schedule for the proposed drainage elements is provided in drawing MC0169-CIV01.

3.0 CONCLUSION

3.1 A surface water drainage strategy has been developed for the site at 44 Brighton Road, Lancing to provide information required for discharge of condition 3, Planning Ref: AWDM/0836/22 with Adur District Council.

3.2 The drainage strategy is based on infiltrating the storm water runoff from the proposed site. Site infiltration rates have been based on a site investigation conducted for Land North of 1 to 28 The Haven, Brighton Road, which was given planning permission in May 2022 with planning reference AWDM/0384/22. The data from the nearby site has been made available on the planning portal.

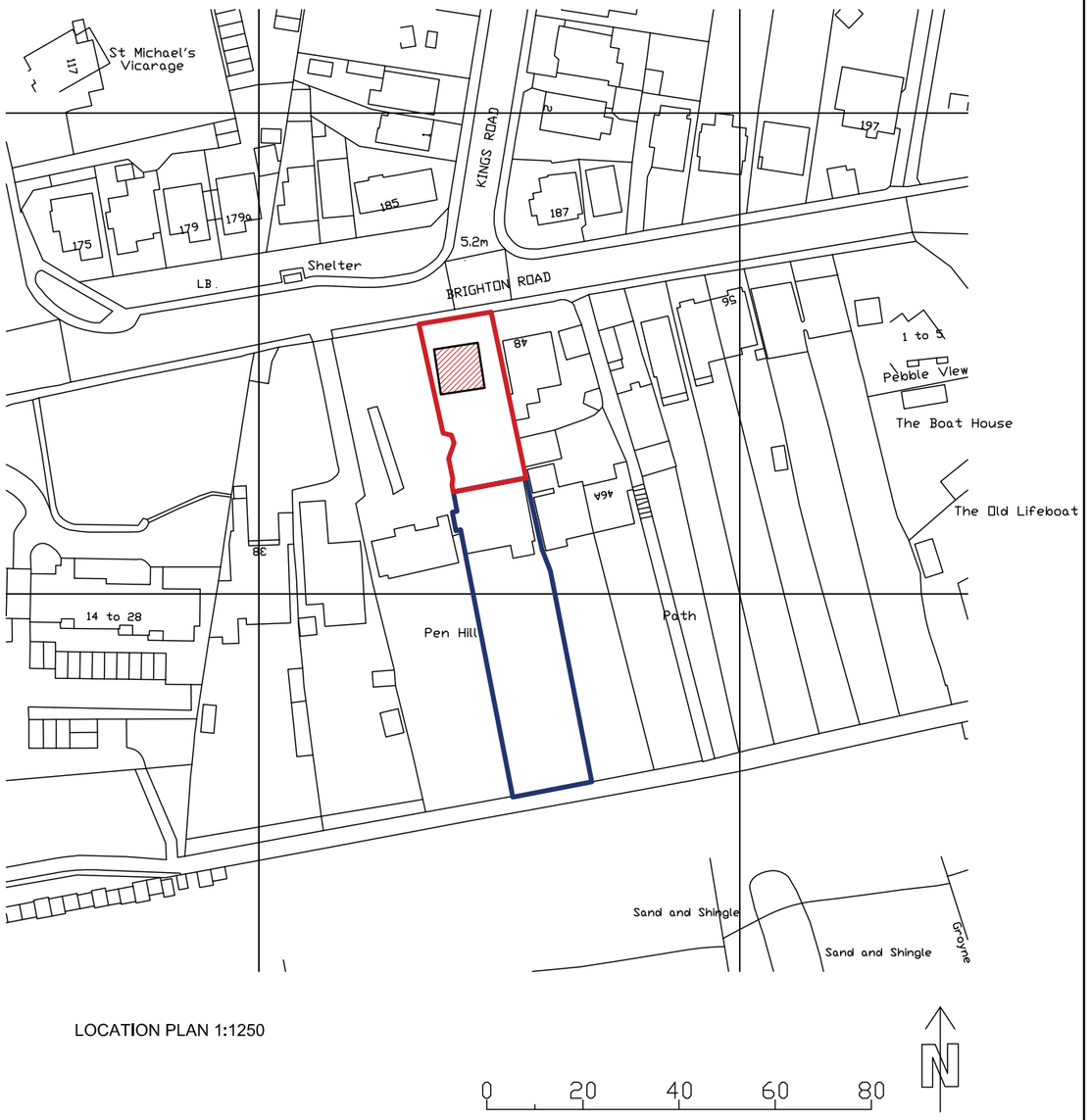
3.3 Infiltration rates and groundwater levels are required to be tested at the location of the proposed soakaway prior to commencement of drainage works on site and the design adjusted if needed depending on the rates to ensure compliance with the assumed design parameters.

3.4 The runoff from the roof of the proposed dwelling is proposed to be directed to a soakaway located in the back garden of the new house. All new or resurfaced hardstanding surfaces around the new dwelling are to be of permeable construction allowing water to be treated and drain into the ground.

3.5 The treatment of the runoff is provided via permeable paving and a catchpit upstream of the soakaway.

3.6 This report has been produced broadly in accordance with the National Planning Policy Framework (NPPF) and based on the findings of this report, it is deemed that the development could be constructed without worsening the flood risk on site or offsite.

APPENDIX I Site Plans



LOCATION PLAN 1:1250

Client D. IRESON AND M. KAMIS Job Title THE COTTAGE 44 BRIGHTON ROAD LANCING, SUSSEX BN15 8ET	Drawing Title LOCATION & BLOCK PLAN Drawing Status FOR PLANNING Drawn By / Checked By LT	Scale AS @ A3 Date JUN 2021 Drawing No. 2760 - 000 Rev. -	Revisions Rev. Date. Description -		All site dimensions and levels to be verified by contractors and subcontractors on site prior to manufacture Do not Scale from this drawing To be read in conjunction with all other drawings and contract documentation Contractor to refer to all relevant consultants and engineers drawings throughout the course of the works All works to comply to local authority requirements Any errors, dimensional discrepancies or omissions to be reported to Inature prior to manufacture Drawing is for design intent only

inature
architecture & design

www.inature.co.uk
T. 0207 223 8100
T. 01273 710 056

© inature



Client
D. IRESON AND M. KAMIS

Job Title
THE COTTAGE
44 BRIGHTON ROAD
LANCING, SUSSEX BN15 8ET

Drawing Title
EXISTING SITE PLAN

Drawing Status
FOR PLANNING

Drawn By

Checked By
LT

Scale
1:250 @ A3

Date
JUN 2021

Drawing No.
2760 - 001

Rev.
A

Revisions

Rev.	Date.	Description
A	22.05.11	UPDATED

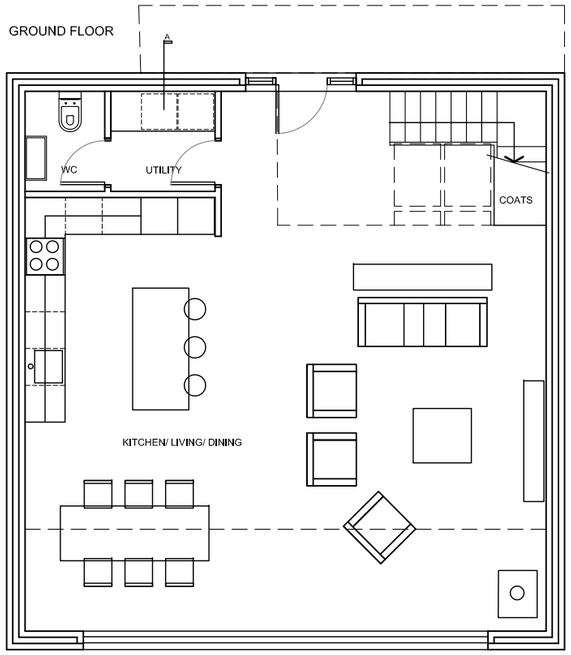
All site dimensions and levels to be verified by contractors and subcontractors on site prior to manufacture
Do not Scale from this drawing
To be read in conjunction with all other drawings and contract documentation
Contractor to refer to all relevant consultants and engineers drawings throughout the course of the works All works to comply to local authority requirements
Any errors, dimensional discrepancies or omissions to be reported to Inature prior to manufacture
Drawing is for design intent only

inature
architecture & design

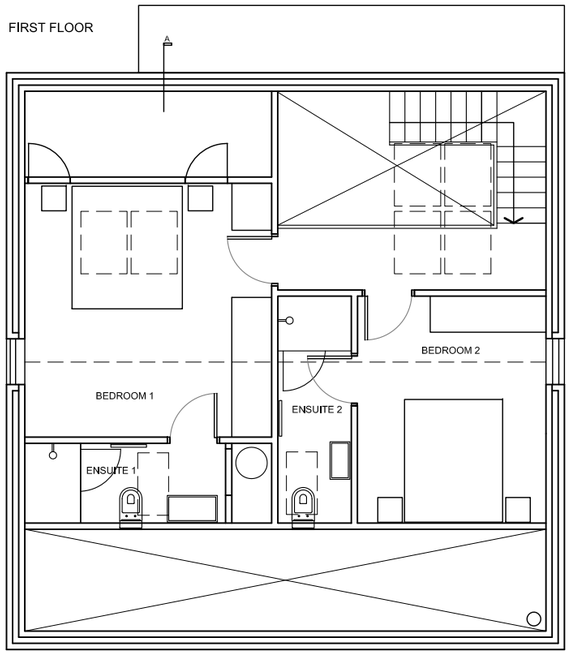
www.inature.co.uk
T. 0207 223 8100
T. 01273 710 056

© inature

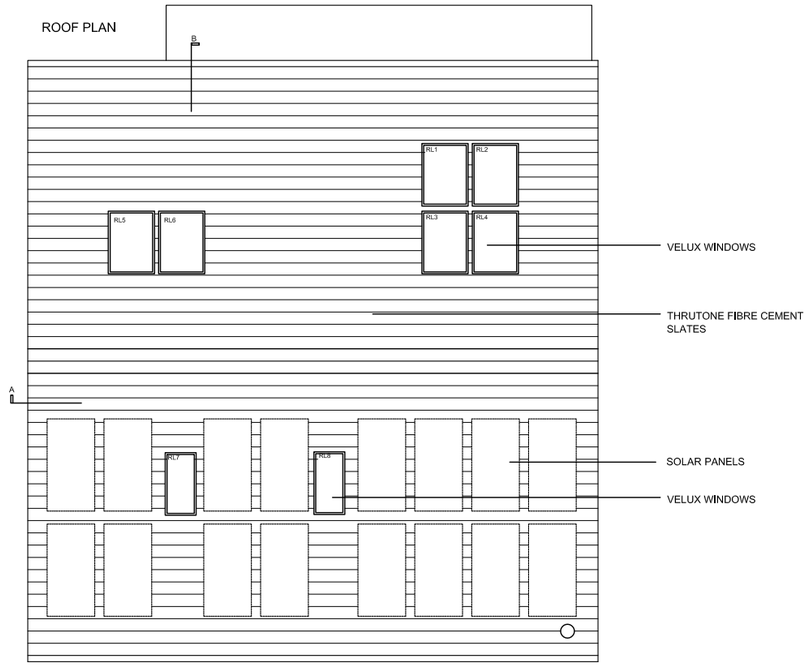
GROUND FLOOR



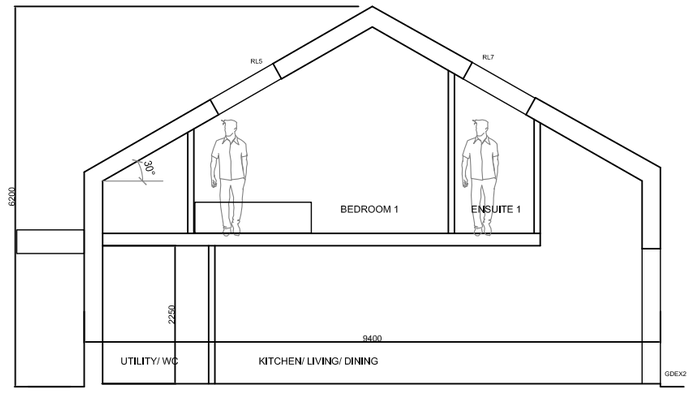
FIRST FLOOR



ROOF PLAN



SECTION A



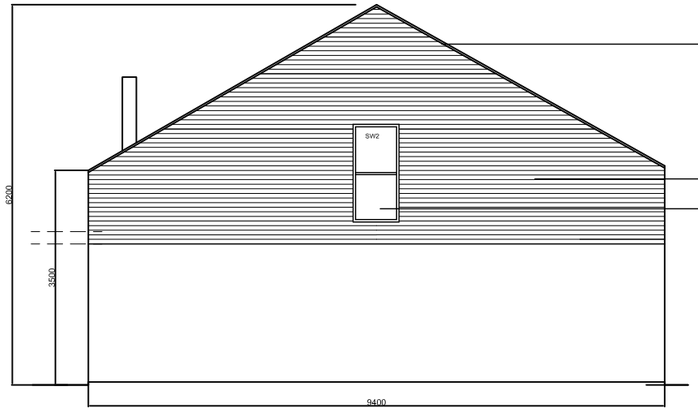
0 5m

Client D. IRESON AND M. KAMIS Job Title THE COTTAGE 44 BRIGHTON ROAD LANCING, SUSSEX BN15 8ET	Drawing Title PROPOSED PLANS Drawing Status FOR PLANNING Drawn By / Checked By LT	Scale 1:100 @ A3 Date JUN 2021 Drawing No. 2760 - 003 Rev. B	Revisions Rev. Date. Description A 05.05.22 MINOR ALTERATIONS. BUILDING ORIENTATION ALTERED B 17.05.22 ROOF PLAN ADDED		All site dimensions and levels to be verified by contractors and subcontractors on site prior to manufacture Do not Scale from this drawing To be read In conjunctlon with all other drawlngs and contract documentation Contractor to refer to all relevant consultants and engineers drawlngs throughout the course of the works All works to comply to local authority requirements Any errors, dimensional discrepancies or omissions to be reported to Inature prlor to manufacture Drawing is for design intent only

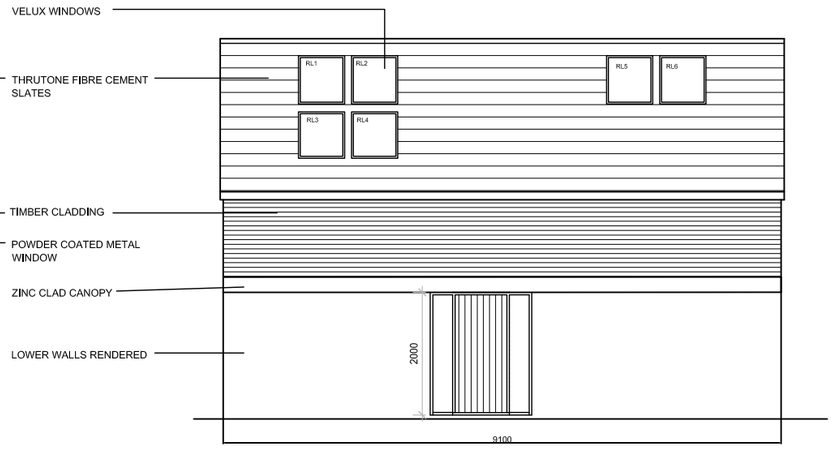
inature
architecture & design

www.inature.co.uk
T. 0207 223 8100
T. 01273 710 056

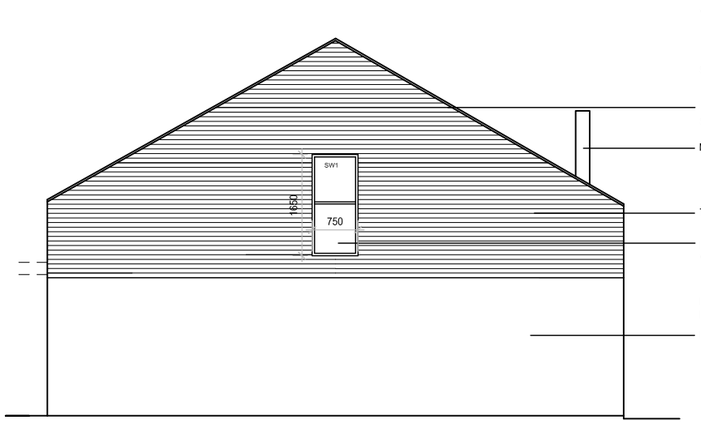
© inature



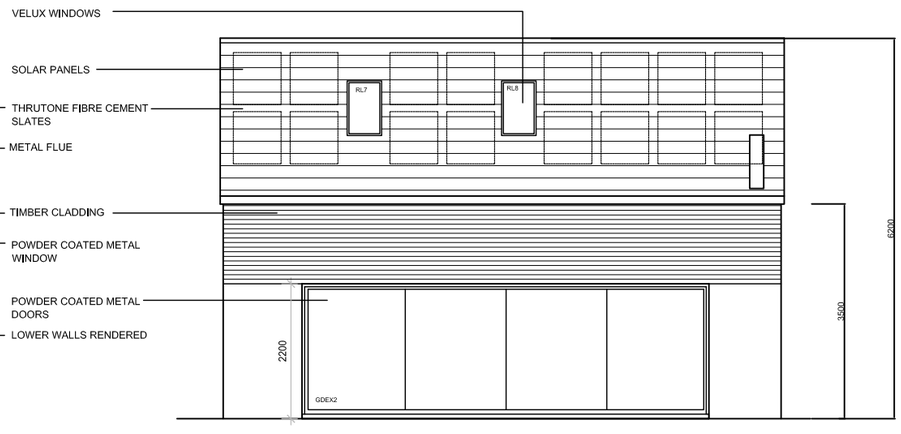
SIDE ELEVATION - FACING NO 48 - east



FRONT ELEVATION - north



SIDE ELEVATION - FACING NO 42 - west



REAR ELEVATION - south

0 5m

Client
D. IRESON AND M. KAMIS

Job Title
THE COTTAGE
44 BRIGHTON ROAD
LANCING, SUSSEX BN15 8ET

Drawing Title
PROPOSED ELEVATIONS

Drawing Status
FOR PLANNING

Drawn By

Checked By
LT

Scale
1:100 @ A3

Date
JUN 2021

Drawing No.
2760 - 004

Rev.
C

Revisions

Rev.	Date.	Description
A	05.05.22	MINOR ALTERATIONS. BUILDING ORIENTATION ALTERED
B	17.05.22	COMPASS POINTS ADDED
C	06.06.22	ELEVATION TITLES AMENDED

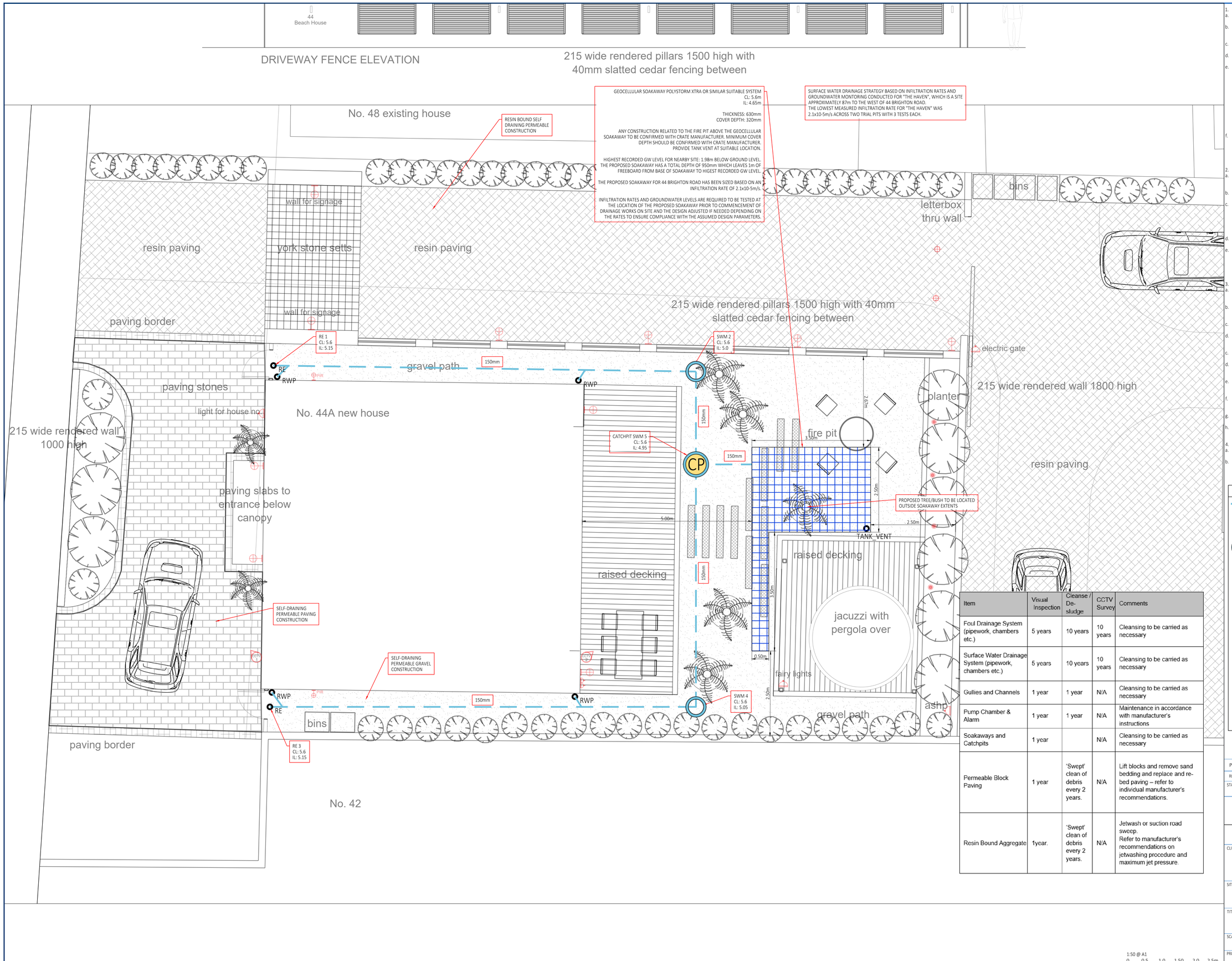
All site dimensions and levels to be verified by contractors and subcontractors on site prior to manufacture
Do not Scale from this drawing
To be read In conjunction with all other drawings and contract documentation
Contractor to refer to all relevant consultants and engineers drawings throughout the course of the works All works to comply to local authority requirements
Any errors, dimensional discrepancies or omissions to be reported to Inature prior to manufacture
Drawing is for design intent only

inature
architecture & design

www.inature.co.uk
T. 0207 223 8100
T. 01273 710 056

© inature

APPENDIX II Surface Water Drainage Design Drawings



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 and Channels	1 year	1 year	N/A	Cleansing to be carried as necessary
Pump Chamber & Alarm	1 year	1 year	N/A	Maintenance in accordance with manufacturer's instructions
Soakaways and Catchpits	1 year		N/A	Cleansing to be carried as necessary
Permeable Block Paving	1 year	'Swept' clean of debris every 2 years.	N/A	Lift blocks and remove sand bedding and replace and re-bed paving – refer to individual manufacturer's recommendations.
Resin Bound Aggregate	1year.	'Swept' clean of debris every 2 years.	N/A	Jetwash or suction road sweep. Refer to manufacturer's recommendations on jetwashing procedure and maximum jet pressure.

1. 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.

2. 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

3. 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 ADOPTABLE 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.
c. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
d. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
e. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
f. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.
g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

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.

LEGEND

- PROPOSED SW PIPE RUN
- PROPOSED TYPE 3 SW INSPECTION CHAMBER
- CP — CATCHPIT CHAMBER/MANHOLE
- RE — PROPOSED SW RODDING EYE
- RWP — PROPOSED SW RAINWATER PIPE
- GEOCELLULAR ATTENUATION - NOT TANKED

REV:	DESCRIPTION:	BY:	DATE:
P1	SOAKAWAY POSITION AND SHAPE CHANGE	BB	08.02.2023

STATUS: FOR COMMENTS

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: Inature

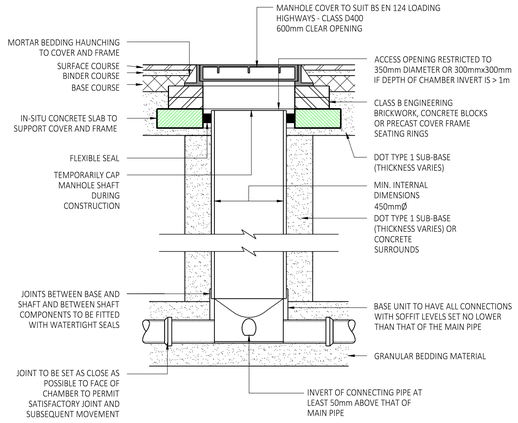
SITE: 44 Brighton Road
Lancing, BN15 8ET

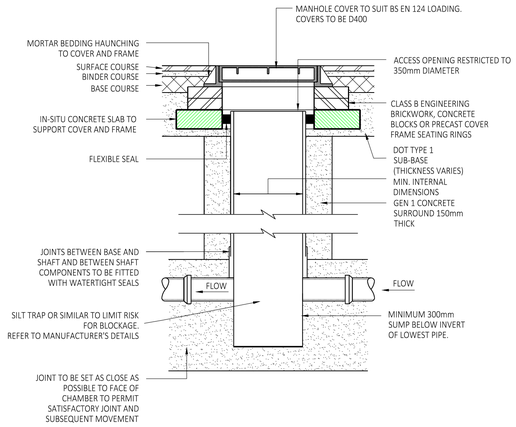
TITLE: Surface Water Drainage Design Layout

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:50	JAN 2023	BB	MN

PROJECT NO:	DRAWING NO:	REVISION:
MC0169	CIV 01	P1

1:50 @ A1
0 0.5 1.0 1.50 2.0 2.5m

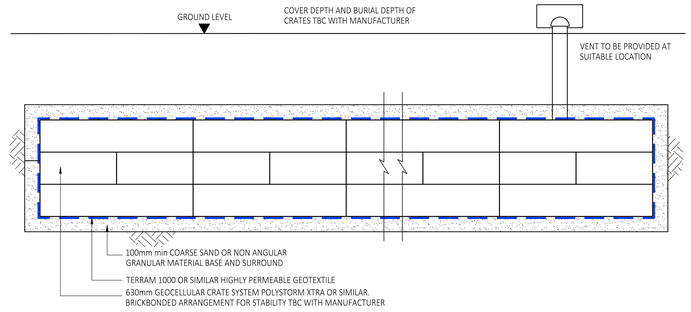




CATCHPIT INSPECTION CHAMBER.

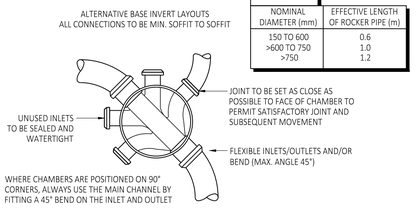
(PREFORMED POLYPIPE RIDGISTORM 450-1500Ø CATCHPIT MANHOLE OR SIMILAR), MAX. DEPTH 3m, NON-ENTRY)

(1:20)



SECTION THROUGH GEOCELLULAR SOAKAWAY

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

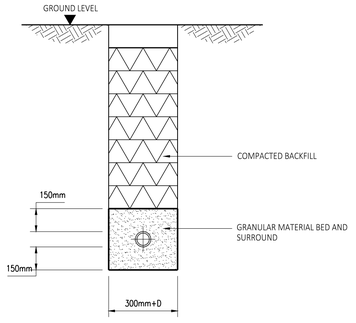
(SUBJECT TO VEHICLE LOADING, MAX. DEPTH 3m, NON-ENTRY)

(1:20)

TYPE 3&4 CHAMBER TYPES, SIZES AND DEPTH

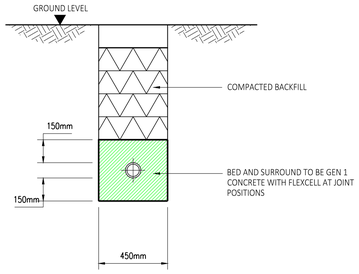
MAX INVERT DEPTH (m)	0.6 – 2.01	0.6 – 2.01	1.2 – 3.02	1.2 – 3.02
BASE/SHAFT DIA (mm)	200	315	450	600
SFA7 TYPE	4	4	3 – 4	3 – 4
NO OF INLETS 1	Y	Y	Y	Y
1 TO 3	-	Y	Y	Y
4 TO 5	–	–	Y	–
INLET SIZES (mm)	110/160	110/160	110/160	150/225/300
MAX DEPTH(mm)	600	600	1200	3000

FOR DEPTH GREATER THAN 1200mm RESTRICT ACCESS TO 350mm DIAMETER



GRANULAR BEDDING DETAIL

WHERE:
COVER >600mm AND LAID IN SOFT LANDSCAPING
or
COVER >900mm AND LAID IN TRAFFICKED AREAS

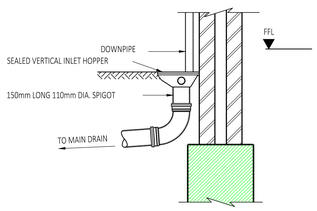


CONCRETE BEDDING DETAIL

WHERE:
COVER <600mm AND LAID IN SOFT LANDSCAPING
or
COVER <900mm AND LAID IN TRAFFICKED AREAS

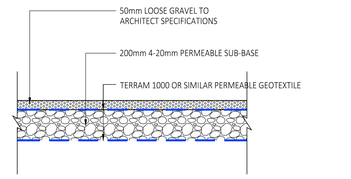
NOTE

ALL BACKFILLING AND REINSTATEMENT WITHIN ROADS AND STREETS TO BE IN ACCORDANCE WITH THE HIGHWAY AUTHORITY AND HAUC SPECIFICATION.

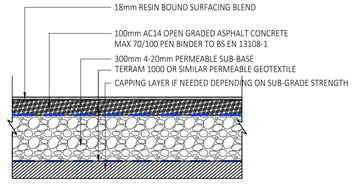


RWP CONNECTION.

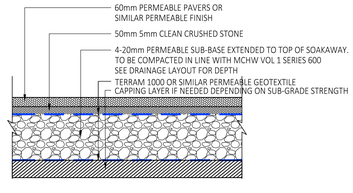
(1:20)



PERMEABLE GRAVEL INDICATIVE SECTION



PERMEABLE RESIN BOUND AGGREGATE CONSTRUCTION INDICATIVE SECTION



PERMEABLE PAVEMENT INDICATIVE SECTION

1:20 @ A1
0 200 400 600 800 1000mm

1. 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.

2. 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

3. 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 ADOPTABLE 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.
c. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 100 UNLESS OTHERWISE STATED ON THE DRAWING.
d. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100mm DIAMETER FROM DOWNPIPES AND 150mm DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
e. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES OR SOIL STACKS DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER.
f. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.
g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

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.

REV:	DESCRIPTION:	BY:	DATE:
P1	SOAKAWAY POSITION AND SHAPE CHANGE	BB	08.02.2023

STATUS: FOR COMMENTS

MERIDIAN
CIVIL ENGINEERING CONSULTANCY

CLIENT: Inature

SITE: 44 Brighton Road
Lancing, BN15 8ET

TITLE: Surface Water Drainage Design
Standard Details

SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:20	JAN 2023	BB	MN

PROJECT NO:	DRAWING NO:	REVISION:
MC0169	CIV 10	P1

APPENDIX II Hydraulic Calculations

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1		4.00	5.600	600	4.927	57.627	0.650
2	0.009		5.600		11.255	57.720	0.740

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)
1.000	1	2	6.329	0.600	4.950	4.860	0.090	70.3	150	4.09	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)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.200	21.2	0.0	0.500	0.590	0.000	0.0	0	0.000

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	0.950	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.950	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

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

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

Node 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.07560	Safety Factor	2.0	Invert Level (m)	4.650
Side Inf Coefficient (m/hr)	0.07560	Porosity	0.94	Time to half empty (mins)	315

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	10.5	10.5	0.630	10.5	22.5	0.631	0.0	22.5

Flow+ v10.5.1 Copyright © 1988-2023 Causeway Technologies Ltd

Results for 10 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.24%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	228	5.040	0.090	0.1	0.0254	0.0000	OK
240 minute winter	2	228	5.040	0.180	1.0	3.8966	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
240 minute winter	1	1.000	2	-0.1	-0.011	-0.004	0.0906
240 minute winter	2	Infiltration		0.2			

Flow+ v10.5.1 Copyright © 1988-2023 Causeway Technologies Ltd

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.24%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	176	5.406	0.456	0.2	0.1290	0.0000	FLOOD RISK
180 minute winter	2	176	5.406	0.546	2.0	6.3695	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute winter	1	1.000	2	-0.2	-0.026	-0.011	0.1114
180 minute winter	2	Infiltration		0.2			

Flow+ v10.5.1 Copyright © 1988-2023 Causeway Technologies Ltd