HAMILL DAVIES LIMITED
Consulting Civil and Structural Engineers

Name Hamill Davies Ltd
Address Ivydale
Lower Chase Road
Swanmore
Hampshire
SO32 2PB
Tel 01489 893 596
Mobile 07831 439 699
Fax 01489 890 715
e-mail brian.w.hamill@btopenworld.com

Land east of St. Patrick's RC Church, Hayling Island PO11 0QU

Drainage Strategy Report dated August 2026

Land east of St. Patrick's RC Church, Hayling Island PO11 0QU

Drainage Strategy Report dated August 2026

1.0 Background Information

1.1 The site known as ' Land east of St. Patrick's RC Church, Hayling Island PO11 0QU ' is shown by the location plan & Google map image included within Appendix A.

1.2 The land within the site boundary currently consists of vacant land as shown by the google image included within Appendix A and the existing site layout plan within Appendix C.

1.3 Planning consent is being sought for the construction of 2 no. residential units and associated hardstanding areas; as shown by the architectural site plan included within Appendix D.

1.4 This drainage strategy has been formed in accordance with the requirements of the Flood & Water Management Template included within Appendix I.

2.0 Site Topography

2.1 The topographical survey, included within Appendix B, is generally flat with an average level of 5.50m AOD.

2.2 There is a slight depression on the site.

2.3 There is also a small bank to the northern boundary of the site; as shown by the topographical survey.

2.4 The site is currently covered by grass.

3.0 Prevailing Ground Conditions

3.1 The site investigation report included within Appendix F identifies the prevailing ground condition to be:-

- Made Ground over River Terrace Deposits over London Clay Formation

3.2 Section no. 3.2 of the site investigation report shows the results of infiltration testing. These results show that the use of soakaways for the disposal of surface water run off is not feasible on this site.

4.0 Sensitivity of Discharge Points

4.1 The Code of Practice for Sustainable Drainage Systems provides a flexible approach to drainage systems with a wide range of components and includes a hierarchy of techniques. These are:-

1. Prevention - The use of good site design and housekeeping measures on site to prevent run-off and pollution.

2. Source Control - Control of run off at or very near to its source.

3. Site Control - Management of water from several sub catchment areas.

4. Regional Control - Management of run off from several sites, typically in a detention pond or wetland.

4.2 With the above in mind surface water disposal will respect the hierarchy of techniques outlined above.

4.3 Source control is to be introduced in the following ways:-

Surface water will be discharged to the public foul sewer due to the lack of ditches or surface water sewers near or adjacent to the site.

4.4 Rainfall within soft landscaped areas will be allowed to permeate through the ground in order to mimic as closely as possible the natural drainage from the site before development.

5.0 Existing Surface Water Flows

5.1 The site is a greenfield site with no formal drainage provision.

5.2 The site layout drawings, included within Appendices D & E, show that the extent of impermeable roofs and hardstanding areas for the redeveloped site is to be:-

Building Areas	246 m^2
Hardstanding & Path Areas	270 m^2

6.0 Existing Drainage Network

6.1 The site is currently laid out with grass. There is no surface water drainage provision on the site.

7.0 Failures of the Existing Drainage Regime

7.1 There are no records of failures of the existing drainage regime.

8.0 Proposed Drainage Patterns

8.1 The drawing, included within Appendix D, show that the site is to be laid out with impermeable hardstanding and roof areas with surface water patterns following existing ground levels.

8.2 The proposed surface water drainage design, shown by the drawing within Appendix I, includes for an attenuation tank and hydrobreak as shown on the drainage drawing, with sufficient attenuation storage to contain the 1 in 100 year storm with a 45% climate change allowance with a restricted flow of 0.7 l/s to the existing foul sewer.

9.0 Surface Water Treatment

9.1 Surface water treatment is to be achieved, in accordance with Ciria SuDS Manual C753, with a catchpit installed to catch silt deposits prior to discharge of attenuation tanks.

10.0 Surface Water Drainage Calculations

10.1 The stormwater calculations, included within Appendix J, allow sufficient storage of 39.3m^3 to be provided for the proposed attenuation tanks to accept the 1in 100 year storm with 45% climate change allowance during periods of high rainfall. The surface water drainage calculations assume an attenuated flow of 0.7 l/s via a hydrobreak to the public foul sewer. The connection to the existing foul sewer will be the subject of a section 106 agreement with Southern Water.

11.0 Run off Exceedance Design Criteria

11.1 The run off exceedance design criteria has been considered and hardstanding areas will be formed with falls as per the existing ground levels. Building finished floor levels will be set at sufficient height to ensure that the buildings are not at risk from run off in times of exceedance.

12.0 Maintenance Regimes

12.1 A management company will be set up for the development with responsibility for the maintenance of drainage elements within common areas. The property owners will be responsible for the maintenance of drainage elements within their ownership boundaries.

12.2 The inspection chamber directly upstream of the attenuation tank will be formed as a catchpit manhole. Manholes will be inspected by the management company on an annual basis and cleaned out to remove silt. Individual householders will be responsible for the maintenance of drainage elements within their property boundary.

12.2 The management company will be responsible for the maintenance of all common areas of the site including external areas and on-site foul and surface water drainage.

13.0 Urban Creep

13.1 The drainage calculations, included within Appendix J, do not take account of urban creep as the site is to be developed to its full extent with no scope for expansion.

14.0 Construction Phase

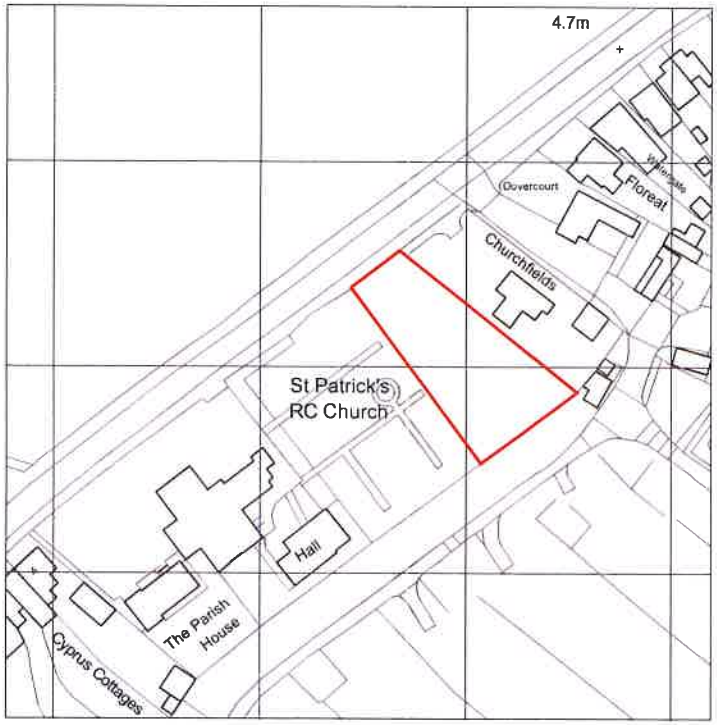
14.1 The access road and associated drainage elements will be installed as the first phase of the development to deal with surface water run off during the construction period.

15.0 Foul Drainage

15.1 The proposed foul drainage discharges will be connected to the public sewer as shown by the drainage layout plan included within Appendix I. This connection will be the subject of a section 106 agreement with the water authority.

Appendix A

Location Plan
Google Image



LOCATION PLAN 1:1250

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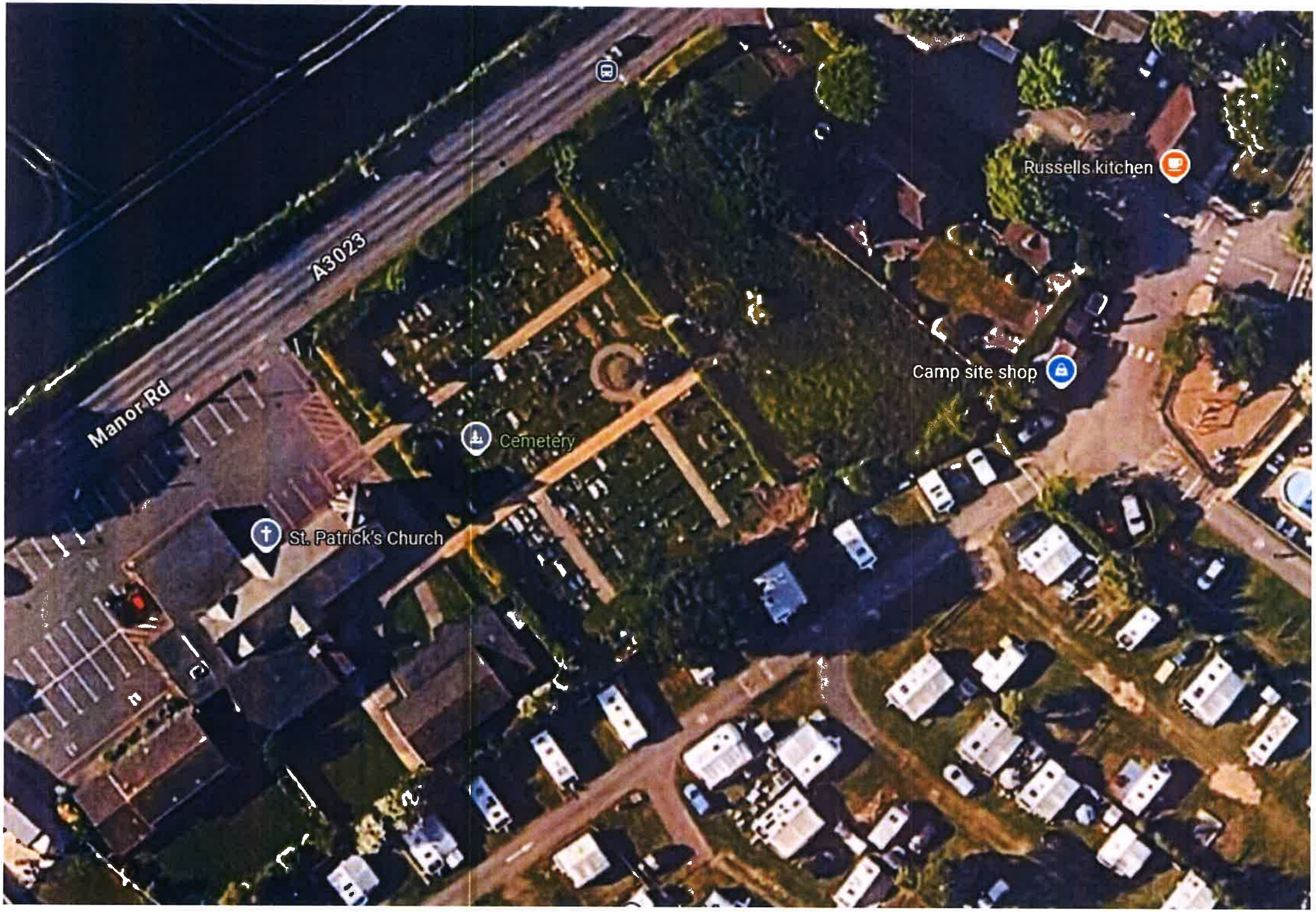
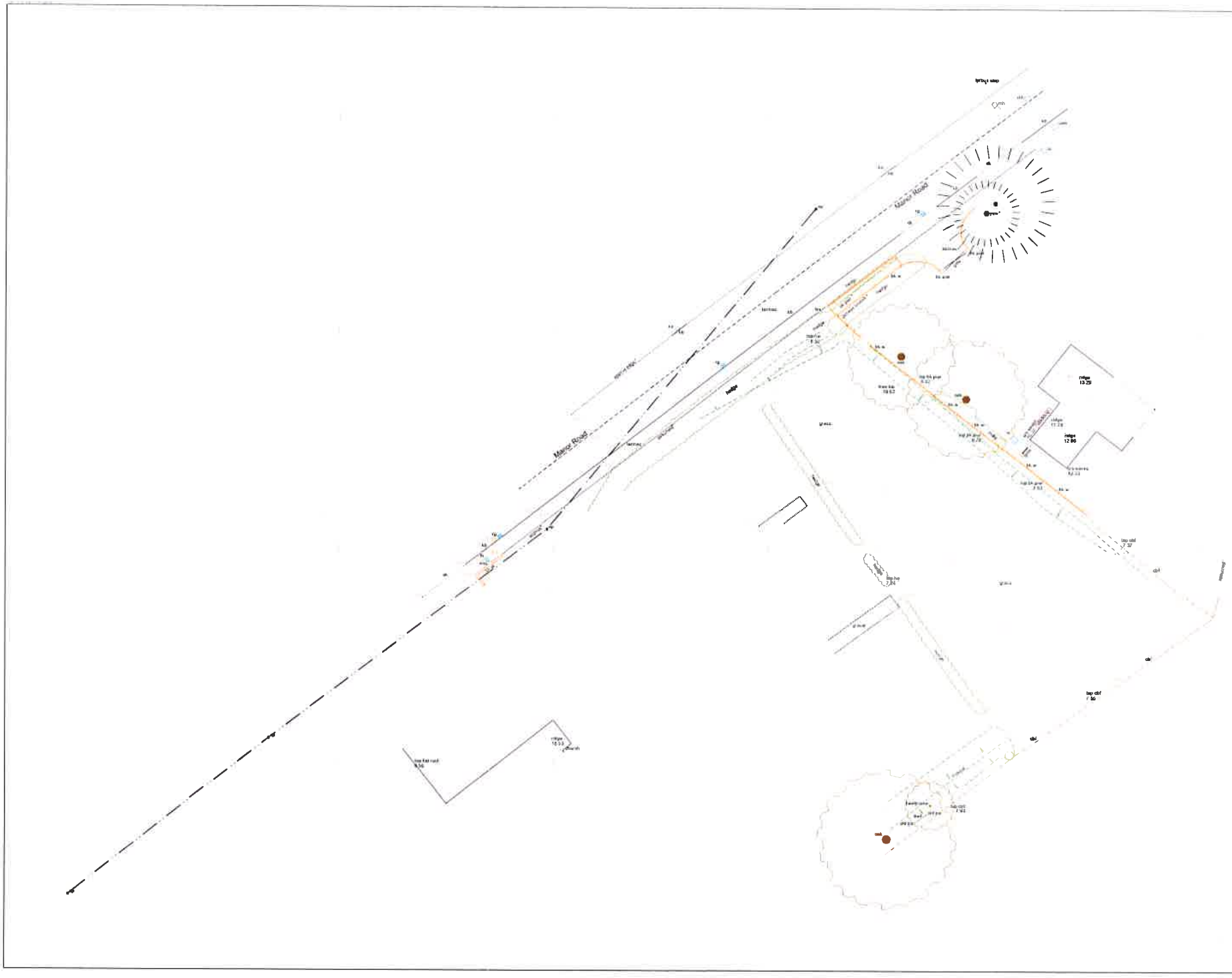
02392 460974 07734 897674 mail@lilleyarchitecture.com

PROJECT	DRAWING	DRAWING REFERENCE	REVISION	SCALE
Land to East of St Patricks RC Church, Manor Road	LOCATION PLAN	608 PL01	A	@A3


A3023
Manor Rd
Cemetery
St. Patrick's Church
Russells kitchen
Camp site shop

Appendix B

Topographical Survey



RELEVANCE

Legend

acp	air cond chiller	mw	monitoring well
BBQ	barbecue / range	mb	mooring bollard
bh	borehole	mh	manhole
bw	brick wall	pbo	post box
bol	bollard	pu	pump
bs	bus stop	pl	pleasure light
bc	bus/phone + numbers open	rg	rose gutter
CBH	cable hi curve	rso	road side office
CBR	cable/duct	rsb	rolling sign board
CMC	cctv camera	rsp	rainwater pipe
ch	church	rp	rainwater upstand
cby	chimney	rs	road sign
cvl	clothesline	sc	security camera
col	column	sl	sleeper
cvr	concrete wall	sad	soil & waste duct
c	concrete	sp	spot level
cb	cross/post head	sap	soil & waste pipe
dp	drop kerb	sw	stone wall
dr	drain	tbs	telephone box
dbs	distribution box	tl	traffic light
dpl	electricity pylon	tc	telecom cable
ews	electricity meter	tw	timber wall
ef	earthing point	tsc	traffic sign all round
ffl	finished	ufc	ufo line
fh	hydrant	ufl	unable to fit
hhl	flagpost/ flat bl pit	vc	vent cap
fp	fire hydrant	w	well
fp	footpath	ww	water meter
g	gulley	wsc	water stop cock
gm	gas meter	wbs	water stop valve
gp	gate post		
gpr	gas prov valve	Fence types	
/	high	cbf	Close boarded fence
hp	hydrant	cpf	Concreted post fence
mgp	high point	cbf	Close-bbb fence
k	keyplan / cover	cpf	Chainlink gate fence
l	invert level	gp	gate fence
lbe	letterbox box	rf	iron rail fence
lc	lamp	rd	Interwoven fence
mh	manhole	rpf	Postal rail fence
lbc	steering kiosk office	wpf	Postal panel fence
lp	lamp post	tsf	Postal security fence
lc	lamp column	prf	post & rail fence
lbs	listed building status	pwf	post & wire fence
mb	multi-meter	wf	woven fence
mv	manhole	wwf	wire mesh fence
mc	manhole cover		
tca	manhole		

TITLE/PROJECT

Site at Manor Road

Hayling Island

PO11 0QU

Survey Drawing

SOLENT SURVEYS
BUILDING AND LAND SURVEY CONSULTANTS
FORSLET COTTAGE 19 WOOD ROAD
ASHURST | SOUTHAMPTON SO40 7BD
t: 023 8029 4718
t: 07966 557 881
e: hello@solentsurveys.co.uk
w: www.solentsurveys.co.uk

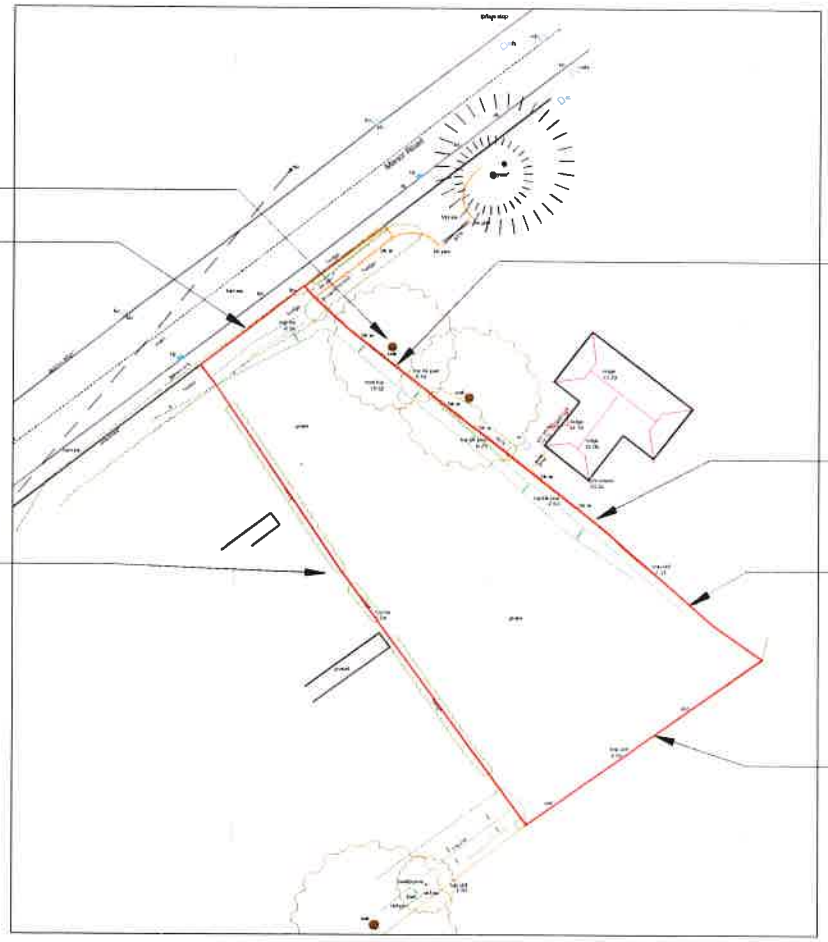
SCALE 1:200 | DRAWN BY J R Chell, ACIeS/CES

DATE March 2026 | GPS/OSBM Datum

DRAWING NUMBER 14826 | S1 | REVISION NO.

Appendix C

Existing Site Layout Plan



SITE PLAN: EXISTING 1:500

N

Note:
Drawing to be read in conjunction with Porposed Site Plan, Tree Report by Arboriculturalist and BGN Report

lilleyarchitecture
232 southwoodroad hayling island hampshire PO11 9QQ
02392 460974 07734 899673 mail@lilleyarchitecture.com

PROJECT:	DRAWING	DRAWING REFERENCE	REVISION	SCALE
Land to East of St Patricks RC Church, Manor Road	SITE PLAN: EXISTING	608 PL02	A	@A3

Appendix D

Proposed Site Layout Plan

New tarmac bell mouth

New post and rail fencing to frontage and automated five bar gates, set back 6m from road edge

Cotswold Stone chippings to driveway. 'No dig' system adopted to tree RPZ as per Tree Report

Infill gaps in existing hedge to match existing

Space for rufuse and reycling wheelie bins

Natural stone paving to patios and pathways

Neigbour maintains low foliage on street frontage

New grass verge. All planting below 600mm to maintain visibility at new access. Refer to separate drawing for visibility splay details.

New hedge planting- Refer to Tree Report for details

Garden sheds for cycle and garden storage (2m eaves)

New small tree planting to rear boundary. Refer to Tree Report and BNG for details

SITE PLAN: PROPOSED 1:500

0 10 20 N

Schedule of Accommodation:

Bungalow 1. 3 bedroom GIA 128m²
Bungalow 2. 3 bedroom GIA 118m²

Note:
Drawing to be read in conjunction with:
Proposed Site Plan
Tree Report
BGN Report
Flood Risk Assessment

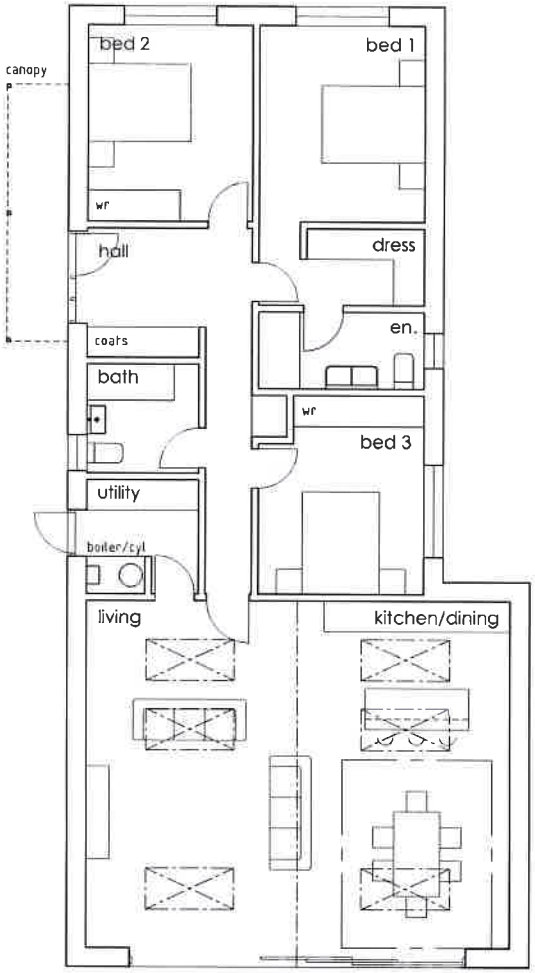
lilleyarchitecture
232 southwood road hayling island hampshire PO11 9QG
02392 460974 07734 397673 mail@lilleyarchitecture.com

PROJECT	DRAWING	DRAWING REFERENCE	REVISION	SCALE
Land to East of St Patricks RC Church, Manor Road	SITE PLAN: PROPOSED	608 PL03	C	@A3

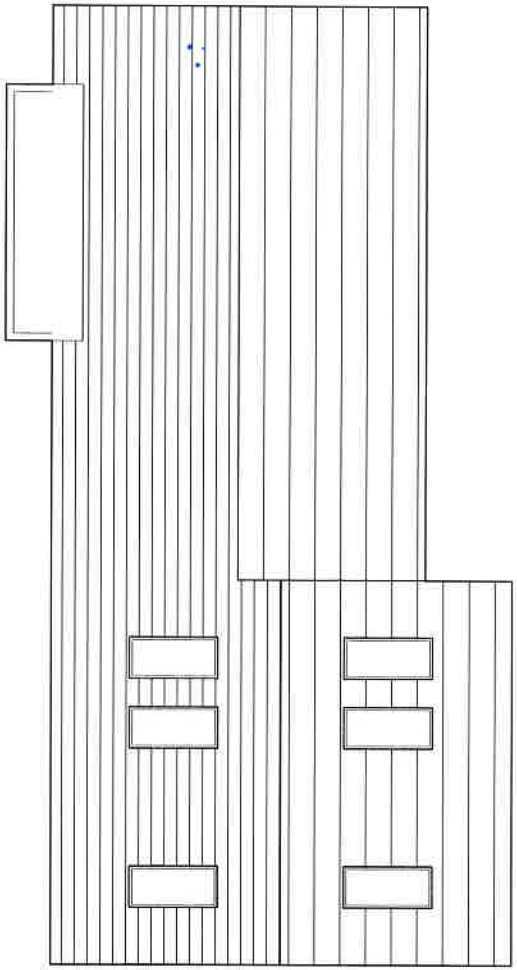
Appendix E

Architectural Layouts

Bungalow 1.



FLOOR PLAN
1:100



ROOF PLAN
1:100

SCALE 1:100
0m 5m

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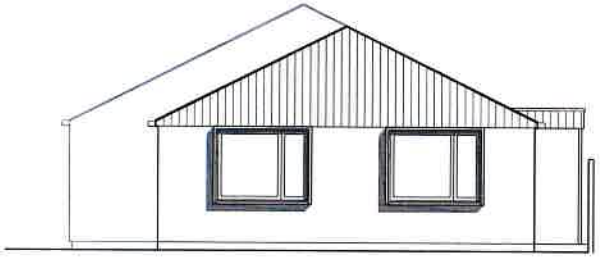
PROJECT
Land to East of St Patricks RC Church, Manor Road

DRAWING
BUNGALOW 1.
FLOOR PLANS

DRAWING REFERENCE	REVISION	SCALE
608 PL04	A	@A3



FRONT (NW) ELEVATION
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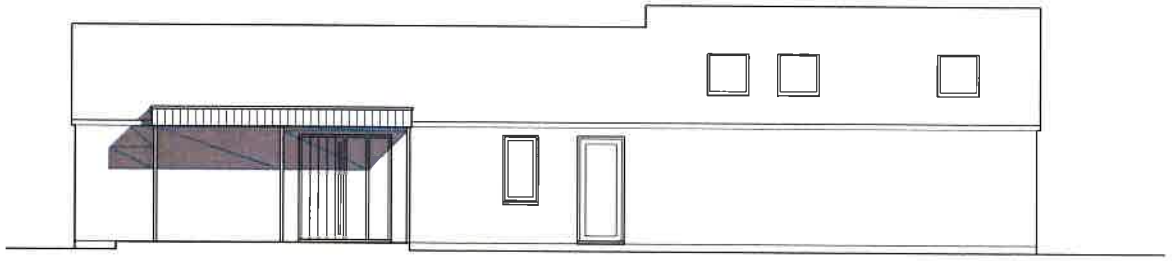
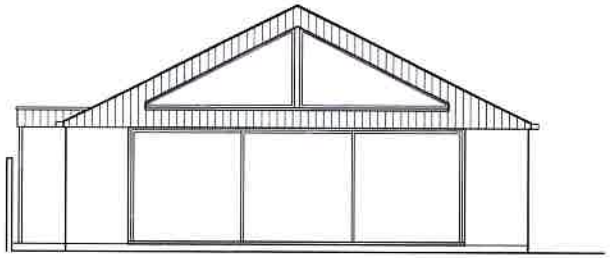


ENTRANCE (SW) ELEVATION
1:100



REAR (SE) ELEVATION
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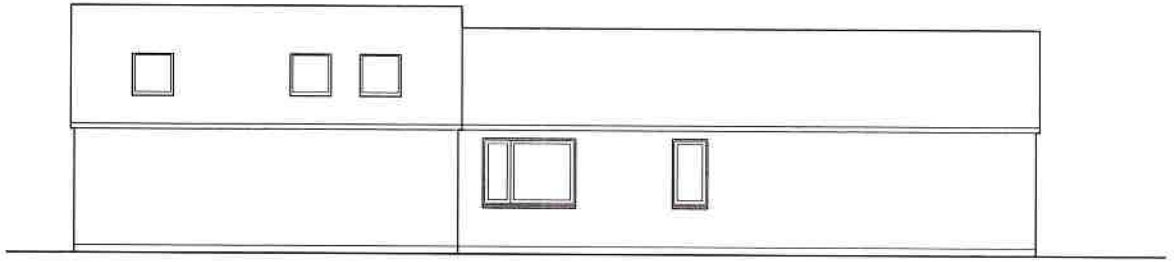
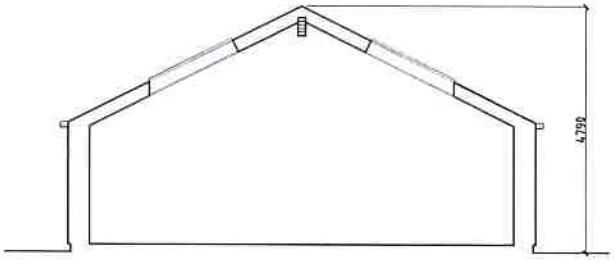


SIDE (NE) ELEVATION
1:100



SECTION
1:100

SCHEDULE OF MATERIALS

1 Roof- Slate tiles, black;
2 Walls- Render, white;
3 Cladding- Vertical boarding to gables and canopy, black;
4 Windows and doors- Powder coated aluminium, black
5 Window surround (front)- Powder coated aluminium, black
6 Box gutter/eaves- Powder coated aluminium, black;

SCALE 1:100

0m 5m

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PROJECT
Land to East of St Patricks RC Church, Manor Road

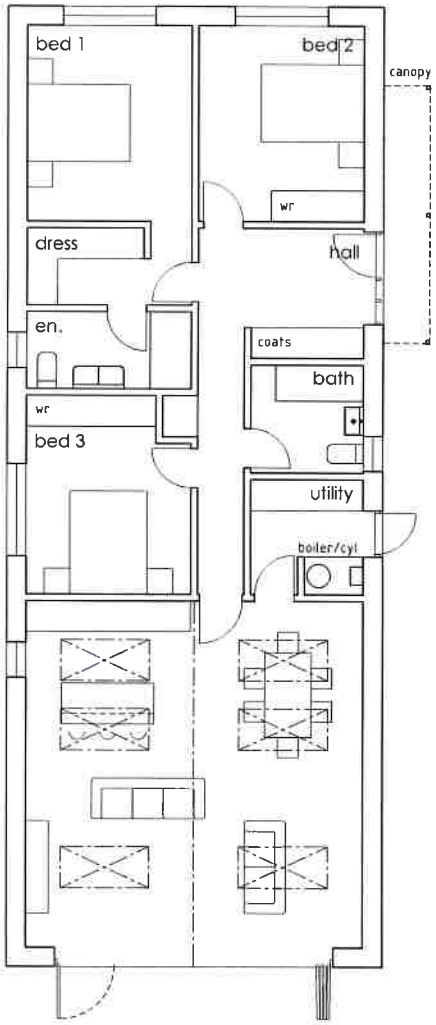
DRAWING
BUNGALOW 1.
ELEVATIONS & SECTION

DRAWING REFERENCE
608 PL05

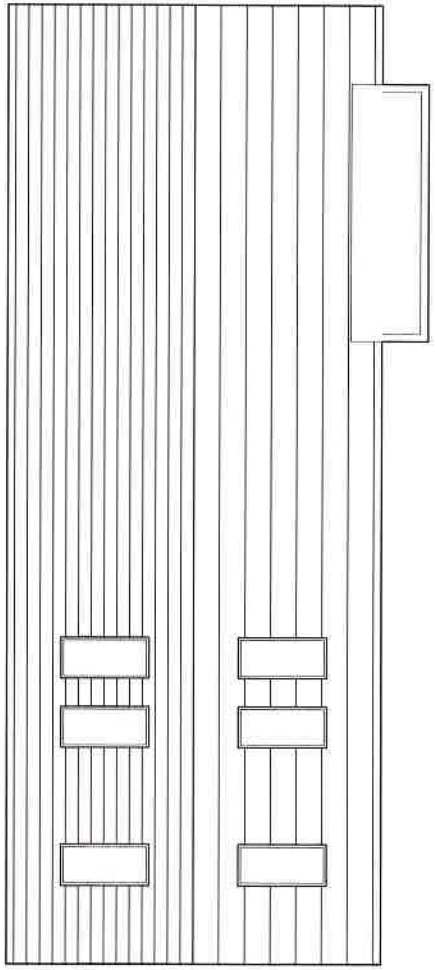
REVISION
A

SCALE
@A3

Bungalow 2.



FLOOR PLAN
1:100



ROOF PLAN
1:100

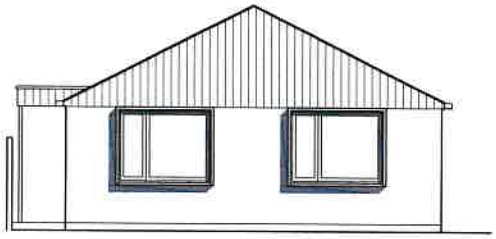
SCALE 1:100
0m 5m

lilleyarchitecture 232 southwood road hayling island hampshire PO11 9QQ
02392 466974 07734 899673 mail@lilleyarchitecture.com

PROJECT
Land to East of St Patricks RC Church, Manor Road

DRAWING
BUNGALOW 2.
FLOOR PLANS

DRAWING REFERENCE	REVISION	SCALE
608 PL06	A	@A3



FRONT (NW) ELEVATION
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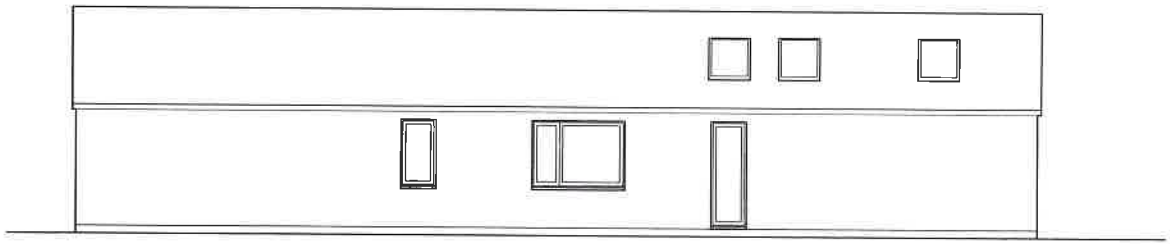

SIDE (SW) ELEVATION
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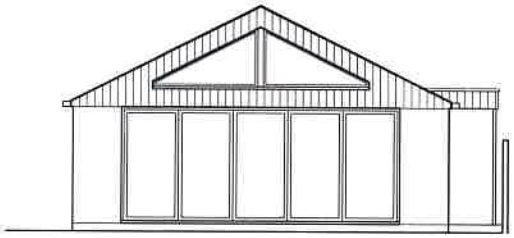

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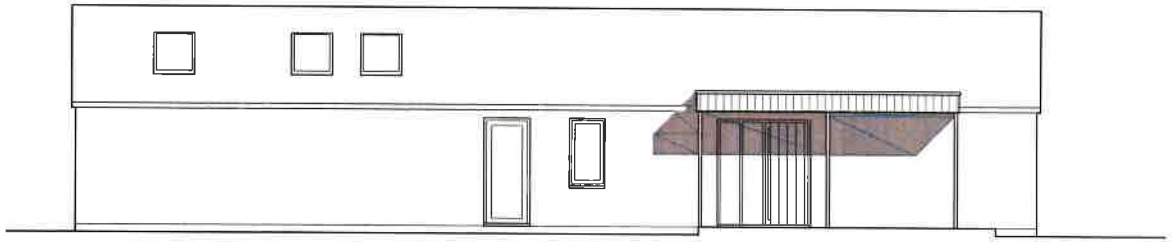

ENTRANCE (NE) ELEVATION
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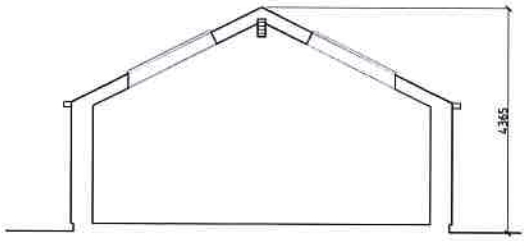

SECTION
1:100

SCHEDULE OF MATERIALS

1 Roof- Slate tiles, black;
2 Walls- Render, white;
3 Cladding- Vertical boarding to gables and canopy, black;
4 Windows and doors- Powder coated aluminium, black
5 Window surround (front)- Powder coated aluminium, black
6 Box gutter/eaves- Powder coated aluminium, black;

SCALE 1:100

0m 5m

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PROJECT
Land to East of St Patricks RC Church, Manor Road

DRAWING
BUNGALOW 2.
ELEVATIONS & SECTION

DRAWING REFERENCE
608 PL07

REVISION
A

SCALE
@A3

Appendix F

Site Investigation Report

soils LIMITED

Ground Investigation Report

at
Land east of St Patrick's RC Church, Hayling Island, Hampshire, PO11 0QU

for
Billet Homes Ltd

Reference: 22440/GIR Rev1.0
July 2026

Control Document

Project
Land east of St Patrick's RC Church, Hayling Island, Hampshire PO11 0QU

Document Type
Ground Investigation Report

Document Reference
22440/GIR Rev 1.0

Document Status
Final

Date
July 2026

Prepared by
A R Nair BSc MSc FGS
(an@soilslimited.co.uk)

First check by
Eur Ing R B Higginson BSc, PGDip, CEng, MICE, FGS

Second check by
C Morrison BSc (Hons), FGS, MIEnvSc

This is not a valid document for use in the design of the project unless it is titled Final in the document status box.

Current regulations and good practice were used in the preparation of this report. The recommendations given in this report must be reviewed by an appropriately qualified person at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

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www.britishgeotech.org
Quality Systems Certifications Ltd ISO 45001:2018
Quality Systems Certifications Ltd ISO 9001:2015

Commission

This document comprises the Ground Investigation Report (GIR) and incorporates the results, discussion, and conclusions to intrusive works and laboratory testing.

Commission Record	
Client	Billet Homes Ltd
Site Name	Land east of St Patrick's RC Church, Hayling Island, Hampshire PO11 0QU
Grid Reference	SU 718 005
Soils Limited Quotation Ref	Q31302rev3, dated 13th May 2026
Signed Order Form	Q31302rev3, dated 14th May 2026

The record of revision to this document is presented below:

Record Of Revisions		
Revision	**Date**	**Reason**
1.0	July 2026	Original to the Client

Note(s): The latest revised document supersedes all previous revisions of the GIR produced by Soils Limited.

Documents associated with this development that must be referred to are given below.

Record Of Associated Documents			
Reference	**Type**	**Date**	**Creator**
608 PL03	Site Plan -Proposed	July 2026	Lilley Architecture

Limitations and Disclaimers

The report was prepared solely for the brief described in our quotation and Section 1.1 of this report. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of our engagement.

We have exercised all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Conditions of Contract of Business and considering the resources devoted to us by agreement with the Client.

This report is a snapshot of the site and conditions taken only at the time of our investigation works and described in our reporting. The ground is a product of continuing natural and artificial processes and has variation by depth and location that cannot be determined absolutely. While a ground investigation will aim to understand and mitigate, risk cannot be eliminated.

Current regulations and good practice were used in the preparation of this report. Consideration of any subsequent changes to regulations or practice that may have occurred following issue of this report is the responsibility of the user.

If the term "competent person" is used in this report or any Soils Limited document, it means an engineering geologist or civil engineer with a minimum of three years post graduate experience in the understanding and application of the appropriate codes of practice.

Unless the site investigation works have been designed and specified in accordance with EC7, this report is not a Ground Investigation Report as defined by Eurocode 7.

Any reference to ground level relates to the site level at the time of the investigation, unless otherwise stated. Ground elevations and coordinates are only provided when this forms part of our engagement.

A survey of the possible presence or absence of invasive species including Japanese Knotweed is outside the scope of this investigation.

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Unless specifically granted, in writing, by Soils Limited, no parties other than the named client hold reliance or license over this report. The Client may not assign the benefit of the report or any part to any third party without the written consent of Soils Limited. Use of this report by others is wholly at their own risk.

License for and reliance on this report is only valid once we have been paid in full for this engagement. In the event of non-payment, we reserve the right to notify parties other than the client of failure to pay and our cancellation of license and reliance.

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Appendix B.1 Engineers Logs
Appendix C Geotechnical In-Situ and Laboratory Testing
Appendix C.1 Interpretation
Appendix C.2 Geotechnical In-Situ and Laboratory Results
Appendix D Preliminary Pile Design
Appendix E Information Provided by the Client

Section 1 Introduction

1.1 Objective of Investigation

The Client commissioned Soils Limited to undertake an intrusive ground investigation and to prepare a Ground Investigation Report to supply the Client and their designers with information regarding ground conditions, to assist in preparing a foundation scheme for development that was appropriate to the settings present on the site.

The investigation was to be made by means of in-situ, geotechnical laboratory testing undertaken on soil samples taken from the exploratory holes.

No preliminary investigation or contamination testing was part of the scope of this investigation.

1.2 Site Description

At the time of investigation in June 2026, the site was an unused land located to the south of Manor Road, predominantly covered in gravel and grass and with no structures.

Two trees were located just beyond the north-eastern boundary of the site. The site was relatively flat and was bounded by a cemetery to the west, Manor Road to the north, residential buildings to the east, and a campsite to the south.

A site location plan is given in Figure 1. An aerial photograph of the site and its close environs has been included in Figure 2.

1.3 Proposed Development

The development proposals comprise the construction of two new bungalows with private gardens, a driveway with hard landscaping, and a new access road via Manor Road.

This report relies on the items listed in the Record Of Associated Documents and recommendations apply only to this scheme. Any changes require consultation with Soils Limited. Development plans are in Appendix E.

1.4 Anticipated Geology

The 1:50,000 BGS map showed the site to be located on the bedrock London Clay Formation with overlying superficial deposits of River Terrace Deposits.

1.4.1 River Terrace Deposits

The rivers Test and Itchen have deposited extensive spreads of River Terrace Deposits in the Southampton area, representative of ancient floodplains. In total, eleven terraces have been recorded. The River Terrace Deposits consist predominantly of gravels made up of subangular to subrounded flints with a significant sand component locally with lenses of silt, clay or peat.

The five highest terraces have appreciable clay content. Poorly sorted, clayey and sandy silts and silty clays overlie the 1st, 3rd, 5th and 6th terraces and locally at above terrace gravels

1.4.2 London Clay Formation

The London Clay Formation in the Hampshire region comprises silty and sandy clay, clayey and sandy silt, silty sand; sporadic claystones and thin beds of flint pebbles. The formation includes the Bognor Sand, Whitecliff Sand, Durley Sand, Portsmouth Sand and Nursling Sand Members. Crystals of gypsum (Selenite) are often found within the weathered part of the London Clay, and precautions against sulphate attack to concrete are sometimes required.

The lowest part of the London Clay Formation rests on the Reading Formation (Lambeth Group).

Section 2 Site Works

2.1 Project Works

The project works were undertaken on 1st and 2nd June 2026, with subsequent sample logging, laboratory testing, and reporting. The works comprised:

- Scanning exploratory holes with a cable avoidance tool (CAT & Genny)
- 3No machine-excavated trial pits to depths ranging between 1.00m and 2.05m bgl
- 2No infiltration tests in TPSK1 and TSPK2 in accordance with BRE DG:2016
- 1No 15.00m deep cable percussive borehole with SPTs at every 1.00m to 5.00m and every 1.50m thereafter
- 10.00m deep groundwater monitoring standpipe
- Geotechnical laboratory testing

Figure 2 shows exploratory hole locations.

Soil cores were logged and sub-sampled for laboratory analysis.

The cable percussive borehole BH1 was backfilled using gravel and bentonite following the installation, and trial pits were backfilled using arisings, compacted in layers and any excess left mounded for future settlement.

2.2 Ground Conditions

The maximum depths of exploratory holes are given in Table 2.1. The depths presented were measured from ground level at the time of the investigation.

Table 2.1 Final Depth of Exploratory Holes

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
TPSK1	1.00	TP3	2.00
TPSK2	2.05	BH1[W]	15.00

Note(s): [W] - well installation. The depths given taken from the ground level adjacent to each exploratory hole the time of investigation.

Soils are classified as Topsoil if they contain organic material or result from natural weathering. Where soils have been altered by human activity or contain over 5% non-natural material, they are labelled as Made Ground.

For full details, see Appendix B. For discussion, the soil conditions found in the exploratory holes, from top to bottom, are summarised as follows:

Made Ground/Topsoil (MG/TS)
River Terrace Deposits (RTD)
London Clay Formation (LCF)

The ground conditions are summarised in Table 2.2.

Table 2.2 Ground Conditions

Strata	Depth Encountered (m bgl)		Typical Thickness (m)	Typical Description
	Top	Bottom		
MG	0.00	0.30-0.35	0.33	Yellowish brown sandy gravelly SILT with flint and occasional brick
RTD	0.30-0.35	1.00[1]-4.00	3.70	Firm yellowish brown /Orangish brown sandy gravelly CLAY
LCF	4.00	15.00[1]+	Not proven	Stiff dark grey CLAY

Note(s): [1] Final depth of exploratory hole. [2] Base of strata not encountered. The depths given were taken from the ground level adjacent to each exploratory hole at the time of investigation.

2.3 Established Ground Conditions

The Made ground was found to generally extend to 0.30-0.35m bgl followed by River Terrace Deposits to a maximum depth of 4.00m bgl, which was encountered within BH1. The high blow counts obtained within the River Terrace Deposits were due to the presence of flint gravels while undertaking the SPTs. The London Clay Formation was only encountered within BH1 from a depth of 4.00m bgl and persisted to the maximum investigatory depth of 15.00m bgl.

2.4 Roots

Roots (including rootlets) were noted in the recovered samples to the depths shown in Table 2.3.

Table 2.3 Established Depth of Root Penetration

Exploratory Hole	Depth (m bgl)	Exploratory Hole	Depth (m bgl)
TPSK1	1.00	TP3	1.10
TPSK2	1.10	BH1	4.00

Note(s): The depths given taken from the ground level adjacent to each exploratory hole the time of investigation.

Roots were recorded on cable percussive borehole logs, based on observations from the soil cores. Cable percussive borehole sampling can identify the presence of roots at depth but provides localised information only. Trial pits allow broader visual assessment of root distribution, orientation and condition. Logging the faces of a supported excavation would give more information than can be obtained from arisings.

Google Earth analysis indicates that two trees have been present along the north-eastern boundary of the site since 1999. These trees were located within the neighbouring residential property and were present at the time of the investigation.

2.5 Groundwater

Groundwater was not encountered in any exploratory holes. Groundwater levels vary seasonally, typically rising from September's low to March's high. Determining equilibrium conditions requires multiple observations via groundwater monitoring wells over an extended period of time.

A 50mm standpipe was installed within BH1 to allow for future monitoring of groundwater levels, should this be required. However, groundwater monitoring was not included within the scope of this investigation, and no monitoring visits have been undertaken to date.

Section 3 In-Situ and Laboratory Testing

3.1 Standard Penetration Tests

Standard Penetration Tests (SPTs) were undertaken in BH1. The results were interpreted based on the classifications outlined in **Error! Reference source not found.**.

Table 3.1 Hammer Efficiency

SPT Hammer Ref	Energy Ratio Er (%)
AR 3552	67

Table 3.2 Standard Penetration Tests (SPT) Interpretation

Strata	Depth Range (m bgl)	N60 Range	Soil Classification	Inferred Cu (kPa)
RTD	0.00-4.00	9-49	Medium to Very High	45-245
LCF	4.00-15.00+	11-35	Medium to High	55 – 155

A full interpretation of the SPT results is outlined in **Error! Reference source not found.**.

3.2 Infiltration Tests

Infiltration testing was undertaken in TPSK1 and TPSK2 within the River Terrace Deposits following the principles of BRE Digest 365 Soakaway design: 2016

The water level within TPSK1 decreased by only 24 cm during the 432-minute testing period. In contrast, the water level within TPSK2 remained unchanged throughout the 409-minute testing period. BRE 365 compliance was not achieved within any of the pits.

Table 3.3 Infiltration Rates

Exploratory Hole	Test No.	Infiltration Rate (m/s)	Comment
TPSK1	1	NA	Insufficient head loss to calculate an infiltration rate
TPSK2	1	NA	

3.3 Atterberg Limit Tests and Moisture Content Determinations

A summary is given in Table 3.3 of the Atterberg Limit tests and Moisture Content determinations made on three samples, one obtained from the River Terrace Deposits and the remaining two from the London Clay Formation. The results were classified for volume change potential in accordance with BRE Digest 240 and NHBC Standards Chapter 4.2.

Table 3.4 Atterberg Limit Results Classification

Stratum	M/C (%)	PI (%)	>425µm (%)	Mod PI (%)	Class	VCP	
						NHBC	BRE
RTD	20-21	28-38	79-100	25-38	CI – CH	Medium	Medium
LCF	25-29	37-53	100	37-53	CH-CV	Medium to High	Medium to High

Note(s): BRE Volume Change Potential refers to BRE Digest 240 (based on Atterberg results). VCP=Volume Change Potential. Modified PI corrected for % retained on 425µm sieve. NHBC Volume Change Potential refers to NHBC Standards Chapter 4.2 Soils Classification based on British Soil Classification System. The Atterberg Limit Tests were undertaken in accordance with BS 1377:Part 2:1990 Clauses 3.2, 4.3 and 5

Laboratory test certificates are presented in Appendix C.1.

3.4 Sulphate and pH Tests

Water soluble sulphate (2:1) and pH testing in accordance with Building Research Establishment Special Digest 1, 2005, 'Concrete in Aggressive Ground' was undertaken on two soil samples obtained from the River Terrace Deposits and the remaining one from the London Clay Formation.

Table 3.5 Sulphate and pH Test Results

Strata	Depth (m bgl)	Sulphate Concentration (mg/l)	pH
RTD	1.50-3.00	50-150	8.2-8.4
LCF	6.00	340	8.3

The significance of the sulphate and pH test results are discussed in Section 4.3 and the laboratory test certificated presented in Appendix C.1.

3.5 Radon

Radon is a naturally occurring radioactive gas that comes from the decay of uranium in rocks and soil. In the UK, radon levels vary by region, with higher concentrations typically found in areas with granite or other uranium-rich geology, such as parts of Cornwall, Devon, the Peak District, and some areas of Wales and Scotland, however Radon Affected Areas are present in wide areas across the UK.

The UKHSA-BGS digital Indicative Atlas of Radon in the United Kingdom shows the site was situated within a 1km grid square where 3-5% of properties are above the action level for radon. This **indicates** that basic radon protective measures will likely be required within the proposed development.

The designer must obtain a site-specific Radon report from UKRadon.org and follow the guidance obtained from both the report, the Building Regulations Approved Document C and the Local Authority. Occupied basement and cellar areas are at additional risk from radon even if outside a radon affected area so further advice must be sought where these are proposed.

Section 4 Foundation Scheme

4.1 Foundation Recommendations

Foundations **must not** be constructed within any Made Ground and due to the likely variability and potential for large load-induced settlements both total and differential.

According to NHBC Standards Chapter 4.2 'Building near trees', soils of the River Terrace Deposits were classified as being of MEDIUM volume change potential (VCP) and the soils of the London Clay Formation were classified as Medium to High volume change potential.

It is understood that the client is considering a piled foundation solution, which is considered appropriate given the ground conditions encountered.

4.2 Piled Foundations

The piled foundations must be taken through any Made Ground and River Terrace Deposits into suitable strength soils of the London Clay Formation.

The construction of a piled foundation is a specialist job with the actual pile working load depending on the pile type and installation method. Prior to finalising the foundation design the advice from a reputable contractor who is familiar with the ground and groundwater conditions present at the site must be sought.

The vertical load capacities are provided for varying diameters and lengths of bored piles taken into the London Clay Formation, based on geotechnical laboratory testing and in-situ test and must only be used for preliminary design purposes.

A factor of safety of 3 was applied to the characteristic line derived from testing undertaken, for both the shaft and base load capacities.

The bearing values given in Appendix D., are applicable to single vertically loaded piles. Where piles are to be constructed in groups the bearing value of each individual pile should be reduced by a factor of about 0.8 and a calculation made to check the factor of safety against block failure.

An adhesion value (α) of 0.45 was used to calculate the skin friction and a bearing capacity factor (Nc) of 9 was adopted for the cohesive bands of the London Clay Formation.

From ground level the upper 4m of the pile shaft has been ignored in the preliminary pile design given.

To prevent necking of the green concrete, temporary casing may be required where the pile passes through the Made Ground, River Terrace Deposits or London Clay Formation and below the groundwater table (if encountered). To achieve the full bearing value a pile should penetrate the bearing stratum by at least five times the pile diameter.

No allowance has been made for negative skin friction that could be generated where piles pass through Made Ground and very soft cohesive and / or organic soils deposits underlying the site. The negative skin friction must be applied to the pile working load and must not be factored.

Guidance on the design of a working platform for piling rigs can be provided by Soils Limited in accordance with the BRE "Working platform for tracked plant, 2004" documentation.

If a piled foundation scheme is to be adopted for the proposed development, to prevent any downward migration of contaminants into the underling groundwater/aquifers or create preferential vertical pathways between aquifers, specific piling techniques should be employed in accordance with The National Groundwater and Contaminated Land Centre Report NC/99/73: Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention published by the EA, which presents guidance on piling on contaminated sites.

4.3 Subsurface Concrete

The sulphate and pH tests carried out in accordance with BRE Special Digest 1, 2005, 'Concrete in Aggressive Ground', established the site concrete classifications for each stratum as presented in Table 4.1.

Table 4.1 Concrete Classification

Stratum	Design Sulphate Class	ACEC Class
RTD	DS-1	AC-1s
LCF	DS-1	AC-1s

Concrete to be placed in contact with soil or groundwater must be designed in accordance with the recommendations of Building Research Establishment Special Digest 1 2005, *'Concrete in Aggressive Ground'* considering any possible exposure of potentially pyrite bearing natural ground and the pH of the soils.

4.4 Excavations

Shallow excavations in the Made Ground/Topsoil and River Terrace Deposits are likely to be at best marginally stable in both the short and long term.

Deeper excavations and those taken below the groundwater table into the London Clay Formation are likely to be unstable and require support. Unsupported earth faces formed during excavation may be liable to collapse without warning and suitable safety precautions must therefore be taken to ensure that such earth faces are adequately supported or battered back to a safe angle of repose.

Excavations beneath the groundwater table are likely to be unstable and allowance made for shoring and dewatering of both foundation and utilities trenches.

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Appendix B Field Work
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Appendix D Preliminary Pile Design
Appendix E Information Provided by the Client

Figure 1 – Site Location Map

Job Number 22440	**Project** Land east of St Patrick's RC Church, Hayling Island, Hampshire, PO11 0QU
Client Billett Homes Ltd	**Date** July 2026

Figure 2 – Aerial Photograph

Job Number 22440	**Project** Land east of St Patrick's RC Church, Hayling Island, Hampshire, PO11 0QU
Client Billett Homes Ltd	**Date** July 2026

Figure 3 – Exploratory Hole Plan

Job Number 22440	**Project** Land east of St Patrick's RC Church, Hayling Island, Hampshire, PO11 0QU
Client Billett Homes Ltd	**Date** July 2026

Appendix A Standards and Resources

The site works, soil descriptions and testing were undertaken in accordance with the following standards where applicable:

- BS 5930:2015+A1:2020 and BS EN ISO 22476-2 2005+A1:2011
- BS 5930:2015+A1:2020 and BS EN ISO 22476-2&3:2005+A1:2011
- BS 5930:2015+A1:2020 and BS EN ISO 22476-3:2005+A1:2011
- BS EN 1997-1:2004+A1:2013 Eurocode 7. Geotechnical design
- BS EN ISO 14688-1:2018 - Geotechnical investigation and testing - Identification and description
- BS EN ISO 14688-2:2018 - Geotechnical investigation and testing - Principles for a classification
- BS 8004:2015 – Code of practice for foundations
- BS 1377:1990 Parts 1 to 8
- BRE Digest 241 "Low-rise buildings on shrinkable clay soils: Part 2
- BRE Special Digest 1, 2005, 'Concrete in Aggressive Ground'
- Stroud, M. A. 1974, "The Standard Penetration Test – its application and interpretation", Proc. ICE Conf. on Penetration Testing in the UK, Birmingham. Thomas Telford, London.
- N.E. Simons, B.K. Menzies, "A Short Course in Foundation Engineering"
- NHBC Standards Chapter 4.2, January 2024.
- Google Earth
- British Geological Survey Website & iGeology App

Appendix B Field Work

Appendix B.1 Engineers Logs

soils LIMITED

Borehole Log

BH1
Sheet 1 of 2

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH			15.00	1:50

Project Name	Project No.	Start Date	End Date
St Patricks	22440	2026-06-02	2026-06-02

Client

Consultant AN

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (m)	Strata: Legend	Description
						(0.30)		Yellowish brown sandy gravelly SILT. Gravel is sub angular to sub rounded fine to coarse flint and occasional brick [Made Ground]
					14.70	0.30		Firm brown silty CLAY. Frequent rootlets. [River Terrace Deposits]
		1.20	SPT	N=8 (1,1/2,2,2,2)		(2.05)		
		2.10	SPT	N=44 (1,1/3,4,25,12)	12.90	2.10		Soft to firm yellowish brown gravelly very sandy CLAY. Gravel is angular to subrounded fine to coarse flint. [River Terrace Deposits]
						(0.50)		
					12.40	2.60		Brown sandy very clayey angular to rounded fine to coarse GRAVEL of flint. [River Terrace Deposits]
		3.00	SPT	N=38 (4,5/8,10,10,10)		(1.10)		
					11.30	3.70		Firm brown and orangish brown mottled slightly gravelly sandy CLAY. Occasional rootlets. [River Terrace Deposits]
						(0.30)		
		4.00	SPT	N=10 (1,2/2,2,3,3)	11.00	4.00		Stiff to very stiff dark Grey CLAY. [London Clay Formation]
		5.00	SPT	N=11 (1,1/2,3,3,3)				
		6.50	SPT	N=16 (2,2/3,4,4,5)				
						(11.00)		
		8.00	SPT	N=18 (3,3/4,4,5,5)				
		9.50	SPT	N=23 (3,4/5,6,6,6)				

Continued on next page

Remarks
Live rootlets observed to 4.00m bgl

Method, Plant, Stability, Dimensions — **Logger**
0.00 - 15.00m

Status: FINAL

Created using Pebble Geo

soils LIMITED

Borehole Log

BH1
Sheet 2 of 2

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH			15.00	1:50
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-02	2026-06-02

Client

Consultant AN

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (Thickness) (m)	Strata: Legend	Description
								As previous page.
		11.00	SPT	N=31 (5,5/6/7,8,8,8)				
		12.50	SPT	N=27 (4,5/6,6,7,8)				
		14.50	SPT	N=30 (5,5/6,7,8,9)				
					0.00	15.00		*End of Borehole at 15.00m*

10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0 15.5 16.0 16.5 17.0 17.5 18.0 18.5 19.0 19.5 20.0

Remarks
Live rootlets observed to 4.00m bgl

Method, Plant, Stability, Dimensions
0.00 - 15.00m

Logger

Status: FINAL

Created using Pebble Geo

soils LIMITED

Borehole Log

BH1

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH			15.00	1:50
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-02	2026-06-02

Client	Consultant	Contractor
	AN	

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered

SPT - Details

Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)		Dry		67	N=8 (1,1/2,2,2,2)
2.10 (S)		Dry		67	N=44 (1,1/3,4,25,12)
3.00 (S)		Dry		67	N=38 (4,5/8,10,10,10)
4.00 (S)		Dry		67	N=10 (1,2/2,2,3,3)
5.00 (S)		Dry		67	N=11 (1,1/2,3,3,3)
6.50 (S)		Dry		67	N=16 (2,2/3,4,4,5)
8.00 (S)		Dry		67	N=18 (3,3/4,4,5,5)
9.50 (S)		Dry		67	N=23 (3,4/5,6,6,6)
11.00 (S)		Dry		67	N=31 (5,56/7,8,8,8)
12.50 (S)		Dry		67	N=27 (4,5/6,6,7,8)
14.50 (S)		Dry		67	N=30 (5,5/6,7,8,9)

Remarks
Live rootlets observed to 4.00m bgl

Method, Plant, Stability, Dimensions **Logger**
0.00 - 15.00m

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TPSK1

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			1.00	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01

Client

Consultant AN

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (Thickness) (m)	Strata: Legend	Strata: Description
						(0.35)		Yellowish brown sandy gravelly SILT. Gravel is sub angular to sub rounded fine to coarse flint and occasional brick [Made Ground]
					0.65	0.35		Soft to firm Orangish brown sandy gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse flint. frequent rootlets [River Terrace Deposits]
						(0.65)		
					0.00	1.00		*End of Trial Pit at 1.00m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions

Logger

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TPSK1

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			1.00	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01
Client	**Consultant**		**Contractor**	
	AN			

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered

Remarks

Method, Plant, Stability, Dimensions **Logger**

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TPSK2

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			2.05	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01

Client | **Consultant** AN | **Contractor**

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (Thickness) (m)	Strata: Legend	Description
						(0.35)		Yellowish brown sandy gravelly SILT. Gravel is sub angular to sub rounded fine to coarse flint and occasional brick [Made Ground]
					1.70	0.35		Soft to firm orangish brown sandy gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse flint. frequent rootlets to roughly 1.1m [River Terrace Deposits]
						(1.35)		
					0.35	1.70		Soft to firm yellowish brown and orangish-brown mottled slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse flint [River Terrace Deposits]
						(0.35)		
					0.00	2.05		*End of Trial Pit at 2.05m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions **Logger**

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TPSK2

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			2.05	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01

Client	Consultant	Contractor
	AN	

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered

Remarks	Method, Plant, Stability, Dimensions	Logger

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TP3

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			2.00	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01

Client

Consultant
AN

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.35)		Yellowish brown sandy gravelly SILT. Gravel is sub angular to sub rounded fine to coarse flint and occasional brick [Made Ground]
					1.65	0.35		Soft to firm orangish brown sandy gravelly CLAY. Gravel is sub angular to sub rounded fine to coarse flint. frequent rootlets to roughly 1.1m bgl [River Terrace Deposits]
						(1.45)		
					0.20	1.80		Soft to firm yellowish brown and orangish brown mottled slightly gravelly sandy CLAY. Gravel is sub angular to sub rounded fine to coarse flint [River Terrace Deposits]
						(0.20)		
					0.00	2.00		*End of Trial Pit at 2.00m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks

Method, Plant, Stability, Dimensions

Logger

Status: FINAL

Created using Pebble Geo

soils LIMITED

Trial Pit

TP3

SUPPLEMENTARY INFO

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP			2.00	1:25
Project Name		**Project No.**	**Start Date**	**End Date**
St Patricks		22440	2026-06-01	2026-06-01

Client	Consultant	Contractor
	AN	

Water Strike - General

Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks
				No groundwater encountered

Remarks	Method, Plant, Stability, Dimensions	Logger

Status: FINAL

Appendix C Geotechnical In-Situ and Laboratory Testing

Appendix C.1 Interpretation

Table C.1.1 Interpretation of SPT Tests

BH	Strata	SPT N60 Blow Counts	Inferred Cohesive Strength
BH1	RTD 0.05-4.00 Gravelly silty CLAY	9-49	Medium to Very High (Cu = 45-245kPa)
	LCF 4.00-15.00 CLAY	11-35	Medium to high (Cu = 55 – 155kPa)

Appendix C.2 Geotechnical In-Situ and Laboratory Results

UKAS TESTING
2788

Laboratory Report

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES
A PHENNA GROUP COMPANY

Contract Number: 87438

Client Ref: **22440**
Client PO: **22440/AN**

Client: **Soils Limited**

Contract Title: **St Patricks Close**
For the attention of: **Akshay Nair**

Date Received: **18-06-2026**
Date Completed: **06-07-2026**
Report Date: **06-07-2026**

This report has been checked and approved by:

Shaun Jones
Laboratory manager

Description	Qty
Determination of water content BS EN ISO 17892-1:2014 - * UKAS	5
1 point Liquid & Plastic Limit.. BS EN ISO 17892-12 - * UKAS	5

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:
Brendan Evans (Business Support Co-ordinator) - Darren Bourne (Quality Senior Technician) - Jason Jenkins (Business Development Manager)
Luke Williams (Senior Laboratory Technician) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Wayne Honey (HR & HSE Manager)

GEO Site & Testing Services Ltd
Unit 3-4 Heol Aur, Dafen Ind Est, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784 040 Fax: 01554 784 040 info@gstl.co.uk https://gstl.co.uk

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES	WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX BS 1377-2:2022 Clause 5.3 BS EN ISO 17892-12:2018+A2:2022 1 Point Liquid Limit BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content	
Contract Number	87438	
Project Name	St Patricks Close	
Date Tested	02/07/2026	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
TPSK1		D	0.90	-		Brown silty CLAY
TPSK2		D	2.00	-		Brown fine to medium gravelly silty CLAY
TP3		D	1.50	-		Brown fine to coarse gravelly silty CLAY
BH1		D	5.00	-		Brown silty CLAY
BH1		D	10.50	-		Brown silty CLAY
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		
				-		

Operator
Clayton. J

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
BS 1377-2:2022 Clause 5.3
BS EN ISO 17892-12:2018+A2:2022 1 Point Liquid Limit
BS EN ISO 17892-1:2014+A1:2022 Determination of Water Content

Contract Number	87438
Project Name	St Patricks Close
Date Tested	02/07/2026
Test Comments	80g/30° Fall cone used

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Water Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Factor Applied	Remarks
TPSK1		D	0.90	-		21.1	57	19	38	100	0.100	CH High Plasticity
TPSK2		D	2.00	-		19.8	46	18	28	89	0.982	CI Intermediate Plasticity
TP3		D	1.50	-		19.2	49	16	33	79	0.998	CI Intermediate Plasticity
BH1		D	5.00	-		28.6	77	24	53	100	0.987	CV Very High Plasticity
BH1		D	10.50	-		24.6	55	18	37	100	1.010	CH High Plasticity
				-								
				-								
				-								
				-								
				-								
				-								
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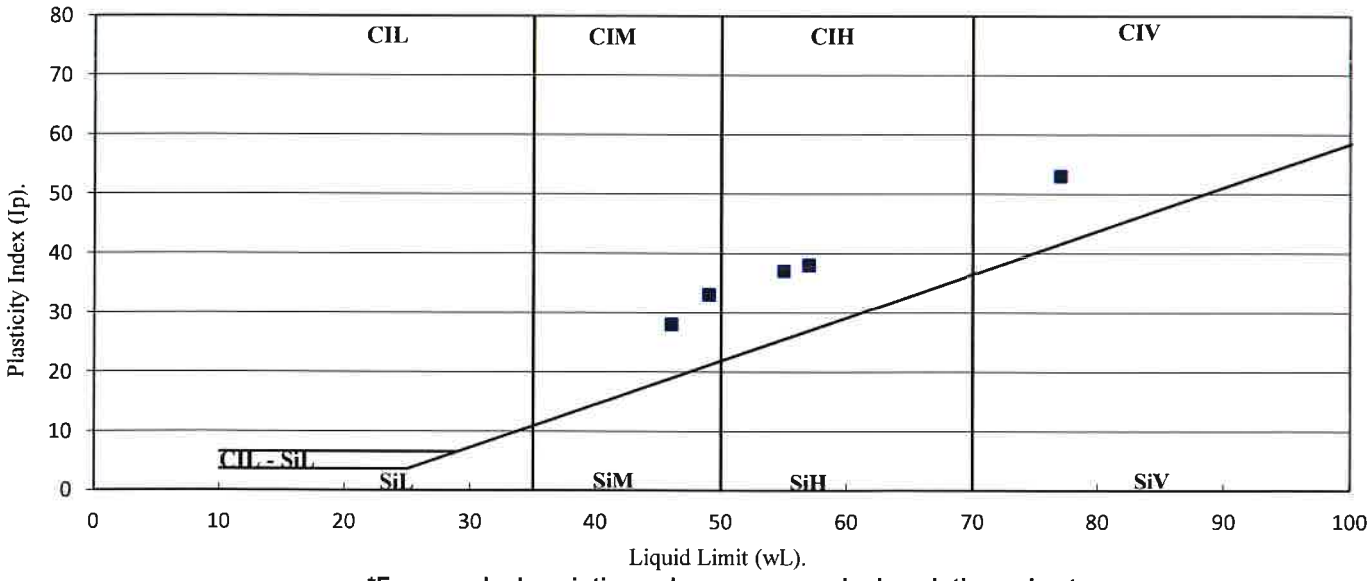
SYMBOLS : NP = Non Plastic

PLASTICITY CHART
BS EN ISO 14688-2:2018 Clause 4.4



***For sample descriptions please see sample descriptions sheet**

Operator
Clayton. J

Normec DETS

Certificate of Analysis

Certificate Number 26-14955 *Issued:* 03-Jul-26

Client Soils Limited
Telford House
Sun Valley Business Park
Winnall Close
Winchester
SO23 0LB

Our Reference 26-14955

Client Reference ~ (not supplied)

Order No ~ 22440/AN

Contract Title ~ St Patrick's Church

Description 3 Soil samples.

Date Received 19-Jun-26

Date Started 19-Jun-26

Date Completed 03-Jul-26

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Louise Cook
Contracts Manager

ilac-MRA UKAS TESTING 2139

Sample Deviations present. See Deviation Table Section for details.

Summary of Chemical Analysis
Soil Samples

Our Ref 26-14955
Client Ref ~
Contract Title ~ St Patrick's Church

			Lab No	2705425	2705426	2705427
			Sample ID ~	TPSK2	BH1	BH1
			Depth ~	1.50	3.00	6.00
			Other ID ~			
			Sample Type ~	SOIL	SOIL	SOIL
			Sampling Date ~	n/s	n/s	n/s
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	12	< 10	17
Inorganics						
pH	DETSC 2008#		pH	8.2	8.4	8.3
Ammoniacal Nitrogen as NH4	DETSC 2119*	0.5	mg/kg	0.91	< 0.50	4.3
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	10	7.1	8.7
Nitrite as NO2	DETSC 2055	1	mg/kg	< 1.0	< 1.0	< 1.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	150	50	340
Sulphur as S, Total	DETSC 2320	0.01	%	0.01	< 0.01	0.30
Sulphate as SO4, Total	DETSC 2321#	100	mg/kg	246	186	2110

Information in Support of the Analytical Results

Our Ref 26-14955
Client Ref ~
Contract ~ St Patrick's Church

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2705425	TPSK2 1.50 SOIL		PT 1L	Sample date and/or time not supplied, Anions 2:1 (30 days), Ammonia (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), Ammoniacal Nitrogen as NH4 (365 days), pH + Conductivity (7 days)	
2705426	BH1 3.00 SOIL		PT 1L	Sample date and/or time not supplied, Anions 2:1 (30 days), Ammonia (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), Ammoniacal Nitrogen as NH4 (365 days), pH + Conductivity (7 days)	
2705427	BH1 6.00 SOIL		PT 1L	Sample date and/or time not supplied, Anions 2:1 (30 days), Ammonia (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), Ammoniacal Nitrogen as NH4 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

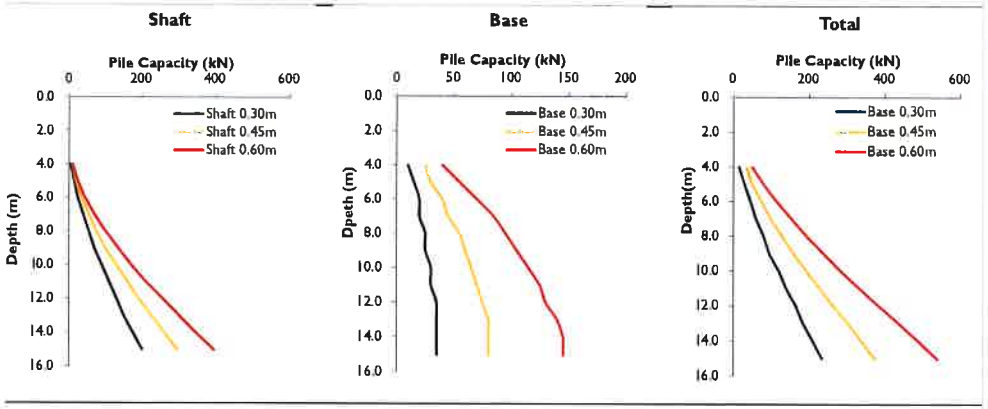
From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix D Preliminary Pile Design

Preliminary Pile Working Loads

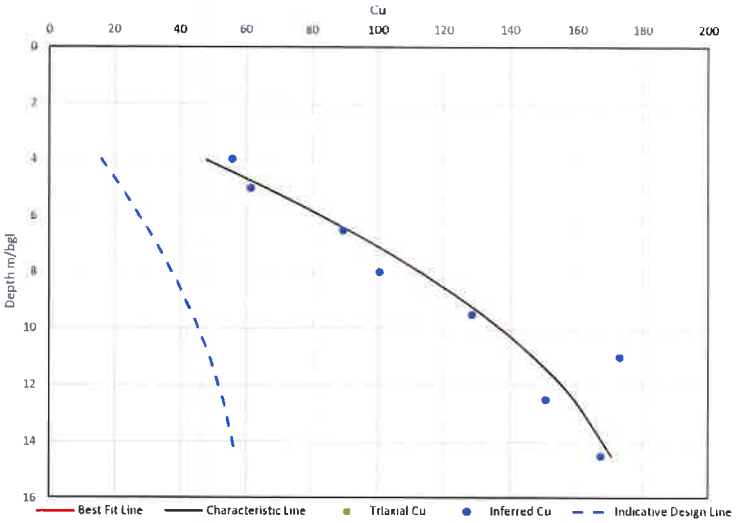
Single Vertically Loaded Pile (kN)

Name:	St Patrick's C N_c value	9	Pile Start Depth:	3	FOS	
Job No:	22440	α value:	0.45	Pile Final Depth:	15	Shaft	Base
Date:	2.7.26			Pile Increment:	1	3	3



Pile Diameter (m):

Pile Depths	0.30			0.45			0.60		
(m bgl)	Shaft	Base	Total	Shaft	Base	Total	Shaft	Base	Total
3.0									
4.0	5	10	15	10	25	35	10	40	50
5.0	15	15	30	20	30	50	25	55	80
6.0	25	20	45	35	40	75	45	70	115
7.0	40	20	60	55	45	100	70	85	155
8.0	55	25	80	75	55	130	100	95	195
9.0	70	25	95	100	60	160	135	105	240
10.0	90	30	120	130	65	195	170	115	285
11.0	110	30	140	160	70	230	210	125	335
12.0	130	35	165	190	75	265	255	130	385
13.0	150	35	185	225	80	305	300	140	440
14.0	175	35	210	260	80	340	345	145	490
15.0	200	35	235	295	80	375	395	145	540



Appendix E Information Provided by the Client

SITE PLAN: PROPOSED 1:500

Schedule of Accommodation:

Bungalow 1. 3 bedroom GIA 128m²
Bungalow 2. 3 bedroom GIA 118m²

Note:
Drawing to be read in conjunction with:
Proposed Site Plan
Tree Report
BGN Report
Flood Risk Assessment

lilleyarchitecture
232 southwood road hayling island hampshire PO11 9QQ
02392 460974 07734 899673 mail@lilleyarchitecture.com

PROJECT:	DRAWING:	DRAWING REFERENCE	REVISION:	SCALE
Land to East of St Patricks RC Church, Manor Road	SITE PLAN: PROPOSED	608 PL03	C	@A3

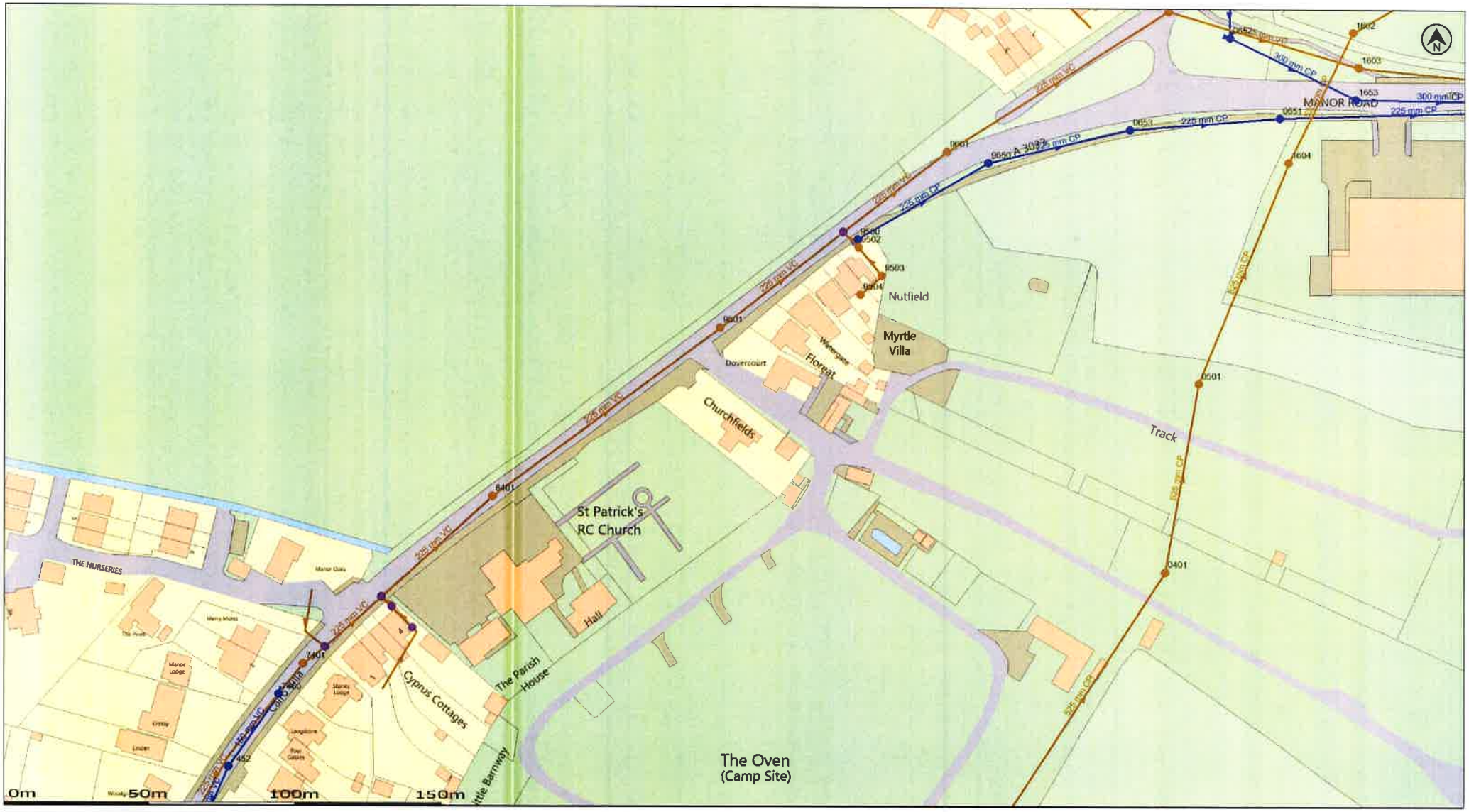
Soils Limited
Geotechnical & Environmental Consultants

Telford House,
Unit 11 Sun Valley Business Park,
Winnall Close,
Winchester,
England SO23 0LB

T: 01962 673 330
W: soilslimited.co.uk

Appendix G

Southern Water Sewer Records



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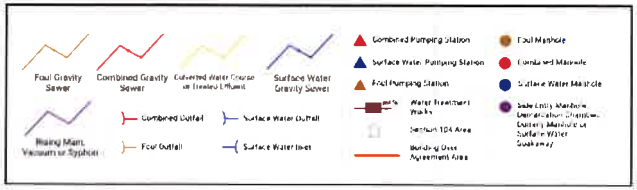
Wastewater Plan A3
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

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



roger@lilleyarchitecture.com

St patricks church

WATER for LIFE

from Southern Water

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
0401	F	6.76	0.00	
0501	F	4.58	0.00	
0601	F	4.61	2.01	
1602	F	4.40	0.00	
1603	F	4.40	1.80	
1604	F	0.00	0.00	
7401	F	6.20	0.00	
8401	F	5.73	3.73	
9501	F	5.05	3.04	
9502	F	0.00	0.00	
9503	F	0.00	0.00	
9504	F	0.00	0.00	
9601	F	4.59	2.25	
0651	S	4.48	3.51	
0652	S	4.41	2.84	
0653	S	4.58	3.80	
1653	S	4.26	2.74	
7450	S	5.99	5.44	
7452	S	5.91	5.24	
9550	S	4.76	3.97	
9650	S	4.67	3.95	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix H

Site & Proposed Impermeable Areas

Impermeable Hardstanding Areas

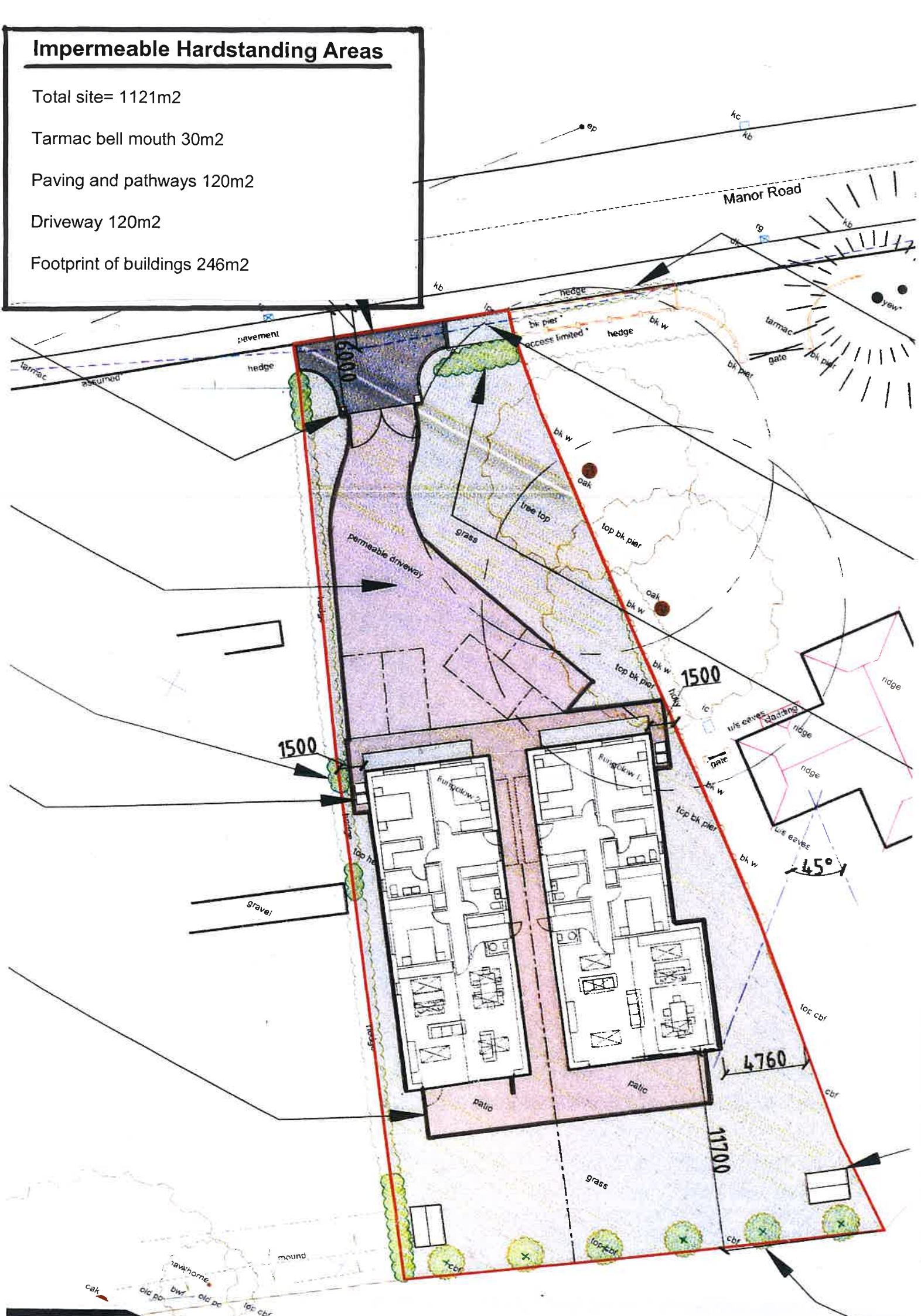
Total site= 1121m2

Tarmac bell mouth 30m2

Paving and pathways 120m2

Driveway 120m2

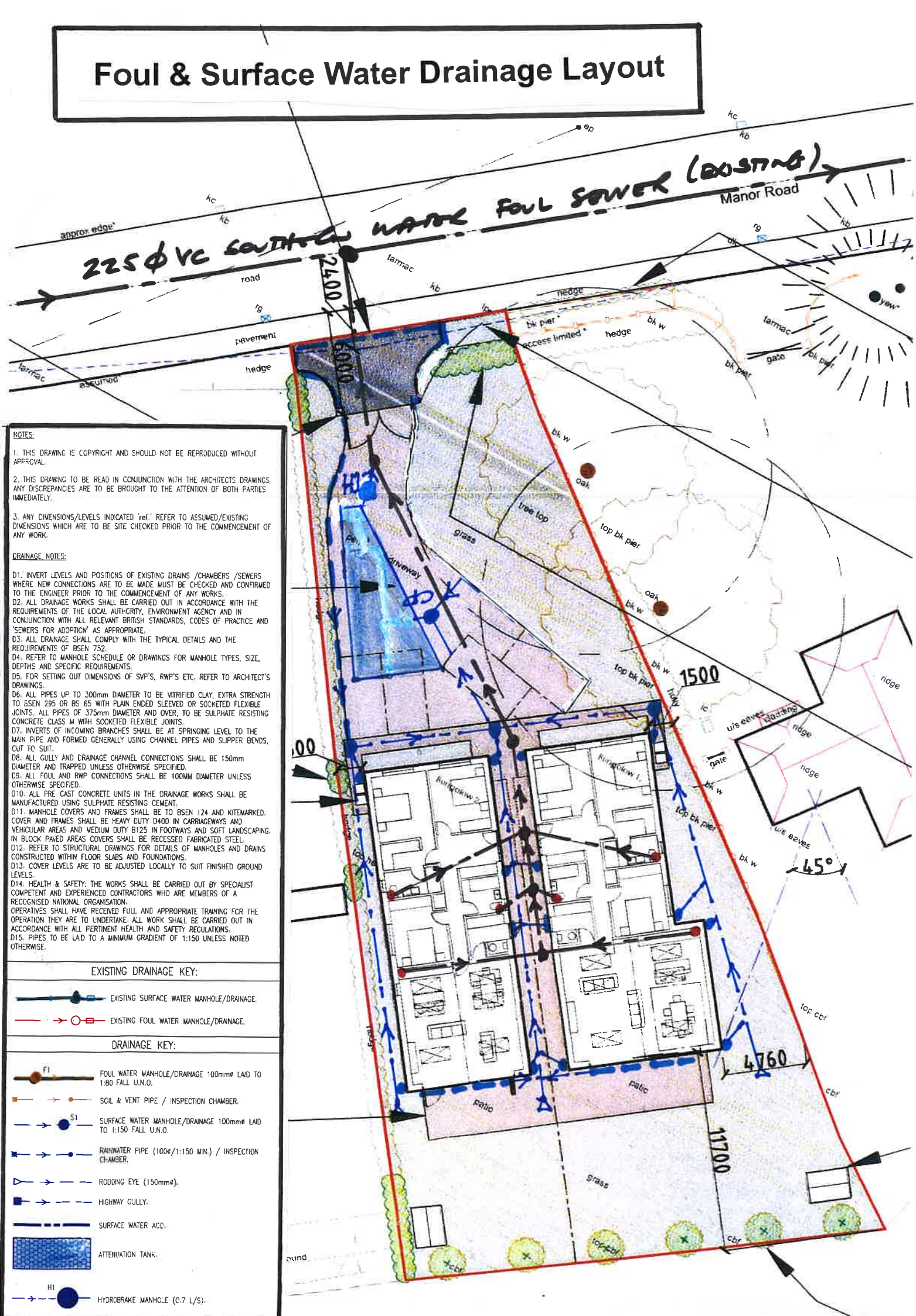
Footprint of buildings 246m2



Appendix I

Foul & Surface Water Drainage Layout

Foul & Surface Water Drainage Layout



NOTES:

1. THIS DRAWING IS COPYRIGHT AND SHOULD NOT BE REPRODUCED WITHOUT APPROVAL.

2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ARCHITECTS DRAWINGS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF BOTH PARTIES IMMEDIATELY.

3. ANY DIMENSIONS/LEVELS INDICATED 'ref.' REFER TO ASSUMED/EXISTING DIMENSIONS WHICH ARE TO BE SITE CHECKED PRIOR TO THE COMMENCEMENT OF ANY WORK.

DRAINAGE NOTES:

D1. INVERT LEVELS AND POSITIONS OF EXISTING DRAINS /CHAMBERS /SEWERS WHERE NEW CONNECTIONS ARE TO BE MADE MUST BE CHECKED AND CONFIRMED TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS.
D2. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY, ENVIRONMENT AGENCY AND IN CONJUNCTION WITH ALL RELEVANT BRITISH STANDARDS, CODES OF PRACTICE AND 'SEWERS FOR ADOPTION' AS APPROPRIATE.
D3. ALL DRAINAGE SHALL COMPLY WITH THE TYPICAL DETAILS AND THE REQUIREMENTS OF BSEN 752.
D4. REFER TO MANHOLE SCHEDULE OR DRAWINGS FOR MANHOLE TYPES, SIZE, DEPTHS AND SPECIFIC REQUIREMENTS.
D5. FOR SETTING OUT DIMENSIONS OF SVP'S, RWP'S ETC. REFER TO ARCHITECT'S DRAWINGS.
D6. ALL PIPES UP TO 300mm DIAMETER TO BE VITRIFIED CLAY, EXTRA STRENGTH TO BSEN 295 OR BS 65 WITH PLAIN ENDED SLEEVED OR SOCKETED FLEXIBLE JOINTS. ALL PIPES OF 375mm DIAMETER AND OVER, TO BE SULPHATE RESISTING CONCRETE CLASS M WITH SOCKETED FLEXIBLE JOINTS.
D7. INVERTS OF INCOMING BRANCHES SHALL BE AT SPRINGING LEVEL TO THE MAIN PIPE AND FORMED GENERALLY USING CHANNEL PIPES AND SLIPPER BENDS, CUT TO SUIT.
D8. ALL GULLY AND DRAINAGE CHANNEL CONNECTIONS SHALL BE 150mm DIAMETER AND TRAPPED UNLESS OTHERWISE SPECIFIED.
D9. ALL FOUL AND RWP CONNECTIONS SHALL BE 100MM DIAMETER UNLESS OTHERWISE SPECIFIED.
D10. ALL PRE-CAST CONCRETE UNITS IN THE DRAINAGE WORKS SHALL BE MANUFACTURED USING SULPHATE RESISTING CEMENT.
D11. MANHOLE COVERS AND FRAMES SHALL BE TO BSEN 124 AND KITEMARKED. COVER AND FRAMES SHALL BE HEAVY DUTY D400 IN CARRIAGEWAYS AND VEHICULAR AREAS AND MEDIUM DUTY B125 IN FOOTWAYS AND SOFT LANDSCAPING. IN BLOCK PAVED AREAS COVERS SHALL BE RECESSED FABRICATED STEEL.
D12. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF MANHOLES AND DRAINS CONSTRUCTED WITHIN FLOOR SLABS AND FOUNDATIONS.
D13. COVER LEVELS ARE TO BE ADJUSTED LOCALLY TO SUIT FINISHED GROUND LEVELS.
D14. HEALTH & SAFETY: THE WORKS SHALL BE CARRIED OUT BY SPECIALIST COMPETENT AND EXPERIENCED CONTRACTORS WHO ARE MEMBERS OF A RECOGNISED NATIONAL ORGANISATION.
OPERATIVES SHALL HAVE RECEIVED FULL AND APPROPRIATE TRAINING FOR THE OPERATION THEY ARE TO UNDERTAKE. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH ALL PERTINENT HEALTH AND SAFETY REGULATIONS.
D15. PIPES TO BE LAID TO A MINIMUM GRADIENT OF 1:150 UNLESS NOTED OTHERWISE.

EXISTING DRAINAGE KEY:

- EXISTING SURFACE WATER MANHOLE/DRAINAGE.
- EXISTING FOUL WATER MANHOLE/DRAINAGE.

DRAINAGE KEY:

- F1 — FOUL WATER MANHOLE/DRAINAGE 100mmϕ LAID TO 1:80 FALL U.N.O.
- SOIL & VENT PIPE / INSPECTION CHAMBER.
- S1 — SURFACE WATER MANHOLE/DRAINAGE 100mmϕ LAID TO 1:150 FALL U.N.O.
- RAINWATER PIPE (100ϕ/1:150 MIN.) / INSPECTION CHAMBER.
- RODDING EYE (150mmϕ).
- HIGHWAY GULLY.
- SURFACE WATER ACC.
- ATTENUATION TANK.
- H1 — HYDROBRAKE MANHOLE (0.7 L/S).

Appendix J

Surface Water Drainage Calculations

HAMILL DAVIES LIMITED
Consulting Civil & Structural Engineers
Ivydale,Lower Chase Road, Swanmore ,
Hampshire, SO32 2PB
Tel: 01489 893 596 Fax: 01489 890 715
brian.w.hamill@btopenworld.com

MasterDrain HY 11.0

Job No. 26/4613			
Sheet no. 1			
Date 17/08/26			
Project: Land to the east of St. Patrick's Church, Hayling Island	By B.H.	Checked	Reviewed
Title: BREEAM SUR1 calculations for PORTSMOUTH			

Data:-

Hydrology (FSR):-

Location = PORTSMOUTH		WRAP	= 3
Long reference = 465101		Grid reference	= SU6501
M5-60 (mm)	= 18	SAAR (mm/yr)	= 710
r	= 0.35	Soil	=0.37
Hyd. area	= 7	Hyd. zone	= 4
Hydrograph	= Summer	Area = England & Wales	✓

Site values used in design:-

Total site area	= 0.1121 ha	Climate change factor	= 45%
Pre-dev area drained	= 0.0000 ha	Post-dev area drained	= 0.0516 ha
Imperm runoff factor	= 98%	Perm runoff factor	= 20%
Pre-development			
Area to soakaways	= 0.0000 ha	Area to other SUDS	= 0.0000 ha
Perv. area to SUDS	= 0.0000 ha	Pre-dev flow to drain	= 0.00 l/s
Post-development			
Area to soakaways	= 0.0000 ha	Area to other SUDS	= 0.0000 ha
Perv. area to SUDS	= 0.0000 ha	Post-dev flow to drain	= 0.70 l/s

Calculations:-

Revised Post-dev Imperm. area = 0.052 ha
Equiv. Post-dev Imperm. area = 0.051 ha
Equiv. Post-dev Perm. area = 0.012 ha
Total Pre-dev equiv. area ha = 0.022 ha
Total Post-dev equiv. area ha = 0.063 ha
100 yr 6 hour mean intensity = 10.03mm/hr

Results:-

Pre-dev peakflow runoff (l/s) (m^3/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	6.6	4.3	2.8	1.8	1.1	0.9	0.7	0.6	6.6	N/A	6.6	1
30	15.9	10.6	6.8	4.2	2.5	1.9	1.5	1.3	15.9	N/A	15.9	30
100	20.5	13.8	8.9	5.5	3.3	2.4	2.0	1.7	20.5	N/A	20.5	100

Post-dev peakflow runoff (l/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	18.4	12.1	7.9	5.0	3.2	2.4	2.0	1.7	18.4	45	26.7	1
30	44.4	29.5	18.9	11.7	7.1	5.3	4.3	3.6	44.4	45	64.3	30
100	57.2	38.5	24.8	15.4	9.3	6.8	5.5	4.6	57.2	45	83.0	100

100 year 6 hour (x Climate Change Factor) storm gives:-
Pre-dev runoff volume m^3 = 13.5m^3
Post-dev rainfall volume = 54.7m^3
Post-dev volume m^3 (excess above SUDS) = 54.7m^3
100 yr 6 hour mean intensity = 10.03mm/hr
Pre-dev volume to drain at 0 l/s = 0.0 m^3
Post-dev volume to drain at .7 l/s = 15.4 m^3
→ Post-dev storage volume = 39.3m^3 ←
Post-dev 5mm imperm volume = 2.6 m^3
Post-dev 5mm perm volume = 3.0 m^3

$Q_{BAR(rural)}$ = 0.327 l/s or 2.921 l/s/ha or 0.000 cumecs - from IoH 124.

The rainfall rates are calculated using the location specific values above in accordance with the Wallingford procedure.

Appendix I

Flood & Water Management Template

1	**Background information** on the proposed design. Including proposal; site; plans of surface water drainage and any SuDS featured in the scheme
2	Evidence that the applicant understands the **sensitivity of discharge points** relating to the receiving water body. Where this is main river or discharging through contaminated land the LPA may have to consult the Environment Agency (EA)
3	Evidence of and information on the **existing surface water flow paths** of undeveloped (greenfield) sites
4	Evidence of and information on the **existing drainage network** for previously developed (brownfield) sites
5	Identification of and information on areas that may have been affected by **failures in the existing drainage regime**
6	Evidence that the **proposed drainage will follow the same pattern as the existing**. This avoids directing flow to other locations.
7	Information evidencing that the **correct level of water treatment exists** in the system in accordance with the Ciria SuDS Manual C753
8	***Where infiltration is used for drainage*** , evidence that a **suitable number of infiltation tests** have been completed. These need to be across the whole site; within different geologies and to a similar depth to the proposed infiltration devices. Tests must be completed according to the BRE 365 method or another recognised method including British Standard BS 5930: 2015
9	***If not using infiltration for drainage*** - Existing and proposed **run-off rate calculations** completed according to a suitable method such as IH124 or FEH. Information is available from UK Sustainable Drainage: Guidance and Tools. Calculations must show that the proposed run off rates do not exceed the existing run-off rates. This must be shown for a one in one year event plus climate change and a one in one hundred year event plus climate change.
10	***If not using infiltration for drainage*** - Existing and proposed **run-off volume calculations** completed according to a suitable method such as IH124 or FEH. Calculations must show that, where reasonably practical, runoff volume should not exceed the greenfield runoff volume for the same event. This must be shown for a 1 in 100 year, 6 hour rainfall event
11	Evidence that **enough storage/attenuation** has been provided without increasing the runoff rate or volume. This must be shown for a 1 in 100 year plus climate change event
12	Evidence that **runoff exceeding design criteria has been considered**. Calculations and exceedance flow diagram/plans must show where above ground flooding might occur and where this would pool and flow.
13	**Maintenance regimes** of entire surface water drainage system including individual SuDS features, including a plan illustrating the organisation responsible for each element. Evidence that those responsible/adopting bodies are in discussion with the developer. For larger/phased sites, we need to see evidence of measures taken to protect and ensure continued operation of drainage features during construction.
14	Evidence that **Urban Creep** has been considered in the applicationm and that a **10%** increase in inpermeable area has been used in calculations to account for this.