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FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY

13 Wycombe Gardens, London, NW11 8AN

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Quality Standards Control

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator.

This document must only be treated as a draft unless it has been signed by the originators and approved by a director.

Revision	V03
Date	09/11/2023
Prepared by	A Wallace
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Authorised by	A Wallace

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1 EXECUTIVE SUMMARY

This Drainage Assessment reviews the existing drainage arrangement at the application site and proposes a Flood Risk Assessment in accordance with the National Planning Policy Framework (NPPF) and surface water drainage strategy in line with Local Authority and Lead Local Flood Authority (LLFA) guidance.

The site is located at 13 Wycombe Gardens, London, NW11 8AN.

The existing site contains a dwelling which is to be extended and a new basement and external works constructed.

Flooding

The site is less than 1 hectare in size and within flood zone 1. The sources of flooding assessed and proposed mitigation measures are listed in the table below.

Source	Risk Category (after mitigation)	Comments
Fluvial (Rivers and Sea)	Very Low	Site within flood zone 1
Coastal and tidal	Negligible	Not near coast or tidal waterbody
Groundwater	Low	Proposed finished floor levels are 150mm above external ground levels and natural topography reduces risk.
Surface water	Low	Low due to natural topography and presence of surface water drainage system.
Sewers	Very Low	Low due to natural topography and sewer location
Reservoirs	Very Low	Reservoir at low danger of failure

Surface Water Drainage

It is proposed to discharge into the existing culverted watercourse running under the road to the site frontage.

Discharge will be limited to 2.5l/s. A total attenuation volume of approximately 8 cubic metres is proposed to cater for the 100 year +40% storm event.

An additional 10% allowance for urban creep has been included in the sizing of surface water storage by adding 10% to the areas in the modelled calculations.

Maintenance/management of all onsite drainage infrastructure has been considered within a separate maintenance plan appended to this report. This will be updated through the development process.

The proposed drainage strategy is entirely based on-site. The existing foul connection is to be reused and the discharge consent for the surface has been obtained. A copy is included in Appendix C.

Overall, the proposed development has an acceptable flood risk within the terms and requirements of the NPPF. The proposals provide a high level of water treatment, runoff reduction and flooding protection for the proposed development and are in accordance with all requirements of the Lead Local Flood Authority (LLFA).

Foul Drainage

It is proposed to discharge the foul drainage from the site into the existing sewer on site. This sewer discharges into the Thames Water sewer in the street.

2 INTRODUCTION

2.1.1 Jomas was commissioned to undertake a Drainage Assessment for the proposed development of land located at 13 Wycombe Gardens, London, NW11 8AN.

2.1.2 This Drainage Assessment has been produced in support of a planning application and should be read in conjunction with the other planning documents.

2.1.3 The existing site contains a dwelling which will be extended and a new basement and external works constructed. Proposed development details are provided in Appendix A.

3 SITE DESCRIPTION

3.1.1 The site is approximately 456 square metres in size and located at 13 Wycombe Gardens, London, NW11 8AN.

3.1.2 The site location information is as follows:

- Nearest Postcode: NW11 8AN

3.2 Topography

Site Topography

3.2.1 An onsite topographic survey has been carried out and is provided in Appendix B.

3.2.2 The site is rectangular in shape and falls from front to rear.

4 DESIGN PRINCIPLES AND POLICY REQUIREMENTS

4.1.1 Since April 2015, Lead Local Flood Authorities (LLFA's) have become a statutory consultee on surface water drainage for many planning applications. For this site, the following is considered to be the required level of detail required for planning approval:

- A Flood Risk Assessment in accordance with the National Planning Policy Framework (NPPF) and National Planning Guidance (NPG)
- SuDS: Designs, Maintenance Plans & Calculations - for SuDS proposed, the LLFA require product specifications or design drawings, all supporting calculations and a maintenance plan. This needs to include details of any attenuation structures and in accordance with the CIRIA C753 SuDS Manual.

4.2 General Principles for Flooding

4.2.1 The National Planning Policy Framework (NPPF) states that when determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where informed by a site-specific FRA. This assessment is required for:

*"*Proposals of 1 hectare (ha) or greater in Flood Zone 1, all new development (including minor development and change of use) in Flood Zones 2 and 3 and an area within Flood Zone 1, which has critical drainage problems as notified to the local planning authority by the Environment Agency (EA).*"*

4.2.2 In accordance with the March 2014 Planning Practice Guidance (PPG), which supports the NPPF, the objectives of this FRA are to establish:

- Whether a proposed development is likely to be affected by current or future flooding from any source;
- Whether it will increase flood risk elsewhere;
- Whether the measures proposed to deal with these effects and risks are appropriate.

4.3 General Principles for Surface Water Drainage

4.3.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems (March, 2015) and LLFA Policy DM25.3 requires sustainable drainage systems in all development to reduce surface water runoff and provide water treatment on site. This includes but is not limited to addressing the following issues in order of preference:

- store rainwater for later use
- use infiltration techniques, such as porous surfaces in non-clay areas
- attenuate rainwater in ponds or open water features for gradual release
- attenuate rainwater by storing in tanks or sealed water features for gradual release
- discharge rainwater direct to a watercourse
- discharge rainwater to a surface water sewer/drain

- discharge rainwater to the combined sewer.

Consideration must be given to the direction of water flow across the site and where this may be dispersed and incorporating any features that will help reduce surface water run-off. All developments should infiltrate surface water or achieve greenfield runoff rates where possible and this needs to be demonstrated as part of the planning submission.

5 FLOODING INFORMATION

5.1 Flood Risk from Rivers (Fluvial)

5.1.1 As the site is within Flood Zone 1, there is a low risk of fluvial flooding to the site.

5.1.2 Based on the above, the risk of flooding from rivers is considered very low.

5.2 Coastal and Tidal Flood Risk

5.2.1 The site is located inland and is not near any tidally influenced watercourses; therefore, there is negligible risk of flooding from this source.

5.3 Geology and Hydrogeology

5.3.1 Groundwater flooding occurs when the water table rises to the surface and is most likely to occur in low-lying areas underlain by permeable rocks.

5.3.2 The British Geological Survey (BGS) and Aquifer Maps on the MAGIC map identifies the area as follows:

Bedrock – London Clay

Superficial Drift – None recorded

Source Protection – none

5.3.3 A site investigation has shown the existing ground to be clay and so infiltration is not possible on site.

5.3.4 Groundwater measurements have indicated the groundwater to be approx. 1.2m below ground level, hence a dewatering system is proposed for the basement to minimise the risk of flooding.

5.3.5 Any ground water flows will drain naturally with the slope towards the rear of the site via the free draining soft landscaped areas and similarly the ground water flows directly to the sides of the proposed basement will be accommodated and diverted via the free draining soft landscaped areas naturally towards the rear garden of the property. On the above basis it is concluded the proposed basement is unlikely to have any significant effect on the local hydrogeology.

5.3.6 As the ground is impermeable, a dewatering is proposed for the basement, and the topography falls naturally towards the rear of the site, the site is considered to be at Low risk of groundwater flooding.

5.4 Surface Water Flood Risk (Overland Flows)

5.4.1 Surface water flooding occurs when the rainwater does not drain away through the normal drainage system or infiltrate the ground, but instead lies on or flows over the ground.

5.4.2 The EA produced a Risk of Flooding from Surface Water Map in December 2013. The maps were produced using 'direct rainfall' modelling. Although they consider local drainage capacity, non-surface water influences such as rivers, seas or groundwater are not considered. The map is based on LIDAR topographic data which is not suitable for site specific assessment and therefore, where available, topographic survey data should be used to provide a more accurate understanding of potential flow paths.

5.4.3 The map shows the entire country within four different risk categories, defined below in Table 1.

Table 1: EA Surface Water Flood Risk Categories

Risk Category	Definition
High	Each year, there is a chance of flooding of greater than 1 in 30 (3.3%)
Medium	Each year, there is a chance of flooding of between 1 in 30 (3.3%) and 1 in 100 (1%)
Low	Each year, there is a chance of flooding of between 1 in 100 (1%) and 1 in 1000 (0.1%)
Very Low	Each year, there is a chance of flooding of less than 1 in 1000 (0.1%)

5.4.4 An extract of the map, provided below, shows that the site is at some risk of surface water flooding.

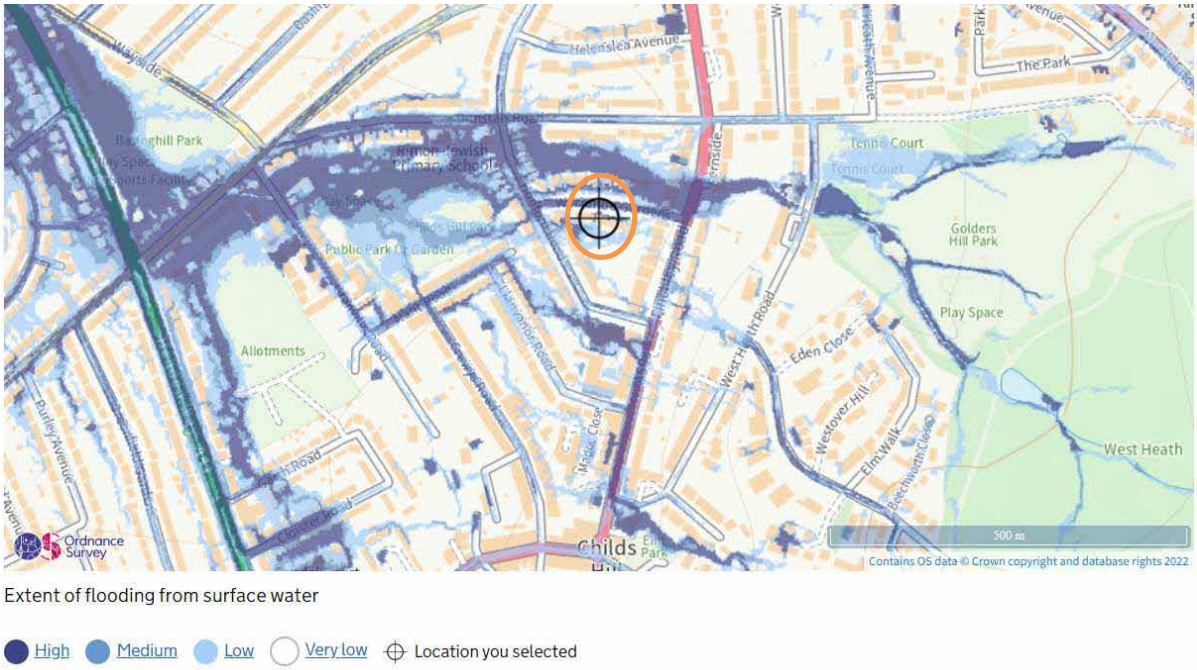

Figure 1: EA Flood Risk from Surface Water Map

5.4.5 While there is some flooding in the area, it is clear that the overland flow path is down the existing roadway, with only pockets of low risk surface water flooding within the site. This will be mitigated by ensuring floors are raised above the existing ground level, a suitable dewatering system is used within the basement and maintaining overland flow paths through the site.

5.4.6 Based on the EA's mapping, historical data and local topography, risk of surface water flooding to the site is considered to be Low.

5.5 Sewer/Drainage Flood Risk

5.5.1 Sewer flooding is often caused by excess surface water entering the drainage system when there is insufficient sewer capacity to cope with this excess water, but also due to 'one off' events such as blockages.

5.5.2 Thames Water is the statutory undertaker for the local public sewer network. The nearest Thames Water sewers to the site are located within the street frontage. See Appendix C for details.

5.5.3 These sewers have a natural flow path down the road away from the site.

5.5.4 On the basis there is considered to be a very low risk of sewer flooding to the site.

5.6 Reservoir Flood Risk

5.6.1 The EA has produced a Reservoir Flood Map that shows that the site is at low risk from reservoir flooding. This map indicates very low risk of reservoir flooding at this site.

5.6.2 It should be emphasised that the risk of flooding from reservoir breach is very small since the EA is the enforcement authority for the Reservoirs Act (1975) and all large raised reservoirs are inspected and supervised by reservoir panel engineers.

5.6.3 On the basis there is considered to be a very low risk of reservoir flooding to the site.

5.7 Summary of risk levels

5.7.1 Post-development, the risk of flooding is summarised below.

Table 2: Flood Risk Categories

Source	Risk Category
Fluvial (Rivers and Sea)	Very low
Coastal and tidal	Negligible
Groundwater	Low
Surface water	Low
Sewers	Very low
Reservoirs	Very low

6 SITE DRAINAGE INFORMATION

6.1.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems (March, 2015) states that the following options must be considered for disposal of surface water runoff in order of preference:

- Discharge to ground
- Discharge to a surface water body
- Discharge to a surface water sewer
- Discharge to a combined sewer

Discharge to Ground

6.1.2 The potential for surface water to discharge to ground has been assessed through a review of the likely ground conditions and possible infiltration structures.

6.1.3 The surface geology of this site is impermeable and infiltration is not possible.

Discharge to Surface Water Body

6.1.4 There are no suitable surface water bodies near to the site that can be used for surface water discharge.

Discharge to Surface Water Sewer/Combined Sewer

6.1.5 Discharge to the public sewer network should only be considered once all other options for draining surface water from the site have been exhausted. There is an existing culverted watercourse adjacent to the site which will be used for surface water discharge.

6.2 Sustainable Drainage Systems (SuDS)

6.2.1 To maximise the potential use of SuDS at the site, a review has been undertaken as shown in Table 3 in accordance with the SuDS Hierarchy. This review highlights the components referenced in the SuDS Hierarchy and provides recommendations on whether the components could be incorporated into the development.

Table 3: SuDS Selection Based on the SuDS Hierarchy

Component	Recommendation
Green/Blue roofs	Whilst the use of green and blue roofs provides additional environmental benefits such as enhanced aesthetics and ecology, its exposure to wind and orientation must be considered. Access to undertake the construction and maintenance easily and safely is also a high priority. If feasible, depending on the roof design, a green/blue roof will provide water quality, biodiversity and aesthetic benefits to the site. Additionally, the green/blue roof/s will offer some attenuation for run-off, reducing volumes of run-off and in higher frequency events (i.e. 1in2 year storms) will result in no run-off for the building.

Component	Recommendation
	Green/Blue roofs have not been considered for the pitched roof.
Basins and Ponds	Ponds and attenuation basins can provide overland storage of surface water whilst also providing additional biodiversity and aesthetic/amenity value. The rear garden area of the site may be suitable for a basin. However it is noted that there is limited area for recreational use and others SUDS are preferred.
Filter Strips and Swales	Swales are linear vegetated drainage features, which provide overland conveyance and storage of surface water whilst trapping sediments and hydrocarbons within run-off. They also create biodiverse areas for planting and habitat. Swales are not suitable for this residential site.
Infiltration Devices	Infiltration devices are not suitable for the main drainage system due to the impermeable nature of the existing ground.
Permeable Paving	Whilst incorporating attenuation storage, permeable paving also provides treatment through filtration of silt (and attached pollutants), settlement and retention of solids, adsorption of pollutants and biodegradation of organic pollutants, including petrol and diesel. Tanked permeable paving is proposed for the driveway area.
Tanked Systems	This is the least sustainable option in terms of the SuDS Hierarchy. However, the use of tanked systems would still be of benefit compared to traditional drainage systems as it does allow run-off to be slowed down to an acceptable discharge rate. There are no tanks proposed for the site.

7 SURFACE WATER DRAINAGE DESIGN

7.1 Site Areas

7.1.1 The site currently comprises an existing dwelling and associated external works. The proposed development comprises an extension, basement and external works. The existing and proposed areas are summarised below.

Table 4: Site Areas

Parameter	Existing (m2)	Existing (%)	Proposed (m2)	Proposed (%)
Impermeable area	186	41	245	54
Permeable area	270	59	211	46
Total area	456	100	456	100

7.1.2 It is assumed that the surface water runoff from the site is currently picked up in the site drainage system and discharges to the sewer.

7.2 Design Considerations

7.2.1 Consideration has been given to the following when calculating the proposed impermeable areas.

- The 2013 EA 'Rainfall Run-off Management for Developments' Report (SC030219) states that urban creep, the process of gradually increasing impermeable area within an urban area (through paving soft landscaped surfaces and constructed outbuildings etc), is an acknowledged issue. To include an allowance for urban creep, the impermeable area used in the drainage calculations has been increased by 10% in accordance with the recommendation made in SC030219.

7.2.2 The climate change allowance used in the Drainage Strategy is in line with updated EA guidance values published in February 2016 for increased rainfall intensities by 2115.

7.3 Greenfield Run-Off Rates

7.3.1 The greenfield run off rates have been calculated using the Wallingford method. Calculations are provided in Appendix C and summarised in the table below.

7.4 Existing Run-Off Rates

7.4.1 The existing run-off rates for a variety of return periods have been calculated using the Wallingford method.

7.4.2 The total site area is 456 square metres and is 41% impermeable, resulting in an impermeable area of 186 square metres. Taking conservative peak 1 year, 30 year and 100 year rainfall rates of 50mm/hr, 125mm/hr and 185mm/hr respectively, the maximum existing peak discharge rates have been calculated as follows.

Contributing Area (ha) x 1 yr Rainfall (mm/hr) x 2.78

186/1000 x 50 x 2.78 = **2.6 l/s**

Contributing Area (ha) x 30 yr Rainfall (mm/hr) x 2.78

186/1000 x 125 x 2.78 = **6.5 l/s**

Contributing Area (ha) x 100yr Rainfall (mm/hr) x 2.78

186/1000 x 185 x 2.78 = **9.6 l/s**

7.4.3 The discharge rates for the existing and proposed site are summarised below.

Table 5: Existing Greenfield Run-off Rates

Parameter	Existing Discharge (l/s)	Greenfield Discharge (l/s)	Proposed Discharge (l/s)
QBAR	NA	0.21	NA
1 year	2.6	0.17	1
30 year	6.5	0.47	1.7
100 year	9.6	0.66	2.0
100 year +40%	NA	NA	2.4

7.5 Proposed Drainage Design

7.5.1 As the greenfield rates from this site are low, in accordance with best practice, outflow controls will be set to discharge at a maximum rate of 2.5 litres/second which is less than the existing 1 year discharge rate.

7.5.2 Attenuation will be provided in the permeable paving subbase to the front of the site. A total attenuation volume of approximately 8 cubic metres is proposed to cater for the 100 year +40% storm event.

7.6 Exceedance Flooding and Overland Flow

7.6.1 The area is subject to overland flow routes and surface water flooding as discussed in the Flooding section above.

7.6.2 The drainage system has been designed to cater for the 1 in 100 year + 40% climate change storm. ie in this storm event all surface water will be collected on site and slowly released. Thus, the overland flow route will only be in use in the event of drainage network failure, storms in excess of the 1 in 100 year + 40% climate change storm or flows from offsite flowing around the site. See Appendix C for overland flow drawing.

7.7 Consents, Offsite Works and Diversions

7.7.1 The proposed surface water drainage strategy is accommodated mainly on-site. The approval for surface water discharge to the culvert along with the permission from the neighbours for the drainage through their yard is provided in Appendix C.

7.8 Maintenance

7.8.1 A SuDS maintenance plan has been prepared to outline the management of the potential SuDS features. The maintenance plan is provided in Appendix D.

8 FOUL DISCHARGE

8.1 Discharge to Public Sewer Network

8.1.1 Thames Water are the foul sewerage suppliers for the area.

8.1.2 The identified point of connection from the site is via the existing sewers into the foul sewer network on site which discharges into the street.

9 DRAINAGE DURING CONSTRUCTION

9.1 Construction Run-off Management

9.1.1 Installing the surface water and foul drainage system, whilst managing temporary run-off, are key aspects of the construction works involved in any development. The information provided below is in accordance with the 'C698 Site handbook for the construction of SUDS' (CIRIA, 2007).

9.1.2 Please note that the measures recommended below are recommendations only and need to be confirmed at the construction stage by the client and the contractor.

9.2 Management of Construction (Including Drainage)

9.2.1 Drainage is typically an early activity in the construction stage of a development, taking form during the earthworks phase. However, final construction i.e. piped drainage system connections to the SuDS devices, should not take place until the end of site development work, unless a robust strategy for silt-removal is implemented prior to occupation of the site.

9.2.2 A plan for the management of construction (including phasing of works, details of any offsite works etc.) cannot be provided at this early stage, as construction work plans are not yet known. However, the following key points are general construction issues associated with SuDS which will be addressed when these plans are complete:

- Silt-laden waters from construction sites represent a common form of waterborne pollution;
- These silt-laden waters cannot enter SUDS drainage systems unless specifically designed to accept this as it can clog the systems and pollute receiving waters. Therefore, piped drainage systems should not be connected to the attenuation SuDS devices until the late stages of construction.
- Any gullies and piped systems should be capped off during construction and fully jetted and cleaned prior to connection to the attenuation SuDS devices.

9.3 Temporary Drainage During Construction

9.3.1 The three principal aspects of drainage control during construction are trapping sediment, conveying run-off, and controlling run-off.

9.3.2 Sediment traps and barriers can include basin traps and sediment fences (with any necessary boundary controls). The principal basins are to be installed after the construction site is accessed. Sediment fences and barriers will then be installed as needed during grading.

9.3.3 Conveyance of run-off can be achieved through small ditches/stream, storm drains, channels and sloped drains with sufficient inlet/outlet protection.

9.3.4 Slope stability needs to be considered when using any channels to convey run-off across the site into any basins etc.

9.3.5 Run-off control measures will need to be implemented in order not overwhelm the temporary system and cause flooding issues. Run-off rates from the site will be managed so they are no greater than pre-development or in keeping with the best practice guidance to minimise risk of blockage. Any additional conveyance measures are to be installed as needed during grading.

9.3.6 Run-off control to include provision of perimeter ditches or appropriate levels grading to direct any water from the construction site to remain on site.

9.3.7 Any necessary surface stabilisation measures are to be applied immediately on all disturbed areas where construction work is either delayed or incomplete.

9.3.8 Maintenance inspections are to be performed weekly, and maintenance repairs to be made immediately after periods of rainfall.

9.4 Protection of Drainage Infrastructure during Construction

9.4.1 All drainage infrastructure should be protected from damage by construction traffic and heavy machinery through the implementation of measures such as protective barriers, and storing construction materials away from the drainage infrastructure.

Appendix A: Proposed Development Details

Site plan
1 : 500

0 5 10 15 20 25

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Key

Boundary Line

Demolished

Schedule of Areas

Total Site Area
454.59 s.q.m.

Existing Residential	Existing Non-Residential
180.58 s.q.m.	0.00 s.q.m.
Residential area lost by change of use or demolition	**Non Residential area lost by change of use or demolition**
0.00 s.q.m.	0.00 s.q.m.
Proposed Residential	**Proposed Non-Residential**
0.00 s.q.m.	0.00 s.q.m.

Net additional area
0.00 s.q.m.

Rev No.	Date	Description

Notes:

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Dwg No	Drawn
13 W Y-A -0 1-0 0 1	UPP
Drawing	**Checked**
Location Plan	UPP
Scale	**Issue Date**
1 : 500 @ A3	24 .0 1.20 22

0 5m

Project Address
13 Wycombe Gardens London NW11 8AN

Client	Status
Tomi Sodeinde	For Planning

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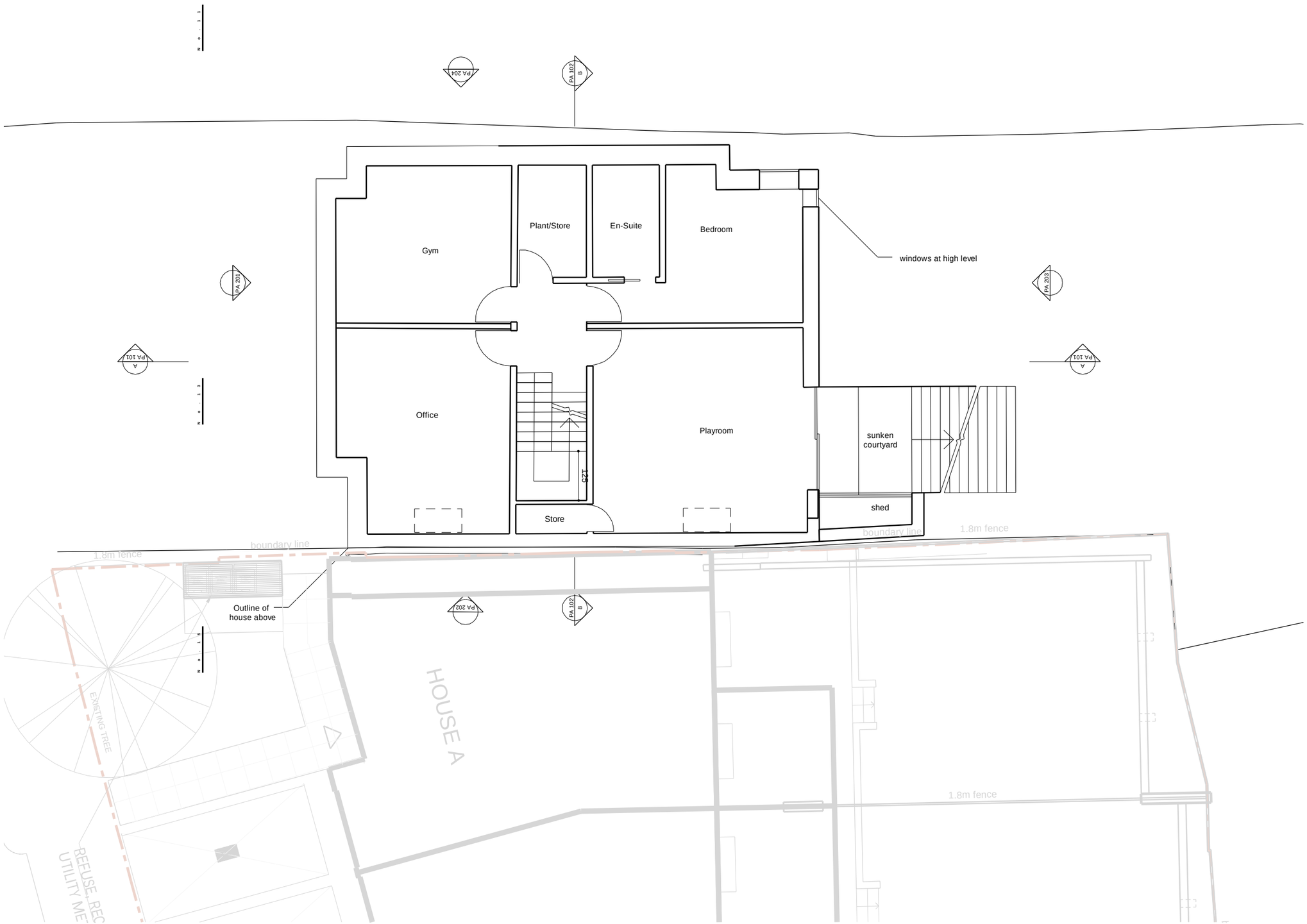
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market,
Chalk Farm Road, London,
NW1 8AH

Key

Boundary Line

Demolished



Rev No.	Date	Description

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Dwg No	Drawn
13WY-A-03-101	UPP

Drawing	Checked
Proposed Basement Floor Plan	UPP

Scale	Issue Date
1 : 100 @ A3	24.01.2022

0 5m

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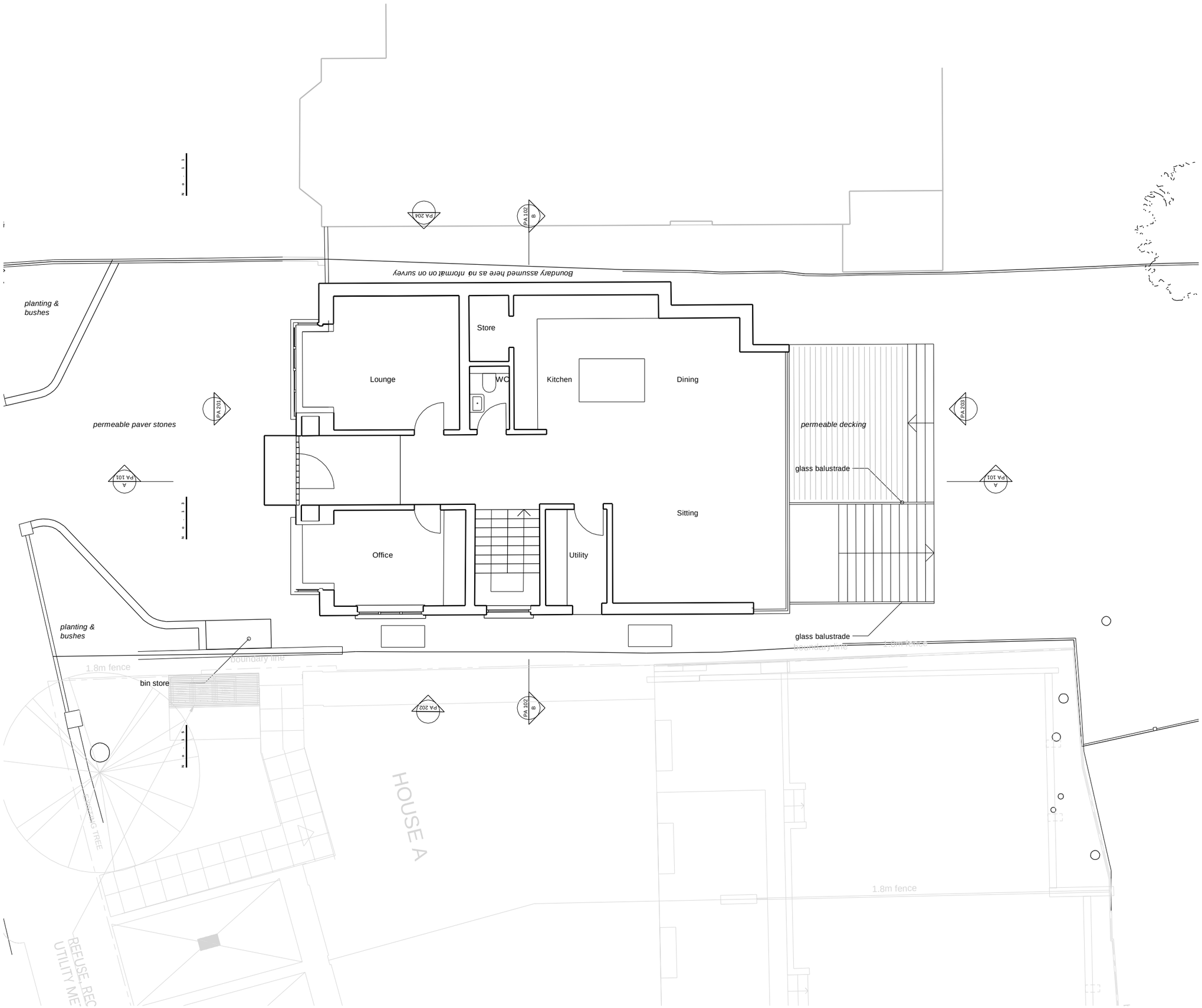
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH



Key

Boundary Line

Demolished

Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is stricly forbidden.

Dwg No: 13WY-A-03-102

Drawn: UPP

Drawing: Proposed Ground Floor Plan

Checked: UPP

Scale: 1 : 100 @ A3

Issue Date: 24.01.2022

0 5m

Project Address: 13 Wycombe Gardens London NW11 8AN

Client: Tomi Sodeinde

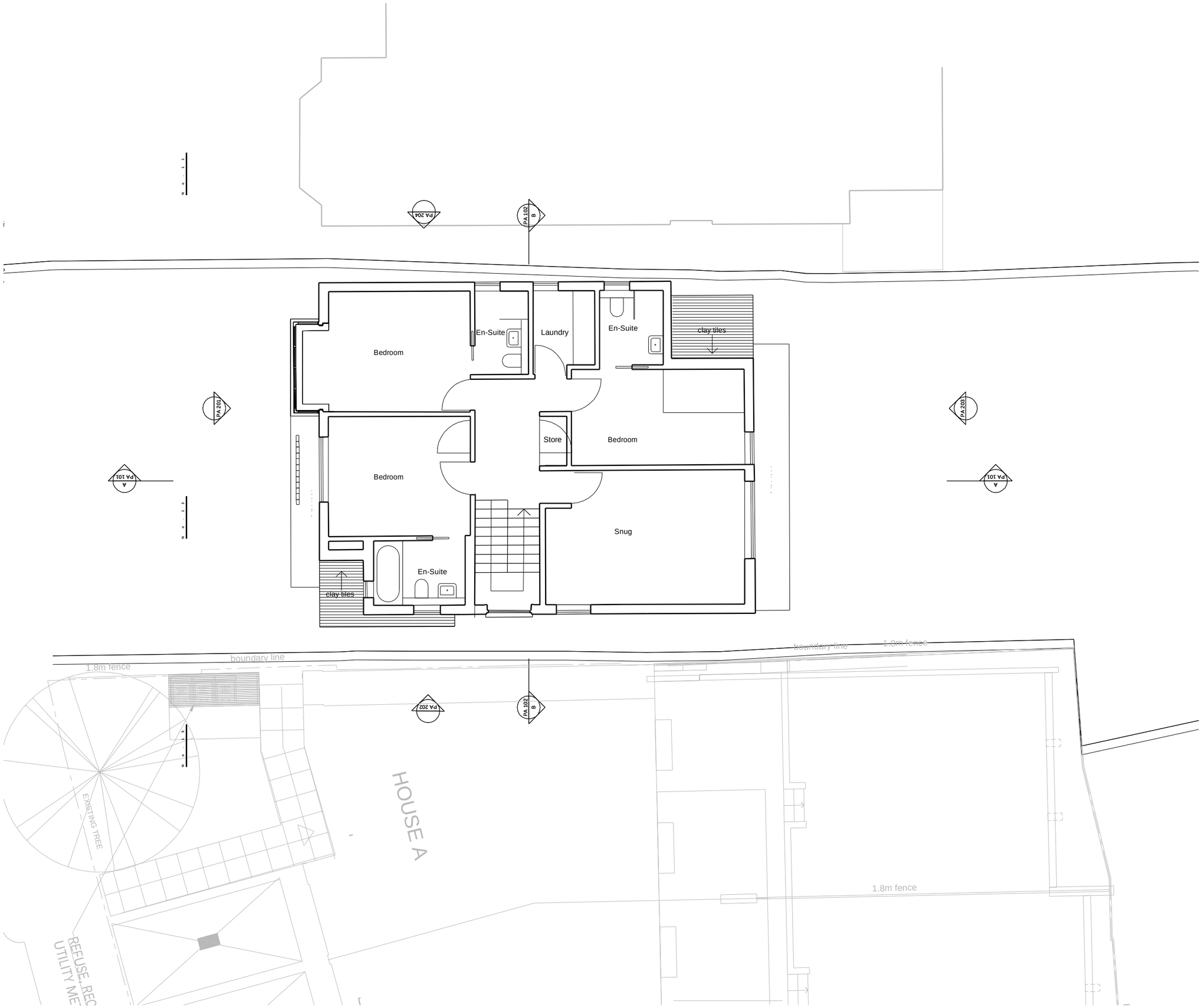
Status: For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No.	Date	Description

Notes:

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Dwg No	Drawn
13WY-A-03-103	UPP

Drawing	Checked
Proposed First Floor Plan	UPP

Scale	Issue Date
1 : 100 @ A3	24.012022

0 5m

Project Address

13 Wycombe Gardens London NW11 8AN

Client	Status
Tomi Sodeinde	For Planning

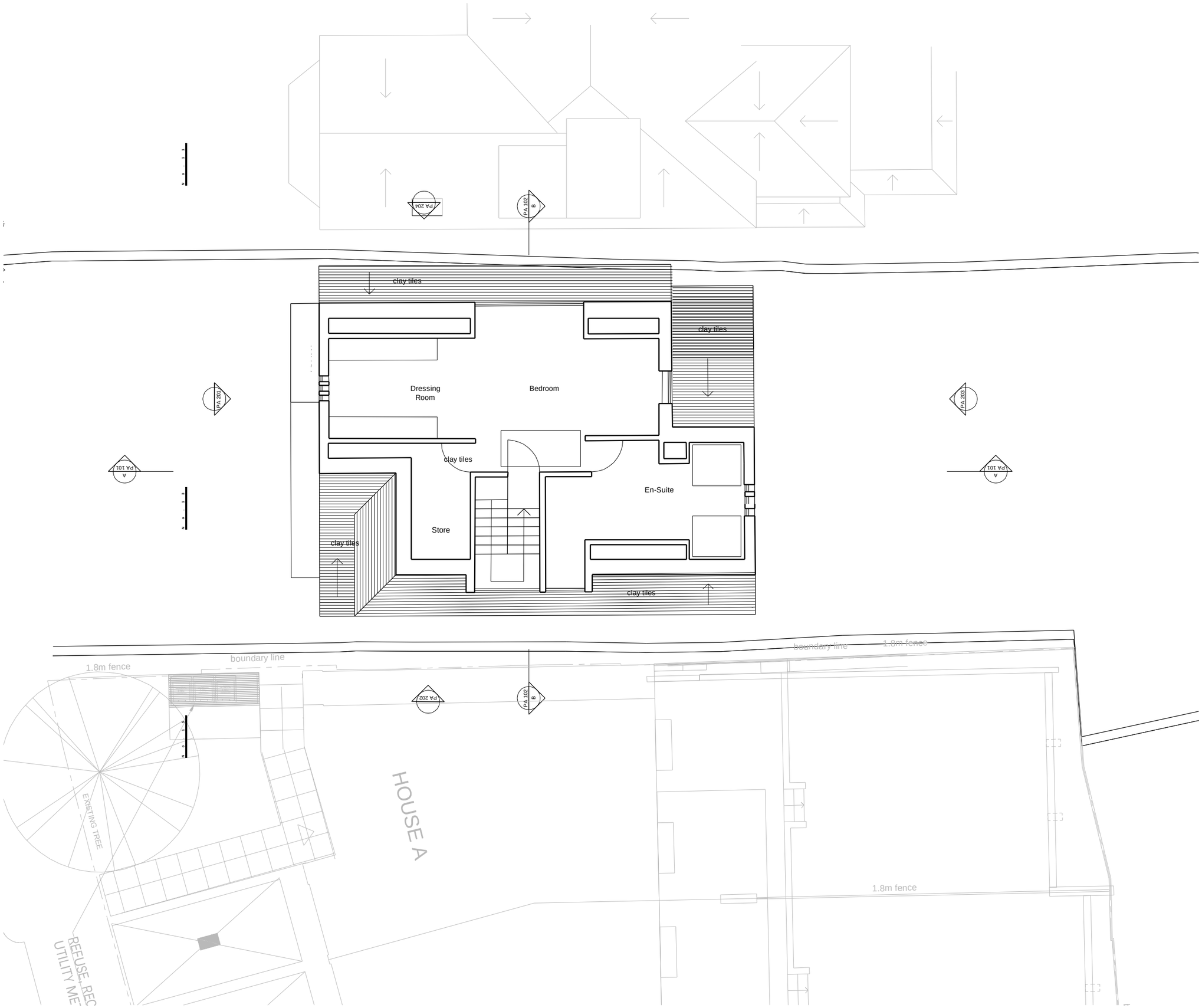
www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

UPP ARCHITECTS + TOWN PLANNERS

Key

Boundary Line

Demolished



Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is stricly forbidden.

Dwg No	Drawn
13WY-A-03-104	UPP

Drawing	Checked
Proposed Loft Floor Plan	UPP

Scale	Issue Date
1 : 100 @ A3	24.012022

0 5m

Project Address

13 Wycombe Gardens London NW11 8AN

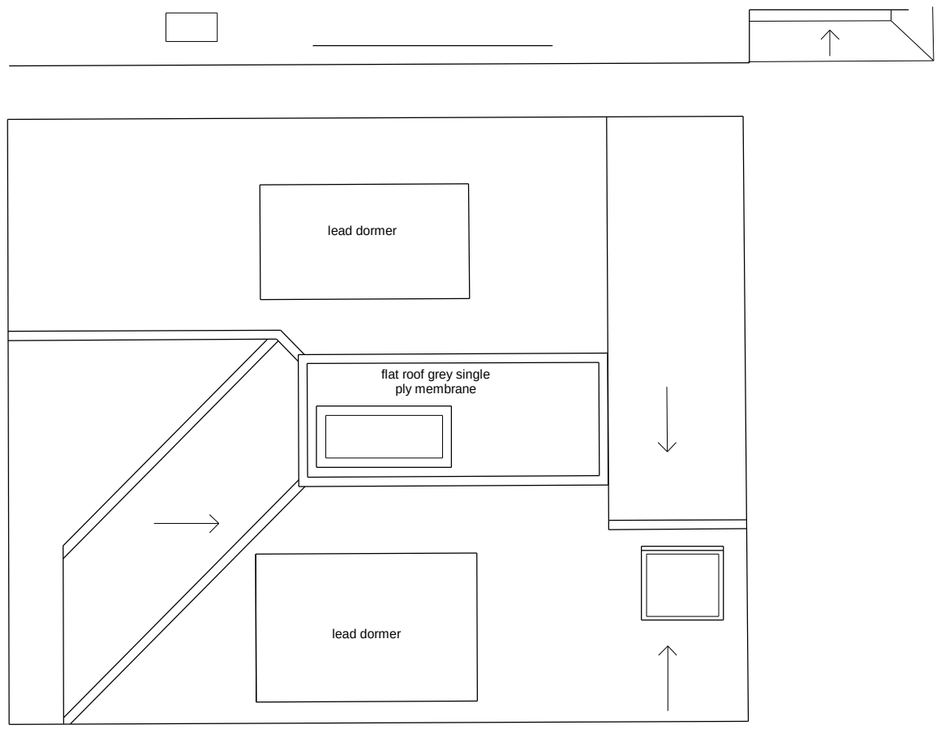
Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No. | Date | Description

Notes:

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Dwg No: 13WY-A-03-105

Drawn: UPP

Drawing: Proposed Roof Plan

Checked: UPP

Scale: 1 : 100 @ A3

Issue Date: 24.012022

0 5m

Project Address:
13 Wycombe Gardens London NW11 8AN

Client:
Tomi Sodeinde

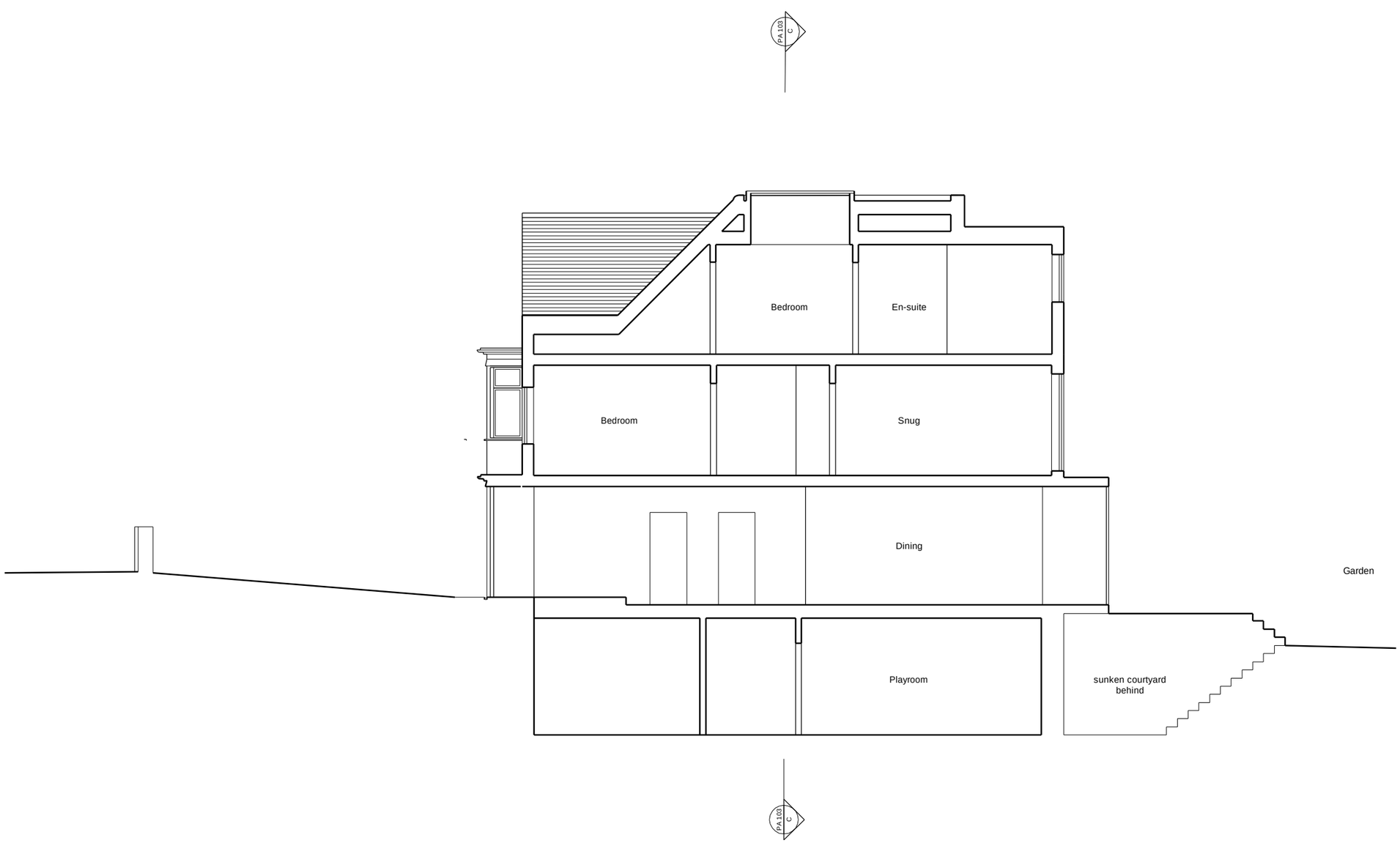
Status:
For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No. Date Description

Notes:

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Dwg No
13WY-A-05-101

Drawn
UPP

Drawing
Proposed Section A-A'

Checked
UPP

Scale
1 : 100 @ A3

Issue Date
24.012022

0 5m

Project Address
13 Wycombe Gardens London NW11 8AN

Client
Tomi Sodeinde

Status
For Planning

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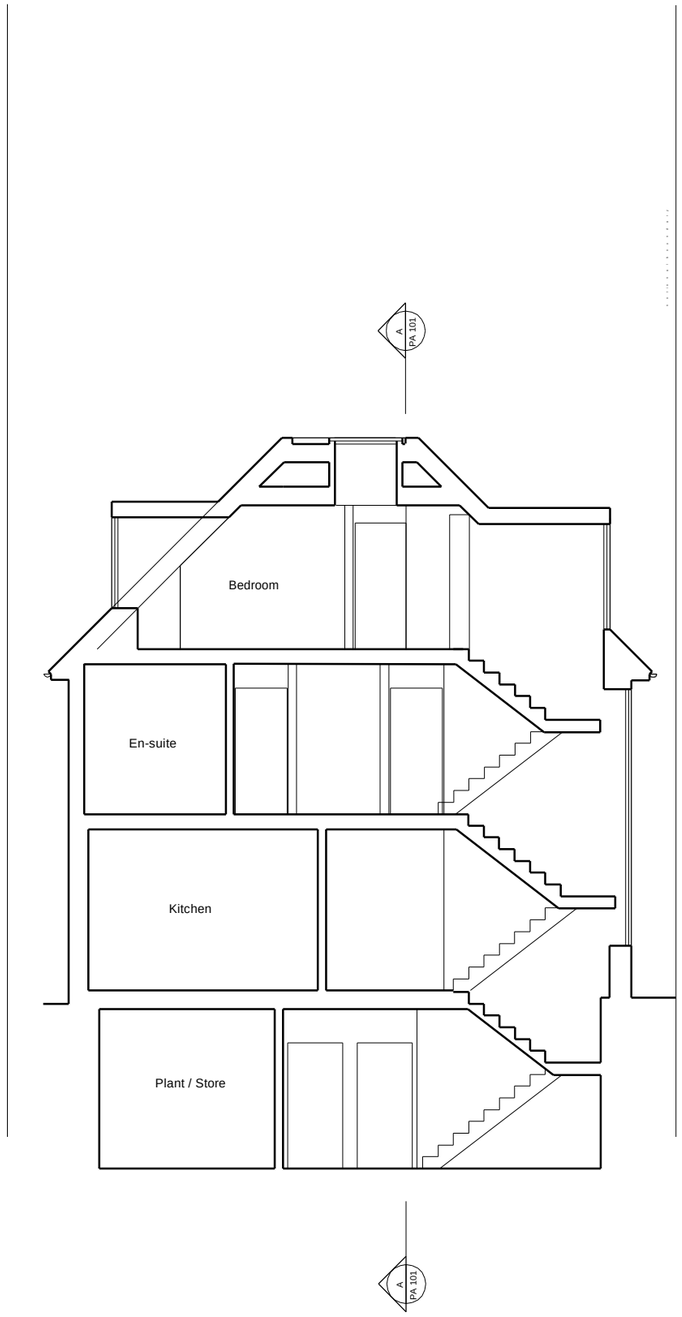
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is strictly forbidden.

Dwg No	Drawn
13WY-A-05-102	UPP

Drawing	Checked
Proposed Section B-B'	UPP

Scale	Issue Date
1 : 100 @ A3	24.01.2022

0 5m

Project Address

13 Wycombe Gardens London NW11 8AN

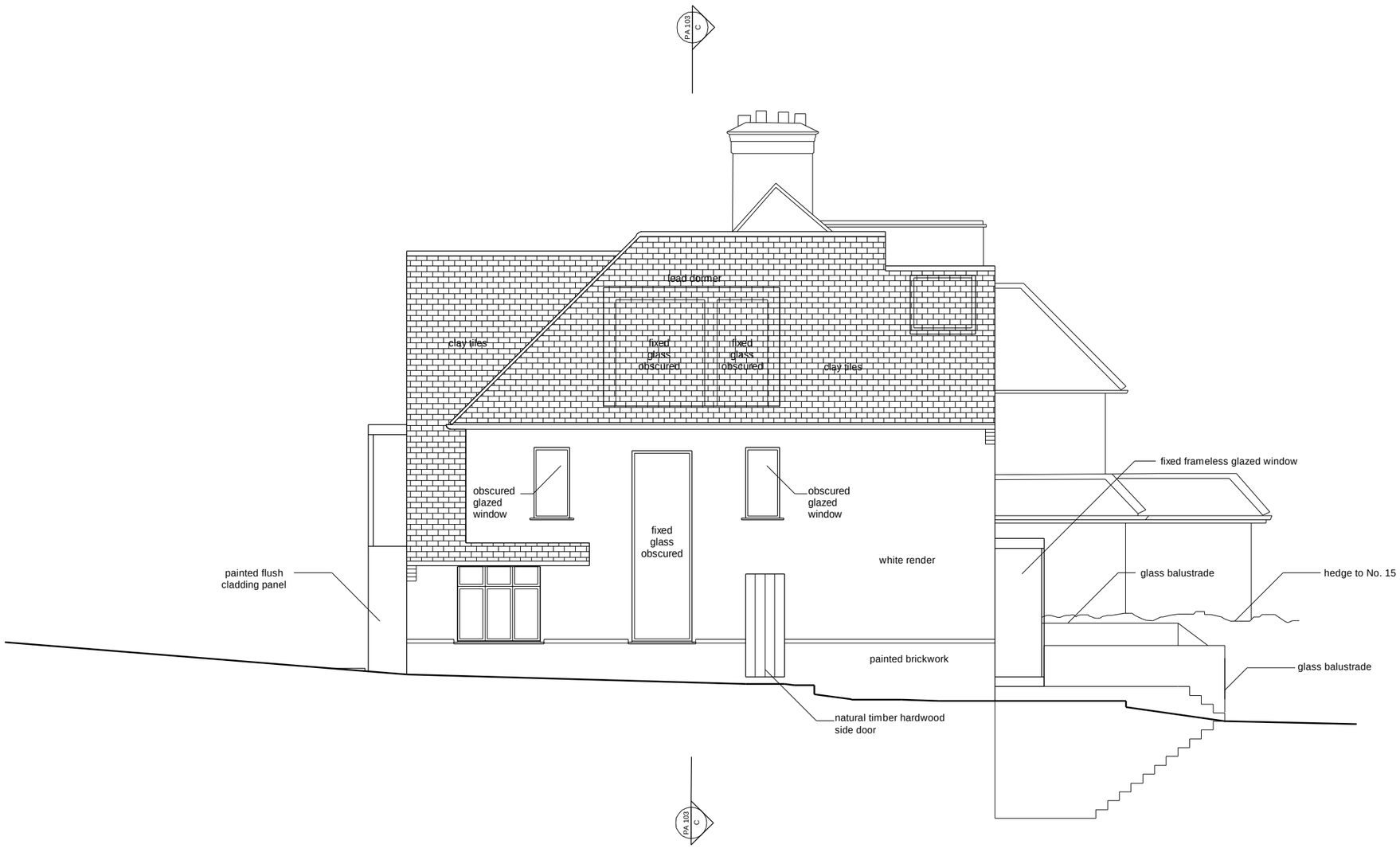
Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is strictly forbidden.

Dwg No	Drawn
13WY-A-06-101	UPP
Drawing	**Checked**
Proposed West Elevation	UPP
Scale	**Issue Date**
1 : 100 @ A3	24.01.2022

0 5m

Project Address

13 Wycombe Gardens London NW11 8AN

Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished

Boundary Line

No. 11

No. 13

PA 101 A

HOUSE A

No. 15
(Existing front elevation)

HOUSE B

Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is strictly forbidden.

Dwg No	Drawn
13WY-A-06-102	UPP
Drawing	**Checked**
Proposed Front Elevation	UPP
Scale	**Issue Date**
1 : 100 @ A3	24.012022

0 5m

Project Address
13 Wycombe Gardens London NW11 8AN

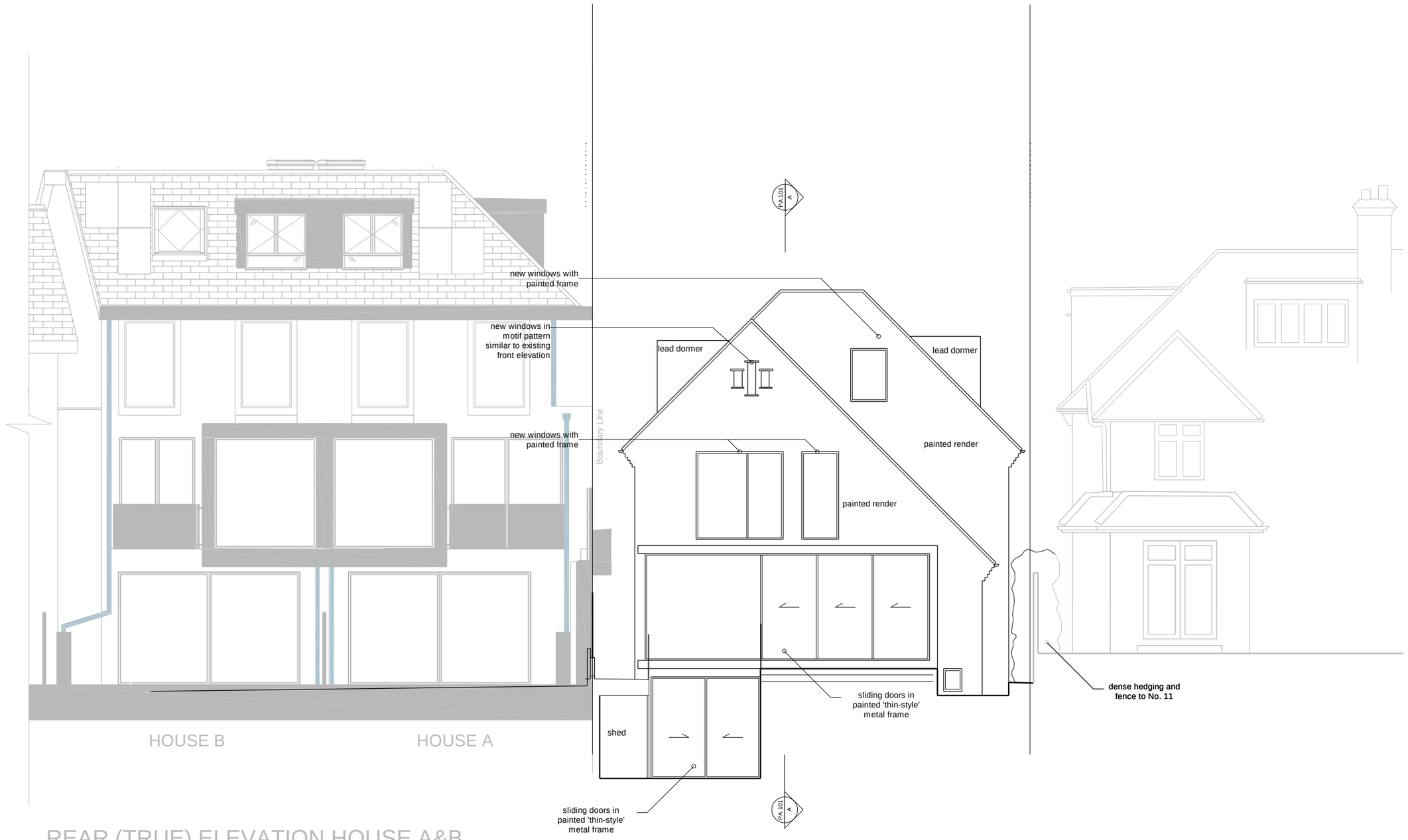
Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



REAR (TRUE) ELEVATION HOUSE A&B

No. 15

(Existing rear elevation)

No. 13

No. 11

Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is strictly forbidden.

Dwg No	Drawn
13WY-A-06-103	UPP

Drawing	Checked
Proposed Rear Elevation	UPP

Scale	Issue Date
1 : 100 @ A3	24.012022

0 5m

Project Address

13 Wycombe Gardens London NW11 8AN

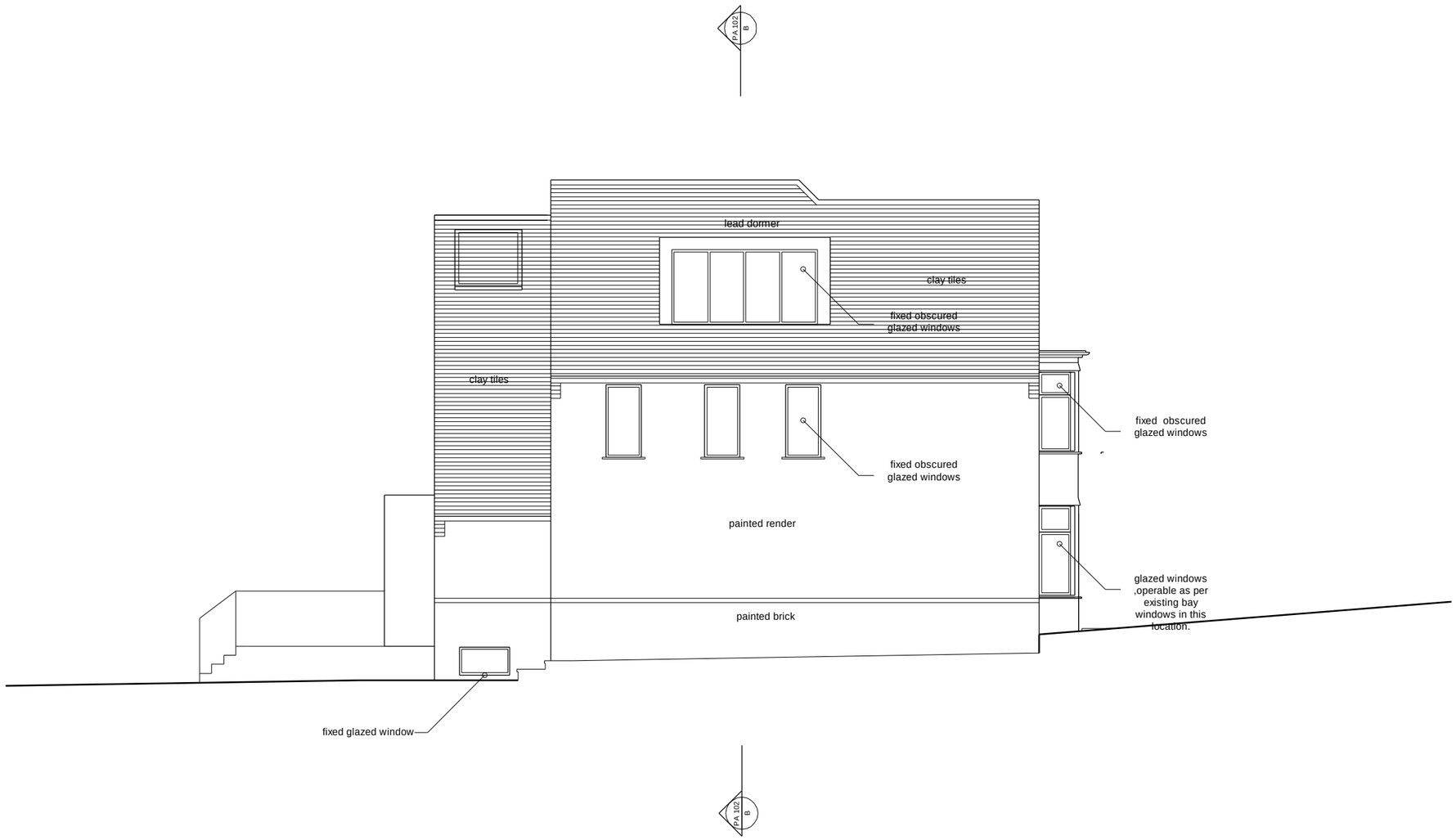
Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Key

Boundary Line

Demolished



Rev No.	Date	Description

Notes:

Any inaccuracies or errors to be reported to the architect/surveyor immediately and prior to any work commencing. All dimensions to be verified on site. All work to comply with British Standards Code of practice. All external surfaces and materials to match existing. This drawing and all information provided within it is the copyright of UPP Consultants Ltd. and reproduction without prior consent is strictly forbidden.

Dwg No	Drawn
13WY-A-06-104	UPP

Drawing	Checked
Proposed East Elevation	UPP

Scale	Issue Date
1 : 100 @ A3	24.01.2022

0 5m

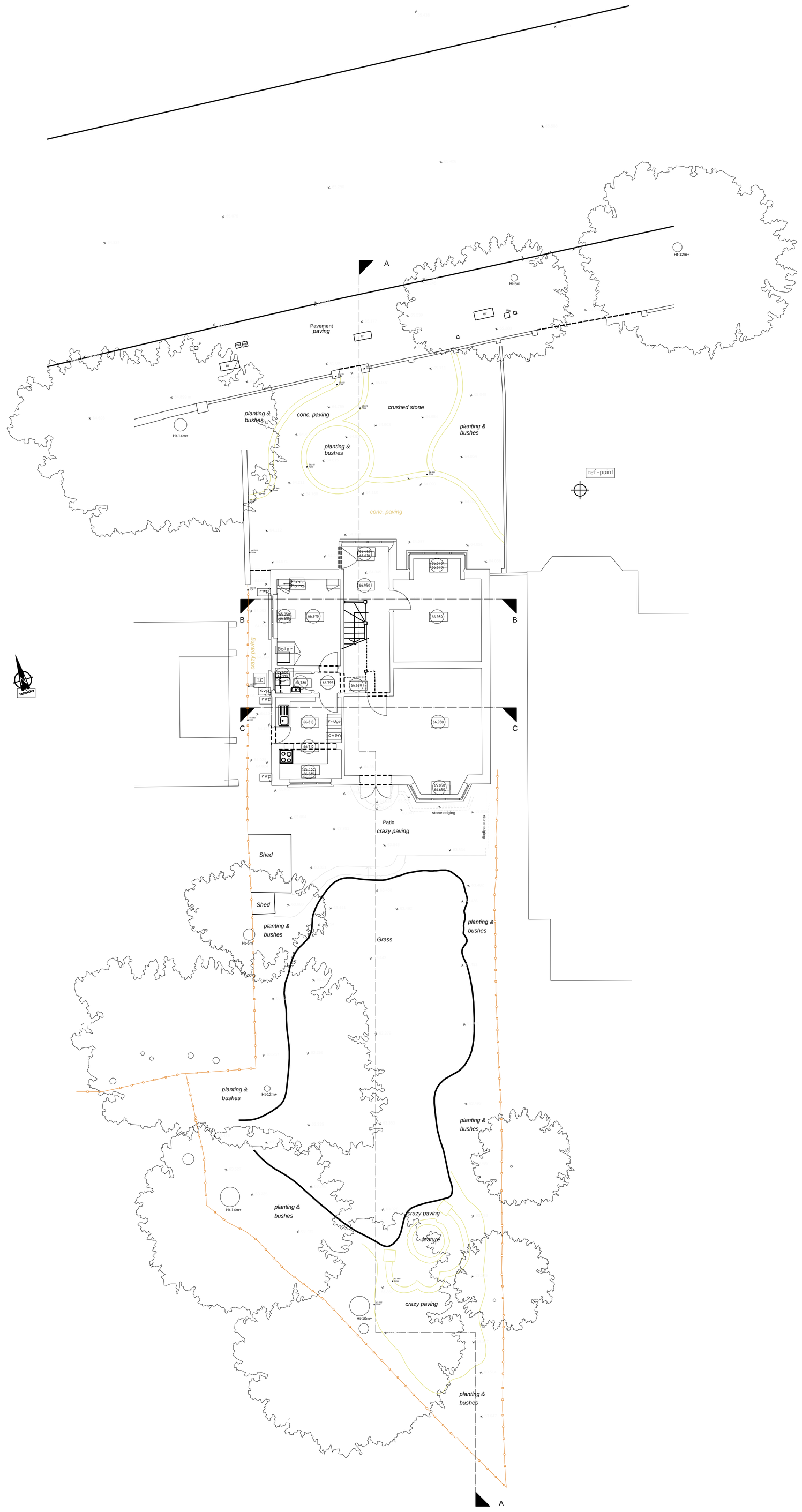
Project Address

13 Wycombe Gardens London NW11 8AN

Client	Status
Tomi Sodeinde	For Planning

www.upp-planning.co.uk
info@upp-planning.co.uk
0208 202 9996
Atrium, Stables Market, Chalk Farm Road, London, NW1 8AH

Appendix B: Topographic Survey



LEGEND

AV	AIR VENT	MK(E)	ELECTRIC SERVICE MARKER
B	BOLLARD	MK(G)	GAS SERVICE MARKER
BB	BELISHA BEACON	MK(W	WATER SERVICE MARKER
BH	BORE HOLE	OHW	OVERHEAD WIRE
BL	BASE/BED LEVEL	OSBM	ORDNANCE SURVEY BENCH MARK
BP	BRICK PILLAR	P	POST
BS	BUS STOP	PT	POST OFFICE TELEGRAPH
C	SEWER (COMBINED)	PB	POST BOX
CAJB	CABLE JUNCTION BOX	RE	RODDING EYE
CATV	CABLE INSPECTION COVER	RNP	ROAD NAME PLATE
CIP	CABLE INSPECTION POINT	RS	ROAD SIGN
CD	CABLE DUCT	RW	RETAINING WALL
CL	COVER LEVEL	RWP	RAIN WATER PIPE
CP	CHARGING POINT - ELECTRIC CAR	S	SEWER (STORM)
D	DRAIN	SAP	SAPLING
DPC	DAMP PROOF COURSE	SC	STOP COCK
DK	DROP KERB	SC(G)	STOP COCK (GAS)
EB	ELECTRICITY BOX	SC(W)	STOP COCK (WATER)
EIC	ELECTRICITY INSPECTION COVER	SP	SIGN POST
EP	ELECTRICITY POLE	SEG	SIDE ENTRY GULLY
ER	EARTHING ROD	STN	SURVEY STATION
F	SEWER (FOUL)	STP	SUPPORT FOR TELEPHONE POLE
FB	FLOWER BED	SV	STOP VALVE
FH	FIRE HYDRANT	SVP	SOIL VENT PIPE
FL	FLOOR LEVEL	TBM	TEMPORARY BENCH MARK
G	GULLY	TCB	TELEPHONE CALL BOX
GIC	GAS INSPECTION COVER	TH	TRIAL HOLE
GJB	GAS JUNCTION BOX	THL	THRESHOLD LEVEL
GV	GAS VENT	TIC	TELECOM INSPECTION COVER
IC	INSPECTION COVER	TP	TELEGRAPH POLE
IL	INVERT LEVEL	TOB	TOP OF BUILDING
JB	JUNCTION BOX	TOF	TOP OF FENCE
LB	LITTER BIN	TOW	TOP OF WALL
LP	LAMP POST	TS	TREE STUMP
MH	MANHOLE	UTL	UNABLE TO LIFT
MK	SERVICE MARKER	VP	VENT PIPE
		WL	WATER LEVEL
		WM	WATER METER
		WO	WASH OUT

BANKING
FENCE
BUILDING
WALL
KERB
DROP KERB

Appendix C: Drainage Drawings and Calculations

Asset location search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2018_3777503

The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 525073,186886

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3050	77.26	75.27
3001	.01	n/a
2703	86.88	83.89
281A	n/a	n/a
3903	.01	n/a
2902	.01	n/a
3901	.01	n/a
2903	.01	n/a
2003	73.99	n/a
201A	n/a	n/a
201B	n/a	n/a
201C	n/a	n/a
3004	77.21	73.31
3052	77.31	74.53
2050	75.62	73.26
2051	73.31	n/a
1050	67.2	64.85
0050	.01	n/a
2004	.01	n/a
9802	.01	n/a
9901	.01	n/a
9905	.01	n/a
9906	.01	n/a
9902	.01	n/a
9903	.01	0
9904	.01	0
0801	62.45	59.15
0001	62.73	59.57
0802	63.03	n/a
0902	64.32	58.84
0702	65.76	63.63
1903	67.15	63.58
1001	65.95	62.71
1910	67.23	62.47
1801	71.09	n/a
1802	71.06	n/a
1909	69.67	0
1901	70.04	n/a
1908	70.01	n/a
1904	70.3	65.88
1051	.01	n/a
1902	70.72	n/a
2002	72.98	n/a
2904	70.67	67.14
2901	71.54	n/a
2001	73.41	70.37
9001	60.27	56.18
9051	60.26	57.16
9103	63.29	60.32
9153	63.83	61.45
901A	n/a	n/a
971B	n/a	n/a
881D	n/a	n/a
881C	n/a	n/a
9801	59.17	56.59
9805	59.12	57.92
881B	n/a	n/a
9803	59.86	58.43
8802	58.52	56.71
9804	.01	0
991A	n/a	n/a
991B	n/a	n/a
901E	n/a	n/a
801A	n/a	n/a
901C	n/a	n/a
901D	n/a	n/a
2601	87.22	83.4
3603	93.19	89.24
3601	.01	n/a
2705	91.83	89.2
2701	88.38	84.42
2704	88.29	85.81
161C	n/a	n/a
1602	73.22	n/a
0606	.01	n/a
1601	72.86	n/a
171A	n/a	n/a
171B	n/a	n/a
171C	n/a	n/a
171H	n/a	n/a
171I	n/a	n/a
171G	n/a	n/a
171F	n/a	n/a
1703	72.24	n/a
171J	n/a	n/a
171D	n/a	n/a
171E	n/a	n/a
171K	n/a	n/a
1701	71.49	n/a
1702	71.37	69.34
9702	62.03	59.51

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9701	.01	n/a
0609	67.3	n/a
0605	.01	n/a
061Q	n/a	n/a
0701	65.76	62.76
0608	71.47	68.47
0604	71.48	68.48
0607	72.08	70.43
061L	n/a	n/a
0603	72.09	70.25
061P	n/a	n/a
0602	73.2	n/a
9601	.01	n/a
8601	62.38	59.67
8702	60.67	n/a
8712	n/a	n/a
8711	n/a	n/a
8710	n/a	n/a
8709	n/a	n/a
8708	n/a	n/a
8707	n/a	n/a
971A	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	andrew wallace
Site name:	wycombe gardens
Site location:	london

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	51.56718° N
Longitude:	0.19678° W
Reference:	2409293022
Date:	Sep 16 2022 15:31

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): 0.0456

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	660	660
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

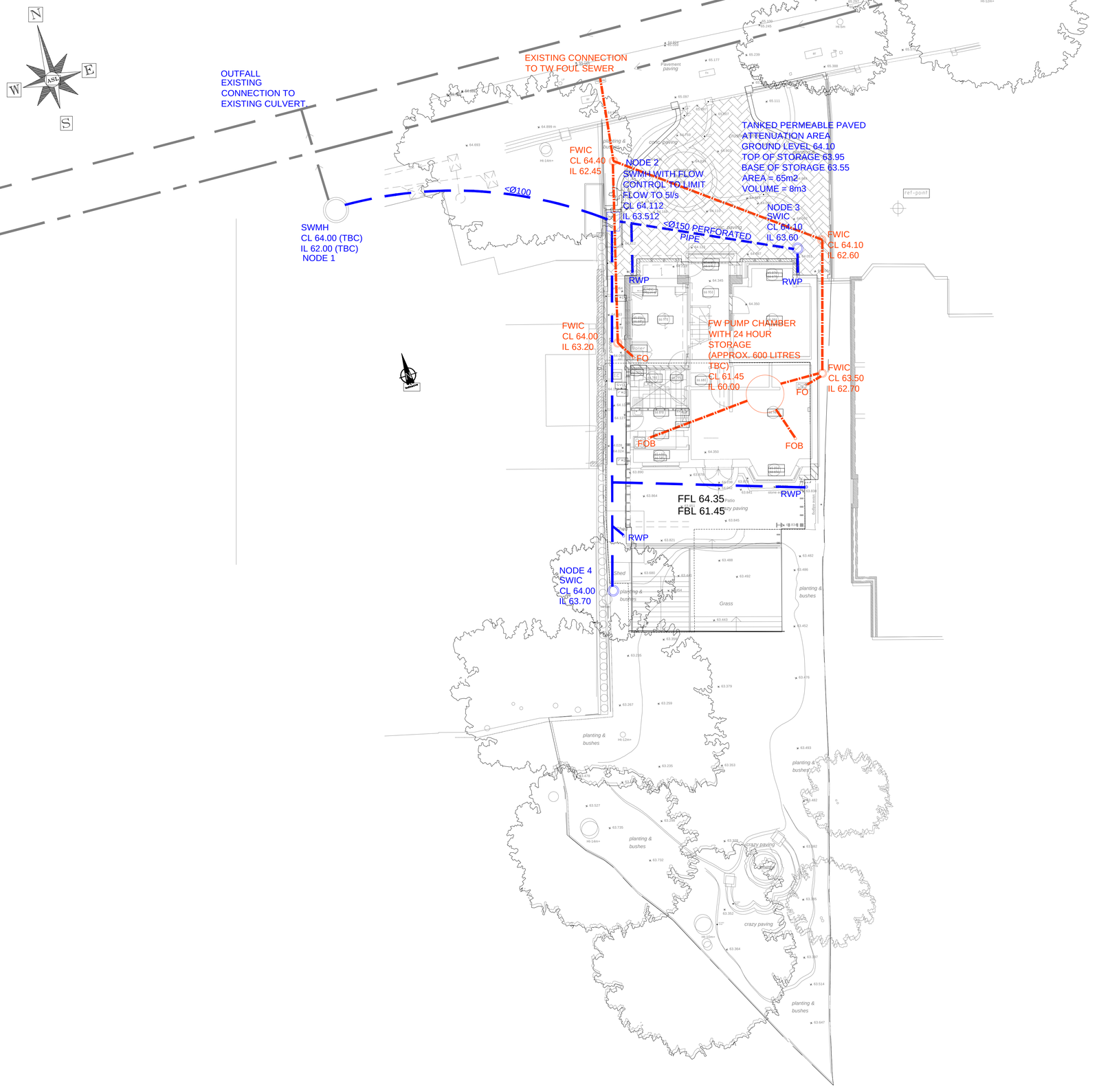
Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	0.21	0.21
1 in 1 year (l/s):	0.17	0.17
1 in 30 years (l/s):	0.47	0.47
1 in 100 year (l/s):	0.66	0.66
1 in 200 years (l/s):	0.77	0.77

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

ALL DIMENSIONS TO BE CHECKED BY CONTRACTOR
NOTE: CONTRACTOR TO NOTE THE LIKELY PRESENCE OF MULTIPLE EXISTING SERVICES
ALL SERVICES TO BE CONFIRMED PRIOR TO CONSTRUCTION AND DIVERTED AS NECESSARY



DRAINAGE CONCEPT LEGEND

18.30+	Proposed Level
FFL 80.90	Finished floor level
	Permeable Paving
Ø100@1:100>	Perforated Pipe - Diameter and fall
Ø100@1:100>	Stormwater Pipe - Diameter and fall
SMH Ø1200 CL 80.90 IL 80.00	Manhole type - SMH Surface Water Diameter Cover Level Invert Level
SWIC Ø450	Polypropylene Inspection Chamber (PPIC)
◦RWP	Rain Water Pipe
Ø150@1:100>	Foul Pipe - Diameter and fall
FMH Ø1200 CL 80.90 IL 80.00	Manhole type - FMH Foul Water Diameter Cover Level Invert Level
FWIC Ø450	Polypropylene Inspection Chamber (PPIC)
◦FO	Sewer Vent Pipe/Sub Stack/Outlet
◦FOB	Sewer Vent Pipe/Sub Stack/Outlet in basement
Ø100@1:100>	Existing Stormwater sewer
Ø150@1:100>	Existing Foul sewer

Job No. P4714JJ2661 Rev.

DRAINAGE NOTES

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7. NODE NUMBERS REFER TO CALCULATIONS WITHIN DRAINAGE REPORT
8. ALL RWP AND FO SHOWN ARE INDICATIVE ONLY AND SUBJECT TO APPROVAL AND SETTING OUT BY THE ARCHITECT.
9. NOTE THE PRESENCE OF NUMEROUS TREES. DRAINAGE DESIGN TO BE REVISED AS NECESSARY TO ACCOMMODATE TREE PROTECTION AND HAND DIGGING MAY BE REQUIRED FOR DRAINAGE INSTALLATION.
10. UNLESS NOTED OTHERWISE, PIPES TO BE:
    FOUL PIPES UNDER BUILDING ø100@1:40,
    FOUL PIPES EXTERNAL ø100@1:80,
    SURFACE WATER PIPES ø150@1:100

Notes.

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3. This survey was measured for a scale of 1:100, any subsequent enlargements should be verified on site.

Amendments

Rev	Date		By	Chkd

JOMAS
ENGINEERING
ENVIRONMENTAL
Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

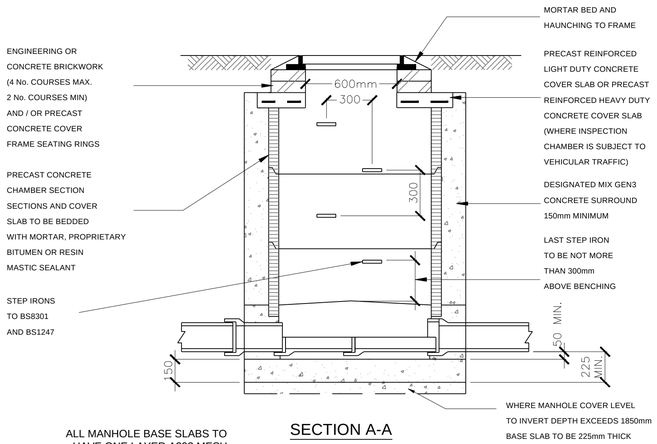
Project
13 Wycombe Gardens,
Golders Hill London

Drawing
Proposed Drainage Plan

Dwg no	Checked	Surveyor
C01	AW	-
Date 16.09.22	Scale 1:100 @ A1	
Job No. P4714JJ2661		Rev. -
Grid	Contours	Level Datum

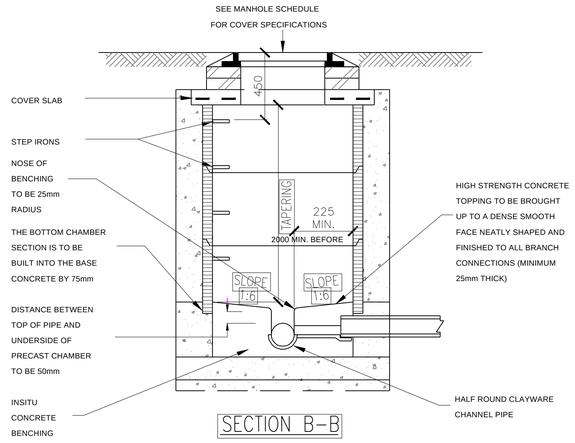
ALL DIMENSIONS TO BE CHECKED BY CONTRACTOR

NOTE: Details for private drainage only.



ALL MANHOLE BASE SLABS TO HAVE ONE LAYER A393 MESH CENTRALLY PLACED

SECTION A-A



SECTION B-B

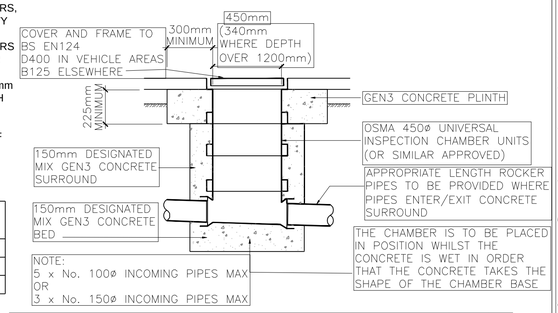
PRECAST CONCRETE MANHOLE TYPE B (PCC) IN EXTERNAL AREAS DETAIL

SCALE 1:20

NOTES:
CHAMBERS WITH OUTGOING PIPES GREATER THAN 500mm DIAMETER SHALL BE FITTED WITH GUARD BARS, SAFETY CHAINS OR OTHER SAFETY DEVICES. TOE HOLES TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 450mm DIAMETER FOR ACCESS TO INVERT. WHERE INTERNAL HEIGHT EXCEEDS 1800mm MANHOLE MAY BE PROVIDED WITH REDUCING COVER AND SHAFT. SHAFT DIAMETER TO BE 600mm DIAMETER OR 900mm DIAMETER IF LONGER THAN 900mm.

PIPE DIAMETER	ROCKER PIPE * LENGTH
150mm-450mm	500mm-750mm
475mm-750mm	750mm-1000mm
OVER 750mm	1200mm

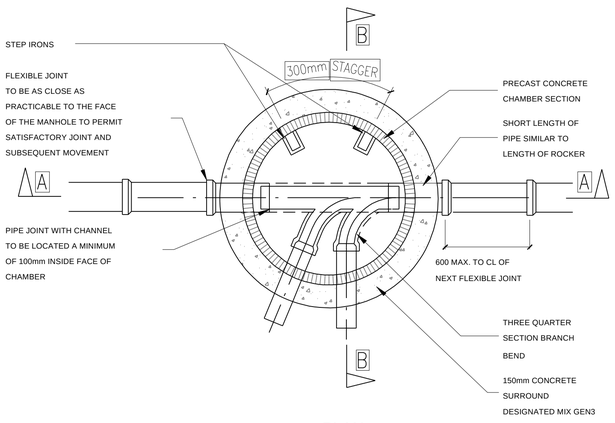
* OR LINTEL AND COMPRESSIBLE SEALANT IN ACCORDANCE WITH CLAUSE 689 OF THE SPECIFICATION.



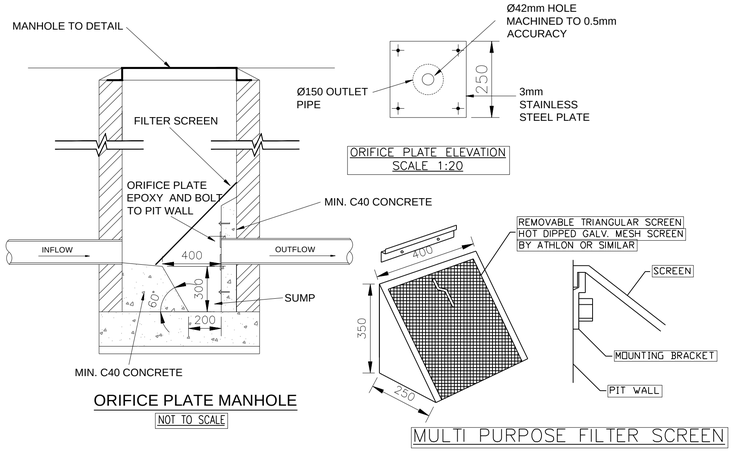
EXTERNAL POLYPROPYLENE INSPECTION CHAMBER (PPIC)

MAXIMUM DEPTH TO INVERT OF CHAMBER TO BE 1200mm (3000mm FOR REDUCED ACCESS)
CUT TO INTERMEDIATE SIZES

SCALE 1:20



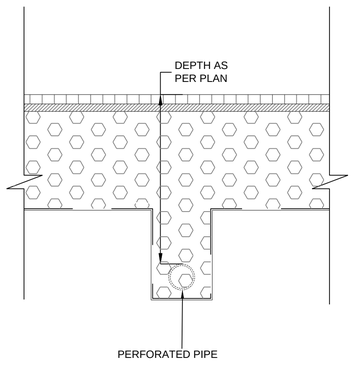
PLAN



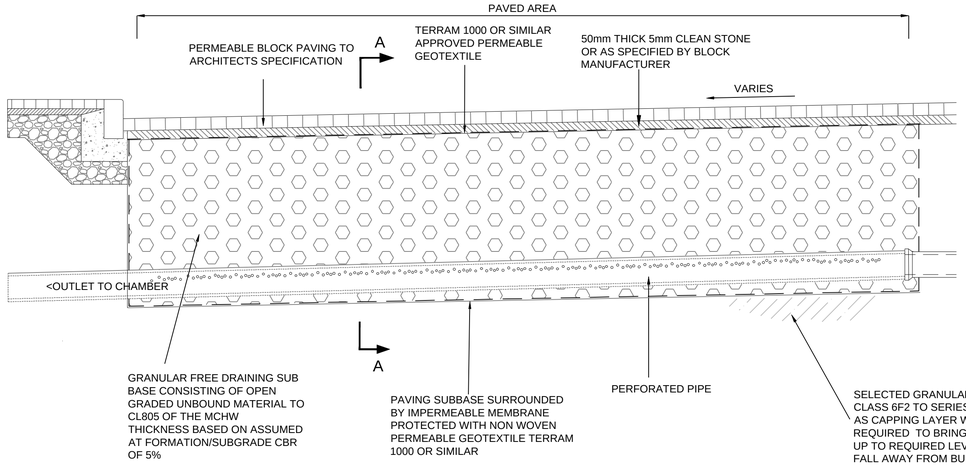
ORIFICE PLATE MANHOLE

NOT TO SCALE

MULTI PURPOSE FILTER SCREEN

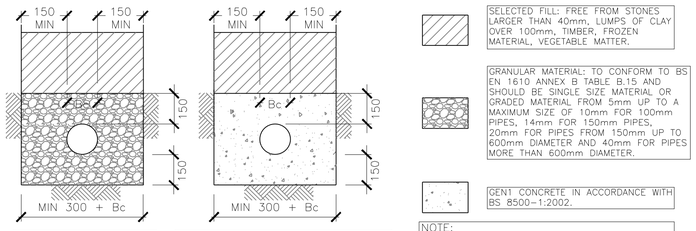


SECTION A-A



TANKED PERMEABLE PAVING DETAIL

SCALE 1:20



PIPE BEDDING DETAIL

SCALE 1:10

Job No. P4714JJ2661 Rev.

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5. FOR GRAVITY SEWERS, ALL DRAINAGE AND FITTINGS ARE TO BE FLEXIBLY JOINTED UPVC TO BS EN 1401-1 OR CLAYWARE TO BS EN295 OR CONCRETE TO BS5911 PART 100
6. CHAMBER WALLS 225 THICK TO BE CONSTRUCTED IN CLASS B ENGINEERING BRICKS TO SHW SERIES 2400 IN DESIGNATION (i) MORTAR OR IN-SITU STRENGTH CLASS C16/20 CONCRETE TO CLAUSE 2602
7. CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED IN PRECAST CONCRETE TO BS EN 1917 AND BS 5911-3.
8. CONCRETE MIXES INDICATED ON THIS DRAWING ARE DESIGNATED MIXES IN ACCORDANCE WITH BS8500-1:2006. ALL CONCRETE TO BE SULPHATE RESISTANT
9. BACKFILL TO ALL TRENCHES UNDER CARRIAGEWAYS TO BE TYPE 1 SUB-BASE MATERIAL, ELSEWHERE BACKFILL TO BE IN ACCORDANCE WITH THE SPECIFICATION, FREE DRAINING READILY COMPACTIBLE MATERIAL, FREE FROM RUBBISH AND ORGANIC MATTER, FROZEN SOIL CLAY LUMPS AND LARGE STONES. TO BE COMPACTED IN LAYERS NOT EXCEEDING 150mm THICK.
10. A FLEXIBLE JOINT SHALL BE PROVIDED AS CLOSE AS IS FEASIBLE TO OUTSIDE FACE OF ANY STRUCTURE INTO WHICH A PIPE IS BUILT, IN ACCORDANCE WITH THE DETAIL.
11. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIPS FOR THE CONSTRUCTION OF THE ACCESS ROAD FOOTPATHS AND OTHER AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE.
12. ALL PIPES TO BE LAID SOFFIT TO SOFFIT UNLESS NOTED OTHERWISE.
13. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH BS EN124 AND SHALL BE OF A NON-ROCKING DESIGN WHICH DOES NOT RELY ON THE USE OF CUSHION INSERTS. CLASS D COVERS SHALL BE USED IN CARRIAGEWAYS, HARD SHOULDERS AND PARKING AREAS USED BY ALL TYPE OF ROAD VEHICLES. CLASS C SHALL BE USED IN FOOTWAYS, PEDESTRIAN AREAS AND ALL COMPARABLE LOCATIONS.

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Amendments

Rev	Date		By	Chkd

JOMAS
ENGINEERING ENVIRONMENTAL
Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

Project
13 Wycombe Gardens, Golders Hill London

Drawing
Proposed Drainage Details

Dwg no	Checked	Surveyor
C02	AW	-
Date 16.09.22	Scale AS SHOWN	
Job No. P4714JJ2661		Rev. -
Grid	Contours	Level Datum

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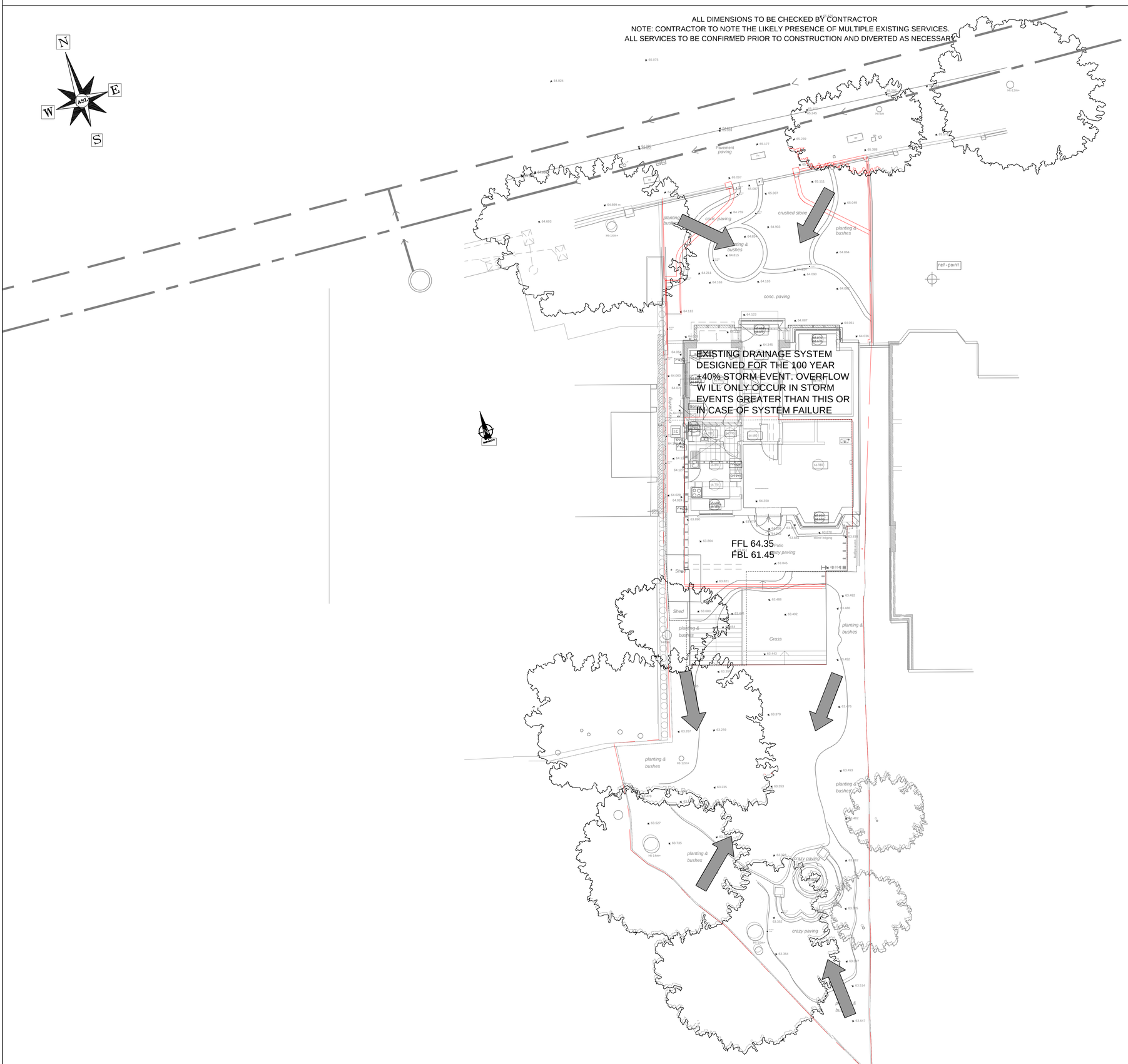

Job. No. P4714JJ2661 | Rev.

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STORMWATER CONCEPT LEGEND

18.30x	Proposed Level
FFL 80.90	Finished floor level
	Overland flow

Notes.

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Amendments

Rev	Date		By	Chkd

JOMAS
ENGINEERING ENVIRONMENTAL
Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

Project
13 Wycombe Gardens, Golders Hill London

Drawing
Proposed Overland Flow

Dwg no	Checked	Surveyor
C03	AW	-

Date	Scale
16.09.22	1:100

Job No.	Rev.
P4714JJ2661	-

Grid	Contours	Level Datum

Begin forwarded message:

[redacted]

Subject: Re: NEIGHBOURS

Date: 7 February 2021 at 14:49:31 GMT

[redacted]

Dear Ozan,

Pls see the below email from our neighbour at Wycombe Gardens - Tomi needs to do some work affecting our property to which we have provided our consent. Could you pls provide assistance as you both find appropriate.

Thank you!

Tomi, pls feel free to contact Ozan directly.

Kind regards,

Alexei

On 5 Feb 2021, at 16:08, Tomi Sodeinde [redacted] wrote:

No rush at all. I will ring you tomorrow. Thanks vm.

On 5 Feb 2021, at 16:04, Alexei and Anastasia Mitrofanov <[redacted]> wrote:

Hi Tomi,

Same here and thank you!

Can we speak some time tomorrow or Sunday unless urgent? Pls call me on 0754 055 8776

Best regards,

Alexei

On 5 Feb 2021, at 15:59, Tomi Sodeinde [redacted]> wrote:

Hello Alexei,

Pleasure to e-meet you and welcome to Wycombe Gardens.

I would like to discuss the works we are undertaking shortly and the proposal Sharon mentions below.

Do let me know your preferred method of contact.

Best wishes,

Tomi
[redacted]

On 5 Feb 2021, at 15:11, Wycombe <[redacted] wrote:

HI ALEXEI AND TOMI

I am writing to introduce you to each other as you will soon be neighbours

Tomi lives at 13 Wycombe gardens.

Tomi would like to discuss with you about running a pipe under your front garden.

As you have exchanged you have legal rights over the land, so Tomi would need to discuss this with you

I will leave it to you both to speak

Have a lovely weekend

BARNET
LONDON BOROUGH

London Borough of Barnet Ordinary Watercourse Consent

Land Drainage Act 1991

Name: Toffee Chen
SIAW Ltd
Winston House
1st Floor
359 Regents Park Road
London N3 1DH

Tel: 020-7729-7900

Consent applying to
Site adjacent to 13 Wycombe Gardens NW11 8AL

Consent Number
LBB OWC/2018/03

Effective from
3rd August 2018

Land Drainage Act 1991

Land Drainage Consent

Control of works affecting watercourses and/or flood defences
Consent number LBB OWC/2018/03

To: Andrew Jones

The London Borough of Barnet, in exercise of its powers under Section 23 **of the Land Drainage Act 1991 and subject to the conditions attached, hereby grants its consent in relation to the works or operations described in this Consent.**

Watercourse: Un-named Ordinary Watercourse culvert

Location: No.15 Wycombe Gardens NW11 8AL

Map reference: **TQ**

Description of works: 1 No. 150mm dia new surface water ramped drainage connection into manhole structure 0902

as detailed on plans and sections

- Hardman Structural Engineers Drawing No. 612 revision "B"

The London Borough of Barnet does not accept any responsibility for the design and construction of the works referred hereto and any liability for any loss or damage which may arise out of their design, construction, maintenance or use.
This Consent shall come into effect on

Date: 3rd August 2018

Signed on behalf of the (Insert the LLFA)

[redacted]

Introduction

This Note does not form part of the Certificate of Authorisation.

(INSERT LLFA) Land Drainage Consents are required by virtue of the Land Drainage Act 1991. The following activities on an Ordinary (non-main) Watercourse require Local Authority Consent:

under Section 23 of the Land Drainage Act 1991

- the erection or alteration of any mill dam, weir or other like obstruction to the flow of any watercourse
- the erection or alteration of any culvert that would be likely to affect the flow of any watercourse

under Sections 17 and 20(2) of the Land Drainage Act 1991

- Any drainage works carried out by a local authority against flooding in connection with any watercourse

under Section 61F Land Drainage Act 1991 (Inserted by Schedule 22 Environment Act 1995)

- the operation of any drainage works, under the control of any Internal Drainage Board or local authority, so as to manage the level of water in a watercourse for the purposes of facilitating spray irrigation.

Note: Consent under the above legislation is required irrespective of whether the works are permanent or temporary.

Contraventions

In relation to Ordinary Watercourses, the authority can under Section 24 of the Land Drainage Act 1991 serve a legal notice requiring the person to abate the nuisance within a specified time. Failure to abide by such a notice can result in the London Borough of Barnet carrying out the necessary remedial work and seeking to recover costs.

Conditions: This consent is granted with the following conditions: 1. All works must be undertaken fully in accordance with PPG5. 2. As Built drawings must be provided to the L B of Barnet within 3 months of completion of the culvert works.

RESULTS OF SUBSOIL INVESTIGATION

ADDRESS:

15 Wycombe Gardens
London
NW11 8AN

CLIENT: Neil Hawes & Associates Limited
1st Floor North Wing
Salisbury House
81 High Street
Potters Bar
Hertfordshire
EN6 5AS

OUR REF: A.3669
YOUR REF: **DATE:** 17th January 2017

MERIDIAN SOILS LIMITED

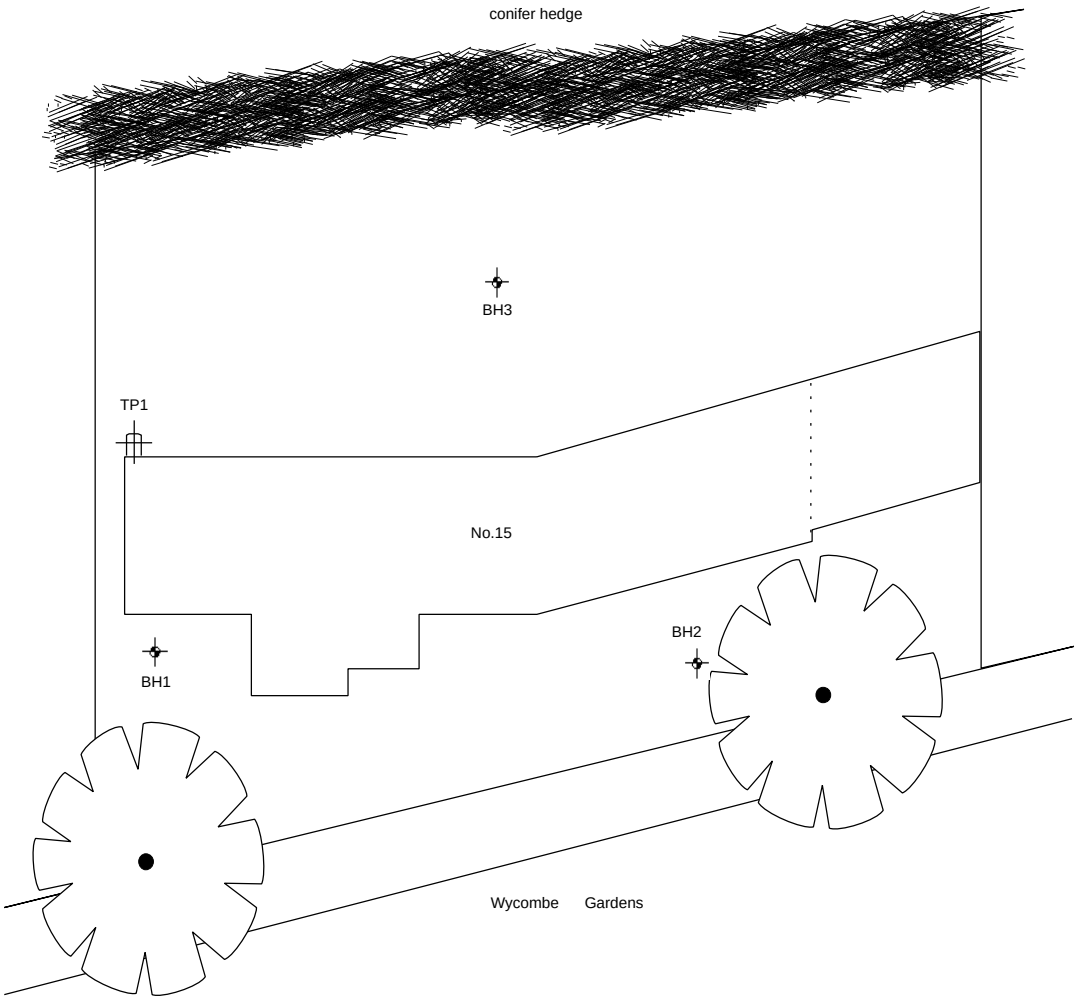
Electron House
Office & Technology Centre
West Hanningfield Road
Great Baddow
Chelmsford
Essex
CM2 8JT
Tel: 01245 473113
Email: mail@meridiansoils.co.uk Web: www.meridiansoils.co.uk

Meridian Soils Limited

Office & Technology Centre, West Hanningfield Road, Great Baddow, Essex. CM2 8JT

Telephone: 01245 473113 e-mail: mail@meridiansoils.co.uk Web: www.meridiansoils.co.uk

Location:	**15 Wycombe Gardens, London, NW11 8AN**	**Date:**	**December 2016**
Title:	**Site Location Plan**	**Ref:**	**A.3669**



Scale: NTS

Meridian Soils Limited

		TP Ref No.:-	1	Sheet 1 of :-	1
		FOUNDATION DETAILS:-		Note:-	

JOB REF:- A.3669

LOCATION:-

15 Wycombe Gardens, London, NW11 8AN

See attached sketch

METHOD OF EXCAVATION:-

Hand Auger

SITE WORK:-

12.12.16

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
Flower bed over Topsoil-MADE GROUND:		0.30						
MADE GROUND: Firm mottled dark brown silty fine sandy CLAY, fine to medium sand, fine to medium gravel, brick, mortar, topsoil, fine coal and clinker fragments.			0.1-1.0					Fine to medium roots observed.
		1.30	1.30	D.1	1.30	V.=50	1.30	Slight fine roots of live and dead appearance.
U.S footing: Firm mottled brown silty CLAY, partings of silt and fine sand and ironstaining.		1.50						Trial pit dry on completion.
END OF TRIAL PIT.								

Key to sample testing/collection.

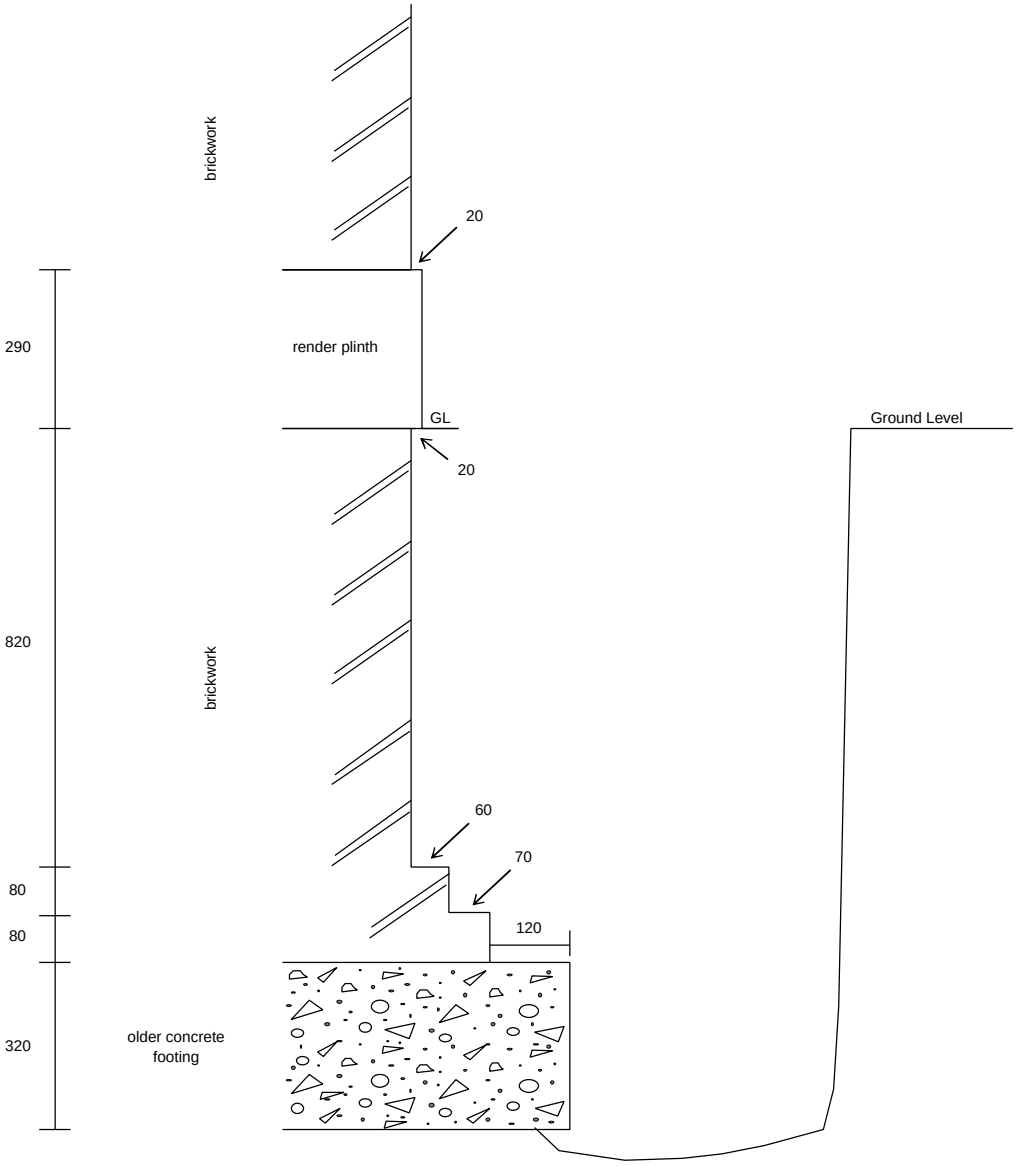
U. Undisturbed sample
B. Bulk disturbed sample
D. Disturbed bag sample
W. Water sample
R. Root sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

Office & Technology Centre, West Hanningfield Road, Great Baddow, Essex. CM2 8JT

Telephone: 01245 473113 e-mail: mail@meridiansoils.co.uk Web: www.meridiansoils.co.uk

Location:	**15 Wycombe Gardens, London, NW11 8AN.**	**Date:**	**December 2016**
Title:	**Trial Pit 1**	**Ref:**	**A.3669**



Dimensions in mm

Meridian Soils Limited

BH Ref No.:-	1
Sheet 1 of :-	1
FOUNDATION DETAILS:-	
Note:-	

JOB REF:- A.3669

LOCATION:-

15 Wycombe Gardens, London, NW11 8AN

METHOD OF EXCAVATION:-

Continuous Flight Auger

SITE WORK:-

13.12.16

Borehole only

200mm groundwater in borehole on completion and left to stand for $^{1}/_{2}$ hour.
600mm groundwater in borehole on return.
Left borehole open for future groundwater measurement.

Collected final groundwater measurement on 16.12.16 and found groundwater standing at 1.20m from ground level.

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
50mm concrete over Topsoil-MADE GROUND:		0.15						
MADE GROUND: Firm mottled brown silty CLAY intermixed with topsoil, dark brown silt and fine to medium sand, fine to medium gravel, brick, mortar, concrete, occasional fine coal and clinker fragments.		0.30						Plastic covered gas pipe observed.
			0.50	D.1	0.50			Fine to medium roots observed.
		0.70						
MADE GROUND: Firm mottled dark brown-black silty sandy CLAY, fine to coarse sand, fine to medium gravel, topsoil, fine brick and mortar fragments.			1.00	D.2	1.00			Occasional fine roots observed.
		1.20						
MADE GROUND: Soft mottled black silty CLAY, fine to medium sand, occasional fine to medium gravel, occasional fine brick, glass and pottery fragments.			1.50	D.3	1.50			Occasional fine roots observed.
		1.70						Groundwater observed.
MADE GROUND: Soft mottled black and dark brown silty fine sandy CLAY, fine to medium sand, occasional fine to medium gravel, slight fine brick and shell fragments.			2.00	D.4	2.00			Black organic deposits, occasional fine root traces.
		2.30						
MADE GROUND: Soft mottled dark brown-grey and black silty CLAY, fine to medium sand, occasional fine to medium gravel, black organic deposits and slight fine brick fragments.				D.5	2.50			
		2.80						Groundwater entering borehole.
Firm/stiff mottled brown silty CLAY, partings and pockets of fine sand, occasional fine to medium gravel and ironstaining.				D.6	3.00	P. 18,24,28,32.	3.00	
		3.30						
Stiff brown silty CLAY, partings and occasional pockets of fine sand and ironstaining.				D.7	3.50			
				D.8	4.00	V.=140+	4.00	
				D.9	5.00	V.=140+	5.00	
		5.30				P. 50=5mm 50=0mm	5.30	Unable to drill further due to claystone obstruction. Borehole wet on completion.
END OF BOREHOLE.								

Key to sample testing/collection.

U. Undisturbed sample
B. Bulk disturbed sample
R. Root sample
D. Disturbed bag sample
W. Water sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

BH Ref No.:-	**2**		**Sheet 1 of :-**	**2**	
FOUNDATION DETAILS:-			**Note:-**		
JOB REF:-	A.3669		See Sheet 2.		
LOCATION:-					
15 Wycombe Gardens, London, NW11 8AN			**Borehole only**		
METHOD OF EXCAVATION:-					
Continuous Flight Auger					
SITE WORK:-					
14.12.16					

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
40mm paving slabs over concrete.		0.15						
MADE GROUND: Firm mottled orange-brown silty CLAY, fine to medium sand, fine to coarse gravel, fine brick, coal and clinker fragments.		0.40	0.50	D.1	0.50			Occasional fine roots observed.
MADE GROUND: Firm mottled brown silty CLAY intermixed with dark brown silty fine to coarse sand, fine to medium gravel, brick, fine mortar, occasional fine coal and clinker fragments.		0.90		D.2	1.00	V.=67	1.00	
MADE GROUND: Firm mottled brown silty CLAY, partings of silt and fine sand, occasional fine brick and charcoal fragments.		1.20						
MADE GROUND: Firm mottled dark brown silty fine sandy CLAY, fine to coarse sand, fine to medium gravel, fine brick and mortar, occasional fine coal and clinker fragments.		1.80		D.3	1.50			
MADE GROUND: Firm brown silty CLAY, fine to medium sand, occasional fine to medium gravel, fine coal and slight fine brick fragments.		2.30		D.4	2.00	P. 16,22,26,32.	2.00	
Firm mottled brown silty CLAY, partings of silt and fine sand and ironstaining.			2.50	D.5	2.50			Occasional fine roots observed.
				D.6	3.00	V.=81	3.00	
Stiff brown silty CLAY, partings and occasional pockets of fine sand and ironstaining.		3.20		D.7	3.50	V.=117	3.50	
				D.8	4.00	V.=132	4.00	
				D.9	5.00	V.=140+	5.00	
Carried over to Sheet 2.		5.00						

Key to sample testing/collection.

U. Undisturbed sample
D. Disturbed bag sample
R. Root sample
B. Bulk disturbed sample
W. Water sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

BH Ref No.:-	**2**		**Sheet 2 of :-**	**2**	
FOUNDATION DETAILS:-			**Note:-**		

JOB REF:-	A.3669
LOCATION:-	

15 Wycombe Gardens, London, NW11 8AN

Borehole only

150mm groundwater standing in borehole on completion, installed groundwater monitoring pipe to 8.00m depth.

Collected final groundwater measurement on 16.12.16 and found groundwater standing at 2.00m from ground level.

METHOD OF EXCAVATION:-	
Continuous Flight Auger	
SITE WORK:-	
14.12.16	

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
As Sheet 1.		5.00						
				D.10	6.00	V.=140+	6.00	
Stiff brown silty CLAY, partings and occasional pockets of fine sand and ironstaining.		6.20						Groundwater observed.
				D.11	7.00			
		7.40						
				D.12	8.00	V.=140+	8.00	
Stiff/very stiff grey silty CLAY with partings and occasional pockets of fine sand.								
				D.13	9.00			
				D.14	10.00			
END OF BOREHOLE.		10.00						Borehole wet on completion (see Note).

Key to sample testing/collection.

U. Undisturbed sample
D. Disturbed bag sample
R. Root sample
B. Bulk disturbed sample
W. Water sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

BH Ref No.:-	**3**		**Sheet 1 of :-**	**2**	
FOUNDATION DETAILS:-			**Note:-**		

JOB REF:-	A.3669
LOCATION:-	

15 Wycombe Gardens, London, NW11 8AN

Borehole only

See Sheet 2.

METHOD OF EXCAVATION:-	
Continuous Flight Auger	
SITE WORK:-	
16.12.16	

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
Grass over Topsoil-MADE GROUND:		0.20						
MADE GROUND: Firm mottled dark brown silty CLAY, fine to medium sand, occasional fine to coarse gravel, occasional fine brick, mortar and charcoal fragments.		0.80	0.50	D.1	0.50			Occasional fine to medium roots observed.
Firm mottled pale orange-brown silty CLAY, partings of silt and fine sand and ironstaining.		1.30		D.2	1.00	V.=66	1.00	
Firm/stiff mottled brown silty CLAY, partings and pockets of fine sand and ironstaining.		2.40	1.50	D.3	1.50			Slight fibrous root traces.
			2.00	D.4	2.00	V.=93	2.00	Fine roots observed.
Stiff brown silty CLAY, partings and pockets of fine sand, occasional fine to medium gravel and ironstaining.		2.90		D.5	2.50			
Firm/stiff brown silty gravelly CLAY, fine to medium sand, fine to medium gravel and ironstaining.		3.40		D.6	3.00	P. 22,28,36,38.	3.00	Groundwater observed. Claystone deposits.
Stiff brown silty CLAY, partings and occasional pockets of fine sand and ironstaining.				D.7	3.50	V.=123	3.50	
				D.8	4.00	V.=133	4.00	
				D.9	4.50			
				D.10	5.00	V.=140+	5.00	
Carried over to Sheet 2.		5.00						

Key to sample testing/collection.

U. Undisturbed sample
D. Disturbed bag sample
R. Root sample
B. Bulk disturbed sample
W. Water sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

JOB REF:-	A.3669
LOCATION:-	

15 Wycombe Gardens, London, NW11 8AN

METHOD OF EXCAVATION:-	
Hand Auger	
SITE WORK:-	
12.12.16	

BH Ref No.:-	**3**	**Sheet 2 of :-**	**2**
FOUNDATION DETAILS:-		**Note:-**	

Borehole only

150mm groundwater standing in borehole on completion, left to stand for $^1/_2$ hour.
200mm groundwater standing in borehole on return.

Description	Legend	Depth	Root observations	Samples Type	Samples Depth	Tests Type	Tests Depth	Field observations
As Sheet 1.		5.00						
Stiff brown silty CLAY, partings and occasional pockets of fine sand and ironstaining.				D.10	6.00	V.=140+	6.00	Slight fine crystal deposits.
		6.40						
Stiff/very stiff grey silty CLAY with partings and occasional pockets of fine sand.				D.11	7.00			
				D.12	8.00	V.=140+	8.00	
				D.13	9.00			
				D.14	10.00			
END OF BOREHOLE.		10.00						Borehole wet on completion (see Note).

Key to sample testing/collection.

U. Undisturbed sample
B. Bulk disturbed sample
D. Disturbed bag sample
W. Water sample
R. Root sample
V. Shear Vane test
P. Mackintosh Probe/ blows per 75mm.

Meridian Soils Limited

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Tel: 01245 473113 E-mail: mail@meridiansoils.co.uk Web: www.meridiansoils.co.uk

Moisture Content and Index Property Determinations.

Our Ref:- A.3669

Client Ref:-

Location:- 15 Wycombe Gardens, London, NW11 8AN

BH/TP No.	Sample No.	Depth m.	Natural Moisture %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425 um %	Equivalent Moisture %	Class	Modified Plasticity Index %
1	D.6	3.00	26							
	D.7	3.50	29	67	25	42	100	29	CH	42
	D.8	4.00	27							
	D.9	5.00	32	72	28	44	100	32	CV	44
2	D.5	2.50	26	56	22	34	100	26	CH	34
	D.6	3.00	24							
	D.7	3.50	28	71	25	46	100	28	CV	46
	D.8	4.00	29							
	D.9	5.00	29	72	27	45	100	29	CV	45
	D.10	6.00	31							
	D.12	8.00	31	78	29	49	100	31	CV	49
3	D.3	1.50	27	62	25	37	100	27	CH	37
	D.4	2.00	27							
	D.5	2.50	24	60	23	37	100	24	CH	37
	D.6	3.00	25							
	D.7	3.50	29	69	27	42	100	29	CH	42
	D.8	4.00	31							
	D.9	5.00	31							
	D.10	6.00	33	75	28	47	100	33	CV	47
	D.14	10.00	33	79	29	50	100	33	CV	50

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Tel: 01245 473113 E-mail: mail@meridiansoils.co.uk Web: www.meridiansoils.co.uk

Sulphate and pH Determinations

Our Ref:- A.3669

Client Ref:-

Location:- 15 Wycombe Gardens, London, NW11 8AN

BH/TP No.	Sample No.	Depth m.	Soil Sulphates as S04 Total %	Soil Sulphates as S04 Water Sol (g/litre)	Water Sulphates as S04 (g/litre)	pH value	Passing 2mm sieve %	Class
1	D.2	1.00		0.05		7.4	100	DS-1
2	D.6	3.00		0.06		7.7	100	DS-1
3	D.6	3.00		0.16		7.9	100	DS-1

(Results relate to samples dried at 75^{0}C)

Classification table C2 : BRE Special Digest 1:2005

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Sika® Cavity Drainage System

PUTTING WATER IN ITS PLACE

BUILDING TRUST

INTRODUCTION

Sika® Cavity Drainage System creates a water management system to control water after it has penetrated the structure. Utilising a high density polyethylene internal drainage membrane, the system is installed, loose laid in flooring applications and attached to the wall with surface plugs in vertical installations.

The system directs penetrating water into a drainage system and a collection sump before using a pump to discharge water from the building. A cavity drain provides protection from the ingress of water. Suitable for above and below ground usage.

The membranes are fixed to the walls using special plugs with minimum surface preparation required to the substrate. Once the membrane has been fitted, wall surfaces can be dry lined or plastered and the floors can be screeded.

TYPICAL APPLICATIONS INCLUDE:

- Walls and floors of basements
- Cellars

ADVANTAGES

- Can be used where the substrate does not have the strength to resist stresses caused by water pressure
- Can accommodate minor movements within the structure
- Limited surface preparation required
- Acts as a vapour barrier
- Can be used to grades 1-3 according to BS 8102:2009
- Suitable for high water table according to BS 8102:2009

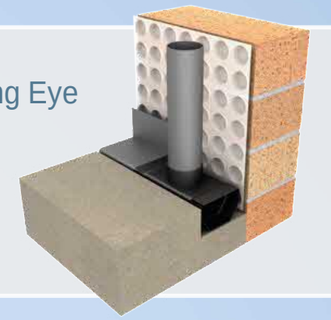
Regular maintenance of the system including pumps is required, therefore the design of the structure should include access for maintenance.

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 19/5640

2 Sika® Cavity Drain Channel and Jetting Eye

The Sika® Cavity Drain Wall Channel directs any water ingress to the sump chamber.

Sika® Jetting Eye allows inspection and maintenance of the channel system.



Sika® CD Anti-Lime Coating

Sika CD Anti-Lime Coating should be applied to all new concrete surfaces to reduce the build-up of free lime within the system.

3 Sika® Floor Membrane

The floor membrane allows water to flow into the perimeter channel. Sika HD20 membrane is typically used for the floor membrane due to its higher void volume and height, which allows for floor tolerance.

4 Sika® Sump and Pump Chamber

The sump and pump chamber pumps water out of the building. Sika offer a range of sump and pump solutions.

1 Sika® Wall Membrane

The wall membrane allows any water ingress to flow down to the perimeter channel. Sika supply a range of wall membranes depending on your requirements.

DISCOVER MORE ABOUT OUR CAVITY DRAINAGE SYSTEM

Download our Cavity Drainage brochure or watch our explanative video at: sikawaterproofing.co.uk/cavitydrain

Sika® Standard Drainage Membrane

For use on walls, floors and vaults with minimal surface preparation required. Also suitable for insulated dry lining for walls above ground level that may not be suitable for conventional plaster finishes.

Sika® Cavity Drainage Membranes are suitable for use in type 'C' (drained protection) structural concrete constructions in accordance with BS 8102:2009.

Sika® Standard Drainage Membrane is a medium capacity drainage membrane (4 litres/m²) for walls both above and below ground level. Perimeter drainage channels must be provided to optimise the flow of groundwater towards the sump location (see separate method statement and data sheet).

Sika® Standard Drainage Membrane is used in a dry lining application. Various systems can be used in the head of the fixing plug, from timber battens to steel dry lining systems.

This membrane is easy to roll out against wall structures and can be fixed in horizontal lengths or in vertical strips.

This is our most popular membrane in basement waterproofing due to its universal ease of use.

FIXING

Sika® Standard Drainage Membrane is installed with studs against the underlying structure. Fixing to walls is carried out with Sika® Brick Plugs in the centre of the stud. Take care when drilling holes to avoid excessive masonry dust falling in to the cavity.

AVAILABLE SIZES:

2.0 x 2.0m

KEY BENEFITS

- Can create a dry habitable living space in areas previously suffering from damp/wet conditions.
- Little to no damage to existing structure.
- Quick to install –minimal preparation needed to wall surfaces, avoiding mess and saving time and money.
- Easy to bend and cut with scissors to form around windows, doors, services etc.
- No delays to decoration as there is no drying process.
- Waterproof, salt resistant, root resistant and contaminant resistant
- Low and high temperature tolerance.

ASSOCIATED PRODUCTS

- Sika® Brick Plugs
- Sika® Jointing Tape
- Sika® Rope
- Sika® Corner detail

BELOW GROUND APPLICATIONS

TECHNICAL DATA

Raw material: HDPE

Sheet thickness: nominal 0.50mm

Stud height: approx. 6.5mm

Construction height: approx. 7mm

Unit weight: 0.45 kg/m²

Deformation under long term loading: max. 20% (at 50 kN/m²)

Compressive strength: 150 kN/m²

Working temperature: –10º to +60ºC

Softening temperature: +160ºC

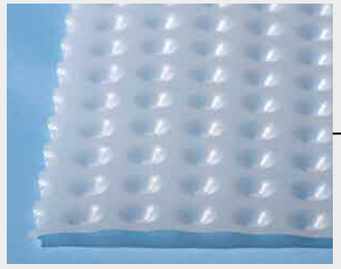
Linear coefficient of thermal expansion: 0.18 mm/m.ºC

Water vapour resistance: 280m equivalent air layer

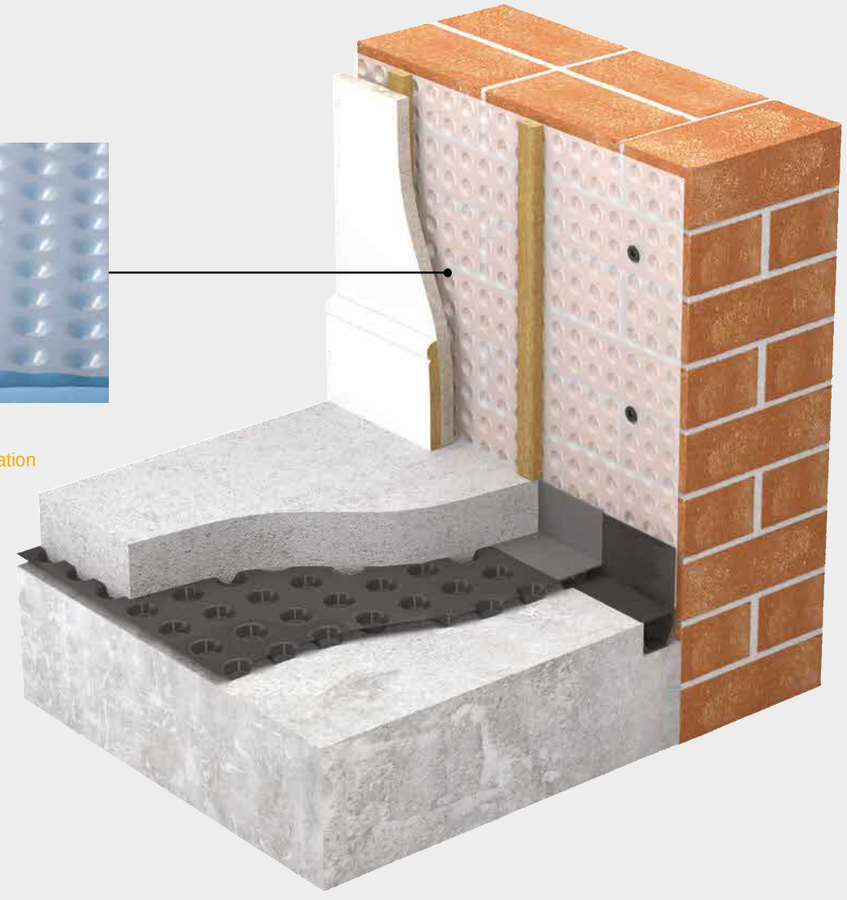
Air gap volume: 4.0 l/m²

Drainage capacity: approx. 3.8 l/m²

Colour: natural

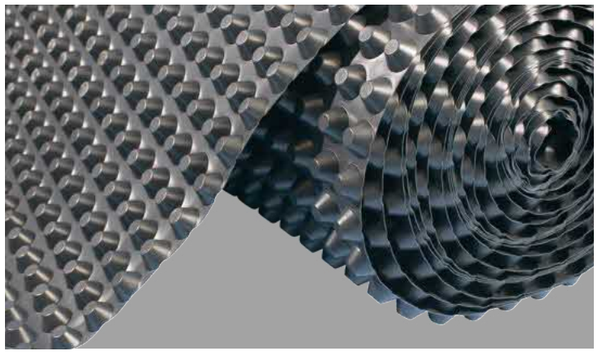


Sika® Standard Drainage Membrane in a wall application



Sika® HD20 Membrane Waterproofing Membrane

For use on walls and floors with minimal surface preparation required. Also suitable for insulated dry lining for walls above ground level that may not be suitable for conventional plaster finishes.



Sika® HD20 Cavity Drainage Membranes are suitable for use in type 'C' (drained protection) structural concrete constructions in accordance with BS 8102:2009.

Sika® HD20 Membrane provides a void volume of 14 litres/m². Suitable for use on floors and walls in very wet situations or where the large stud height is desired to maximize insulation values. When used on floors Sika® HD20 Membrane must be installed with perimeter drainage channels and, when overlaid with concrete, the large diameter studs will give high point load resistance capabilities (180 kN/m²) to support load-bearing walls built off the slab.

FIXING

Starting at one side of the room, unroll the membrane with the studs down and cut to fit the room as one would when fitting a carpet. The next membrane width is rolled out so that the flanged edge overlaps onto the edge of the previous roll of membrane. Clean both edges. Sika® Joint Tape is then applied to the high flat area between the first two studs at the edge of the previous roll of membrane with the backing paper still intact. Check the two widths for alignment, with the flange covering the backing paper. Starting from the end of the joint, remove the backing paper and press down on the joint, sealing the two sections together.

AVAILABLE SIZES:

2.0 x 20m

Including flat overlapping edge (flange) without studs, working area approx. 40m².

KEY BENEFITS

- Fast to install and lay
- Internal load bearing walls can be built on the membrane once screed is added
- High water movement capacity
- Various floor finishes can be used on top of the membrane
- Can be used with various drainage systems
- Resistant to all salts and contaminates
- Can be used with all insulation floor systems

ASSOCIATED PRODUCTS

- Sika® Brick Plugs
- Sika® Jointing Tape
- Sika® Rope
- Sika® Corner Tape

BELOW GROUND APPLICATIONS

TECHNICAL DATA

Material: HDPE

Colour: black

Area weight: approx. 1,000 g/m²

Thickness: approx. 0.9 mm

Available widths: 2m

Roll length: 20m

Dimple height: 20mm

Void volume between dimples: approx. 14 l/m²

Drainage capacity: approx. 10 l/s m approx. 600 l/min m approx. 36.000 l/h m

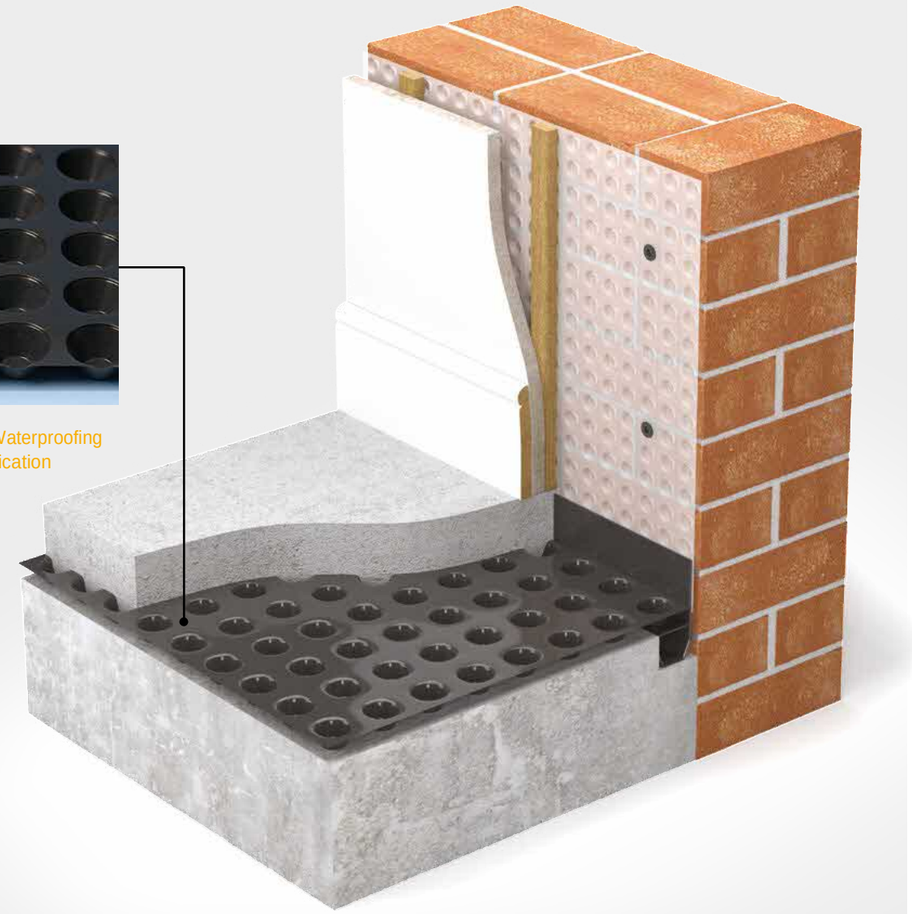
Compressive strength: approx. 240 kN/m2 (24 t/m²)

Tensile strength: approx. 14.5 kN/m (EN ISO 10319)

Elongation at maximum strength: approx. 68%

Service temperature range: -40ºC to +80ºC

Sika® HD20 Membrane Waterproofing Membrane in a floor application



Sika®8mm Meshed Plaster Membrane

Sika® 8mm Meshed Membrane is suitable for use in accordance with BS 8102:1990 to provide Type ‘C’ drained protection to structures below ground giving a Grade 3 dry environment suitable for domestic or commercial use.

Sika® 8mm Meshed Membrane is a high density polyethylene membrane, incorporating 8mm studs which allows the isolation of wet walls above and below ground.

It incorporates a tough HDPE mesh lathing welded to the front face to allow the direct application of various plaster finishes or adhesive ‘dabs’ and plasterboard.

FIXING

Sika® 8mm Meshed Membrane is fixed to the wall by drilling through the membrane studs to a depth of 50 or 70mm using a 8mm drill bit, and gently hammering home the Plaster Plugs with Sika® Rope around the shaft to form a waterproof seal between the fixing and the membrane surface.

Intervals between plug fixings should be no greater than 250mm to ensure a tight fix to the wall. Near lap joints and where the surface is uneven, the centres should be less than 250mm. When fixing the membrane it is essential to keep the sheet tight to the wall surface (no ‘bulges’) at all times.

AVAILABLE SIZES:

2m x 20m = 40m² (translucent/white)

Including flat overlapping edge (flange) without studs, working area approx. 40m².

KEY BENEFITS

- Stud height 8mm, drainage volume 5.5 litres/m²
- Sheet thickness 600 µm, density 0.7 kg/m²
- Excellent low and high temperature stability 150 kN/m² load bearing capacity
- High durability and water resistance

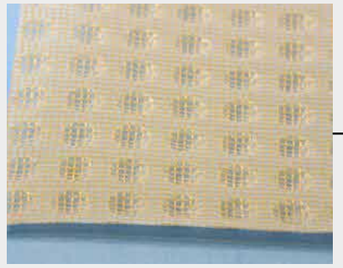
ASSOCIATED PRODUCTS

- Sika® Plaster Plugs
- Sika® Jointing Tape
- Sika® Rope
- Sika® Corner Tape
- Sika® Plaster Tape

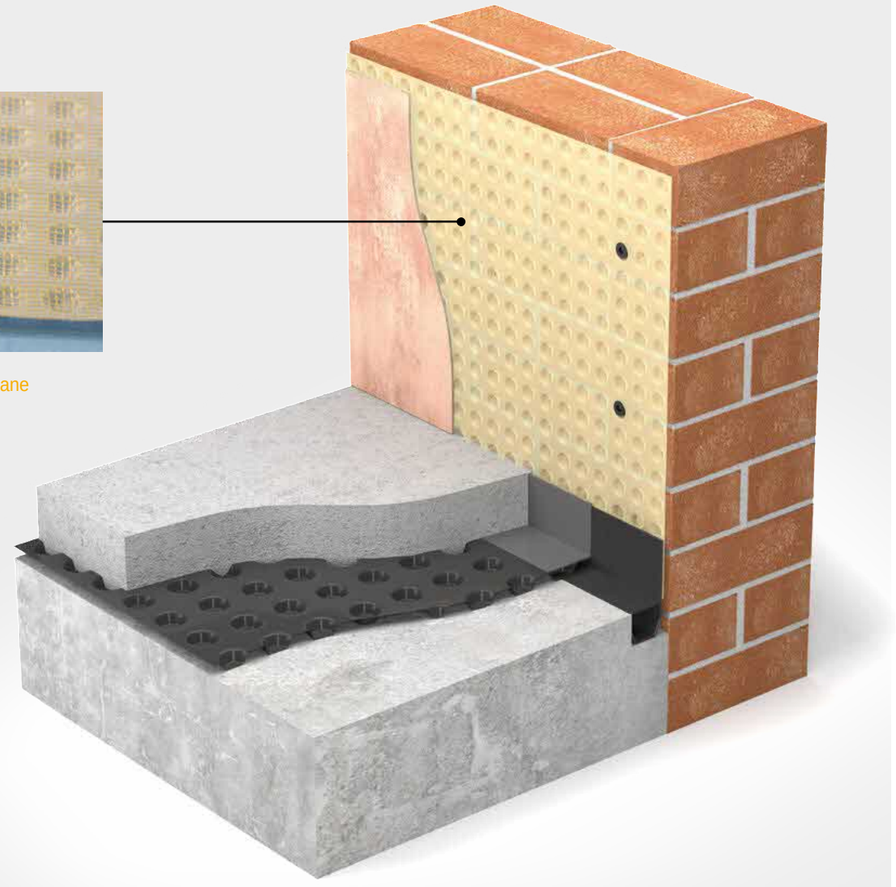
BELOW GROUND APPLICATIONS

TECHNICAL DATA

Colour: white	Wall and soffit membrane only
Weight: 28.00kg	Thermal resistance: 0.078m² K/W
Raw material: high density polyethylene	Vapour permeability: 0.046g/ m² x hr x mmHg
Thickness: 0.60mm	Thermal conductivity: 0.461 W/m K
Stud height: 8.00mm	Air volume between studs: 5.51 l/m²/s
Compressive strength: N/A	Drainage capacity: 4.61 l/m²/s



Sika® 8mm Meshed Membrane in a wall application



Membrane Plugs

The most important part of any membrane system, are the fixings and jointing tapes. These parts of the system are critical and Sika is pleased to announce their systems are covered by BBA accreditation.

Sika® Plaster Plugs and Brick Plugs are also of the highest quality, and now include the new plugs with seals already attached to speed up installation times.

Sika® Plaster Plugs

Sika® Plaster Plugs can be used with our mesh membrane systems and have a serrated head which can take plaster or dot and dab. They can also be used to secure membranes to walls in systems where a free standing frame is to be used.

Quantity: 200 per box.

Sika® Brick Plugs

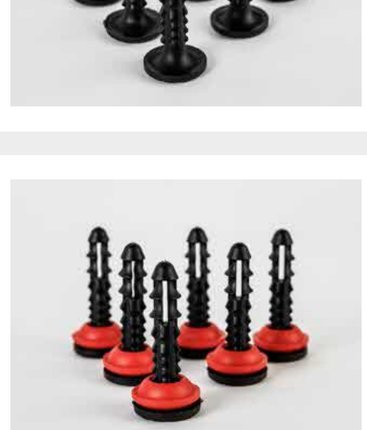
Sika® Brick Plugs are 10mm fixings to use with membrane systems. They have a reinforced head for easy use and take a size 10 screw into the head of the plug, for battens or metal framing systems. At 60mm long, these plugs will fit into all substrates.

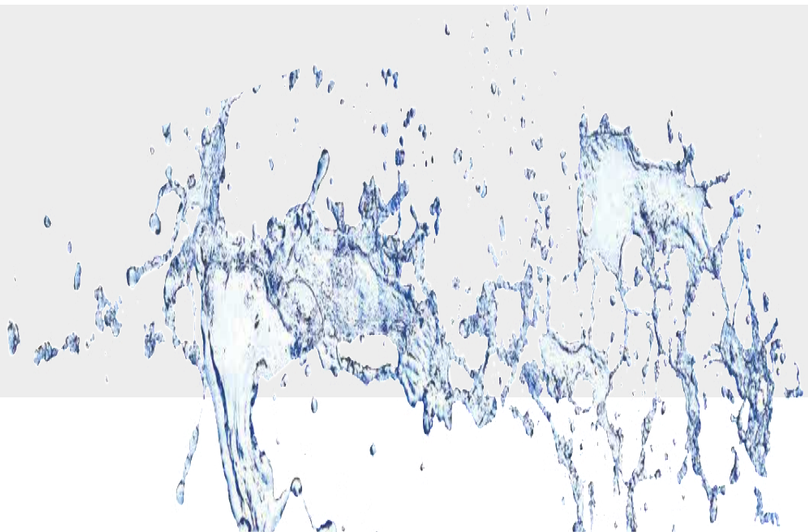
Quantity: 100 per box.

Sika® Brick Plugs with Seals

Sika® Brick plugs are 10mm fixings to use with membrane systems, with the advantage of a rubber seal already attached. They have a reinforced head for easy use and take a size 10 screw into the head of the plug, for battens or metal framing systems. At 60mm long, these plugs will fit into all substrates.

Quantity: 200 per box.





Jointing Systems

Quality jointing systems are critical when using cavity membrane systems. Sika is proud to have sourced the highest quality jointing tapes and ropes within the waterproofing industry.

All our tapes and ropes are covered by our BBA accreditation and all the materials are of the highest quality butyl.

All the products within the jointing range have undergone extensive water testing capabilities and are suitable for use with our high-density polyethylene membranes.

Sika® Jointing Tape

A high quality butyl double sided tape, 28mm wide. This tape is used in the installation of Sika® Cavity Drain Membranes and is used to tape two sheets of membrane together on walls or floors. Easy to use and very high quality HP600 grade bitumen makes this a long term solution for all membrane work.

Size: 28mm wide x 22 meters long.

Sika® Rope

A 10mm bead of butyl rope. This rope is used to either wrap around the head of plugs in membrane installation, or to form a jointing waterproof seal on walls and floor membrane systems. This is a high quality rope and is covered by our BBA Certificate.

Size: 10mm wide x 5m long.

Sika® Corner Tape

Our biggest selling tape, this 150mm wide tape has many uses, but is mostly used to seal membrane from walls to floors and the channel system. Tacky on one side only, this can also be used to overtape external joints and can also be used on floor oversealing.

Size: 150mm x 20m.

Sika® Overseal Tape

This is a 75mm overseal tape used to overseal membrane systems, it can be used on walls and floors and forms an overseal detail to form a vapour barrier and waterproof seal on external taped joints. Covered by our BBA Certificate.

Size: 75mm wide x 20m long.

Sika® Plaster Tape

Sika® Plaster Tape is used to join plaster membranes together. The unique fibre backing allows for direct plaster or dot-and-dab situations. The fibre also stops any cracking of plaster on these joints.

Size: 115mm wide x 25m long.

Channelling

As part of the Sika® Cavity Drain Membrane System, channels are a crucial part of the overall system, and are laid at wall floor junctions to remove any water entering the structure.

These channels are designed with predetermined water entry points into the rear of the channel.

They either come with a flange upstand system or flangeless, depending on the type of foundation that you will be working with.

Channels come with various accessories to aid the system, some of which are covered in the next two pages.

Sika® CD Anti-Lime Coating

Before a Sika® Cavity Drain membrane is laid or fitted on to floors or walls constructed of new concrete, the concrete surface should be treated with Sika® Cavity Drain Anti-Lime Coating to reduce the risk of leaching of free lime or mineral salts to avoid the obstruction of the drainage system.

Sika® Cavity Drainage System Wall Channel

Sika® Cavity Drainage System Wall Channel is a PVC drainage conduit for the control of water ingress in below ground waterproofing situations. It has a flange upstand and is fitted around the perimeter of the floor at the vulnerable wall to floor junctions, directing any ingress of water towards a sump chamber or drain.

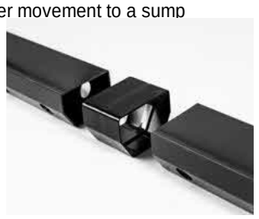
Sika® Jetting Eye

The jetting eye has been designed to allow cleaning of the channel system and also as an inspection port.

The unique flexible upstand jetting point can be easily bent to allow the channel to be used in a wall port system. It and also has the benefit of allowing slabs to be laid whilst still being easily accessible afterwards.

Sika® Cavity Drainage System Cross Channel

Sika® Cavity Drainage System Cross Channel is a flangeless channel similar to Sika® Cavity Drainage System Wall Channel, for controlling water movement to a sump chamber or drain. It has the benefits of no upstand which is ideal where stepped foundation footings would cause a problem. The channel can also be used to drain across a floor centrally.



The Sika® Cavity Drainage System Channel T Piece

The Sika® Cavity Drainage System Channel T Piece is installed at the junction between wall and cross channel drainage system to allow continuity of the drainage system.

Sika® CD Channel Outlet 50mm

The drainage outlet can be used to get water from the channels to the sump chamber or existing drain. The angle bend on the underside of the channel takes water through a 50mm connection.

The Sika® Cavity Drainage System Corner Piece

The Sika® Cavity Drainage System Corner Piece is installed at the corners of a perimeter drainage channel system to allow continuity of the drainage system.

Sika® Cavity Drainage System Channel Connector

Sika® Cavity Drainage System Channel Connector is an alternative way of connecting two sections of Wall Channel or Cross Channel instead of using Sika tape.

Pumped Drainage Systems for Cavity Drainage Systems

Our range of pumping systems are specifically designed for the removal of groundwater from cavity drainage systems.

There are a variety of different models to suit most installations including twin and *battery backup options along with a range of alarm options. The systems are very versatile, enabling the installer to locate inlets to their specifications.

* Battery backup systems available from Edincare

Sika® Pump Pro Plus

The Sika® Pump Pro Plus is specially designed for the removal of groundwater from basement cavity drainage membrane systems. The system comprises of a polyethylene tank, locking access cover (pedestrian duty, not suitable for roadways), AquaSafe™Alarm Panel and two powerful submersible pumps. The system is very versatile, enabling the installer to locate inlets to their specifications.

The system comes complete with a High Level Alarm (9V), which acts as a warning system to alert the end user if the water rises above the normal operating level within the tank. The alarm is designed to activate via a separate float switch.

Twin discharge AS STANDARD

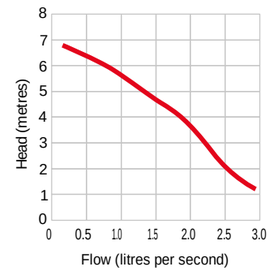
TECHNICAL DATA

Power Supply	230V AC
Rated Current	1.9A
Motor Rating	180W
Frequency	50Hz
Revs Per Minute	2800rpm
Max. Vert. Output	6.8m
Max. Flow Rate	174l/m
Max. Liquid Temp.	<40˚C
Discharge Size	32mm
Cable Length	5m
Weight	5.2kg

DIMENSIONS

Height / Diameter (mm)	600 x 600
Clear opening (mm)	350 x 350

PUMP CURVE



KEY FEATURES

- Easy to install
- Odour tight locking access cover
- Variable inlet positions
- Integral non-return valve preventing back flow
- Durable polyethylene tank
- Pre-moulded flotation points preventing movement below ground
- Integral step for dual pump setup
- Powerful submersible pumps

ACCESSORY

Battery back-up

Sika® Pump Pro Battery Back Up

The Sika® Pump Pro Battery Back Up is specially designed for the removal of groundwater from basement cavity drainage membrane systems. The system comprises of a polyethylene tank, locking access cover (pedestrian duty, not suitable for roadways), powerful submersible pump and 24V backup pump. The system is very versatile, enabling the installer to locate inlets to their specifications.

The system comes complete with a battery back-up pump system, which is designed especially for where the possibility of primary pump failure through either a pump fault or loss of mains power would be catastrophic. The system acts as a back-up that will alert the end user if the water rises above the normal operating level within the tank and will activate a 24V back-up pump.

Twin discharge
AS STANDARD

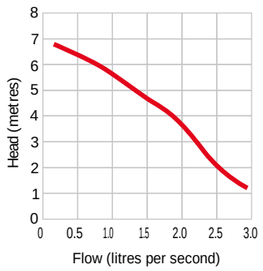
TECHNICAL DATA

Power Supply	230V AC
Rated Current	1.9A
Motor Rating	180W
Frequency	50Hz
Revs Per Minute	2800rpm
Max. Vert.Output	6.8m
Max. Flow Rate	174l/m²
Max. Liquid Temp.	<40˚C
Discharge Size	32mm
Cable Length	5m
Weight	5.2kg

DIMENSIONS

Height / Diameter (mm)	600 x 600
Clear opening (mm)	350 x 350

PUMP CURVE



KEY FEATURES

- Easy to install
- Odour tight locking access cover
- Variable inlet positions
- Integral non-return valve preventing back flow
- Durable polyethylene tank
- Pre-moulded flotation points preventing movement below ground
- Integral step for dual pump setup

Sika® Pump Pro XL

Sika® Pump Pro XL is specially designed for the removal of groundwater from basement cavity drainage membrane systems. The system comprises of a (large capacity) 200 litre polyethylene tank, locking access cover (pedestrian duty, not suitable for roadways), AquaSafe™Alarm Panel and two powerful submersible pumps. The system is a very versatile, enabling the installer to locate inlets to their specifications and has higher capacity pumps for pumping over greater heads.

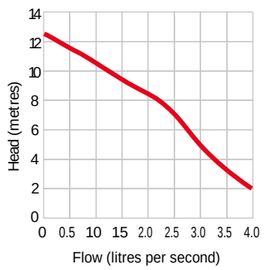
TECHNICAL DATA

Power Supply	230V AC
Rated Current	4.9A
Motor Rating	500W
Frequency	50Hz
Revolutions Per Min.	2800rpm
Max Vert. Output	12.5m
Max Flow Rate	234l/m
Max Liquid Temp.	<40˚C
Discharge Size	32mm
Cable Length	5m
Weight	6.9kg

DIMENSIONS

Height / Diameter (mm)	1000 x 750
Clear opening (mm)	450 x 450

PUMP CURVE



KEY FEATURES

- Easy to install
- Odour tight locking access cover
- Variable inlet positions
- Increased storage capacity
- Integral non-return valve preventing back flow
- Durable polyethylene tank
- Pre-moulded flotation points preventing movement below ground
- Integral step for dual pump setup
- Powerful submersible pumps

ACCESSORY

Battery back-up

Battery Back-up Systems

The Battery Back-up Systems provide peace of mind by monitoring the pump system and activating the battery operated pump/s in the event of mains power loss, protecting your property from flooding.

UPS 750 230v (Battery Back-up Pump System)

PP Battery Back-up is an on-line double conversion Uninterruptible Power Supply (UPS) offering the highest levels of resilience and protection. This provides power to one submersible pump in case of a loss of mains power allowing for continued pump operation.

The system can last continuously for 45mins (301 pump), based on a 3.5m head.

Battery Back-up Systems are not sold by Sika. Please contact Edincare for availability.

KEY FEATURES

- Alerts the end user if there is a mains power failure
- Keeps the pump system powered in the event of mains power failure
- Can be added to new or retrofitted to existing installations

UPS 3000 230v (Battery Back-up Pump System)

The PXL Battery Back-up offers the highest levels of resilience and protection as a battery back-up to your pump system.

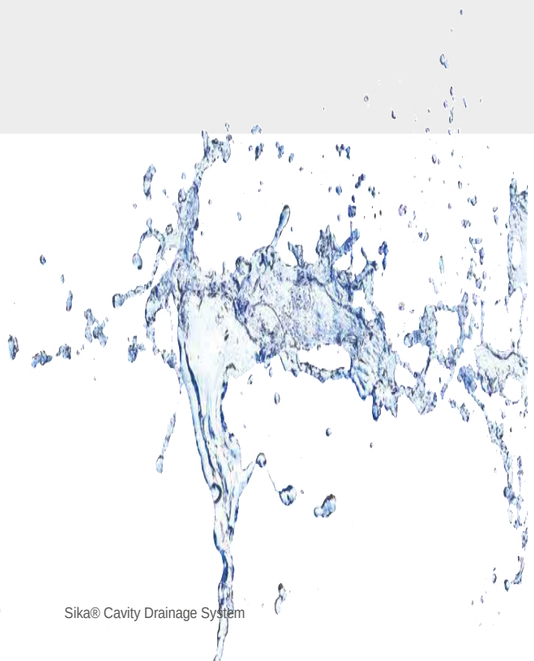
The unit will provide power to one submersible pump in case of a loss of mains power. This allows for continued pump operation.

The battery backup is simple to use and is simply wired into the mains pump from the server unit.

Battery Back-up Systems are not sold by Sika. Please contact Edincare for availability.

KEY FEATURES

- Alerts the end user if there is a mains power failure.
- Keeps the pump system powered in the event of mains power failure.
- Can be added to new or retrofitted to existing installations.



A Cavity Drainage System that is fail safe...

Discover more at: sikawaterproofing.co.uk/cavitydrain and start putting water in its place.

Aftersales

Planned Servicing

BENEFITS:

- Increases the life expectancy of your equipment
- Reduces running costs including energy and maintenance
- Reduces the risk of breakdowns with their resultant problems this causes

Planned servicing is available for all our customers' pumps and Pump Packages.

OFFER:

- Service your equipment on a regular basis
- Provide full reporting on the works carried out, the condition of the equipment
- Make recommendations to replace spares or parts that may be required
- Arrange service visits to suit you
- Reduce our hourly charges for unscheduled callouts
- Use fully trained service engineers
- Provide high-priority scheduling for emergency call outs

EMERGENCY CALL-OUTS

In the event of a system failure there is a need for urgency. All emergency call-outs are treated as a priority with the aim of providing a rapid response. With nationwide coverage and service vehicles located throughout the United Kingdom, site attendance is should be within 24 hours from initial receipt of your call.

Service coordinators will identify, where possible, your specific equipment and engineers will aim to attend site with any spare parts that may be required. In the unlikely event that the repairs cannot be made on the initial visit, temporary replacements can be provided while the relevant parts are ordered or repaired from the service centre. Should more complex repairs be required these are undertaken at the service centre by fully trained service engineers using only genuine manufacturer's parts.

Throughout all repairs a service coordinator will keep you informed of the ongoing progress with regular updates.

Com m issioning

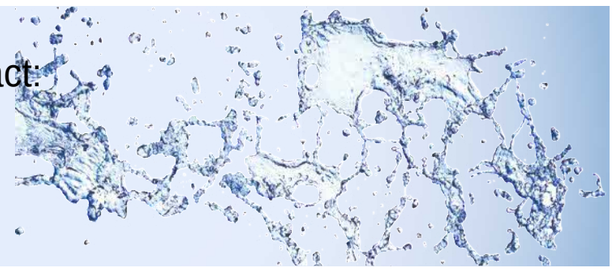
Once the civil works have been completed a commissioning service can be arranged which comprises of an engineer attending site and installing the pumps with all associated equipment.

The engineer will ensure that the system is operating in accordance with our installation & operating guidelines and you will be provided with a signed commissioning certificate along with the O&M manual upon completion.

The commissioning service provides you with peace of mind knowing that the system is installed correctly in turn ensuring that you comply with our warranty conditions.

All aftersales services are provided by Edincare Pumps.

For servicing please contact:
Edincare Pumps
T: 01442 211554
info@edincare.com



SIKA FULL RANGE SOLUTIONS FOR CONSTRUCTION:

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SINGLE PLY ROOFING

BITUMINOUS ROOFING

CONCRETE

CONCRETE REPAIR

STRUCTURAL STRENGTHENING

BUILDING FINISHING

WATERPROOFING

JOINT SEALING

FAÇADES

FLOORING

INDUSTRY

DISTRIBUTION

BUILDING TRUST

FOR MORE INFORMATION:

Visit www.sikawaterproofing.co.uk

WHO WE ARE

Sika Limited and Sika Ireland Limited are part of the global Sika Group, specialising in the manufacture and supply of chemical based products. Sika has a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 100 countries around the world and manufactures in over 300 factories. With more than 25,000 employees Sika generates annual sales of CHF 7.9 billion (£6.14 bn). We are also committed to providing quality, service, safety and environmental care.

In the UK and Ireland, we provide market-leading solutions for concrete, waterproofing, roofing, flooring, refurbishment, sealing & bonding, and industry, and have manufacturing sites in Welwyn Garden City, Preston, Leeds, Wishaw and Dublin with more than 920 employees and a turnover of more than £290 million.

The information, and, in particular, the recommendations relating to the application and end use of Sika® products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. Please refer to our homepage www.sika.co.uk for our current standard terms & conditions applicable to all orders. Users should always refer to the most recent issue of the Product Data Sheet for the product concerned, copies of which will be supplied on request.

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@SikaIreland

BUILDING TRUST

CONCRETE & WATERPROOFING/ SIKA CAVITY DRAINAGE BROCHURE 2021 SEPTEMBER 2021

Appendix D: SuDS Maintenance Report

JOMAS ENGINEERING ENVIRONMENTAL

WE LISTEN, WE PLAN, WE DELIVER

Geotechnical Engineering and Environmental Services across the UK.

DRAINAGE MAINTENANCE PLAN

13 Wycombe Gardens, London

JOMAS ASSOCIATES LTD

Unit 24 Sarum Complex, Salisbury Road, Uxbridge, UB8 2RZ

www.jomasassociates.com info@jomasassociates.com

Report Title: DRAINAGE AND SUDS MAINTENANCE PLAN

Report Status: Final v1.0

Job No: P4714J2661

Date: 20 September 2022

Control: Previous Release

Version	Date	Issued By
V1.0	20.09.22	A Wallace

Prepared by: JOMAS ASSOCIATES LTD

Should you have any queries relating to this report, please contact

JOMAS ASSOCIATES LTD

www.jomasassociates.com

info@jomasassociates.com

1.0 GENERAL

1.1 Sustainable Drainage Systems (SuDS) are an environmentally friendly approach to managing rainfall. SuDS techniques use landscape features to deal with surface water with the aim to:

1.1.1 Control the flow, volume and frequency of water leaving a development.

1.1.2 Prevent pollution by intercepting silt and cleaning runoff from hard surfaces.

1.1.3 Provide attractive surroundings for the community.

1.2 The surface water drainage strategy for this development utilises permeable paving as the main SUDS feature. The following sections provides a brief description of these features and outlines the maintenance programme that should be adopted.

2.0 CLEANING OF THE DRAINAGE SYSTEM

2.1 Drainage systems should be inspected at regular intervals and where necessary, thoroughly cleaned out at the same time. Any defects discovered should be made good.

2.2 The following operations should be carried out during the periodic cleaning of a drainage system:-

Product Type	Period	Responsibility	Maintenance Methods
Silt Trap	As necessary and before wet season	Site Owner	• Sediment and debris that accumulated during summer needs to be removed before the wet season. • Inspect and clean out routinely prior to inlet pipework to minimise debris reaching the tank. • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed.
Standard Manholes/ Inspection Chambers	As necessary	Site Owner	• Remove and clean any soil and vegetation that covers the manhole cover to prevent blockage of the drainage system at the manhole.

Product Type	Period	Responsibility	Maintenance Methods
			• Renew/replace any damaged/missing bolts and damaged/missing manhole covers.
Drainage Pipes	Six monthly interval	Site Owner	• Inspect underground drainage pipes to ensure that the distribution pipework arrangement is operational and free from blockages. If required, take remedial action.
Permeable Paving	As required	Site Owner	• Inspect the paving after any precipitation to ensure no displacement of any organic matter onto the surface of the pavement.
	Six monthly (Ideally in spring and autumn seasons)	Site Owner	• Agitate (e.g. brush, vacuum, etc.) the block paving to ensure no vegetation of any sort is allowed to grow and develop in the joints (where may affect performance).
	Winter season	Site Owner	• De-icing may be used without causing significant detrimental effects towards the permeable pavement's performance. When used carefully, the use of these chlorides will not result in an increase in the chloride levels in the local ground.
	Annually and after large storms	Site Owner	• Inspection/check of all inlets to ensure that they are in good condition and operating as designed.
Orifice Plate	Annually and after large storms	Site Owner	• Inspection/check of all inlets to ensure that they are in good condition and operating as designed. • Clear Debris from grating in manhole

3.0 SKETCHES AND PLANS

3.1 The locations of the above features can be found by examining Drawing P4714J2661-C01

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SSIP Safety Schemes in Procurement – Acclaim Accreditation

CSCS

CEnv Chartered Environmentalist

National Quality Mark Scheme for Land Contamination Management

The Chartered Institution of Wastes Management

silc – Specialist in Land Condition

The Geological Society

IEMA – Transforming the world to sustainability

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