

Nutrient Balancing Assessment



Site:	Woodgreen Avenue, Havant
Client:	KF Planning Consultancy
Job Number:	A114785
Survey Type(s):	Nutrient balancing assessment
Date of Report:	13 th August 2019
File Location:	\\lds-dc-vm-002\Group Ecology\Tenders\Projects\A11400 on\A114785 Woodgreen Avenue\Reports

Introduction

WYG were appointed by KF Planning Consultancy in August 2019 to calculate the change in nutrient outputs from existing to future use associated with a proposed residential development at 108 Woodgreen Avenue, Havant in Hampshire.

The site comprises a development of two dwellings on an existing garden, as shown in Appendix A.

The calculations are required in response to recent consultation with Natural England on residential projects in the vicinity of the Solent following the findings of the Integrated Water Management Study for South Hampshire, published by the Partnership for Urban South Hampshire (PUSH)¹.

Due to the uncertainty over whether new development can be accommodated by existing wastewater treatment infrastructure without causing harm to coastal European sites, Natural England advise that all residential development should achieve nitrogen neutrality.

Methodology

To make the assessment, Version 2 of Natural England's *Advice on Achieving Nutrient Neutrality for New Development in the Solent Region* (Natural England, June 2019) for calculating nitrogen budgets was used².

Assumptions

The assumptions used in this assessment are as follows:

- 110 litres of waste water will be generated per person per day;
- Waste water will be treated at Budds Farm;
- The scheme comprises 2 dwellings and 0.017 ha of future urban land;
- The discharge consent limit at Budds Farm is 9.7 mg/l;
- An occupancy rate of 2.4 people per dwelling as per Natural England guidance; and

¹ PUSH, (2018), *Integrated Water Management Study*, [online] Available at <https://www.push.gov.uk/wp-content/uploads/2018/07/IWMS-Appendix-1.pdf>, Accessed August 2019.

² Natural England, (2019), *Advice on Achieving Nutrient Neutrality for New Development in the Solent Region for Local Planning Authorities*.

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- A previous land use of urban land has been applied (14.3 Kg/TN/ha/yr) as the site comprises an existing garden.

Results and Summary

The calculations using the method for determining the nitrogen budget for the proposals are provided in Table 1. The workings are shown in Appendix B.

Table 1: Summary of the results

Option	Current Land Use TN Load (A)	Waste water from Future Land Use TN Load (B)	Future Land Use TN Load (C)	Change (B+C-A)	Apply 20% Buffer
2 units	0.243 Kg/TN/yr	1.682 Kg/TN/yr	0.243 Kg/TN/yr	1.682 Kg/TN/yr	2.019 Kg/TN/yr

The calculations show that with the inclusion of the 20% buffer the development would result in an increase in nitrogen load of 2.019 Kg/TN/yr. It is therefore considered that the development would have the potential to result in Likely Significant Effects (LSE) on the Solent European Sites.

Havant Borough Council have adopted a position statement on nutrient neutral development³. This includes the use of Grampian conditions to allow planning permission to be granted where development is not nutrient-neutral, whilst making sure that no adverse effect on European sites can occur. In accordance with the adopted position statement, it is proposed that the following condition is attached to the proposed development:

"The development hereby permitted shall not be occupied until:

a) A water efficiency calculation in accordance with the Government's National Calculation Methodology for assessing water efficiency in new dwellings has been undertaken which demonstrates that no more than 110 litres of water per person per day shall be consumed within the development, and this calculation has been submitted to, and approved in writing by, the Local Planning Authority;

b) A mitigation package addressing the additional nutrient input arising from the development has been submitted to, and approved in writing by, the Local Planning Authority. Such mitigation package shall address all of the additional nutrient load imposed on protected European Sites by the development when fully occupied and shall allow the Local Planning Authority to ascertain on the basis of the best available scientific evidence that such additional nutrient loading will not have an adverse effect on the

³ Havant Borough Council, (2019), *Position statement on nutrient neutral development*. [online] Available at <https://www.havant.gov.uk/sites/default/files/documents/Position%20Statement%20on%20Nutrient%20Neutrality.pdf>, Accessed August 2019.



Integrity of the protected European Sites, having regard to the conservation objectives for those sites; and

c) All measures forming part of that mitigation package have been provided to the Local Planning Authority.

Reason: There is existing evidence of high levels of nitrogen and phosphorus in the water environment with evidence of eutrophication at some European designated nature conservation sites in the Solent catchment. The PUSH Integrated Water Management Strategy has identified that there is uncertainty as to whether new housing development can be accommodated without having a detrimental impact on the designated sites within the Solent. Further detail regarding this can be found in the appropriate assessment that was carried out regarding this planning application. To ensure that the proposal may proceed as sustainable development, there is a duty upon the local planning authority to ensure that sufficient mitigation for is provided against any impacts which might arise upon the designated sites. In coming to this decision, the Council have had regard to Regulation 63 of the Conservation of Habitats and Species Regulations 2017, Policy CS11 of the Havant Borough Local Plan (Core Strategy) 2011 and Policy E14 of the Pre-Submission Havant Borough Local Plan 2036."

Following the application of this planning condition, it is considered that there is no potential for an adverse effect upon the integrity of any European site as a result of increased nitrogen discharge.

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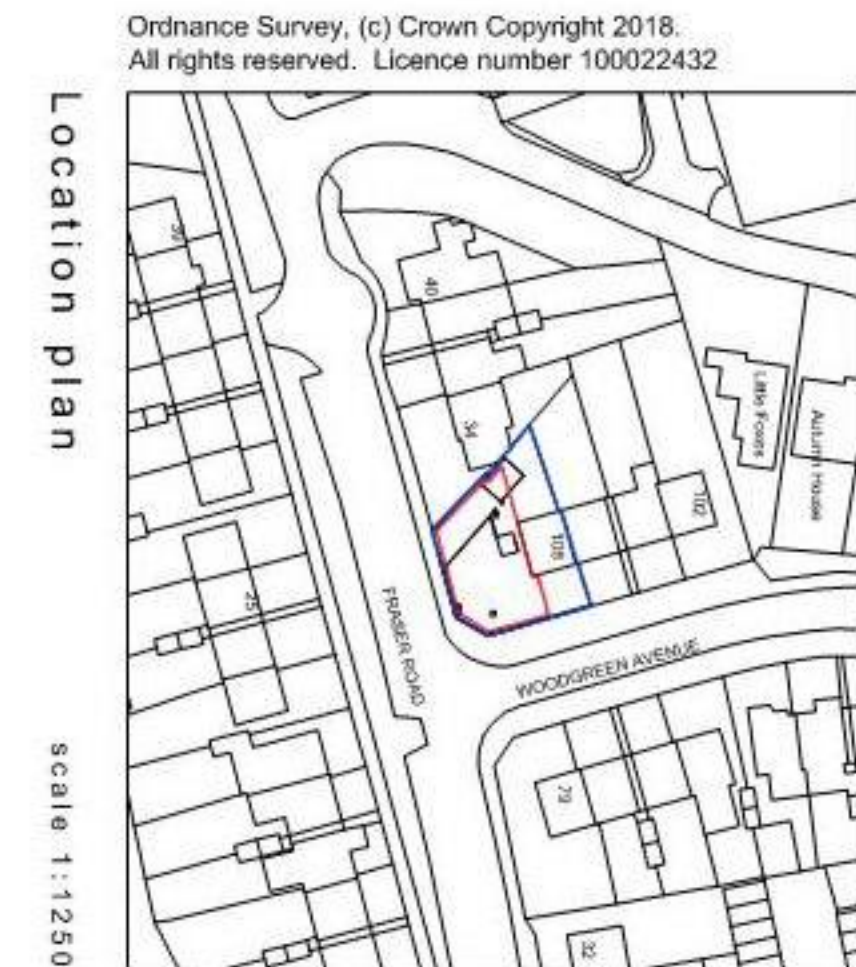
Quality Control		
Version:	1	FINAL
Prepared by:		David West CEnv MCIEEM Associate Ecologist
Verified By:		Jonathan Jackson CEnv MCIEEM Principal Ecologist

Version:	Date:	Updated by:	Verified by:	Description of changes:

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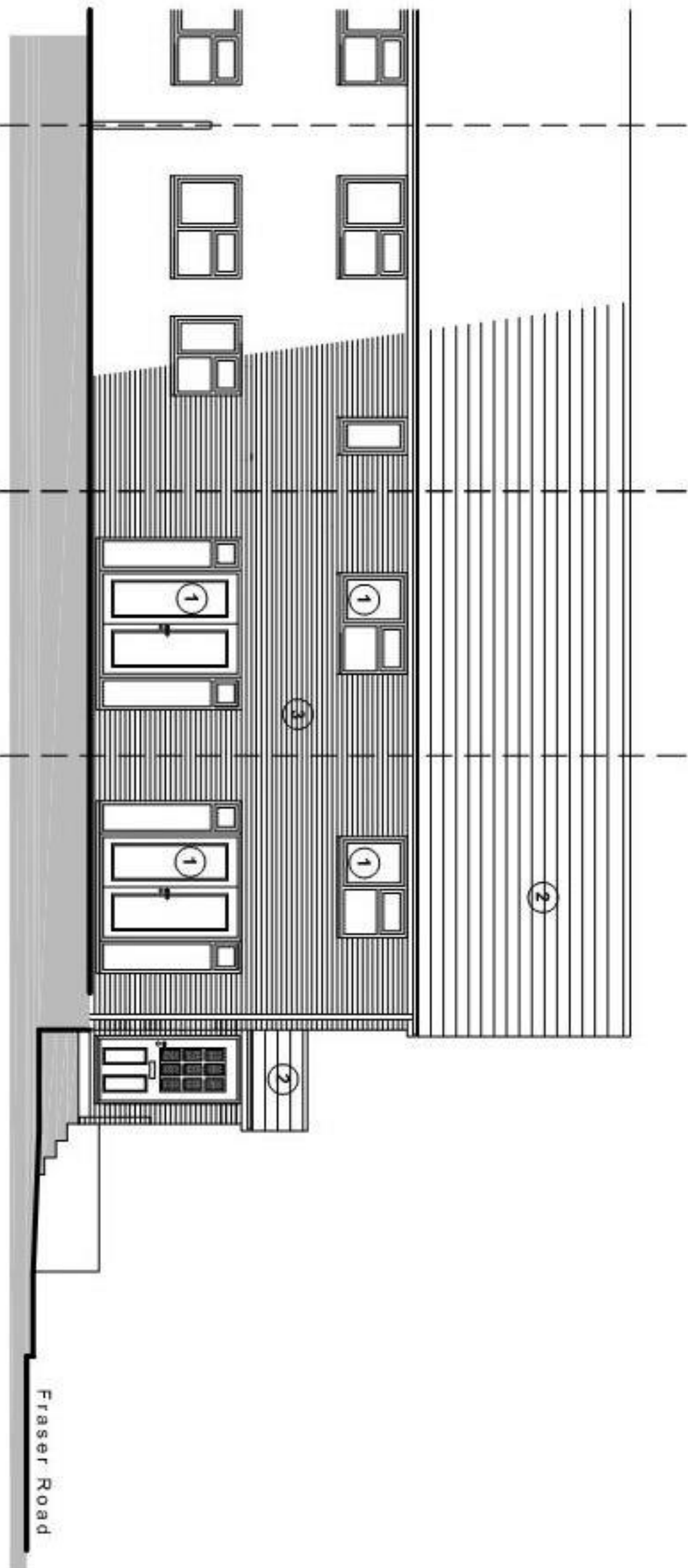


Appendix A

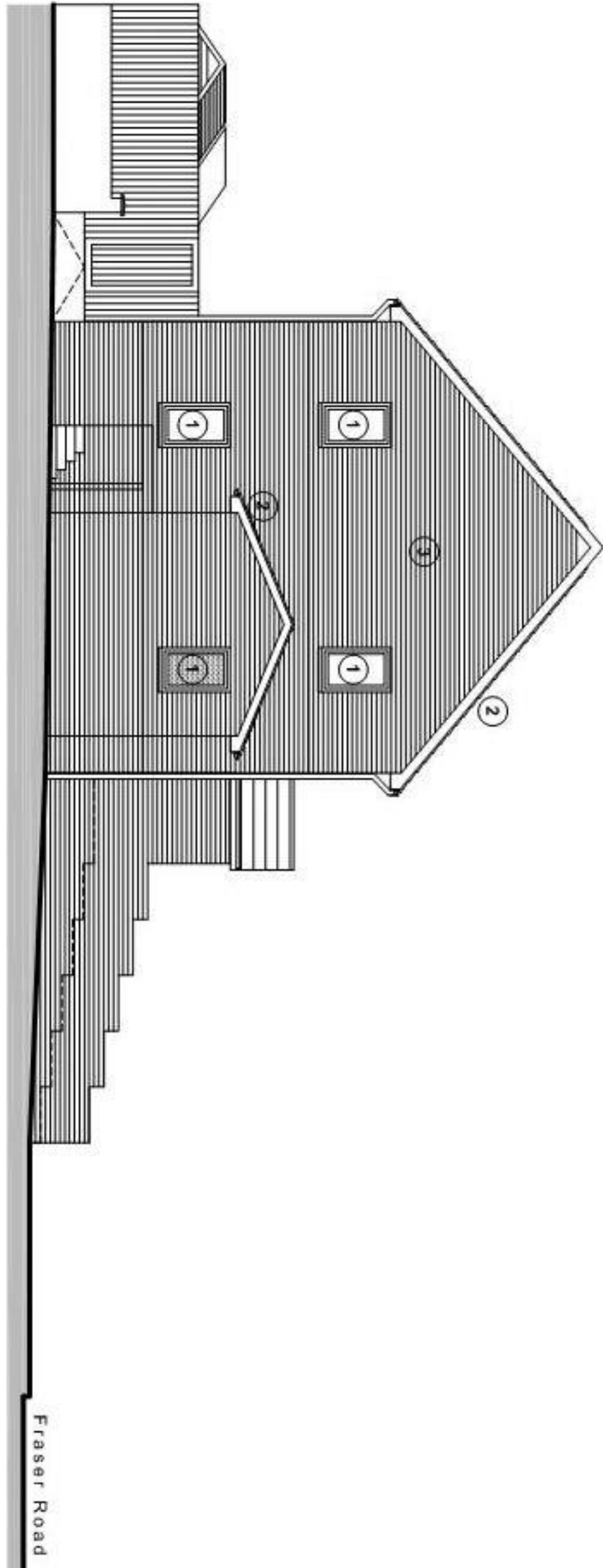
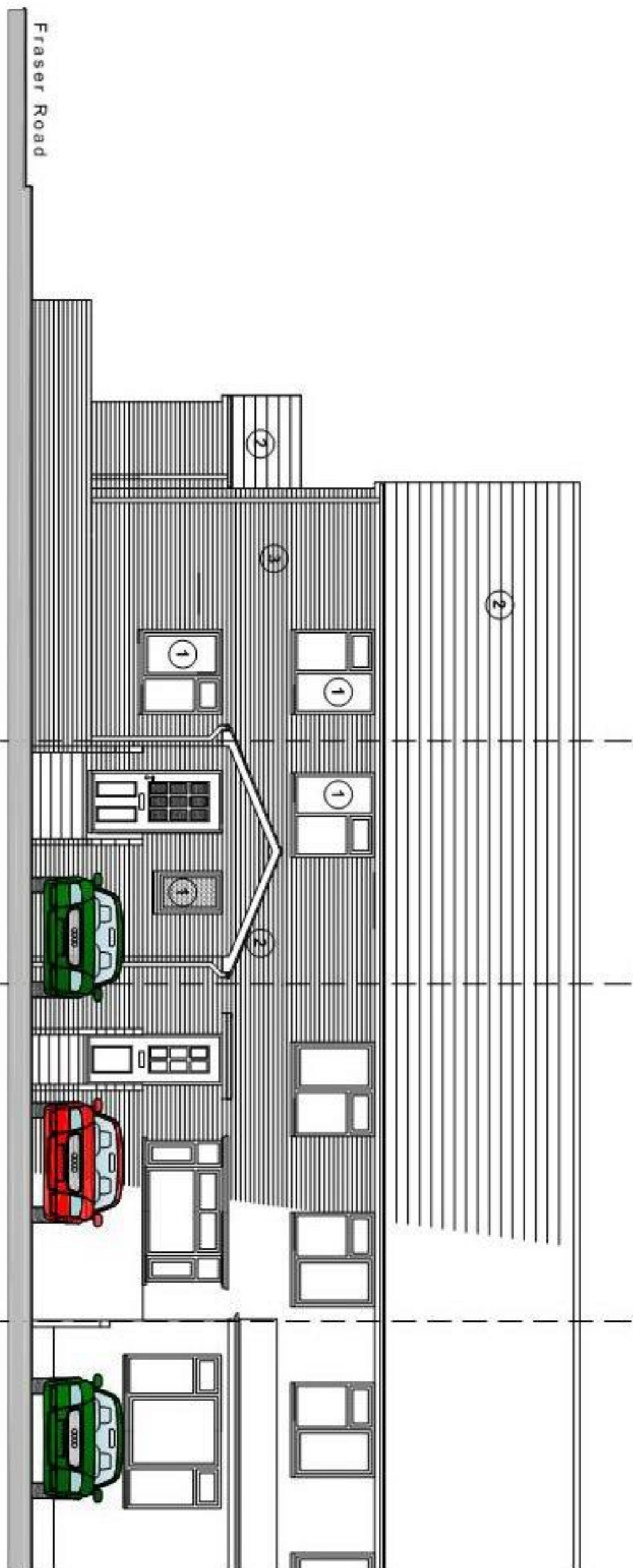


Location plan

scale 1:1250

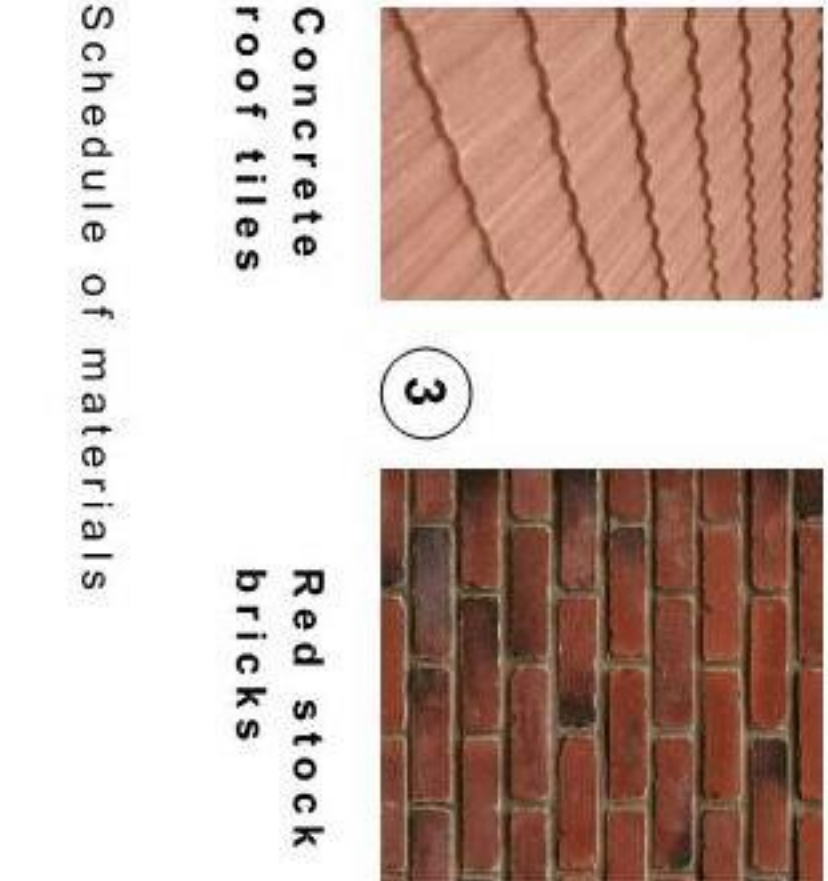


East (side) elevation



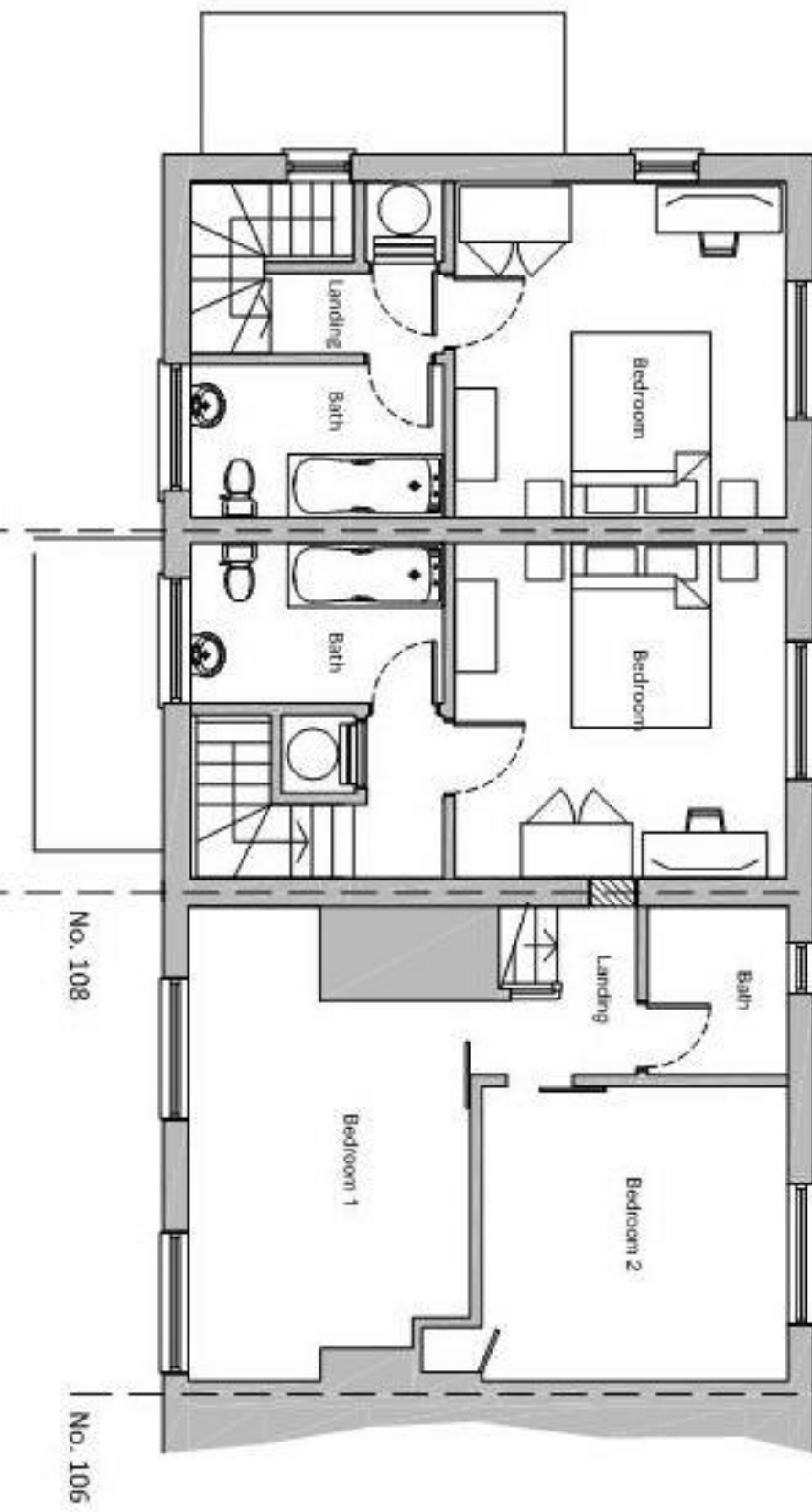
South (front) elevation

scale 1:100

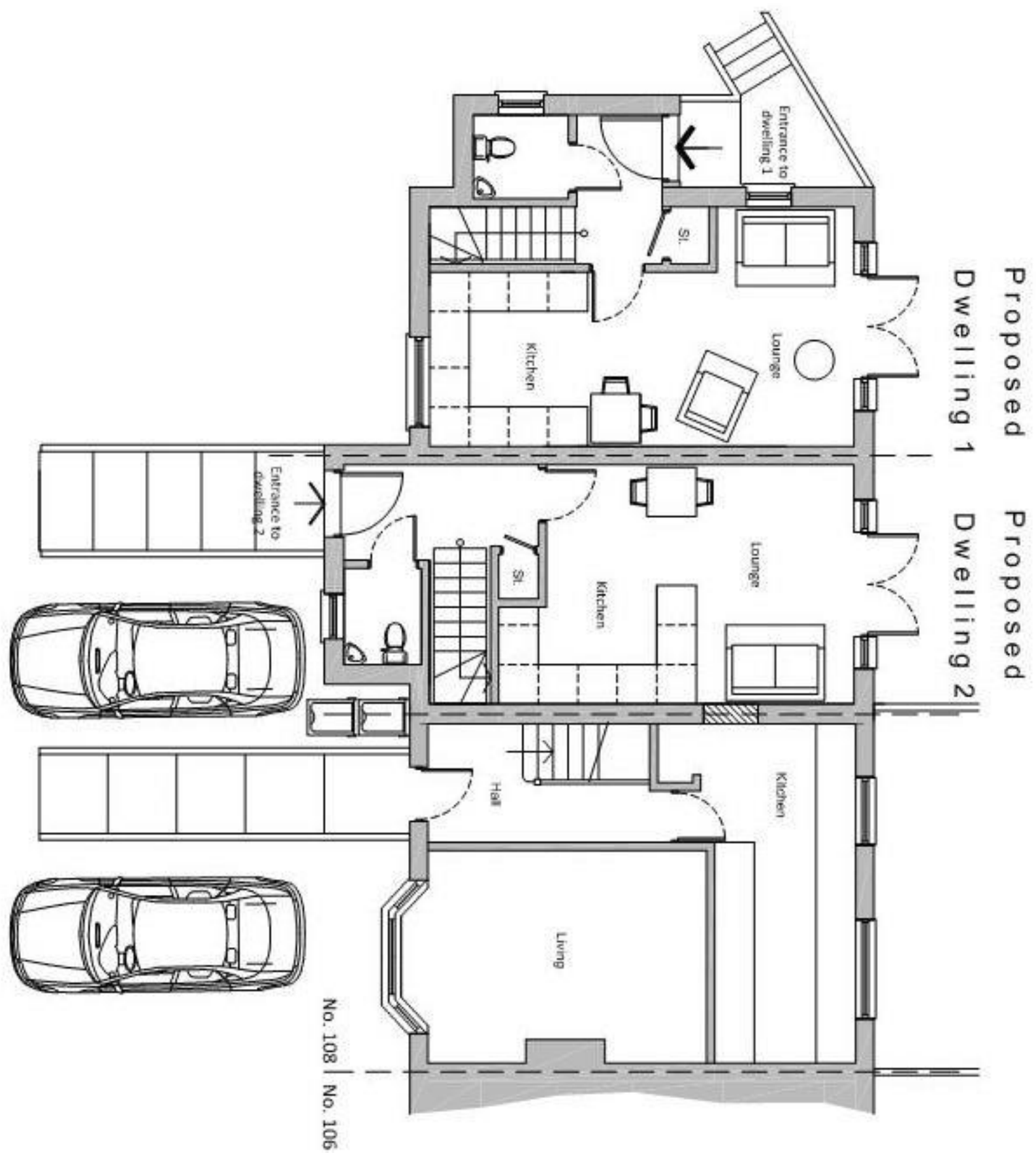


Schedule of materials

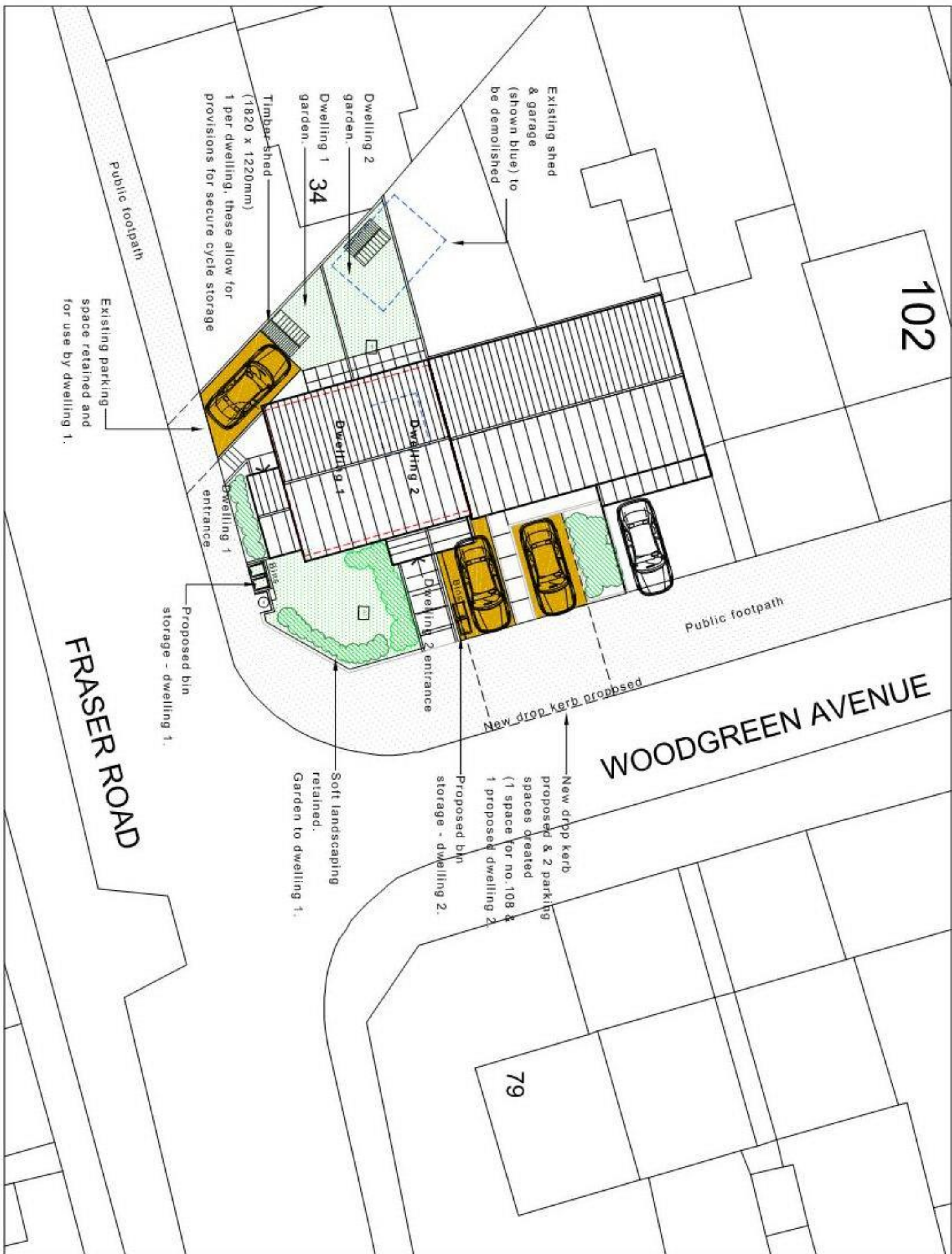
Schedule of accommodation	
Site area (including 108 Woodgreen):	458 m ²
Proposed development site area (excluding 108 Woodgreen):	295 m ²
Existing floor area 108 Woodgreen Ave:	66 m ²
Proposed floor areas (proposed dwelling):	
Dwelling 1	2 person, 1 bed house
Total floor area - 50.8 m ²	
Dwelling 2	2 person, 1 bed dwelling
Total floor area - 50.8 m ²	
Total proposed parking on site - 3 spaces	



Proposed first floor plan



Proposed ground floor plan scale 1:100



Proposed site plan

scale 1:200



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For MR & MRS KERRIGAN

Project:
**PROPOSED 2 NO. 1 BED DWELLINGS
AT 108 WOODGREEN AVENUE
BEDHAMPTON
HANTS, PO9 3EE**

Title:
**PROPOSED FLOOR PLANS
& ELEVATION, PROPOSED SITE PLAN
& LOCATION PLAN**

Date	Drawn	Scale	Checked
AUG 2018	JB	As shown @ A1	-
Job Number	19_10616	Drawing Number	C



Appendix B Workings for calculating nitrogen change (Application Scenario)

Table 2 Calculating Total Nitrogen (TN) Load From Development Wastewater (Stage 1)

Step	Measurement	Value	Unit	Explanation
Development proposal	Development types that would increase the population served by a wastewater system	2.000	Residential dwellings	Number of dwellings
1	Additional population	4.800	Persons	Uses an average household size of 2.4 x number of dwellings
2	Wastewater volume generated by development	528.000	L/day	Persons x 110 litres/day. Where relevant, deduct wastewater volume of population displaced by the proposed development.
3	Waste Water Treatment Works (WWTW) environmental limit for TN	9.700	mg/l TN	Local WWTW limit
4	TN discharged after WWTW	4609.440	mg/TN/day	90% of environmental limit
5	Convert mg/TN to kg/TN per day	0.005	Kg/TN/day	Divide by 1,000,000
6	Convert kg/TN per day to kg/TN per year	1.682	Kg/TN/yr	x365 days
TN Load wastewater 1.682 Kg/TN/yr				

Table 3 Calculating TN Load From Current Land use (Stage 2)

Step	Measurement	Type	Value	Unit	Explanation
1	Total area of existing land	Urban Land	0.017	ha	Area of land lost to development
2	Land nitrate loss.	Urban Land	14.30	Kg/ha/yr	The existing land use is urban land
3	Multiply total area by land nitrate loss	Urban Land	0.243	Kg/TN/yr	Area x nitrate loss
TN Load – current land use 0.243 Kg/TN/yr					

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Table 4 Calculating TN Load From Future Land Uses (Stage 3)

Step	Measurement	Value	Unit	Explanation
1	Future urban land	0.017	ha	Area of development that will change to urban land use
2	Total nitrogen load from future urban area	0.243	Kg/TN/yr	area (ha) x 14.3 Kg/TN/yr (nitrogen leaching from urban land each year)
3	New SANG / open space	0.000	ha	Area of development that will change from agricultural land to SANG / open space
4	TN load from SANG / open space	0.500	Kg/TN/yr	area (ha) x 5 (nitrogen leaching from SANG / open space each year)
5	Combine TN load from future land uses	0.243	Kg/TN/yr	-
TN Load - future land use 0.243 Kg/TN/yr				

Table 5 Calculating Net Change in TN From The Development (Stage 4)

Step	Measurement	Value	Unit	Explanation
1	Identify TN loads from wastewater	1.682	Kg/TN/yr	(Stage 1)
2	Calculate TN from land use - subtract TN load from future land uses (Stage 3) from existing land uses (Stage 2)	0.000	Kg/TN/yr	(Stage 2 - Stage 3)
3	Determine nitrogen budget - the difference between the TN load for the proposed development and the existing uses	1.682	Kg/TN/yr	(Step 1 - Step 2)
4	Calculate and include 20% buffer	2.019	Kg/TN/yr	Step 3 + (Step 3 / 5)
TN Budget 2.019 Kg/TN/yr				