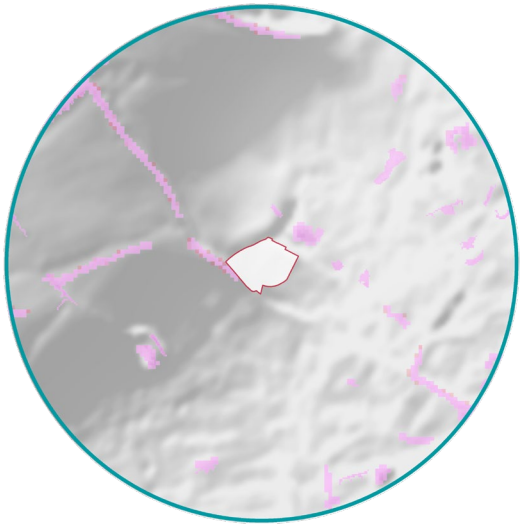
GeoSmart Information

SuDSmart Plus

Sustainable Drainage Assessment



Site Address

L'Ortolan Restaurant
Church Lane
Shinfield
Reading
RG2 9BY

Grid Reference

472854, 168270

Report Prepared for

LE4D Limited
Attention: Zara Hussain

Date

2025-09-16

Report Status

FINAL

Site Area

3805 m^2

Report Reference

86724R1

Discharge to Ground

The proposed Sustainable Drainage Scheme (SuDS) strategy is comprised of rainwater harvesting and two soakaways to attenuate surface water runoff during the 1 in 100 plus 40% climate change event.

Surface water will be discharged to ground, with site-specific infiltration testing identifying an infiltration rate of 3.13 x 10^{-5} m/s, which is sufficient to accept infiltration SuDS.

Report Author

Jessica Bryan
Consultant

Report Checker

Annabel Elleray
Senior Project Consultant

Report Reviewer

Bob Sargent
Associate

GeoSmart Information Ltd
Suite 9-11, 1st Floor, Old Bank Buildings,
Bellstone, Shrewsbury, SY1 1HU
+44(0)1743 298 100
info@geosmartinfo.co.uk
www.geosmartinfo.co.uk

1 Executive summary

This report assesses the feasibility of a range of Sustainable Drainage Scheme (SuDS) options in support of the Site development process. A SuDS strategy is proposed to ensure surface water runoff can be managed effectively over the lifetime of the development.

SuDS suitability

Risk	Issue	Result*
Discharge Location	What is the infiltration potential at the Site?	High
	What is the potential to discharge to surface water features?	Low
	What is the potential to discharge to sewers?	Low
	What is the potential to discharge to highway drains?	Medium
Flooding	What is the river (fluvial) flood risk at the Site?	Very Low
	What is the surface water (pluvial) flood risk at the Site?	Very Low to Low
	What is the groundwater flood risk at the Site?	Negligible
Pollution	Is the groundwater a protected resource?	No
	Is the surface water feature a protected resource?	N/A

*** Infiltration testing conducted in accordance with BRE 365 guidelines at the Site by RJS Contractors Ltd on 27th August 2025 has confirmed a minimum infiltration rate of 0.1125 m/hr. Therefore, the infiltration potential at the Site has been increased from Low – High to High.**

Summary of existing and proposed development

The Site is currently used within a commercial capacity. At present there are four buildings occupying the Site, including a main restaurant building and three outbuildings for use as offices amongst other things, with car parking and landscaped areas. Development proposals comprise the change of use of the restaurant building to residential. As part of this, proposals include the construction of a single-storey rear extension following the demolition of the existing single storey extension, modification of the main roof to facilitate reinstatement of second floor accommodation, a two-storey side extension, construction of two new outbuildings and demolition of the two existing outbuildings, as well as alterations to the internal layout.

Summary of discharge routes

GeoSmart's SuDS Infiltration Potential (SD50) map indicates the Site has a Low to High potential for infiltration, primarily due to the variable permeability of the underlying geology. However, infiltration testing conducted at the Site confirmed there is an infiltration rate of 0.1125 m/hr (3 x 10^{-5} m/s), and infiltration to ground is therefore feasible.

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. According to the asset location plan undertaken at the Site (Appendix C), there are no public surface water sewer or combined sewers located within the vicinity of the Site. Therefore, discharging surface water runoff to the sewer is not feasible.

According to Google Streetview, highway gullies are located within Church Lane, indicating the presence of the highway drainage network.

Runoff rate and attenuation requirements

Discharging via infiltration requires 23.45 m^3 of attenuation to be provided to ensure there is no flooding as a result of the development in all storm events up to and including the 1 in 100 year including a 40% allowance for climate change. This volume is based on an infiltration rate of 0.1125 m/hr, as confirmed via infiltration testing at the Site (RJS Contractors, 2025), and would ensure runoff is not increased above the greenfield scenario.

Proposed SuDS strategy

SuDS features comprised of permeable paving and two soakaways are proposed to attenuate a minimum of 24.23 m^3 of surface water runoff. The SuDS features would provide some water quality benefits (interception and filtration) prior to infiltrating to ground. Focused infiltration features should be sited at least 5m from building foundations and 2-3m from adjacent highways.

The proposed SuDS strategy would ensure surface water runoff is stored on-Site in SuDS features for the 1 in 100 year event including a 40% allowance for climate change and will not cause flooding to the proposed development in accordance with DEFRA's national standards (2025).

SuDS & drainage network maintenance

The management and maintenance of the SuDS features, in line with the details and schedules outlined in Section 10 of this report, will be undertaken by contractors appointed by the owners and occupiers of the new residential building, where payments for the works will form part of the property deeds and / or rental agreements.

Recommendations / Next steps

The ongoing management and maintenance of existing and any proposed drainage networks, under the riparian ownership of the developer, should be undertaken in perpetuity with the development.

2 Proposed SuDS strategy

The most suitable SuDS options are outlined below and a SuDS strategy schematic is shown overleaf. Supporting information is provided in subsequent sections.

Table 1. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and infiltration SuDS.
SuDS features	Rainwater harvesting and soakaways.
Discharge location	Infiltration.
Discharge rate	3 x 10^{-5} m/s (0.1125 m/hr) (as confirmed via infiltration testing).

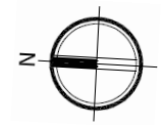
Table 2. Proposed SuDS sizing (dimensions) and attenuation volumes

Rainwater harvesting	Rainwater harvesting butts should be established for the proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Soakaway	Two soakaways are proposed at the Site, one of which will accept runoff from the buildings within the eastern portion of the Site and the other of which will drain the new areas of the main dwelling and annex. Both soakaways will be filled with geo-cellular crates with a 95% void ratio and have a depth of 1 m. The eastern proposed soakaway will have an area of c. 7.50 m^2, resulting in c. 7.13 m^3 attenuation. The westerm proposed soakaway will have an area of c. 18 m^2, resulting in c. 17.10 m^3 attenuation.
Total attenuation provided	24.23 m^3
Total attenuation required	23.45 m^3
Freeboard storage provided	0.78 m^3

Figure 1. SuDS strategy schematic

GeoSmart Information

Figure 1. Proposed SuDS scheme

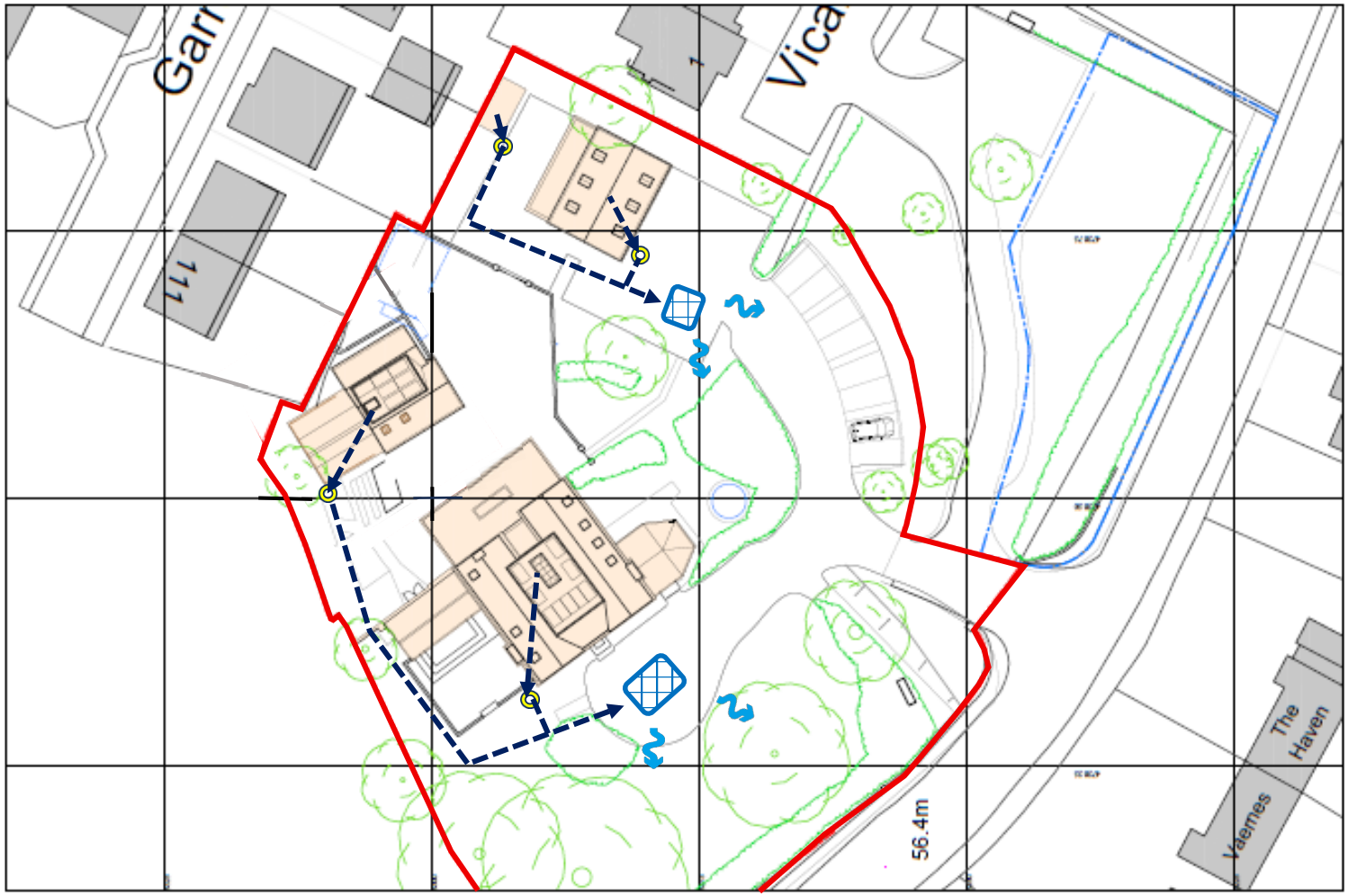


- Soakaway
- Rainwater harvesting butt
- Surface water drainage network
- Exceedance flow routes
- Site boundary

Schematic is not to scale

Surface water from the proposed dwelling and associated buildings should be conveyed into the rainwater harvesting features and soakaways for discharge to the ground.

Exceedance flows are directed towards non-essential areas at the Site, such as car parking and landscaping..

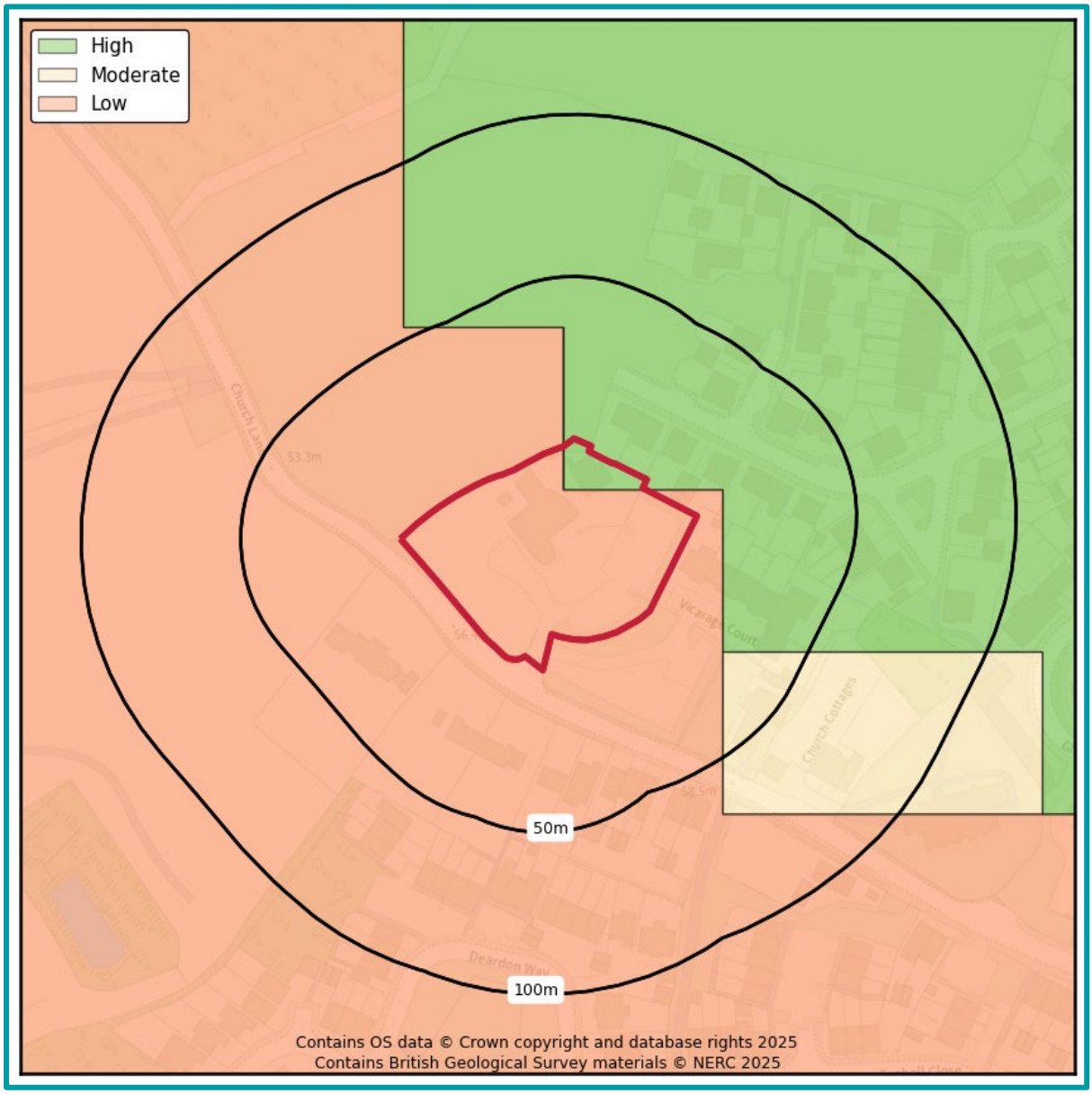


3 Site analysis

Site location

Figure 2. Aerial Imagery (Bluesky, 2025)

Figure 3. SuDS infiltration suitability (SD50) map (GeoSmart, 2025)

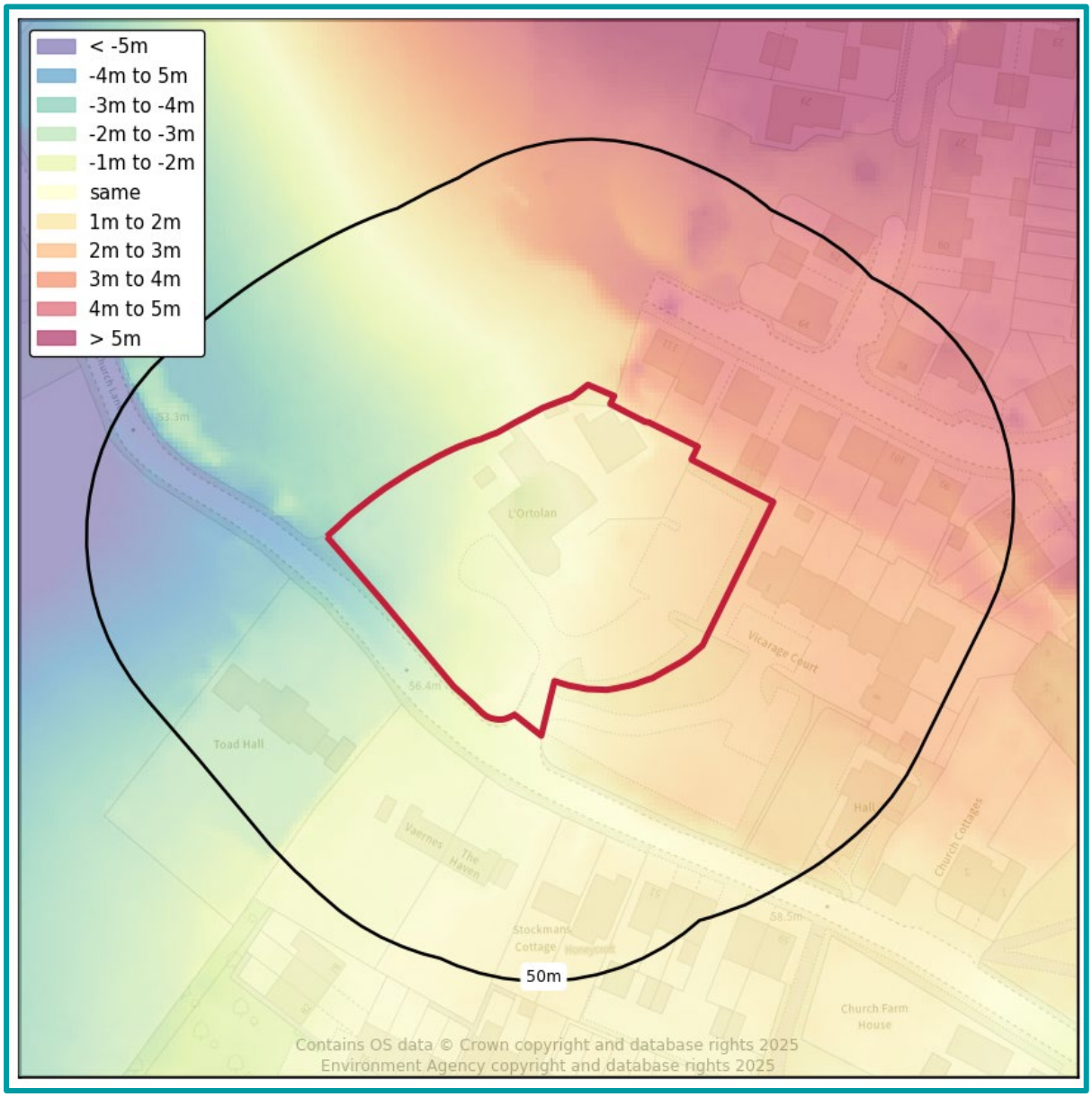


The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the potential for infiltration drainage at the Site and indicates where further assessment is recommended. The map combines information on the thickness and permeability of the underlying material and the depth to the high groundwater table. It supports conceptual Site drainage design and the planning of further Site investigation.

There is a Low to High potential for infiltration SuDS across the Site. It is likely that the majority of the underlying geology at the Site has low permeability which would limit the effectiveness of a proposed infiltration SuDS scheme.

Infiltration testing conducted in accordance with BRE 365 guidelines at the Site by RJS Contractors Ltd on 27th August 2025 has confirmed a minimum infiltration rate of 0.1125 m/hr. Therefore, the infiltration potential at the Site has been increased to High.

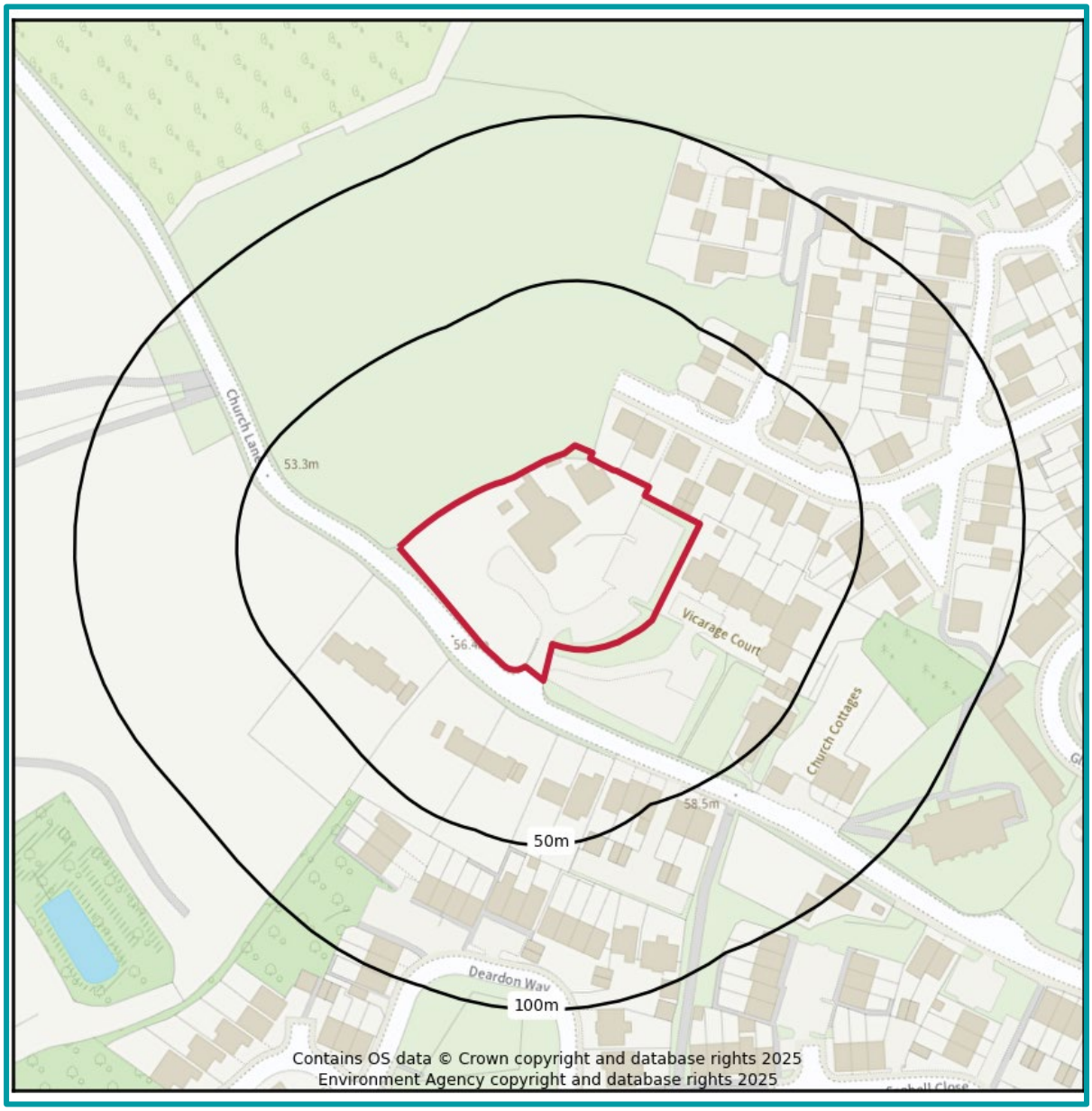
Figure 4. Site topography (GeoSmart, 2025)



An assessment of the topography at the Site has been undertaken using LiDAR DTM5 elevation data to identify the general slope and any localised depressions. The mapping shows a comparison between average ground levels on the Site with ground levels in the surrounding area. The mapping confirms the overall Site is generally on a gradual slope rising in an easterly direction.

Further analysis of the topography has been undertaken via a topographic survey conducted by REED Geomatics Topographical Ltd in 2025.

Figure 5. Source protection zone map (EA, 2025)

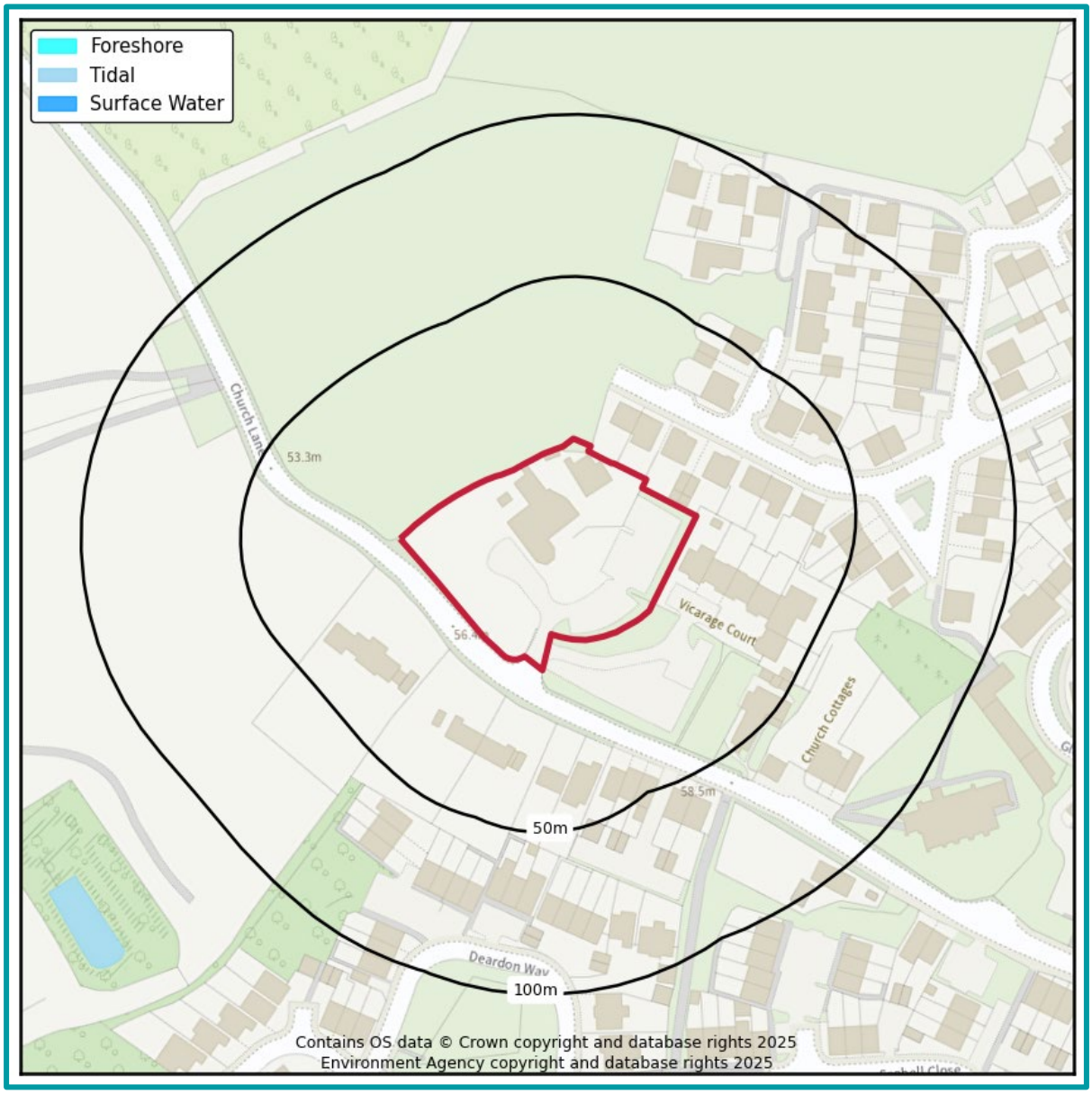


An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken within the vicinity of the Site and confirms the Site is not located within an SPZ.

Infiltration, if possible, is likely to be acceptable providing risk screening identifies suitable mitigation measures, if required, to prevent an impact on water quality from the proposed or historical land use and contaminated land.

If further analysis is required, this would involve a review of Site specific contaminated land data. If hazards are identified, it is recommended that the Local Authority and the Environment Agency are contacted to confirm the susceptibility of any SPZs within the wider area.

Figure 6. Surface water features map (EA, 2025)



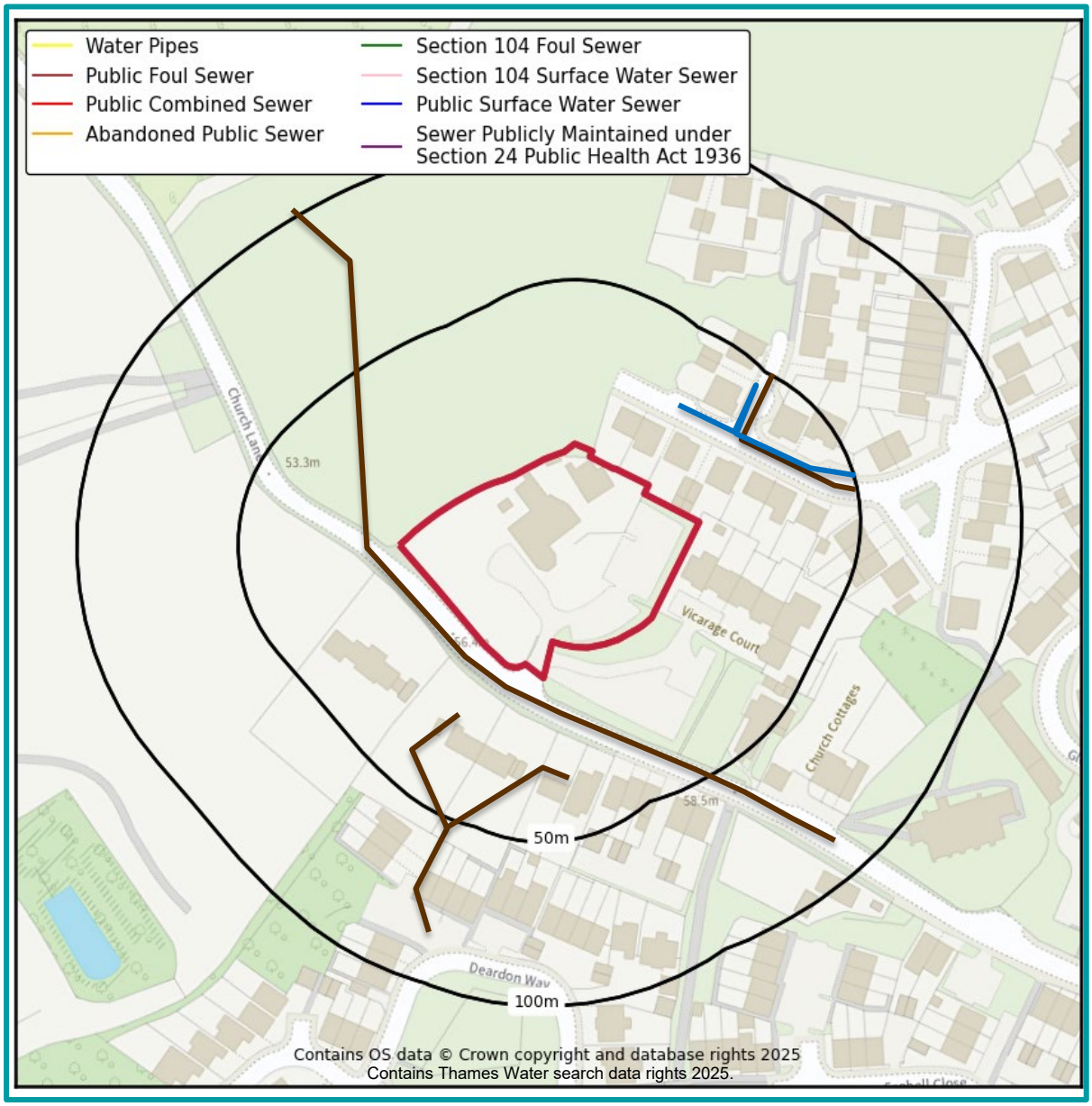
OS mapping indicates a surface water feature (a pond) is located c. 150 m south west of the Site.

Discharging surface water runoff to the pond would require drainage pipework to cross a significant distance across third-party, urbanised land; therefore, discharge into this feature should not be considered.

According to DEFRA's Magic Map, the Site is not within 250m of a SSSI or SPA.

Further analysis could be undertaken by visiting the Site or by contacting the Local Council and the Environment Agency (EA) to confirm the presence, location and condition of any mapped or additional unmapped surface water features.

Figure 7. Sewer features map (OS & Thames Water, 2025)



GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. There is a public surface water sewer, located c. 30m north east of the Site. However, this would require pipework to cross third-party urbanised land. Therefore discharge to this sewer is unlikely to be feasible. Whilst a public foul sewer runs adjacent to the southern Site boundary, this would not be an acceptable discharge location for surface water runoff.

Further analysis of the connections and condition of the public surface water drainage system should be undertaken by carrying out a CCTV survey or by contacting the drainage provider or the Local Council to confirm the presence, location and condition of the sewer. Consultation with the drainage provider would also be required to determine that sufficient

capacity is available to accept the proposed discharge, and to gain permission to connect if required.

Figure 8. Risk of flooding from rivers & sea map (EA, 2025)

According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) map, the Site has a Very Low risk of flooding from fluvial or coastal flooding in the present day and climate change scenarios, with less than 0.1% annual probability of flooding; therefore, the SuDS design is unlikely to be affected.

Figure 9. Risk of surface water flooding map (EA,2025)

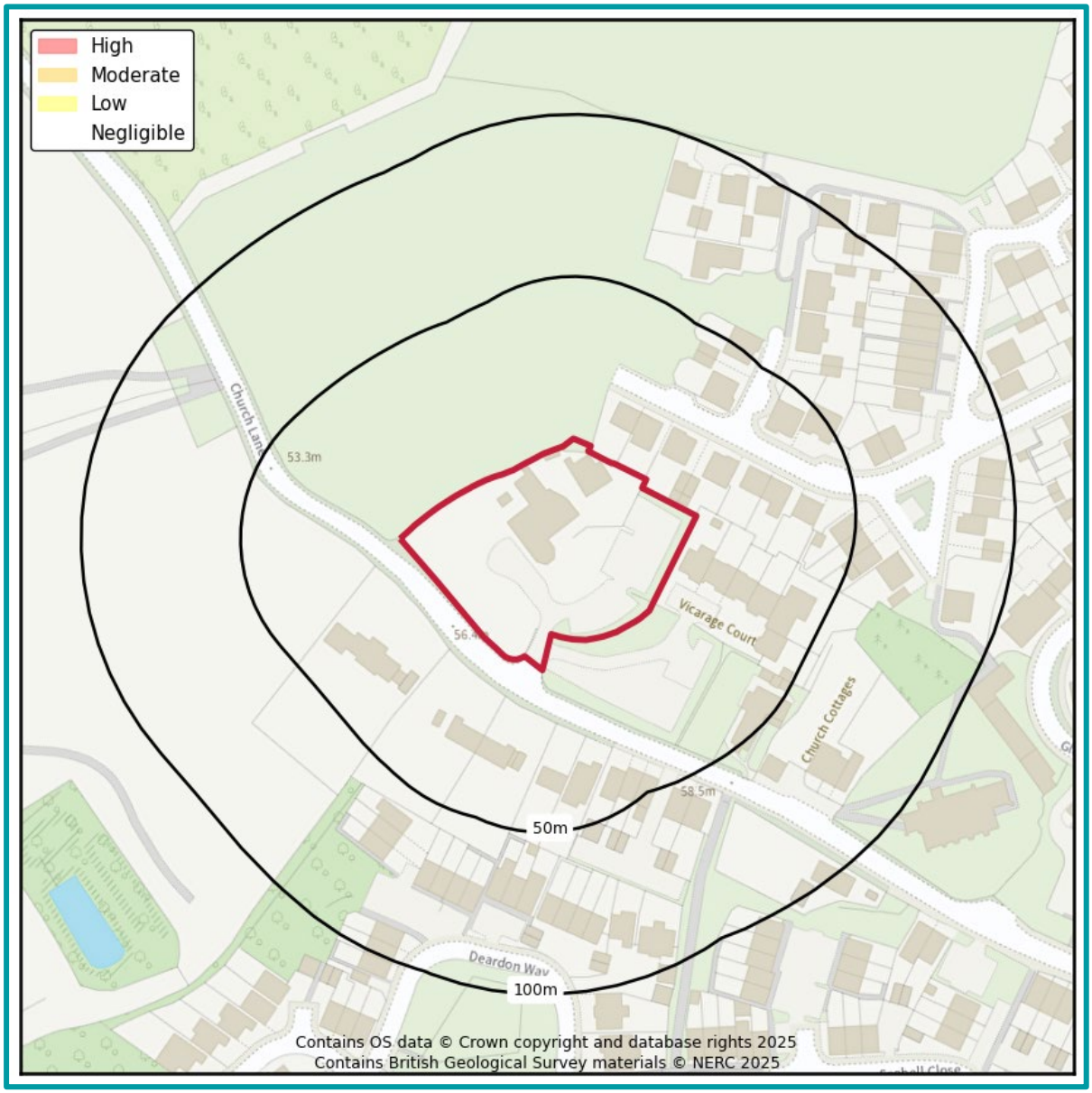
GeoSmart have undertaken an assessment of the risk of flooding from surface water (pluvial) sources within the vicinity of the Site using the EA's Risk of Flooding from Surface Water (RoFSW) mapping. The EA's mapping confirms the Site is considered to be at Very Low to Low risk of surface water flooding in the present day and climate change scenarios.

The above map shows the extent of flooding during the >3.3% annual probability (AEP) (1 in 30 year – High risk), 3.3 – 1% AEP (1 in 100 year – Medium risk) and 1 – 0.1% AEP (1 in 1000 year – Low risk) events. This confirms there are several modest areas where flooding could

occur in a 1 in 1000 year event in the present day and under climate change scenarios. Flooding in these areas may constrain certain types of SuDS features being used.

Further analysis could be undertaken by visiting the Site or by contacting the Local Council and the Environment Agency to confirm the pluvial flood risk, flood depths and velocities where applicable.

Figure 10. Groundwater flood risk (GW5) map (GeoSmart, 2025)



GeoSmart have undertaken an assessment of the risk of flooding from groundwater within the vicinity of the Site. GeoSmart's Groundwater Flood Risk Screening (GW5) map confirms the Site has a Negligible risk of groundwater flooding during a 1% annual probability (1 in 100 year) event.

4 Site context

Site information

The purpose of this report is to assess the potential for disposing of surface water through a Sustainable Drainage System (SuDS) for the site of L'Ortolan Restaurant, Church Lane, Shinfield, Reading, RG2 9BY (the Site). The Site is located at the west of Shinfield in a setting of commercial, agricultural and residential land use. The land falls in a westerly direction from 60.11 mAOD to 55.56 mAOD. This is based upon a Site specific topographic survey undertaken by REED Geomatics Topographical Ltd in 2025. Site plans, topographical surveys and drawings are provided in Appendix A.

Development

The Site is currently used within a commercial capacity. At present there are four buildings occupying the Site, including a main restaurant building and three outbuildings for use as offices amongst other things, with car parking and landscaped areas. Development proposals comprise the change of use of the restaurant building to residential. As part of this, proposals include the construction of a single-storey rear extension following the demolition of the existing single storey extension, modification of the main roof to facilitate reinstatement of second floor accommodation, a two-storey side extension, construction of two new outbuildings and demolition of the two existing outbuildings, as well as alterations to the internal layout.

Geology, permeability and thickness

British Geological Survey (BGS) national superficial and bedrock geology mapping confirms the geological formations underlying the Site and each formation may have a range of permeability.

Table 3. Site Geology

Geology present on-Site		Potentially permeable?
Superficial geology (Figure 11)	River Terrace Deposits (RTD4) – sand and gravel (eastern c. 10% of the Site)	✓
	No underlying superficial geology (remaining c. 90% of the Site)	N/A
Bedrock geology (Figure 12)	London Clay Formation (LC) – clay, silt and sand	X

The permeability of the underlying material at the Site shown within the BGS mapping is variable ranging from low to high.

Infiltration testing was conducted at the Site in accordance with BRE 365 guidelines by RJS Contractors Ltd on 27th August 2025, which confirmed a minimum infiltration rate of 0.1125 m/hr. Therefore the infiltration potential at the Site has been increased to High and infiltration is feasible at the Site.

The trial pit was dug in the north of the Site in an area underlain by London Clay Formation and no superficial geology.

A review of the BGS borehole database (BGS, 2025) indicates there are no relevant boreholes within the vicinity of the Site from which the mapped geology can be confirmed. The composition of the trial pit was documented as soil with some stones to a depth of 0.5m below ground level (bgl) overlying stoney clay to a depth of 1m bgl, where the borehole was terminated.

Depth to groundwater

The SuDS system should be designed to operate in periods of extreme groundwater levels.

Relevant borehole/trial pit records were not available within the vicinity of the Site.

According to GeoSmart's Groundwater Flood Risk (GW5) map, shallow groundwater is unlikely to be an issue at the Site.

Figure 11. Superficial Geology (BGS, 2025)

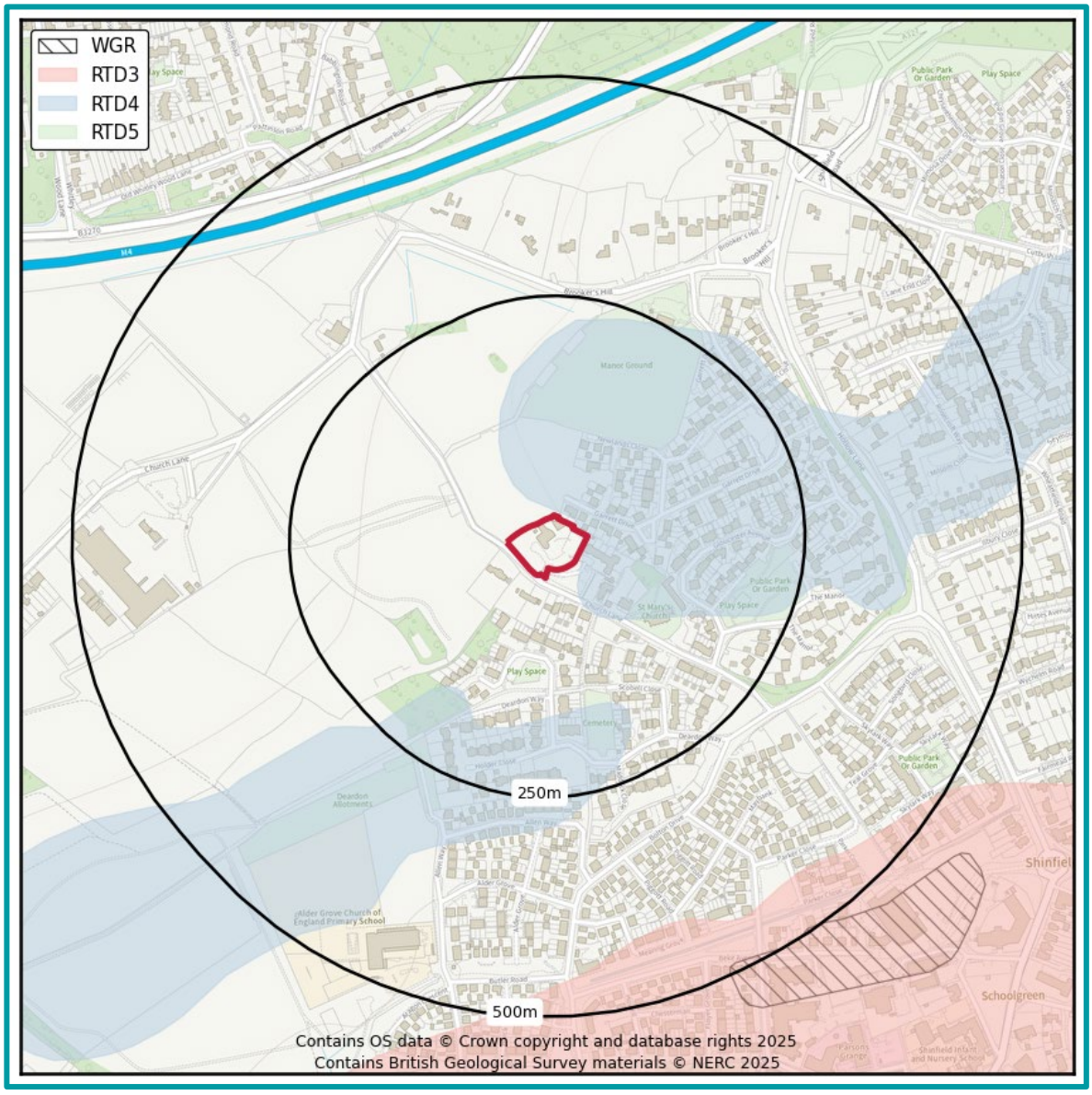
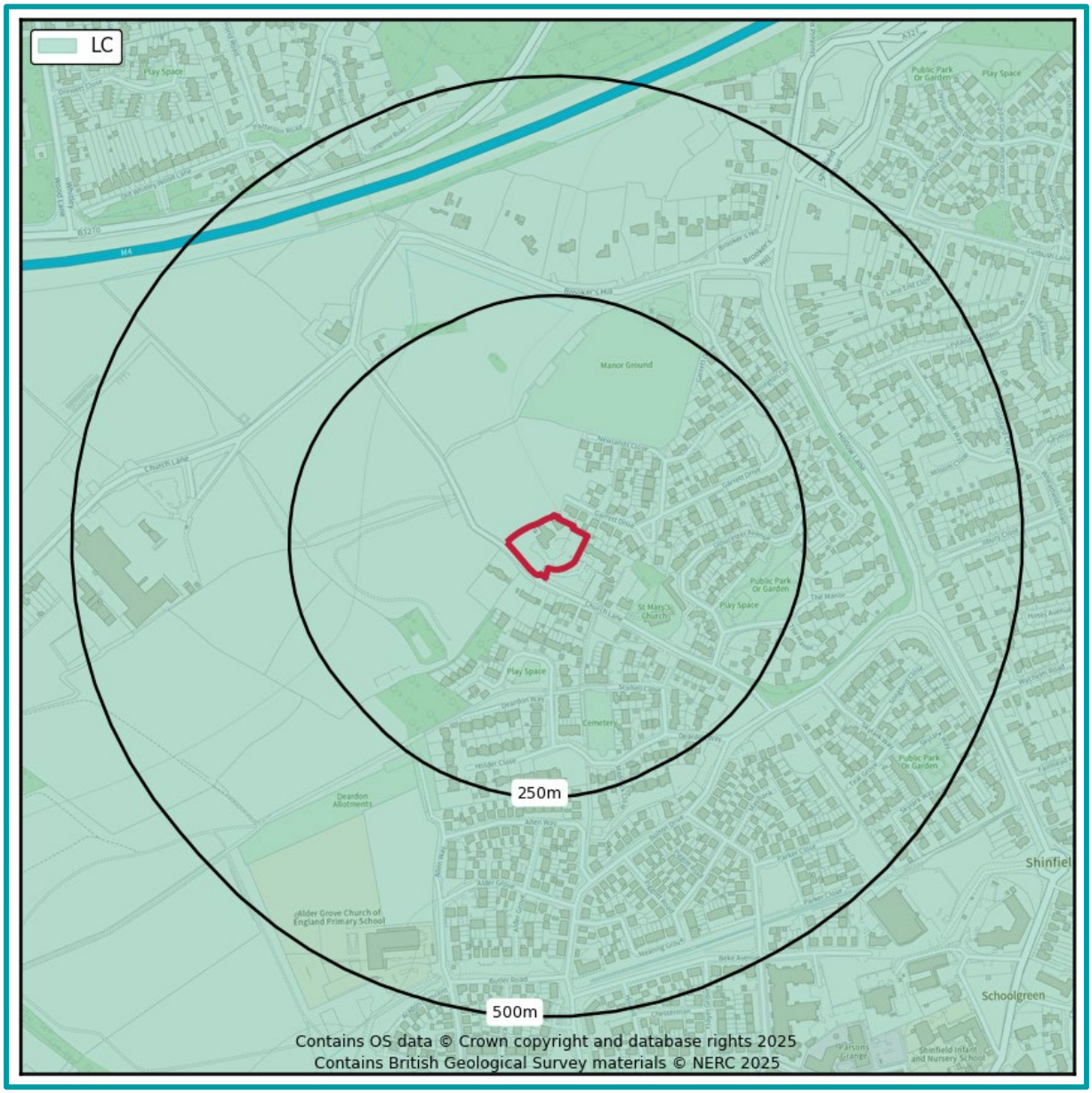


Figure 12. Bedrock Geology (BGS, 2025)



Ground conditions

A Site specific review of underlying ground conditions is recommended to ensure focused infiltration does not cause ground instability as a result of landslide or collapse associated with dissolution or shallow mining. Hazards that should be considered include soluble rocks, landslides, compressible ground, collapsible ground, shrink-swell clays, running sand and shallow mining.

Soakaways should be a minimum of 5m away from the foundations of a building and local guidance may recommend a greater distance, such as 10m on some areas of the Chalk. A detailed ground assessment is recommended: on steep slopes where infiltrating water would

produce saturation and instability downslope; or within layered geology, where infiltrating water would produce springs down gradient.

Water quality

The Site does not lie within an SPZ. The infiltrated water quality should be of sufficient quality that it does not give rise to pollution of the underlying groundwater. Further consultation with the water company is unlikely to be required.

Infiltration systems should not be used where there is a risk of contaminating groundwater by infiltrating polluted runoff or where receiving groundwater is particularly sensitive.

The influence of surface runoff on water quality will depend on whether there is a source of contamination on-Site and the sensitivity of the receiving environment, either groundwater or surface water. The intervening pathway from source to receptor including mitigation and natural attenuation will determine the final impact.

The impact of contaminants on the groundwater will be reduced by travel and natural attenuation through the unsaturated soil zone. A greater depth of unsaturated zone and the presence of significant clay and organic material will provide greater protection for the underlying groundwater. Rapid flow through fractures will provide less protection than intergranular flow around soil and rock particles.

5 National & local policy context

National Guidance

DEFRA - National standards for sustainable drainage systems (SuDS) (2025)

Standard 1: runoff destinations

A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- priority 1: collected for non-potable use
- priority 2: infiltrated to ground
- priority 3: discharged to an above ground surface water body
- priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- priority 5: discharged to a combined sewer

Note 1: priority 1 is the highest priority and priority 5 is the lowest.

Note 2: for the purposes of this standard, a combined sewer is a sewer intended to receive both foul sewage and surface runoff and does not include a sewer intended to receive only foul sewage, even if it has the capacity to accommodate additional flows or has an element of surface water in it already.

To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

Where more than one final destination is utilised, each final destination's ability to accept runoff shall be maximised in order of priority.

Standard 2: management of everyday rainfall (interception)

Apply a 'SuDS approach' so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

Evidence shall be provided that the approach to managing runoff from 'everyday' rainfall has been developed alongside and in support of the management of runoff quality (standard 4) and the delivery of amenity and biodiversity benefits (standards 5 and 6).

Standard 3: management of extreme rainfall and flooding

A 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep to:

- protect people and property on the development from flooding of the surface water drainage system
- mitigate any increased flood risk to people and property adjacent to or downstream of the development
- protect the receiving water body from morphological damage or minimise the impact on sewer capacity

When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the runoff from the development does not increase flood risk elsewhere.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff rate for the 50% AEP event shall be controlled to ensure development runoff from an event of this magnitude has no negative impact.

Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

Standard 4: water quality

Apply a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

The proposed SuDS management train(s) shall be based on a robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

Standard 5: amenity

A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

Standard 6: biodiversity

A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.

The surface water drainage system shall add biodiversity value by:

- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
- supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS)
- contributing to the delivery of local biodiversity strategies
- contributing to habitat connectivity

Standard 7: design of drainage for construction, operation, maintenance, decommissioning and structural integrity

A 'SuDS approach' shall be adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

The designer shall provide a management and maintenance plan that supports the design objectives detailed in standards 1 to 6 and ensures the performance of the surface water drainage system with regards to runoff destinations, everyday and extreme rainfall, water quality, amenity and biodiversity is maintained throughout the lifetime of the development.

Surface water drainage design shall examine for the likelihood and consequences of potential failure scenarios that may occur during the operation phase and safely manage the associated risks.

The surface water drainage system shall be designed to ensure structural integrity of all components under anticipated loading conditions for the design life of the development so that it does not affect the structural integrity of any existing or proposed components within, or adjacent to, the development.

Urban Creep

Within developments an urban creep uplift factor shall be applied by adding a percentage increase to the calculated area of the impermeable area within the property curtilages. This shall be 10% for all developments unless there are no external private permeable spaces, for example, flats and apartments, when it shall be 0%.

Ministry of Housing, Communities & Local Government – National Planning Practice Guidance: Flood risk assessments: climate change allowances (2022)

The Peak rainfall intensity allowances section provides advice on the increased rainfall effects on river levels and land and urban drainage systems. As of May 2022, the applicable climate change allowance is defined by specific Management Catchment for the 1 in 30 (≥ 3.3% AEP) and 1 in 100 (< 3.3 to 1% AEP) year event.

As the Site is located within the Kennet and tributaries Management Catchment the following climate change allowances are applicable.

Table 4. Kennet and tributaries Management Catchment peak rainfall allowances

Kennet and tributaries Management Catchment	3.3% Annual exceedance rainfall event		1% Annual exceedance rainfall event	
	2050s	2070s	2050s	2070s
Central	20%	25%	20%	25%
Upper end	35%	35%	40%	40%

The drainage system should be designed to make sure there is no increase in the rate of runoff discharged from the Site for the upper end allowance.

Where on-Site flooding for the upper end allowance presents a significant flood hazard (for example, depths and velocities of surface water runoff cause a significant danger to people), you will need to take further mitigation measures to protect people and property (for example, raising finished floor levels). As a minimum, there should be no significant flood hazard to people from on-Site flooding for the central allowance.

Local Policy

Wokingham Borough Council – Guidance on the use of sustainable drainage systems (January, 2017):

National and Local Guidance for Sustainable Drainage

WokBC-LS1 The design of the drainage system must mitigate any potential negative impact of surface runoff from the development on the flood risk outside the development boundary.

WokBC-LS2 The application must include details of catchments and flows discharging into/across the site from all sources (fluvial, surface water and groundwater). The submitted documents (drawings and relevant calculations) shall identify sources of water entering the site predevelopment, how flows will be routed / managed through the development, where

flows exited the site predevelopment and where they leave post development, without exacerbating flood risk to neighbouring property.

WokBC-LS3 If the SuDS system discharges to a water body, it should be demonstrated that high water levels within the receiving water body for the design storm event of the discharging system would not exacerbate flood risk to neighbouring property or affect the performance of the drainage system and its ability to discharge flow from the site.

WokBC-LS4 All proposals to discharge to a water body, public or private sewer shall be accompanied with correspondence confirming acceptance of the proposal from the receiving network owner and that the receiving network has the necessary capacity to receive additional flows and/or that required reinforcement works will be provided.

Peak Flow Control:

WokBC-LS5 In addition to the requirements of S2, Wokingham requires demonstration that discharges from the proposed development for all return periods from the 1 in 1 through to the 1 in 100 year (inclusive), do not exceed their corresponding greenfield/previously developed discharge rates. Demonstration of this is required for the 1 in 1 year, 1 in 30 year, 1 in 100 year and 1 in 100 year including allowances for climate change.

WokBC-LS6 All proposed discharges of 5l/sec or below from a single structure should be reviewed in terms of maintenance and blockage potential.

WokBC-LS7 All flow control devices restricting the rate of flow must have a bypass feature to manage flows when a blockage occurs. The bypass can be an internal weir overflow within the chamber discharging to the outfall pipe or channel.

WokBC-LS8 The design of all flow control must be supported by appropriate calculations and drawings that enable the performance of the drainage system to the required standards to be confirmed.

WokBC-LS9 Attenuation and flow control should be provided for all sub-catchments present across a development site so as to maintain the local water balance / contributing areas to local water bodies. Each subcatchment must have its own drainage strategy.

WokBC-LS10 Attenuation storage must be provided to limit the rates of runoff to the required greenfield / pre development discharge rates.

Volume Control:

WokBC-LS11 Long term storage must be provided to limit the volume of runoff from the 1 in 100 year event with an allowance for 40% climate change, unless discharge rates have been restricted to QBar.

WokBC-LS12 All design of volume control must be supported by appropriate calculations and drawings that enable the performance of the drainage system to the required standards to be confirmed.

WokBC-LS13 All surface storage features (ponds, wetlands and basins) must provide a 300mm freeboard above the maximum design water level, unless otherwise agreed.

WokBC-LS14 All surface conveyance features (swales and channels) must provide a 150mm freeboard above the maximum design water level, unless otherwise agreed.

WokBC-LS15 The drainage system must be designed so that the capacity of the drainage system takes account of the likely impacts of climate change and likely changes in impermeable area26 within the development over the design life of the development. To allow for future urban expansion within the development (urban creep), an increase in paved surface area of 10% should be used, unless this would produce a percentage impermeability greater than 100%.

Flood Risk within the Development:

WokBC-LS16 As the drainage system requires appropriate space and the overland flow routes during exceedance events must be considered, it is essential that consultation with stakeholders takes place before the masterplan is fixed. 26 BS 8582:2013 Code of practice for surface water management for development sites - Section 8.3

WokBC-LS17 Overland flow/exceedance routes/storage areas should be outside private ownership areas unless otherwise avoidable.

WokBC-LS18 It should be demonstrated that any blockage within the system and extreme rainfall volumes can be accommodated through safe overflow routes. Flow across the site should be diverted away from buildings and main access-egress routes across the site.

WokBC-LS19 For major development the route and depth of overland flows must be demonstrated for the proposed final ground levels incorporating the buildings and walls. The application shall provide details of flood depths and flood water velocities (for events up to the 100 year plus allowance of the effects of climate change) in the overland flow / exceedence routes to demonstrate properties / occupants will not be placed at an unacceptable risk during overland flow / exceedence events.

WokBC-LS20 The location and form of buildings (e.g. terraces or linked detached) shall not impede overland flow routes or create ponding. The position of walls, bunds or other obstructions may direct but must not impede flow routes or create ponding.

WokBC-LS21 Small controls (orifice plates, slots etc.) shall be visible from the surface without the need for removal or covers or use of special access facilities (e.g. visible through gratings). Thus any blockage can be readily identified by walk-by inspection.

WokBC-LS22 All details of non-standard structures or chambers in excess of 1m deep or 600mm diameter, or 600mm high shall be submitted with structural design calculations relating to the ground conditions proven by site investigations.

Structural Integrity:

WokBC-LS22 All details of structures or chambers in excess of 1m deep or 600mm diameter, or 600mm high shall be submitted with structural design calculations relating to the ground conditions proven by site investigations.

WokBC-LS23 Proprietary systems are only acceptable if the designers, suppliers and installers provide a full replacement warranty for the life span of the SuDS (e.g. 'Geocellular' system, vortex separators etc.).

WokBC-LS24 All infiltration systems must be sited so that they do not compromise the structural stability of buildings or roads. They must not be situated within 5m of any building or road and if situated on chalk geology they must be sited in accordance with CIRIA C754 – Engineering in Chalk.

Designing For Maintenance Considerations:

WokBC-LS25 The drainage system must be designed to take account of the operation, maintenance and repair requirements of both surface and subsurface components, allowing for any personnel, vehicle or machinery access required to undertake this work.

WokBC-LS26 The drainage system must be designed to ensure that the maintenance and operation requirements are economically proportionate for all parties involved.

WokBC-LS27 Schedules for the recommended planned maintenance activities for each component of the drainage system shall be submitted to the Local Planning Authority for review with the planning application. The schedules shall clearly illustrate how safe access can be achieved to enable the required maintenance actives to be carried out.

WokBC-LS28 Arrangements for the maintenance of the drainage system for the entire lifetime of the development must be clearly defined and agreements demonstrated to be in place to ensure these arrangements do not lapse. Furthermore, Wokingham Borough Council will not adopt below ground storage features. Therefore, developers will be required to provide details of who will be responsible for maintaining such features.

WokBC-LS29 Maintenance records for all SuDS features including both regular activities such as vegetation control and intermittent interventions such as sediment removal, repairs/replacement works shall be maintained for the lifetime of the development. These records shall be available at the request of the Lead Local Flood Authority.

WokBC-LS30 Agreements must be in place to ensure the operation of the drainage system for the lifetime of the development. This must include arrangements for any features of the drainage system that require operation including all electrical and mechanical components. In addition arrangements must be in place to ensure any blockages are identified and removed for the lifetime of the development to ensure the performance of the drainage system is maintained.

Construction:

WokBC-LS31 The drainage system must be constructed in accordance with the approved design such that materials, including products, components, fittings or naturally occurring materials, are adequately mixed or prepared and applied, used, or fixed so as to perform adequately the functions for which they are intended and constructed in a workmanlike manner.

WokBC-LS32 Once constructed in accordance with the approved design, an approving body must presume that a drainage system is functioning in accordance with the approved design unless there is evidence to demonstrate that it is not.

WokBC-LS33 Temporary flood and pollution control measures must be used during the construction phase in order to ensure: the site and surrounding areas do not flood prior to

completion of the drainage system; successful, efficient SuDS are constructed; and downstream pollution is avoided.

WokBC-LS34 During the construction phase particular attention needs to be given to:

- site access;
- site drainage during construction;
- storage of materials; and
- protection of surfaces from erosion, sedimentation and over compaction.

WokBC-LS35 Access arrangements during construction should ensure buffer zones around drainage features are avoided and valuable vegetation is not disturbed or damaged.

WokBC-LS36 Silt-laden site runoff must not be allowed to enter SuDS drainage systems unless it has been allowed for in the design and specification.

WokBC-LS37 Sediment basins, traps and runoff control measures must be installed before any major site grading is undertaken, with additional traps and fences being installed where necessary as grading takes place.

WokBC-LS38 The final construction of SuDS (such as soiling and seeding) should not normally take place until the end of site development work, although the form of the drainage will be constructed during the earthworks phase. The SuDS may be completed at an earlier stage so long as adequate provision is made to remove any silt that is deposited during construction operations.

WokBC-LS39 Any pervious surfaces should not be constructed unless adequate protection is provided to prevent clogging or binding once it has been constructed. The function of permeable systems will be destroyed if soil or subsoil is deposited on the surface and should be avoided.

WokBC-LS40 SuDS with surface-formed features, such as filter strips and swales, must be fully stabilised by planting or temporary erosion protection before any runoff is allowed to flow on to or through them. This will prevent erosion of the sides and base of the features, and ensure clogging of other parts of the system by the silt that is entrained does not occur. Prior to undertaking construction planning the CIRIA Site handbook for the construction of SuDS (C698) should be consulted. The handbook provides further detailed information about the requirements that need to be accounted for during the construction stage.

Design:

There are no National Standards to assist in the suitable/appropriate design of SuDS. To ensure consistency in approach to the design and assessment of planning applications with drainage components Wokingham Borough Council expect the flood local standards to be applied:

WokBC-LS41 The drainage system must be designed so that surface runoff not collected for use must be discharged to one or more of the following, listed in order of priority:

- discharge into the ground (infiltration); or where not reasonably practicable,

- discharge to a surface water body; or where not reasonably practicable,
- discharge to a surface water sewer, highway drain, or another drainage system; or where not reasonably practicable,
- discharge to a combined sewer.

WokBC-LS42 Details submitted with the drainage proposals shall demonstrate why discharge to one of the above is not reasonably practical before consideration of alternative discharge routes.

WokBC-LS43 The destination of all discharges must be clearly defined and justified. This must include the location of any outfall points marked on appropriate plans.

WokBC-LS44 Applicants shall provide confirmation of agreement in principal with all relevant stakeholders for all proposed outfall points.

WokBC-LS45 Any proposed discharge to ground shall be supported by appropriate infiltration testing results in accordance with the requirements of Building Regulations Approved Document H – Part H3. Infiltration testing results must be recorded at the same position and depths proposed for infiltration devices.

WokBC-LS46 Any designs that propose deviations from standard best practice should be discussed in advance with Wokingham Borough Council. Evidence of correspondence and agreement that the proposed departure is acceptable must be provided with the planning application.

Water Quality:

There are no national standards to assist in the suitable/appropriate design of SuDS with regards to Water Quality. Wokingham Borough Council recognises the obligation it has to ensure the quality of the aquatic environment for current and future generations. With this in mind Wokingham Borough Council has the following local standards:

WokBC LS47 The drainage system must be designed and constructed so surface water discharged does not adversely impact the current water quality of receiving water bodies or its potential for improvement in water quality, both during construction and when operational.

WokBC LS48 To ensure that appropriate treatment is provided of surface water runoff to ensure adverse impacts on the water quality or receiving water bodies is minimised, appropriate treatment train components must be included in the drainage system following the guidance of the SuDS manual (Table 3.3).

WokBC LS49 At least one surface SuDS feature shall be deployed within the management train. Only if surface features are demonstrated as not viable, as a last resort an approved propriety engineered pollution control feature, such as vortex separator, serviceable/replaceable filter screens, and pollution interceptors may be used.

WokBC LS50 If the proposed development site is contaminated due to previous uses, discussions must be held with Wokingham Borough Council to establish the appropriate level of treatment required for surface water runoff before discharge from the site.

WokBC LS51 If the proposed development site has contaminated ground and the runoff is proposed to discharge to ground, appropriate measures must be taken to ensure infiltration devices do not mobilise pollutants and contaminate groundwater. Agreement to the proposed mitigation proposals shall be sought from the Environment Agency.

WokBC LS52 Prior to discharge into any inaccessible infiltration system measures must be provided to remove silt, suspended or floating matter.

WokBC LS53 All outfalls to watercourses from a proposed development should include a means to isolate the site drainage system in the event of a pollution incident on site. This may be provided by a penstock or stop logs immediately upstream of the outfall to protect the receiving watercourse.

Multi-functionality:

There are no national standards to assist in the suitable/appropriate design of SuDS with regards to their multi-functionality. Wokingham Borough Council recognises the potential for elements of drainage systems to serve multiple functions. With this in mind Wokingham Borough Council has the following local standards:

WokBC LS54 Where site constraints dictate SuDS can be designed as part of multi-functional spaces such as sports and recreational areas. The expected design frequency of inundation areas and attenuation function should be determined in order to facilitate and manage multifunction use.

WokBC LS55 Access for the mobility impaired should be provided for multi-functional areas. It is recommended that a surfaced path 3m wide with a longitudinal gradient not exceeding 1 in 20 should be included. For steeper slopes, landings shall be provided in accordance with BS 8300 Section 5. See also paragraph 5.8.2 of BS 8300, Table 1: limits for ramp gradients.

WokBC LS56 Where dry detention basins or infiltration basins are proposed, a lower area should be provided to restrict the wet areas during frequent events and thus maximise the duration and extent of areas used for recreation.

Landscape and Visual Impact:

There are no national standards to assist in the suitable/appropriate design of SuDS with regards to ecology. Wokingham Borough Council recognises the contribution well designed SuDS can have to create / enhance local habitats and increase local biodiversity. With this in mind Wokingham Borough Council has the following local standards:

WokBC LS57 Water should be kept above the ground surface wherever possible and SuDS should be considered as an integral part of the landscape or urban design. Development proposals should take into account landscaping proposals to maximise the potential for green attenuation systems to be distributed throughout the site.

WokBC LS58 SuDS features should be visually attractive, such as ponds and wetlands, with details such as channels, canals and cascades to provide visual interest.

WokBC LS59 Where possible, all hard structures such as inlets, outlets and headwalls should be designed to be unobtrusive. Appropriate cladding such as local stone should be considered.

WokBC LS60 The shape and depth of swales or basins below surrounding ground should be integrated into the landscape.

Ecology:

There are no national standards to assist in the suitable/appropriate design of SuDS with regards to their potential ecological benefits. Wokingham Borough Council recognises the obligation it has to ensure the quality of the aquatic environment for current and future generations. With this in mind Wokingham Borough Council has the following local standards:

WokBC LS61 Where present, natural drainage features on and / or around development sites shall be retained and appropriately enhanced.

WokBC LS62 Local plant material must be used where possible to allow natural colonisation of SuDS features. Invasive or vigorously colonising species should be avoided. All planting in open SuDS should be native to the UK, ideally of local provenance, and from an accredited source to avoid the introduction of alien species.

WokBC LS63 Tree and shrub selection and care must take into account the need for permanent vegetated ground cover and must not compromise access.

WokBC LS64 A shallow aquatic edge to ponds and wetlands should be included, with a maximum depth of 450mm and minimum width of 1m.

WokBC LS65 The primary function of SuDS is flood prevention, consequently the maintenance regime must not be restricted by ecological requirements to the detriment of flood prevention. The design of the shape or depth of water bodies or type of vegetation should not be deliberately selected to create habitats for protected species. The SuDS should have a maintenance regime which discourages the development of protected habitats. Grass strimming, grass cutting and silt removal, dredging shall be carried out on a frequent basis to maintain the designed flow regime. To discourage excessive vegetation within the main body of a water feature the bed should be at least 1m below normal water level and thus limit light levels on the bed.

Health and Safety:

There are no national standards to assist in the suitable/appropriate design of SuDS with regards to their health and safety requirements. Wokingham Borough Council recognises the obligation it has to ensure drainage systems are safe for current and future generations. With this in mind Wokingham Borough Council has the following local standards:

WokBC LS66 Information should be provided to inform residents and the public of the SuDS design and features on the site.

WokBC LS67 All open water features must be assessed regarding the risk of drowning, particularly to small children, and must demonstrate that all reasonable measures have been taken to minimise the risk of drowning or harm. Risk to the public, maintenance staff and wildlife must also be minimised.

WokBC LS68 The management of open water features must consider the potential risk of Weil's disease, transmitted through rat urine. CIRIA Report RP 992-5 WP1 Safety Framework and Checklist provides further guidance.

WokBC LS69 Although malaria is not currently a risk in the UK, this must be considered in the design of wetlands by reducing preferential breeding areas for mosquitoes such as small temporary pools unconnected to open water. In well-designed SuDS the water must be moving with a residence time of only a few days. In addition, emergent vegetation must have minimal submerged growth to reduce the available locations for larvae to develop.

WokBC LS70 Where open water habitat is located within 8 miles of an airport, guidance provided by the Civil Aviation Authority (www.caa.co.uk) must be followed to minimise the risk of aircraft bird strike.

6 Storage, volume and peak flow rate

Suggested minimum and aspirational storage requirements for an infiltration SuDS scheme for the development footprint are set out below, with more detail provided in subsequent sections. Storage volumes may be reduced (but not below the minimum level) if the design incorporates off-Site discharge.

Table 5. Storage requirements at the proposed development Site (Discharge runoff via infiltration)

Attenuation scenario	Attenuation required (m^3)	Explanation
1 in 100 year including 40% CC	23.45	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year event including a 40% allowance for climate change. Calculations are based on an infiltration rate of 0.1125 m/hr (3 x 10^{-5} m/s) – confirmed via infiltration testing conducted by RJS Contractors in August 2025.

Urban creep

According to Paragraph 3.3 of the DEFRA National standards for SuDS, urban creep should be taken into account as part of the SuDS design. Urban creep accounts for the potential for impermeable areas to increase over the lifespan of a development, such as extensions to proposed building footprints and increases in patio areas.

Therefore, in accordance with the required allowance for a Site with external private permeable spaces, a 10% urban creep allowance has been applied to the proposed impermeable areas.

Surface water runoff

An increase in impermeable area on-Site will result in greater rainfall runoff. Reduction in runoff will help mitigate flood risk both on and off-Site. Further information on the surface water runoff calculations is provided in Section 12 'Background Information'.

Table 6. Change in impermeable area associated with the development

Total Site area	3805 m^2
Impermeable area (and as a percentage of the total area of the proposed development footprint of 3805 m^2)	
Pre-development	Post-development
670 m^2 (24%)	386m^2 (10%)*
Impermeable land use: Restaurant, office and ancillary buildings, patio areas Permeable land use: Landscaped areas and gravel car parking areas	New impermeable land use: Rear and side extension to the main building, two side buildings New permeable land use: N/A

*Includes 10% urban creep allowance as mandated by DEFRA's 2025 National Standards for Sustainable Drainage (SuDS)

Peak discharge rates

The table below presents peak discharge rates for a range of storm events used to assess the impact of the proposed development and select the maximum permitted discharge rate. Further information on the calculation and control of peak discharge rates is provided in Section 12 'Background Information'.

Table 7. Peak discharge rates associated with the development

Rainfall event	Greenfield runoff rates (l/s)	Existing runoff rates[1] (l/s)	Potential runoff rates without attenuation (l/s)	Potential minus existing (l/s)
QBAR	1.65	N/A	N/A	N/A
6 hour 1 in 1 year	1.40	2.39	2.22	-0.17
6 hour 1 in 10 year	2.67	4.18	3.90	-0.28
6 hour 1 in 30 year	3.70	5.38	5.01	-0.38

Rainfall event	Greenfield runoff rates (l/s)	Existing runoff rates[1] (l/s)	Potential runoff rates without attenuation (l/s)	Potential minus existing (l/s)
6 hour 1 in 100 year	5.27	6.76	6.29	-0.48
6 hour 1 in 100 year + 20% CC	N/A	N/A	7.54	0.78
6 hour 1 in 100 year + 40% CC	N/A	N/A	8.80	2.04

[1] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the IoH124 method.

Total discharge volumes

The table below presents discharge volumes for a range of storm events used to assess the impact of the proposed development and calculate the required storage volumes. Further information on the calculation of total discharge volumes is provided in Section 11 'Methodology and Limitations'.

Table 8. Total discharge volumes associated with the development

Rainfall event	Greenfield runoff volume (m^3)	Existing runoff volume[2] (m^3)	Potential runoff volume without attenuation (m^3)	Potential minus existing (m^3)
QBAR	46.37	N/A	N/A	N/A
6 hour 1 in 1 year	43.05	51.59	47.97	-3.63
6 hour 1 in 10 year	75.92	90.23	84.16	-6.08
6 hour 1 in 30 year	97.04	116.30	108.13	-8.18
6 hour 1 in 100 year	121.84	146.03	135.77	-10.27
6 hour 1 in 100 year + 20% CC	N/A	N/A	162.92	16.89
6 hour 1 in 100 year + 40% CC	N/A	N/A	190.07	44.04

[2] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the IoH124 method.

7 Runoff destination

Options for the destination for the runoff generated on-Site have been assessed in line with the prioritisation set out in the Building Regulations Part H document (HM Government, published in 2010 and updated in 2015) and Defra's Non-statutory Technical Standards for SuDS (2015).

Flow attenuation using infiltration SuDS (discharge to ground) is generally the preferred option. If discharge to ground is not available, runoff discharge to surface water is the other preferred method. Only if these two options are impractical should discharge to the sewer network be considered.

Discharge to ground

Infiltration potential screening mapping indicates that the Site has low to high potential for infiltration, with permeable gravel partially underlying the Site. There are no known issues identified relating to Site contamination or the presence of a SPZ.

Based on the available borehole information and groundwater flood risk mapping, shallow groundwater is unlikely to be present beneath the Site.

Infiltration testing conducted in accordance with BRE 365 guidelines at the Site by RJS Contractors Ltd on 27th August 2025 has confirmed a minimum infiltration rate of 0.1125 m/hr. Therefore, the infiltration potential at the Site has been increased to High, and infiltration is deemed feasible at the Site.

Discharge to surface watercourse

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

Discharge to sewer

GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. According to the asset location plan undertaken at the Site (Appendix C), there are no public surface water sewer or combined sewers located within the vicinity of the Site. Therefore, discharging runoff to the public sewer network is not deemed feasible.

8 Water quality

A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution. This can be effectively managed by an appropriate "train" or sequence of SuDS components that are connected in series. The frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals and various organic and inorganic contaminants). Therefore, the first 5-10 mm of rainfall (first flush) should be adequately treated with SuDS.

The minimum number of treatment stages will depend on the sensitivity of the receiving water body and the potential hazard associated with the proposed development SuDS Manual (CIRIA, 2015). The proposed development is a combination of Very Low (roof water) to Low hazard (runoff from car parking and road). The Site does not lie within an SPZ and therefore additional treatment stages are not required.

Table 9. Level of hazard

Hazard	Source of hazard
Very Low	Residential roof drainage
Low	Residential, amenity uses including low usage car parking spaces and roads, other roof drainage.
Medium	Commercial, industrial uses including car parking spaces and roads (excluding low usage roads, trunk roads and motorways).
High	Areas used for handling and storage of chemicals and fuels, handling of storage and waste (incl. scrap-yards).

The recommended minimum number treatment stages suggested for the different runoff waters identified for the proposed development is highlighted in the table below.

Table 10. Minimum number of treatment stages for runoff

		Sensitivity of the receiving water body		
		Low	Medium	High
Hazard	Low	1	1	1
	Med	2	2	2
	High	3	3	3

9 Proposed SuDS strategy

Sustainable drainage systems

DEFRA's non-statutory requirements for SuDS require the below ground drainage systems to have the capacity to accommodate at least the 1 in 30 year event and to manage the 1 in 100 year event without flooding of on-site buildings and substations. All runoff should be managed on-Site though for the 1 in 100 year event, accounting for the maximum impacts of climate change to ensure flood risk is not increased to third-parties.

It is assumed that areas outside the development footprint (the main restaurant building that will not be demolished) will continue to use the existing drainage arrangements.

A surface water drainage strategy (summarised in Section 2 of this report) includes the following SuDS features to intercept, attenuate and treat surface water runoff.

SuDS Strategy:

Ground conditions at the Site are conducive to infiltration; surface water runoff will be managed within SuDS features and infiltrated to ground.

Table 11. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and infiltration SuDS.
SuDS features	Rainwater harvesting and soakaways.
Discharge location	Infiltration.
Discharge rate	3 x 10^{-5} m/s (0.1125 m/hr) (as confirmed via infiltration testing).

Table 12. Proposed SuDS sizing (dimensions) and attenuation volumes

Rainwater harvesting	Rainwater harvesting butts should be established for the proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Soakaway	Two soakaways are proposed at the Site, one of which will accept runoff from the buildings within the eastern portion of the Site and the other of which will drain the new areas of the main dwelling and annex. Both soakaways will be filled with geo-cellular crates with a 95% void ratio and have a depth of 1 m. The eastern proposed soakaway will have an area of c. 7.50 m^2, resulting in c. 7.13 m^3 attenuation. The

	westerm proposed soakaway will have an area of c. 18 m^2, resulting in c. 17.10 m^3 attenuation.
Total attenuation provided	24.23 m^3
Total attenuation required	23.45 m^3
Freeboard storage provided	0.78 m^3

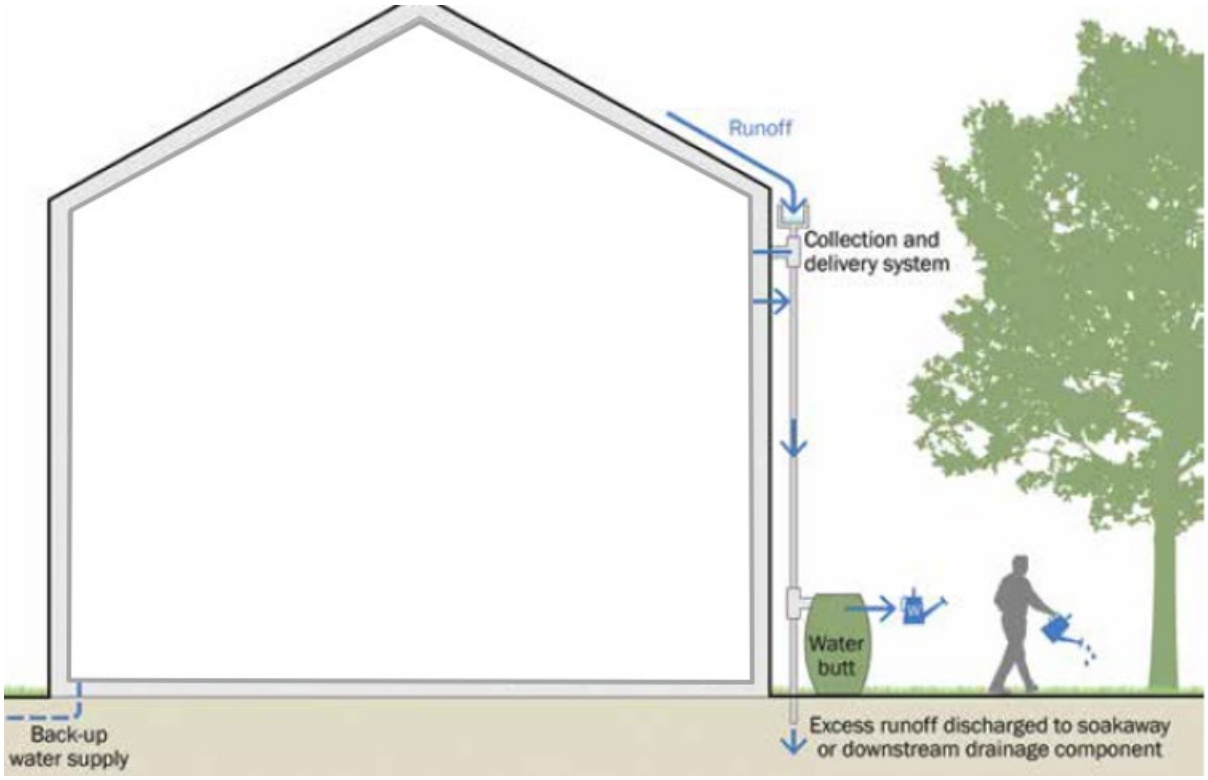
Rainwater harvesting

A rainwater harvesting butt is proposed for each building at the Site. The run-off from the proposed development roof should be led into rainwater harvesting butts via rainwater downpipes and guttering to catch run-off. Overflow from the butts should be discharged into the storage system provided by the soakaways.

Due to the relatively insignificant amounts of attenuation provided by rainwater harvesting tanks in this instance and the requirement to retain water for non-potable uses such as garden maintenance, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the report.

As there is an issue with the storage capability of rainwater harvesting tanks, this method should have a fixed attenuation volume and a controlled outlet to discharge into the proposed SuDS feature. An overflow system will be required for implementation on the Site due to exceedance events (where the pumps fail or there is a blockage within the system / or the number of residents and subsequent water usage is reduced).

Roof run-off is generally less polluted than run-off from road surfaces but can still generate pollutants such as sediments. Pollutants would be captured by the collection and filtration system and, by reducing the volume of run-off generated from the Site. Primary screening devices are used to prevent leaves and other debris from entering the butt and first flush devises can be designed to divert the first part of the rainfall away from the main storage tank and can pick up most of the dirt, debris and contaminates that collect on a residential roof.



Modified from Figure 11.3 of the CIRIA SuDS Manual (C753) (2015)

Soakaways

Soakaways should be used to store run-off and infiltrate collected water gradually into the ground. Roof water should be collected and conveyed by underground pipes to the proposed soakaways. The base of the infiltration features should lie at an elevation at least 1 m above the highest winter groundwater levels, to ensure there is sufficient space for surface water to discharge. Soakaway excavation should be outside of the root zone of any protected trees and dimensions will depend on the depth to the sand layer where the soakaway is eventually situated.

Draining via soakaways means that property owners are less likely to pay for the utility company to drain surface water. In terms of future ownership and maintenance, where a soakaway drains a single property, the ownership and maintenance would be the property owner's responsibility.

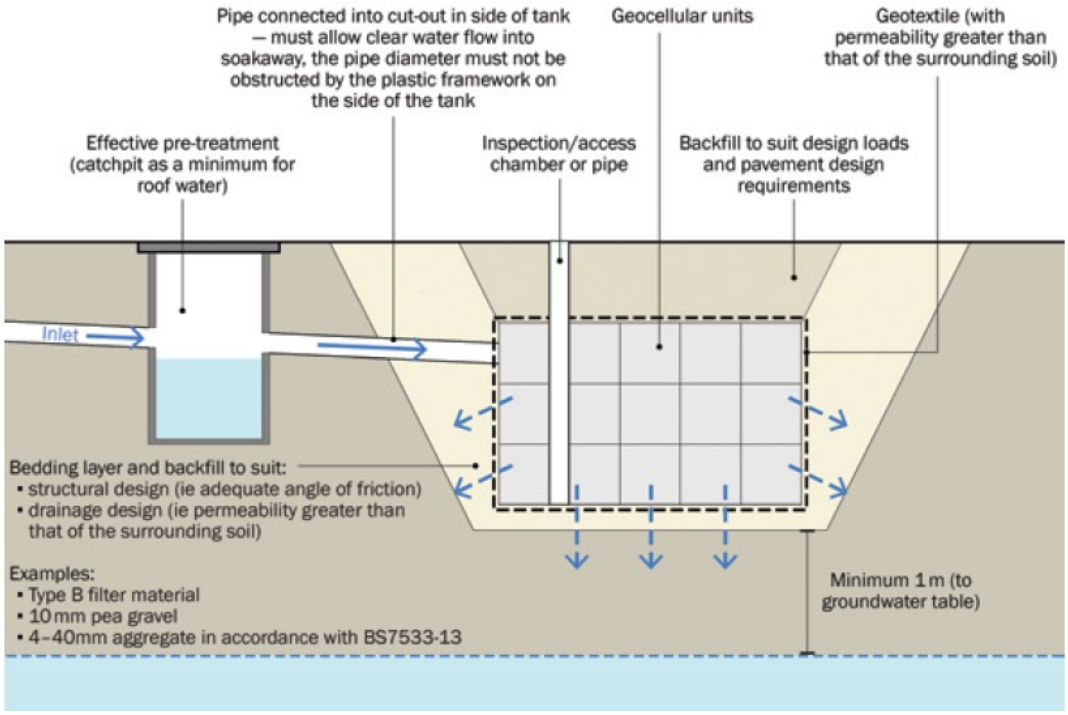


Figure 13.1 of the CIRIA SuDS Manual (C753) (2015)

Exceedance flows

Exceedance flow routes are included within the proposed SuDS drainage layout. Where possible, exceedance flows should be directed away from buildings and into non-essential areas of the Site such as the car parking and landscaped areas. The SuDS system recommended for the Site should provide enough storage that this method would only be utilised during a worst case scenario.

10 SuDS maintenance

Regular maintenance is essential to ensure effective operation of the SuDS features over the intended lifespan of the proposed development. The SuDS Manual (C753) (CIRIA, 2015) provides a maintenance schedule for SuDS with details of the necessary required actions as shown in the Table below.

Table 13. SuDS operation and recommended maintenance requirements

Asset type	Maintenance schedule (and frequency)
Soakaways	Regular maintenance: • Remove sediment and debris from pretreatment and inspection chamber. Clean gutters, filters, downpipes. Trim roots prevent blockages (annually). • Reconstruct/ clean if performance deteriorates, replace clogged geotextile (as required) Monitoring: • Inspect inlets/outlets, silt traps – note rate of accumulation (monthly). • Check water levels and emptying time (annually).
Underground drainage pipe network	Regular maintenance: • Remove sediment and debris from pre-treatment devices and floor of inspection tube or chamber (annually). • Cleaning of gutters and any filters on downpipes (annually). • Trimming any roots that may be causing blockages (annually or as required). Monitoring: • Inspect silt traps and note rate of sediment accumulation (monthly in the first year and then annually).
Rainwater harvesting	Regular maintenance: • Inspection of tank for debris and sediment build up (annually and following poor performance). • Inspection of inlets, outlets, overflow areas, pumps and filters (annually and following poor performance). • Cleaning of tank, inlets, outlets, gutters, roof drain filters and withdrawal devices (annually or as required). Remedial actions: • Repair or overflow erosion damage or damage to tank and associated components (as required)

Client checklist

A drainage strategy has been recommended as suitable on the basis of the information provided. Prior to installation of the Site drainage system it is recommended that the client carries out the following checks to confirm the development proposals. GeoSmart would be able to support with any updates required to the drainage scheme, please contact us and we would be happy to provide you with a proposal to undertake the work.

Table 14. Potential SuDS limitations

Limitations to infiltration SuDS	Do these conditions arise at the Site?
Is the surface runoff greater than the rate at which water can infiltrate into the ground?	
Is there an unacceptable risk of ground instability?	
Is there an unacceptable risk of mobilising contaminants?	
Is there an unacceptable risk of pollution to groundwater?	
Is there an unacceptable risk of groundwater flooding?	
Is the infiltration system going to create a high risk of groundwater leakage to the combined sewer?	

Table 15. SuDS design considerations

Confirm that potential flooding on-Site in excess of the design storm event and exceedance flow routes have been considered.	
Review options for the control of discharge rates (e.g. hydrobrake).	
Confirm the owners/adopters of the drainage system. Consider management options for multiple owners.	
Is there an unacceptable risk of pollution to groundwater?	
Review access and way leave requirements.	
Review maintenance requirements.	

Health and safety considerations for SuDS

GeoSmart reports may include outline strategies or designs to support with development plans. Any drawings or advice provided do not comprise any form of detailed design. Implementation of any conceptual scheme options may constitute 'Construction Work' as defined by CDM Regulations (2015).

The CDM Regulations place specific Health and Safety duties on those commissioning, planning and undertaking construction works. If you are uncertain what this means you should seek the advice of your architect, builder or other competent professional.

GeoSmart does not provide health and safety advisory services but we are required to advise you of your general responsibilities under CDM (visit http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/ for more information).

Please remember that detailed design work should be undertaken by a competent professional who might be your engineer, architect, builder or another competent party.

11 Methodology and limitations of study

This report assesses the feasibility of infiltration SuDS and alternative drainage strategies in support of the Site development process. From April 6th 2015 SuDS are regulated by Local Planning Authorities and will be required under law for major developments in all cases unless demonstrated to be inappropriate. What is considered appropriate in terms of costs and benefits by the Planning Authority will vary depending on local planning policy, and Site setting. The Lead Local Flood Authority will require information as a statutory consultee on major planning applications with surface water drainage implications. The National Planning Policy Framework requires that new developments in areas at risk of flooding should give priority to the use of SuDS and demonstrate that the proposed development does not increase flood risk downstream to third parties.

How was the suitability of SuDS estimated for the Site?

There are a range of SuDS options available to provide effective surface water management that intercept and store excess runoff. When considering these options, the destination of the runoff should be assessed using the order of preference outlined in the Building Regulations Part H document (HM Government, 2010) and Defra's National Standards for SuDS (2015):

1. Discharge to the ground;
2. Discharge to a surface water body;
3. Discharge to a surface water sewer;
4. Discharge to a local highway drain; and
5. Discharge to a combined sewer.

Data sets relating to each of the potential discharge options have been analysed to assess the feasibility of each option according to the hierarchy set out above. Hydrogeological characteristics for the Site are assessed in conjunction with the occurrence of SPZ's to assess infiltration suitability. The Site has been screened to determine whether flood risk from groundwater, surface water, fluvial or coastal sources may constrain SuDS. The distance to surface water bodies and sewers has been reviewed gauge whether these provide alternative options.

GeoSmart SuDS Infiltration Suitability Map (SD50)

The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the suitability for infiltration drainage in different parts of the Site and indicates where further assessment is recommended. In producing the SuDS Infiltration Suitability Map (SD50), GeoSmart used data from the British Geological Survey on groundwater levels, geology and permeability to screen

for areas where infiltration SuDS may be suitable. The map classifies areas into 3 categories of High, Medium and Low suitability for infiltration SuDS. This can then be used in conjunction with additional data on Site constraints to give recommendations for SuDS design and further investigation.

The primary constraint on infiltration potential is the minimum permeability of the underlying material and in some cases the range in permeability may be considerable, ranging down to low. The map classifies these areas as moderate infiltration suitability requiring further investigation. In cases where the thickness of the receiving permeable horizon is less than 1.5 meters then additional Site investigation is recommended. If the Site is at risk of groundwater flooding for up to the 1% annual occurrence the map classifies these areas as moderate infiltration suitability requiring further investigation.

The GeoSmart SuDS Infiltration Suitability Map (SD50) is a national screening tool for infiltration SuDS techniques but a Site specific assessment should be used before final detailed design is undertaken. Further information on the GeoSmart SuDS Infiltration Suitability Map (SD50) is available at geosmartinfo.co.uk

How is the suitability to discharge to sewers and watercourses calculated?

The suitability to discharge to discharge to sewers and watercourses has been calculated using the distance from the Site to both. For example, where the Site is within 50 m of a surface water body. Discharge to surface water is potentially appropriate subject to land access arrangements and a feasibility assessment. Where the Site is within 50 m of a sewer, discharge to sewer is potentially appropriate subject to land access arrangements and a feasibility assessment. The utility company should be contacted to agree connection feasibility and sewer capacity.

Further information relating to sewers available in the area can be found in Appendix C.

What is a Source Protection Zone?

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which is occasionally applied. The zones are used to set up pollution prevention measures in areas which are at a higher risk. The shape and size of a zone depends on the condition of the ground, how the groundwater is removed, and other environmental factors. Inner zone (Zone 1) is defined as the 50 day travel time from any point below the water table to the source (minimum radius of 50 metres). Outer zone (Zone 2) is defined by a 400 day travel time. Total catchment (Zone 3) is defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

How was surface water runoff estimated from the Site?

In accordance with the SuDS Manual (C753) (CIRIA, 2015), the Greenfield runoff from the Site has been calculated using the IoH124 method and is assumed representative of the runoff generated on the undeveloped surfaces that are affected by the proposed development. The method used for calculating the runoff complies with the NPPF (MHCLG, 2024). For the impermeable surfaces, it has been assumed that 100% runoff will occur (calculations provided in Appendix B). Rainfall data is derived from the Flood Estimation Handbook (FEH), developed by NERC (2009). Only areas affected by the proposed development are considered in the flow and volume calculations. Permeable areas that remain unchanged are not included in the calculations as it is assumed these will not be actively drained and attenuated.

What is the peak discharge rate?

An estimation of peak runoff flow rate and volume is required to calculate infiltration, storage and discharge requirements. The peak discharge rate is the maximum flow rate at which surface water runoff leaves the Site during a particular storm event, without considering the impact of any mitigation such as storage, infiltration or flow control. Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. If all drainage is to infiltration there will be no discharge off-Site. Discharging all flow from Site at the existing 1 in 100 event would increase flood risk during smaller events. Flow restriction is generally required to limit the final discharge from Site during all events as a basic minimum to the green field QBAR rate. A more complex flow restriction which varies the final discharge rate from the Site depending on the storm event will reduce the volume of storage required on-Site. Drainage to infiltration SuDS is subtracted from the total discharge off-Site to achieve a beneficial net affect.

What is the total discharge volume?

The total discharge volume is calculated on the basis of the surface water runoff that has the potential to leave the Site as a result of the assumed 6 hour duration design storm event. The runoff is related to the underlying soil conditions, impermeable cover, rainfall intensity and duration of the storm event. The total volume generated by the current Site is compared to the potential total volume from the developed Site (not taking into consideration any mitigation). The difference provides the minimum total volume that will need to be stored and infiltrated on-Site or released at a controlled rate. Guidance indicates that the total discharge volume should never exceed the runoff volume from the development Site prior to redevelopment for that event and should be as close as is reasonably practicable to the Greenfield runoff volume.

12 Background SuDS information

SuDS control surface water runoff close to where it falls. SuDS are designed to replicate, as closely as possible, the natural drainage from the Site before development to ensure that the flood risk downstream does not increase as a result of the Site being developed, and that the Site will have satisfactory drainage under current and likely future climatic conditions. SuDS provide opportunities to reduce the causes and impacts of flooding; remove pollutants from urban runoff at source; and combine water management with green space with benefits for amenity, recreation and wildlife. Government planning policy and planning decisions now include a presumption in favour of SuDS being used for all development Sites, unless they can be shown to be inappropriate.

For general information on SuDS see our website: http://geosmartinfo.co.uk/

Infiltration SuDS

Government policy for England is to introduce sustainable drainage systems (SuDS) via conditions in planning approvals. Guidance indicates that capturing rainfall runoff on-Site and infiltrating it into the ground (infiltration SuDS) is the preferred method for managing surface water without increasing flood risk downstream.

The greatest benefit to general flood risk is if all runoff is infiltrated on-Site, however, this may not be feasible due to physical and economic constraints in which case infiltration may be considered as a part of an integrated drainage solution. The final design capacity for an infiltration SuDS system depends on the Site constraints and the requirements of the individual Planning Authority and the Lead Local Flood Authority.

The capacity of the ground to receive infiltration depends on the nature, thickness and permeability of the underlying material and the depth to the high groundwater table. The final proportion of the Site drained by infiltration will depend on topography, outfall levels and a suitable drainage gradient. It is important to note that, even if the whole Site cannot be drained by infiltration, the use of partial infiltration is encouraged, with the remainder of runoff discharged via other SuDS systems.

Types of infiltration SuDS

Infiltration components include infiltration trenches, soakaways, swales and infiltration basins without outlets, rain gardens and permeable pavements. These are used to capture surface water runoff and allow it to infiltrate (soak) and filter through to the subsoil layer, before returning it to the water table below.

An infiltration trench is usually filled with permeable granular material and is designed to promote infiltration of surface water to the ground. An infiltration basin is a dry basin or depression designed to promote infiltration of surface water runoff into the ground. Soakaways are the most common type of infiltration device in the UK where drainage is often connected to over-sized square or rectangular, rubble-filled voids sited beneath lawns.

According to the guidance in Building Research Establishment (BRE) Digest 365 (2016) a soakaway must be able to discharge 50% of the runoff generated during a 1 in 10 year storm event within 24 hours in readiness for subsequent storm flow. This is the basic threshold criteria for a soakaway design and the internal surface area of the proposed soakaway design options should be calculated on this basis by taking into account the soil infiltration rate for the Site.

Developers need to ensure their design takes account of the construction, operation and maintenance requirements of both surface and subsurface components, allowing for any machinery access required.

SuDS maintenance and adoption

Regular maintenance is essential to ensure effective operation of the soakaway(s) over the intended lifespan of the proposed development. A maintenance schedule for SuDs is required. Sewerage undertakers or Local Authorities may adopt SuDS and will require maintenance issues to be dealt with in accordance with their Management Plan. If the SuDS will not be adopted other provision is required with associated financial implications. Maintenance is a long-term obligation requiring the upkeep of all elements of the SuDS, including mechanical components (e.g. pumps), as well as inspections, regular maintenance and repair.

Additional background SuDS information can be found on our website: http://geosmartinfo.co.uk/

13 Further information

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products			
	Additional assessment: FloodSmart Report		The FloodSmart Report range provides clear and pragmatic advice regarding the nature and potential significance of flood hazards which may be present at a Site. Our consultants assess available data to determine the level of risk based on professional judgement and years of experience. Please contact info@geosmartinfo.co.uk for further information.
	Additional assessment: EnviroSmart Report		Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

14 References and glossary

British Geological Survey (BGS). (2025). GeoIndex Onshore. Based on British Geological Survey materials © NERC 2025. Accessed from: https://mapapps2.bgs.ac.uk/geoindex/home.html on 04/09/25.

Building Research Establishment (BRE) (2016). Digest 365, Soakaway design.

CEH (2025) Online FEH web service Depth/duration/frequency modelling using the FEH 2022 models. Accessed from: https://fehweb.ceh.ac.uk/ on 04/09/25.

CIRIA (2015) The SuDS manual (C753).

Department for Environment, Food and Rural Affairs [DEFRA] (2025). National standards for sustainable drainage systems (SuDS).

Environment Agency [EA] (2025). MagicMap. Accessed from: http://magic.defra.gov.uk/MagicMap.aspx on 04/09/25.

GeoSmart (2025) GeoSmart GW5 Version 2.4.

HM Government (2010). The building regulations 2010 Part H drainage and waste disposal (2015 edition).

LASOO (2015) Practice Guidance, Local Authority SuDS Officer Organisation.

Ministry of Housing, Communities & Local Government. (2024). National Planning Policy Framework (NPPF).

Ministry of Housing, Communities & Local Government. (2022). National Planning Policy Guidance (NPPG).

RJS Contractors Ltd (2025). Infiltration Test Report. Project name: 1211 – L'Ortolan.

Thames Water (2025). L'Ortolan Restaurant, Church Lane, Shinfield, Reading, RG2 9BY Asset Location Plan. Ref: ALS/ALS Standard/2025_5204303.

Wokingham Borough Council (2017). Guidance on the use of sustainable drainage systems. Accessed from: https://www.wokingham.gov.uk/sites/wokingham/files/2023-06/Sustainable%20drainage%20systems%20%28SuDS%29%20strategy.pdf on 10/09/25.

GeoSmart Information

Glossary

General terms

Attenuation	Reduction of peak flow and increased duration of a flow event.
Combined sewer	A sewer designed to carry foul sewage and surface water in the same pipe.
Detention basin	A vegetated depression, normally is dry except after storm events, constructed to store water temporarily to attenuate flows. May allow infiltration of water to the ground.
Evapotranspiration	The process by which the Earth's surface or soil loses moisture by evaporation of water and by uptake and then transpiration from plants.
FEH	Flood Estimation Handbook, produced by Centre for Ecology and Hydrology, Wallingford (formerly the Institute of Hydrology).
Filter drain or trench	A linear drain consisting of a trench filled with a permeable material, often with a perforated pipe in the base of the trench to assist drainage, to store and conduct water, but may also be designed to permit infiltration.
First flush	The initial runoff from a site or catchment following the start of a rainfall event. As runoff travels over a catchment it will collect or dissolve pollutants, and the "first flush" portion of the flow may be the most contaminated as a result. This is especially the case for intense storms and in small or more uniform catchments. In larger or more complex catchments pollution.
Flood plain	Land adjacent to a watercourse that would be subject to repeated flooding under natural conditions (see Environment Agency's Policy and practice for the protection of flood plains for a fuller definition).
Greenfield runoff	This is the surface water runoff regime from a site before development, or the existing site conditions for brownfield redevelopment sites.
Impermeable surface	An artificial non-porous surface that generates a surface water runoff after rainfall.
Permeability	A measure of the ease with which a fluid can flow through a porous medium. It depends on the physical properties of the medium, for example grain size, porosity and pore shape.

Runoff	Water flow over the ground surface to the drainage system. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense.
Sewerage undertaker	This is a collective term relating to the statutory undertaking of water companies that are responsible for sewerage and sewage disposal including surface water from roofs and yards of premises.
Soakaway	A subsurface structure into which surface water is conveyed to allow infiltration into the ground.
Treatment	Improving the quality of water by physical, chemical and/or biological means.

The terms included in this glossary have been taken from CIRIA (2015) guidance.

Data Sources

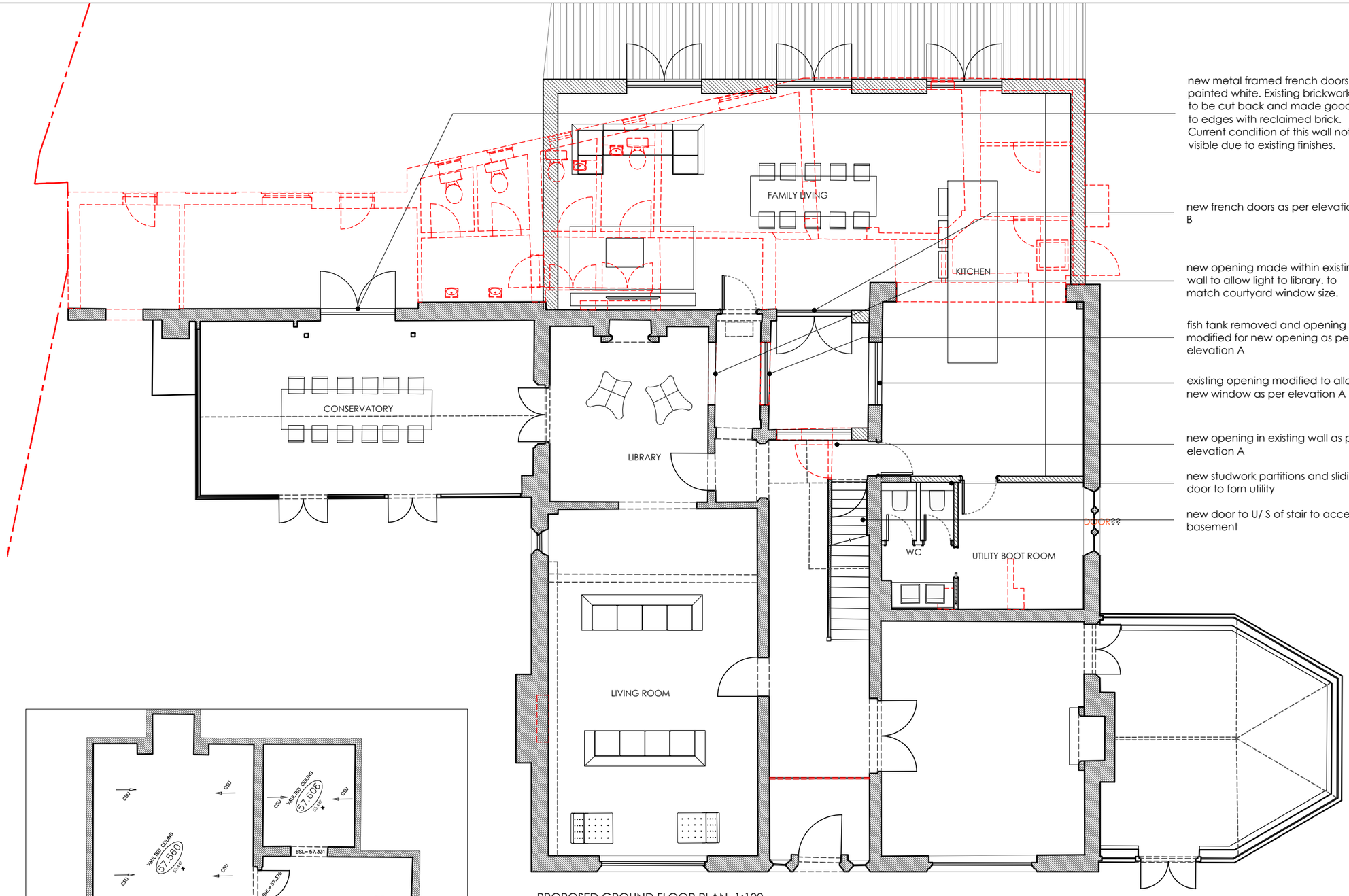
Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2025 BlueSky copyright and database rights 2025
Bedrock & Superficial Geology	Contains British Geological Survey materials © NERC 2025 Ordnance Survey data © Crown copyright and database right 2025
Flood Risk (RoFRS/Pluvial/Surface Water Features/SPZ)	Environment Agency copyright and database rights 2025 Ordnance Survey data © Crown copyright and database right 2025
Flood Risk (Groundwater) and SuDS infiltration suitability (SD50)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2025) Contains British Geological Survey materials © NERC 2025 Ordnance Survey data © Crown copyright and database right 2025
Sewer Location	Contains Ordnance Survey data © Crown copyright and database right 2025 Contains Thames Water Search data 2025
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2025 Environment Agency copyright and database rights 2025

15 Appendices

GeoSmart Information

Appendix A

Site plans



PROPOSED GROUND FLOOR PLAN 1:100

new metal framed french doors painted white. Existing brickwork to be cut back and made good to edges with reclaimed brick. Current condition of this wall not visible due to existing finishes.

new french doors as per elevation B

new opening made within existing wall to allow light to library. to match courtyard window size.

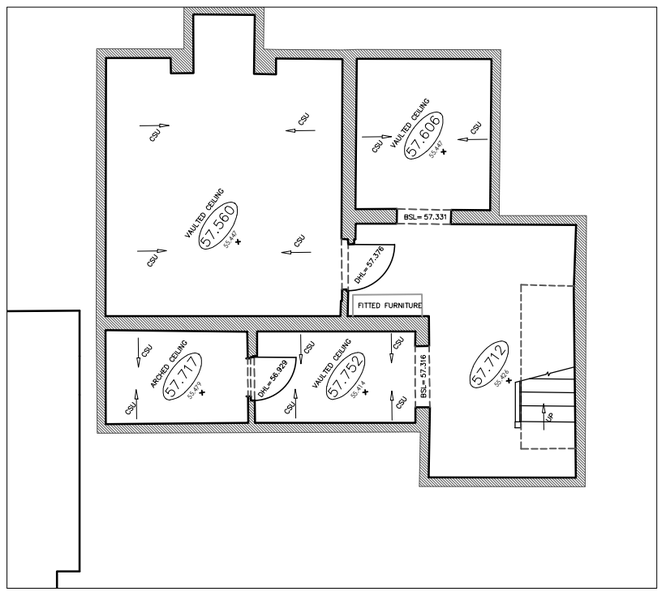
fish tank removed and opening modified for new opening as per elevation A

existing opening modified to allow new window as per elevation A

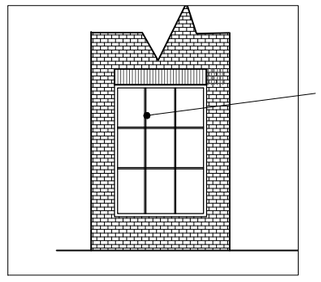
new opening in existing wall as per elevation A

new studwork partitions and sliding door to forn utility

new door to U/ S of stair to access basement

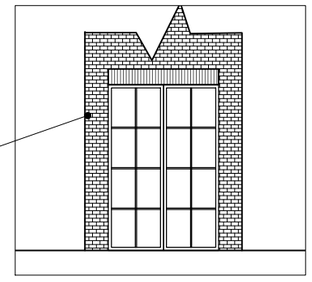


PROPOSED BASEMENT PLAN 1:100



New metal framed window with timber window cill. Brick soldier course to head. New brickwork to match existing.

Metal framed french door painted white with brick solider course above



ELEVATION A

ELEVATION B

0 5

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

N

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT:
DRAWN	RR	HUSSAIN FAMILY
CHECKED	.	
SCALE@A3	1:100	

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

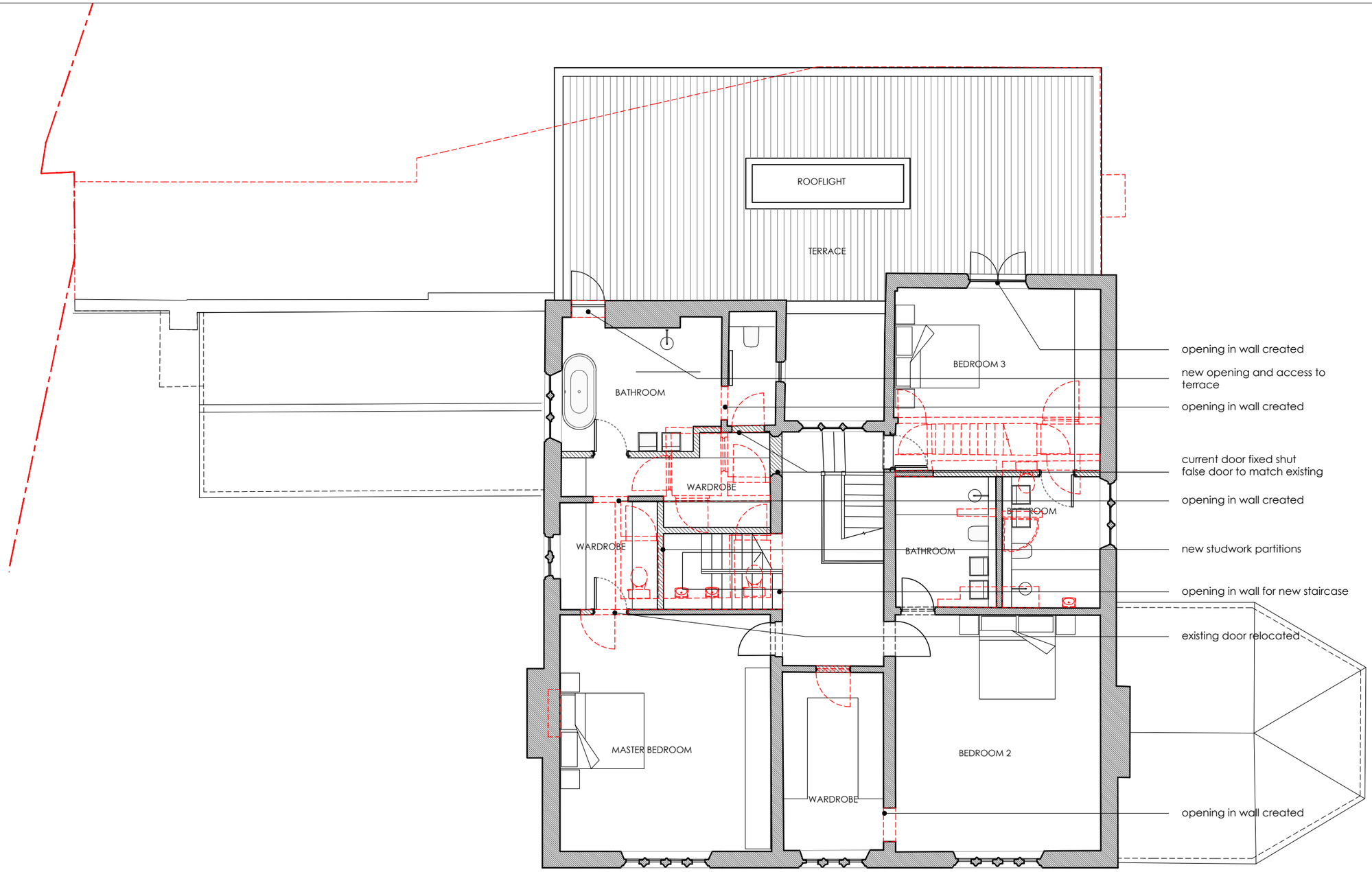
L'ORTOLAN PROPOSED BASEMENT AND GROUND FLOOR PLAN

ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P11

A3 Sheet



PROPOSED FIRST FLOOR PLAN 1:100

0 5

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

N

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025
DRAWN	RR
CHECKED	-
SCALE@A3	1:100

CLIENT: HUSSAIN FAMILY

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

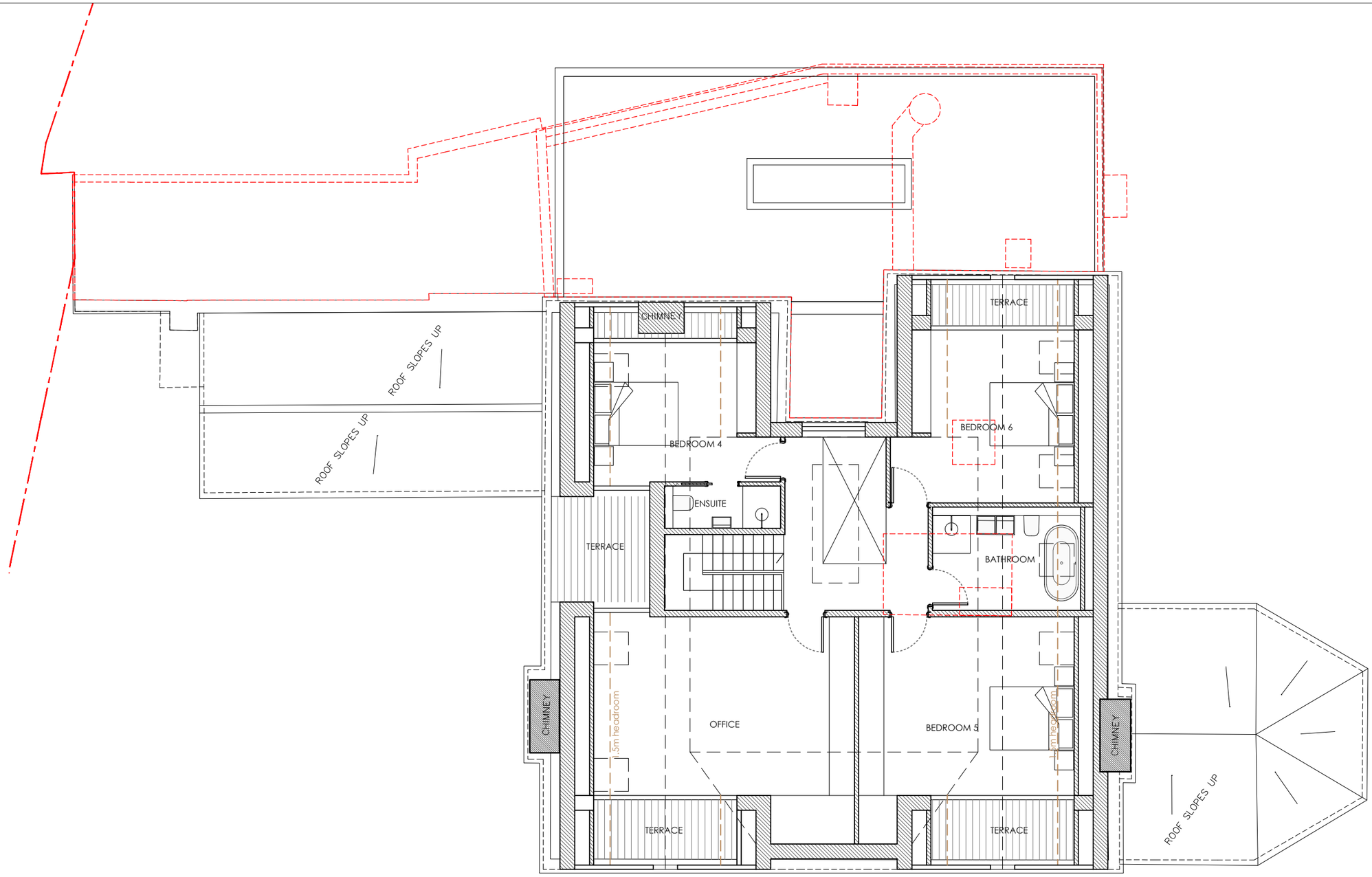
L'ORTOLAN PROPOSED FIRST FLOOR PLAN

ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P12

A3 Sheet



PROPOSED SECOND FLOOR PLAN 1:100

0 5

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025
DRAWN	RR
CHECKED	-
SCALE@A3	1:100

CLIENT:
HUSSAIN FAMILY

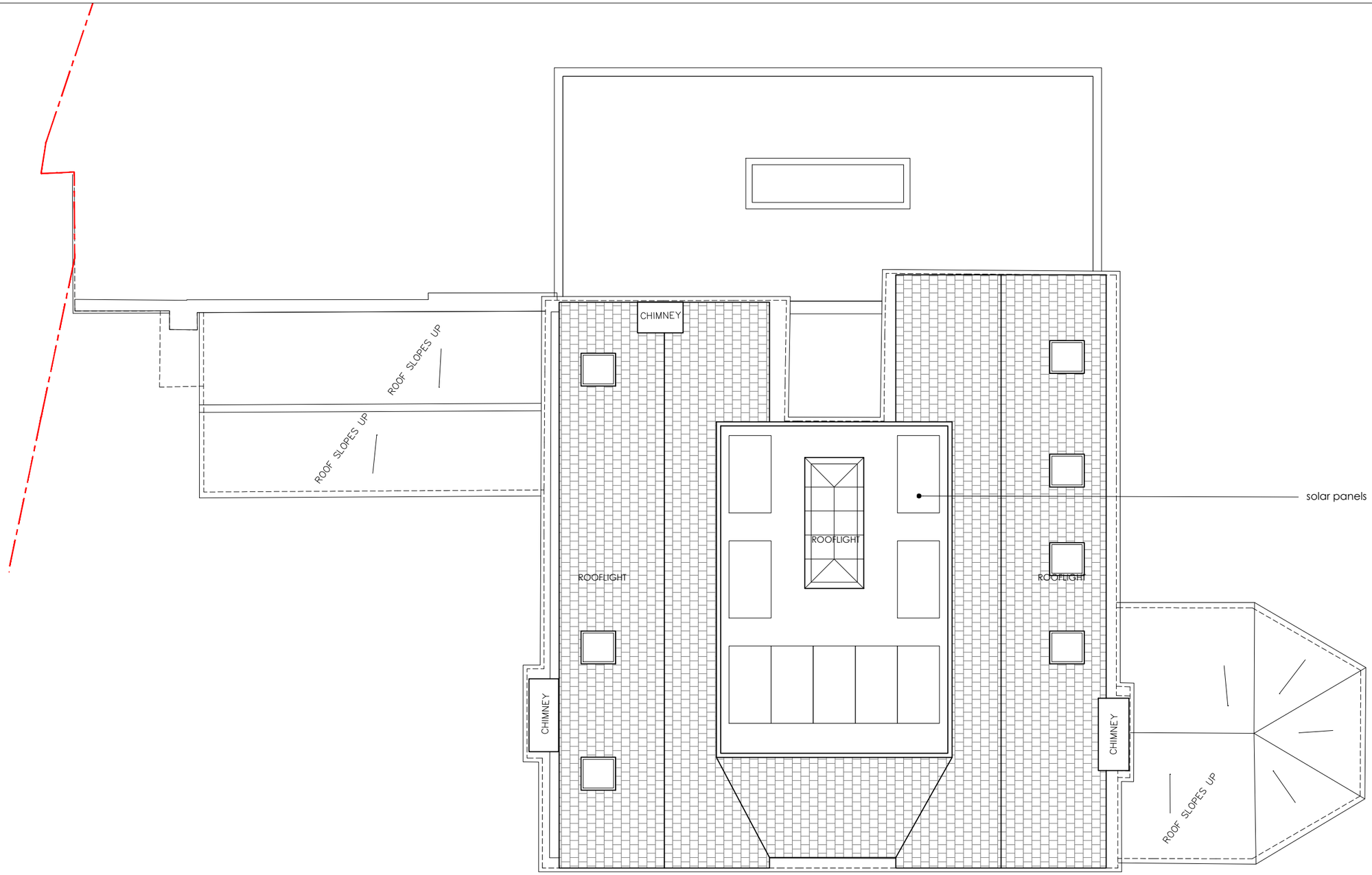
EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

L'ORTOLAN PROPOSED SECOND FLOOR PLAN

ADDRESS:
L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P13

A3 Sheet



PROPOSED ROOF PLAN 1:100

0 5

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025
DRAWN	RR
CHECKED	-
SCALE@A3	1:100

CLIENT:
HUSSAIN FAMILY

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

L'ORTOLAN PROPOSED ROOF PLAN

ADDRESS:
L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P14

A3 Sheet

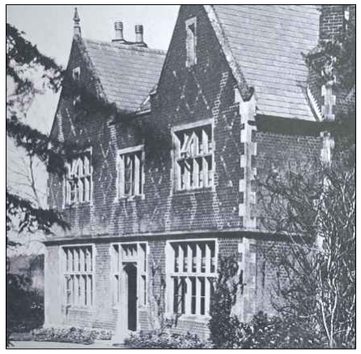
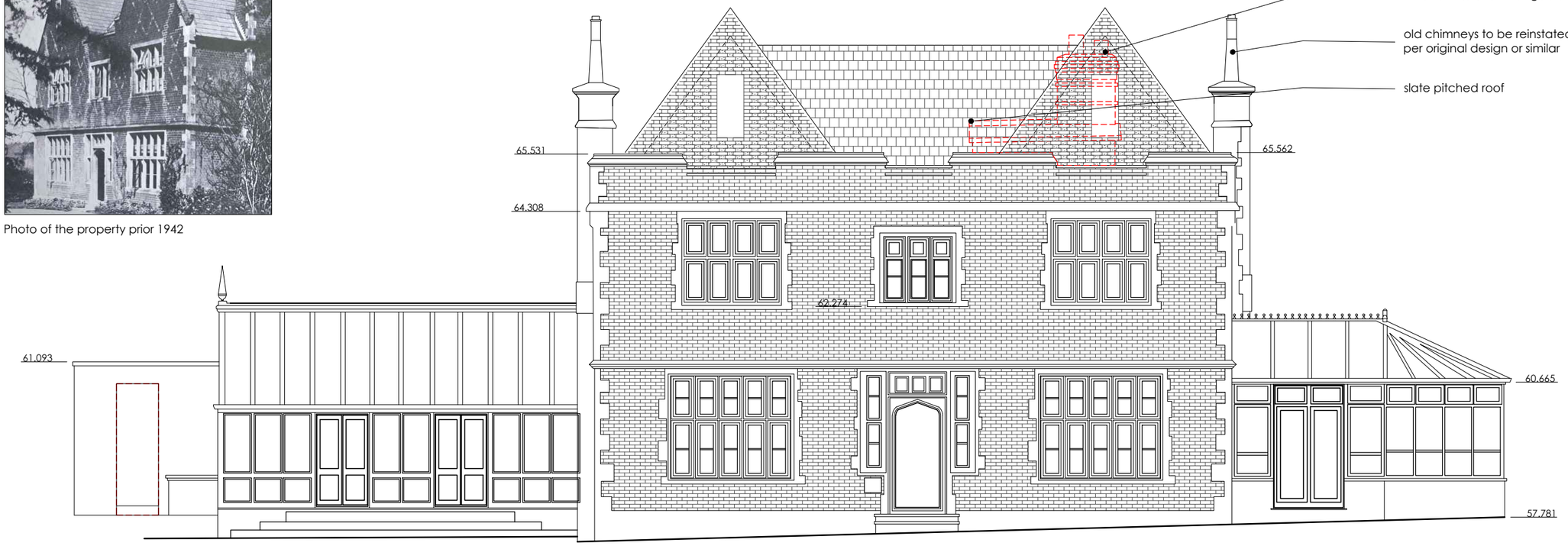


Photo of the property prior 1942



SW ELEVATION - ENTRANCE

NE ELEVATION

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025
DRAWN	RR
CHECKED	-
SCALE@A3	1:100

CLIENT:
HUSSAIN FAMILY

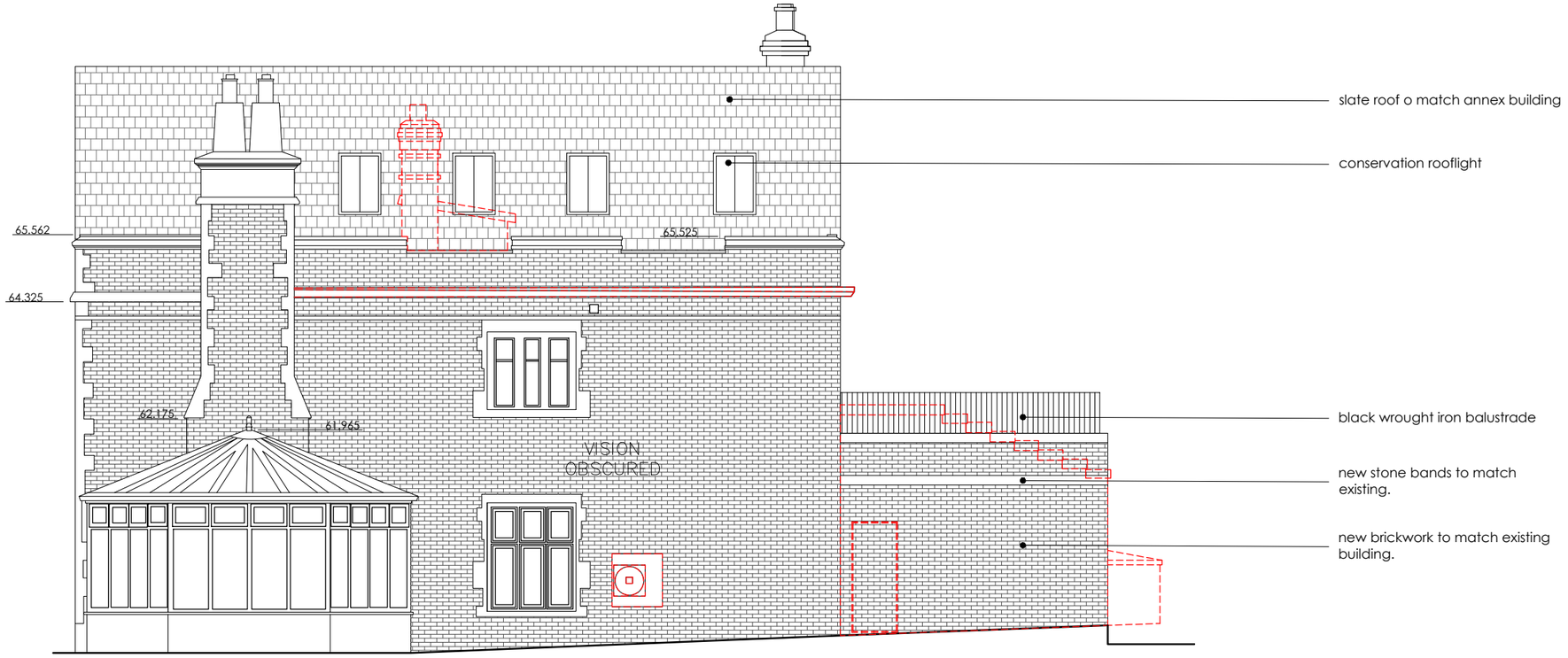
EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

L'ORTOLAN PROPOSED ELEVATIONS

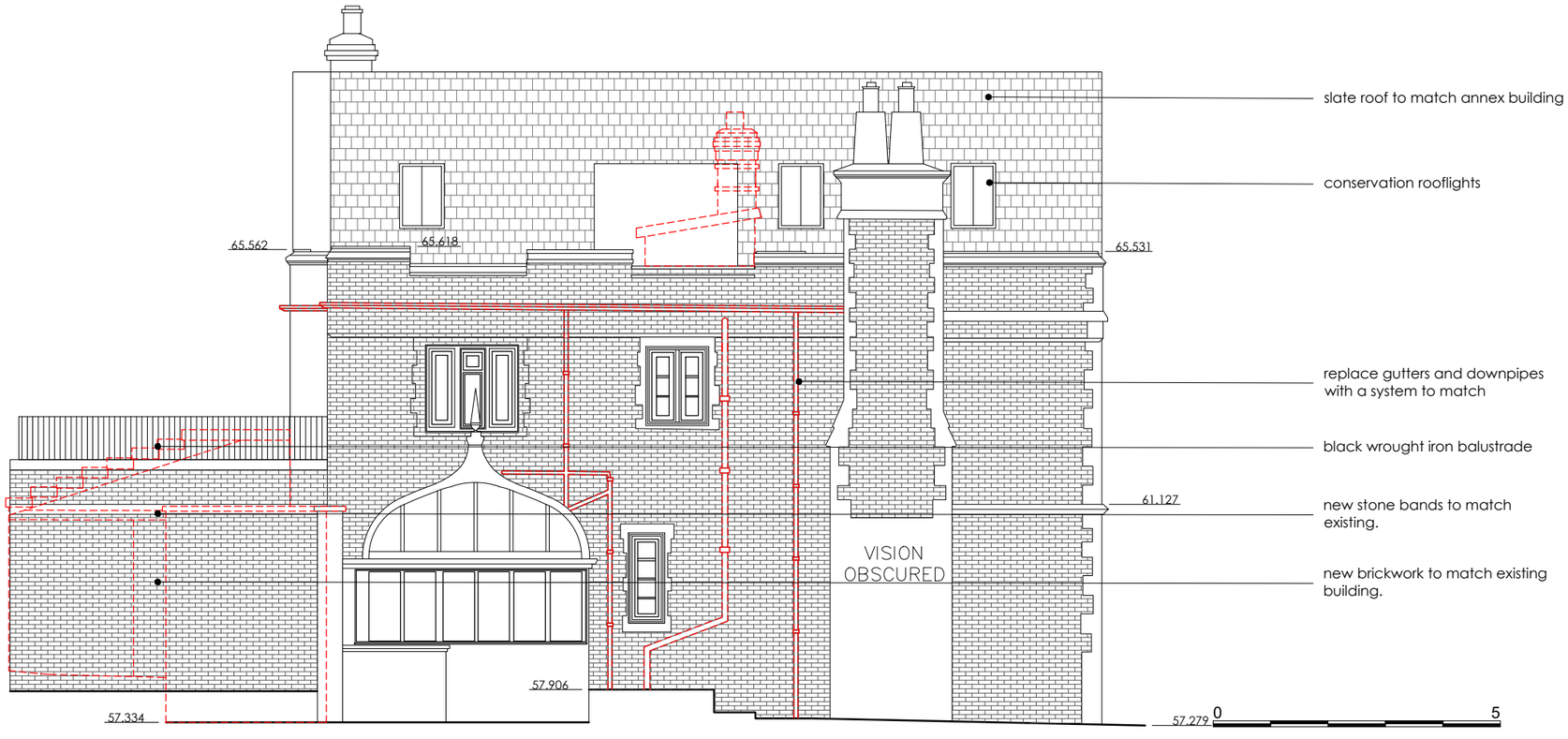
ADDRESS:
L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P15

A3 Sheet



SE ELEVATION



NW ELEVATION

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT: HUSSAIN FAMILY
DRAWN	RR	
CHECKED	-	
SCALE@A3	1:100	

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

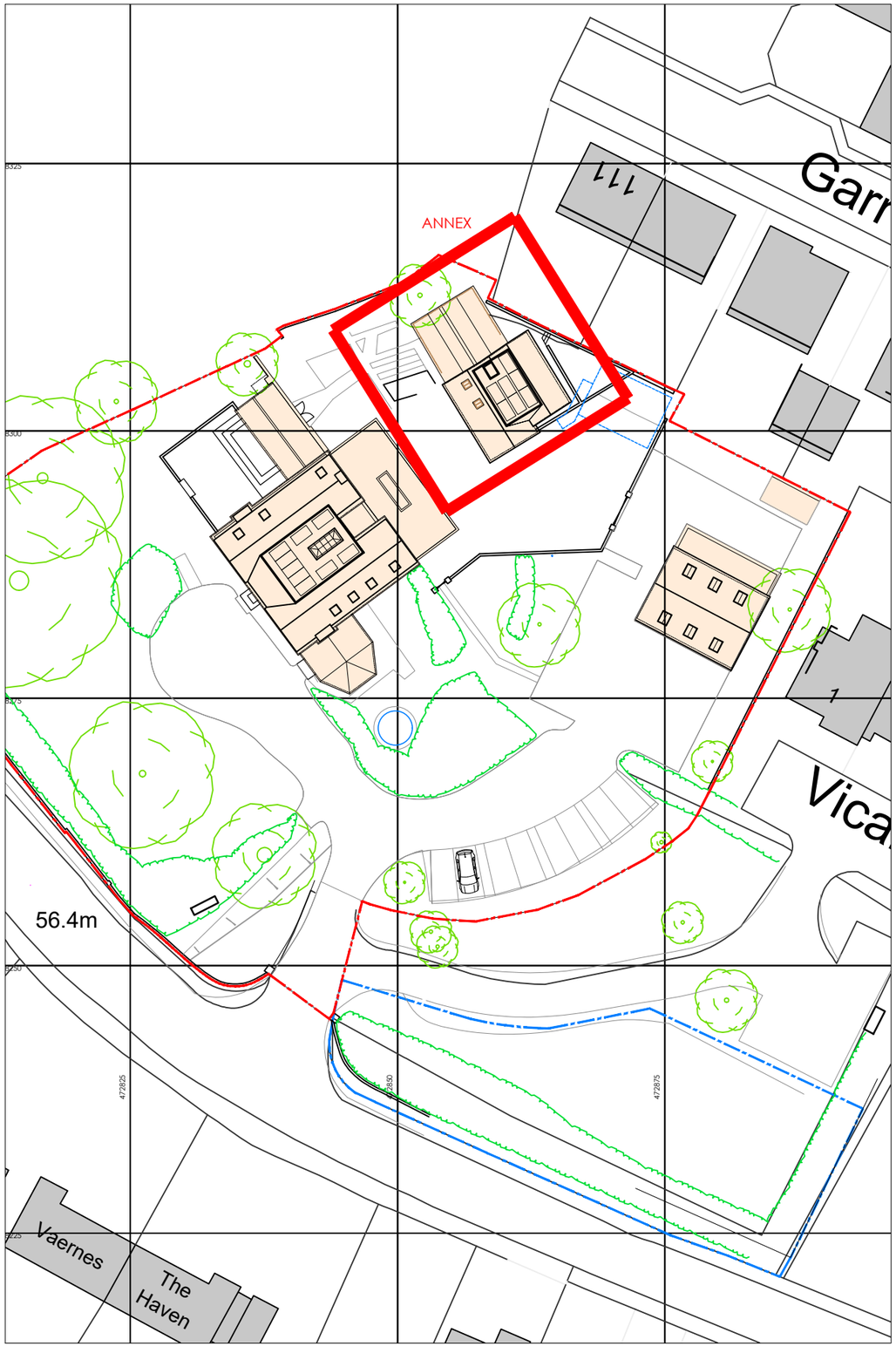
L'ORTOLAN PROPOSED ELEVATIONS

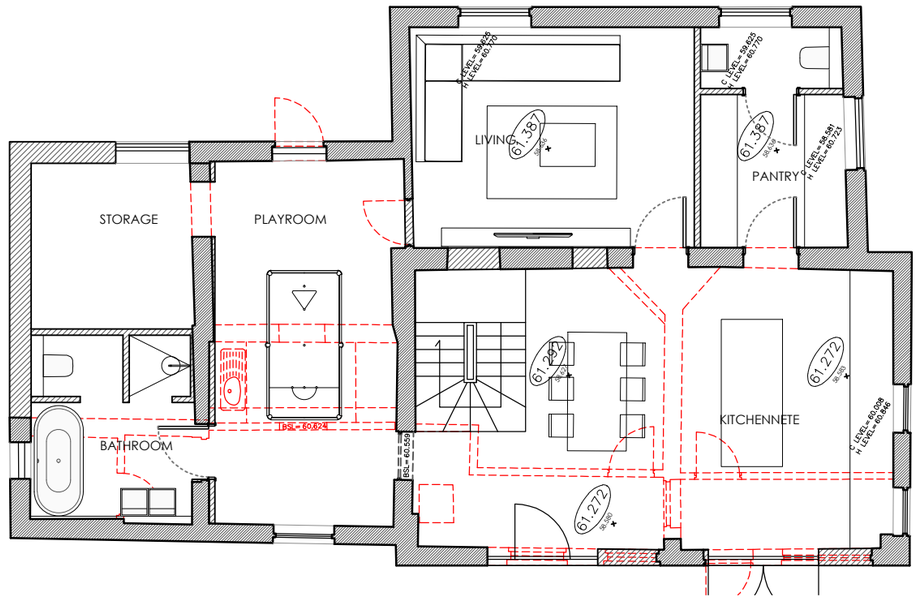
ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

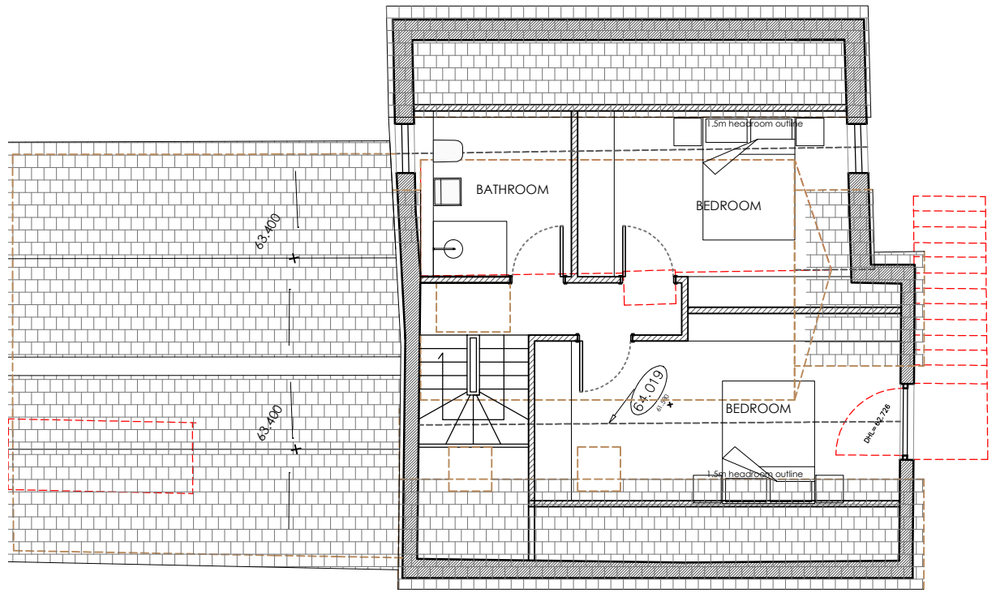
JOB No	DRAWING NUMBER
1149	P16

A3 Sheet





PROPOSED ANNEX GROUND FLOOR PLAN 1:100



PROPOSED ANNEX LOFT FLOOR PLAN 1:100

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

0 5

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA
TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP
TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT: HUSSAIN FAMILY
DRAWN	RR	
CHECKED	-	
SCALE@A3	1:100	

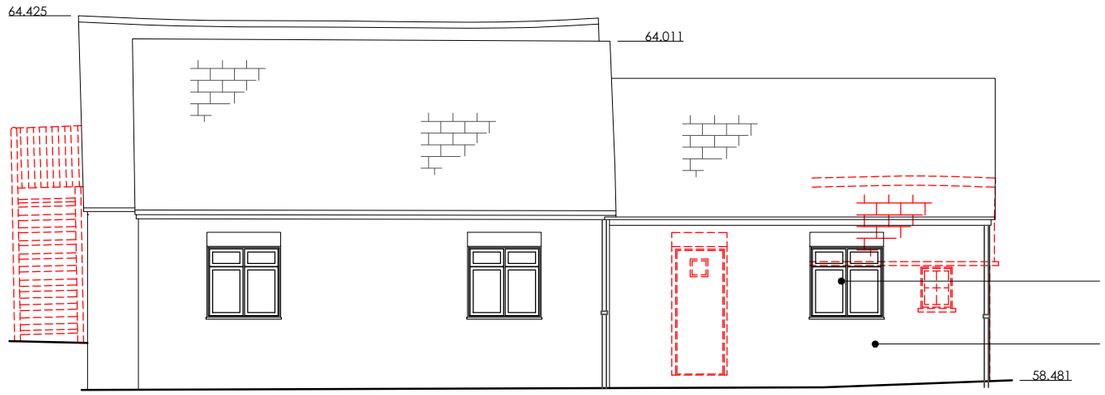
EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

ANNEX BUILDING PROPOSED PLANS

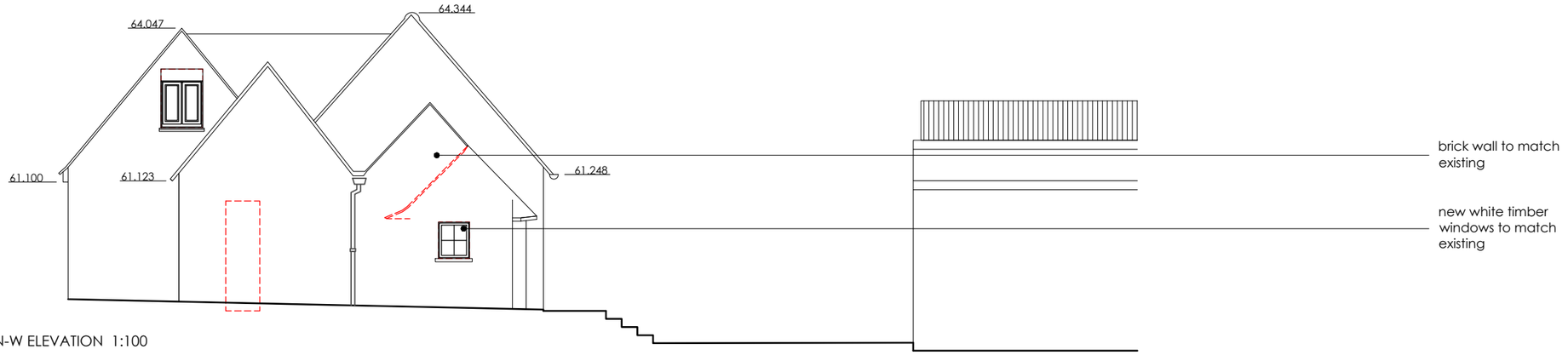
ADDRESS:
L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P22

A3 Sheet

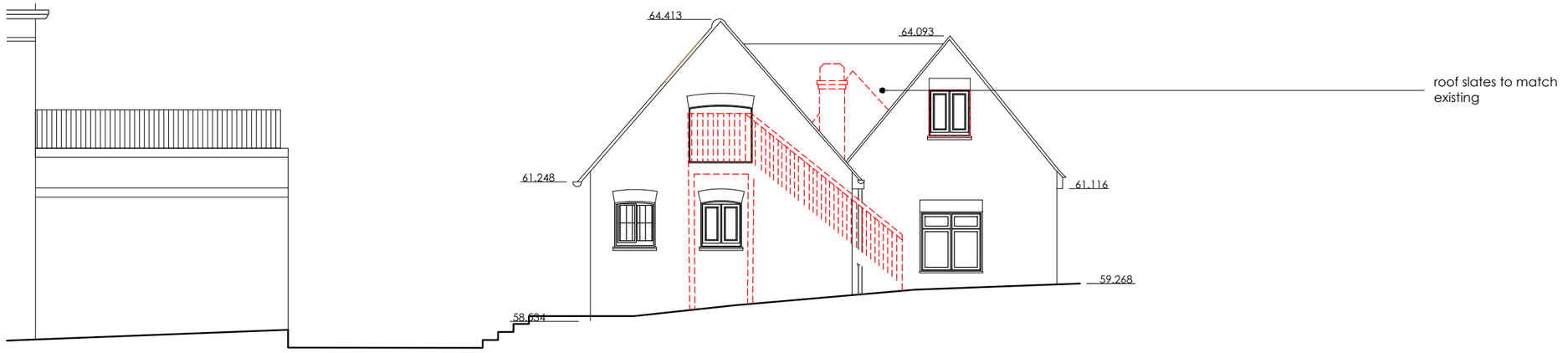


N-E ELEVATION 1:100



N-W ELEVATION 1:100

S-W ELEVATION 1:100



S-E ELEVATION 1:100

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

ELEMENTS TO BE REMOVED OR DEMOLISHED

0 5

PLANNING

trace ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT: HUSSAIN FAMILY
DRAWN	RR	
CHECKED	-	
SCALE@A3	1:100	

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

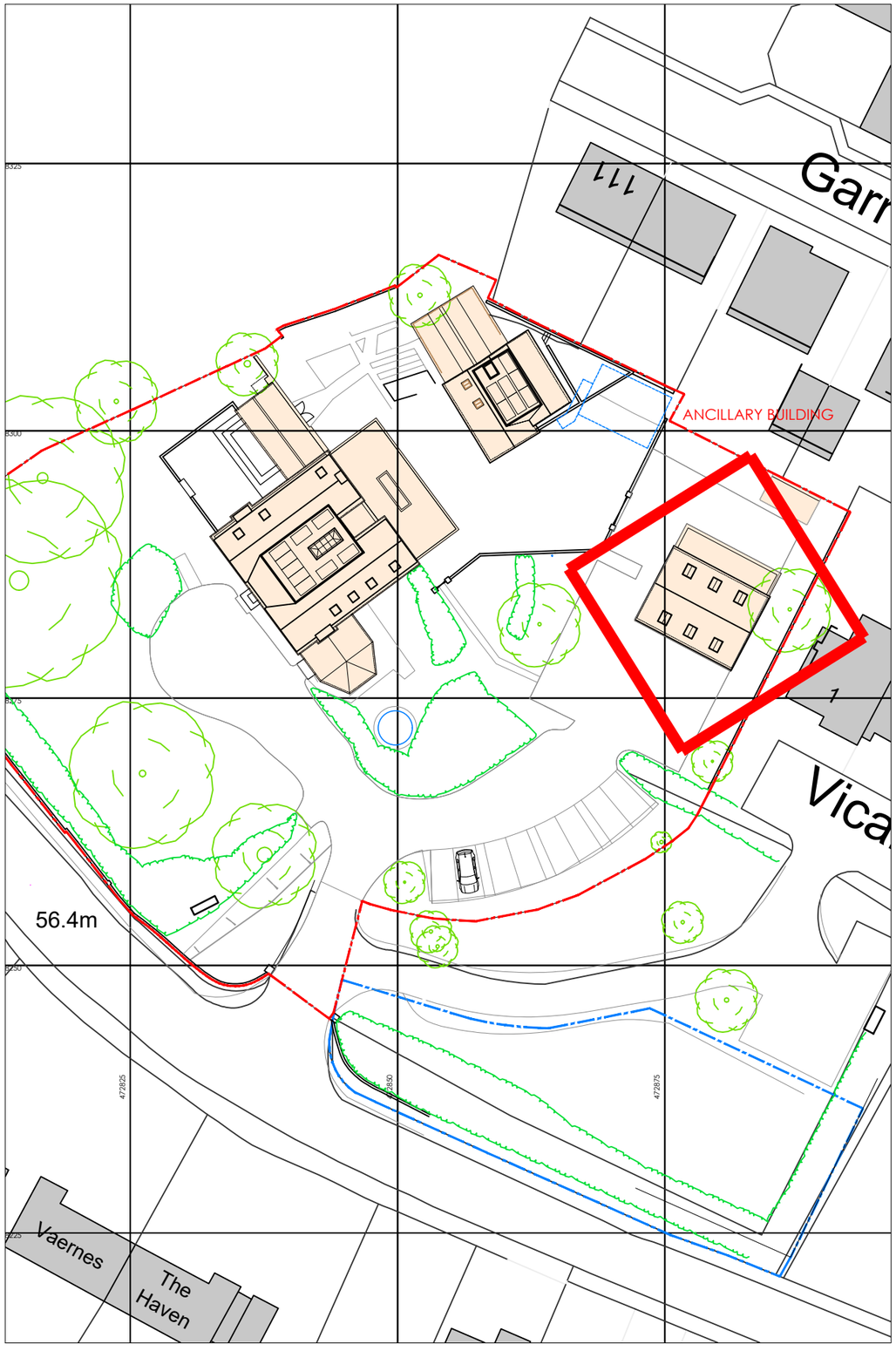
ANNEX BUILDING
PROPOSED ELEVATIONS

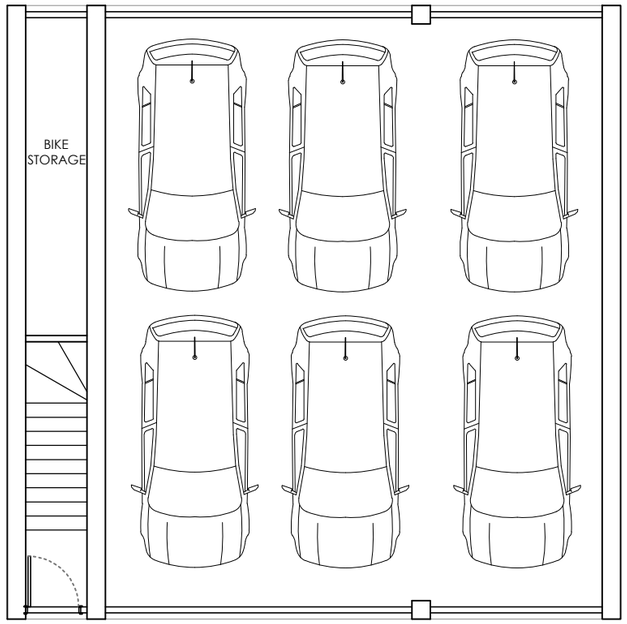
ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

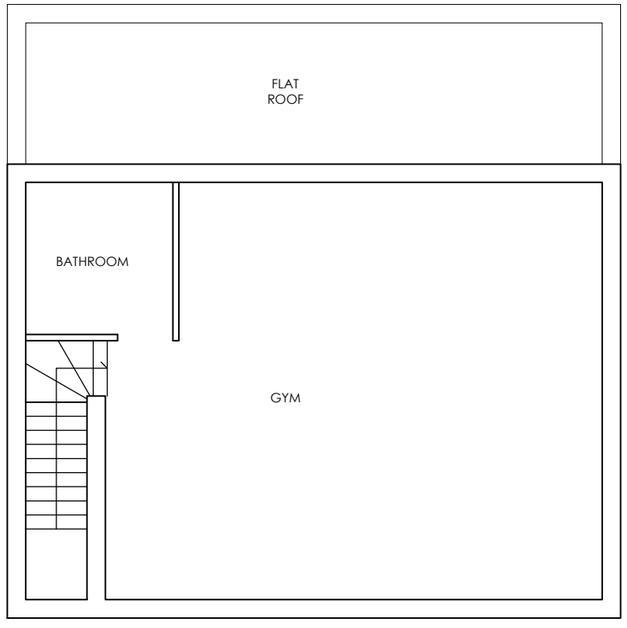
JOB No	DRAWING NUMBER
1149	P23

A3 Sheet





ANCILLARY BUILDING GROUND FLOOR PLAN 1:100 - GARAGE



ANCILLARY BUILDING FIRST FLOOR PLAN 1:100 - GYM

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

N

0 5

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT: HUSSAIN FAMILY
DRAWN	RR	
CHECKED	-	
SCALE@A3	1:100	

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

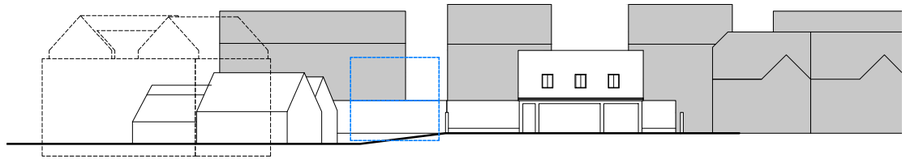
ANCILLARY BUILDING PROPOSED PLANS

ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

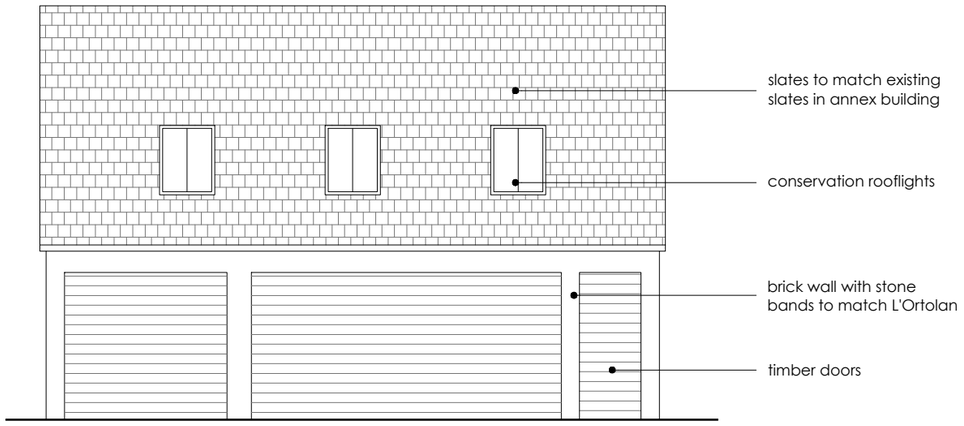
JOB No	DRAWING NUMBER
1149	P25

A3 Sheet

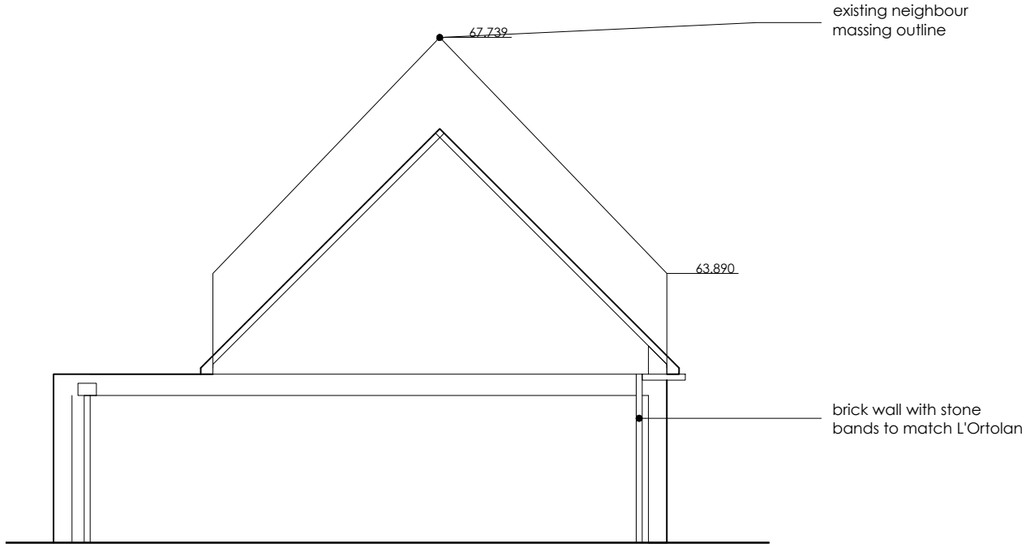


Proposed general massing elevation e 1:500

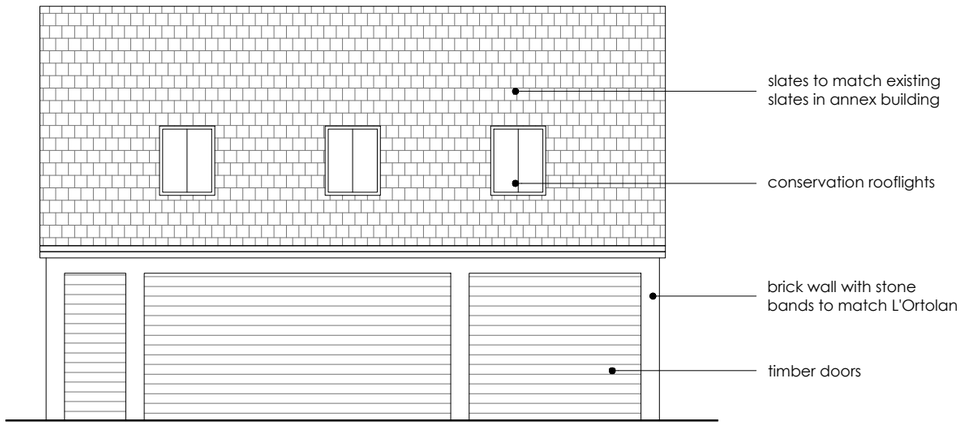
0 25



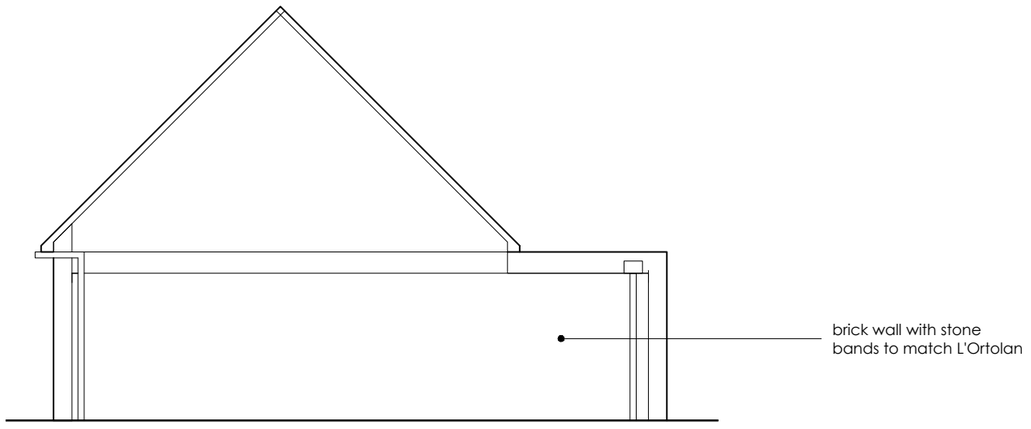
N-E ELEVATION 1:100



S-E ELEVATION 1:100



S-W ELEVATION 1:100



N-W ELEVATION 1:100

NOTES

THIS DRAWING IS THE COPYRIGHT OF THE ARCHITECTS AND MAY NOT BE REPRODUCED WITHOUT PERMISSION

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING DIMENSIONS, TOLERANCES AND REFERENCE. ANY DISCREPENCIES TO BE CHECKED BEFORE PROCEEDING WITH THE WORKS

WHERE AN ITEM IS COVERED BY DRAWINGS TO DIFFERENT SCALES, THE LARGER SCALE DRAWING IS TO BE WORKED TO

~~DO NOT SCALE FROM DRAWING, FIGURED DIMENSIONS TO BE WORKED TO AT ALL TIMES~~

ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND TO COMPLY WITH THE RELEVANT CODES OF PRACTICE AND BRITISH STANDARDS

N

0 5

PLANNING

trace
ARCHITECTS

Basement Studio
263 The Vale
London
W3 7QA

TEL 0208 611 2946

1A Grange Avenue
Rotherfield Peppard
Henley on Thames
RG9 5JP

TEL 01491 579 544

E-MAIL office@tracearchitects.co.uk
www.tracearchitects.co.uk

DATE	JULY 2025	CLIENT: HUSSAIN FAMILY
DRAWN	RR	
CHECKED	-	
SCALE@A3	1:100	

EXTENSIONS, ALTERATIONS AND NEW ANCILLARY BUILDING

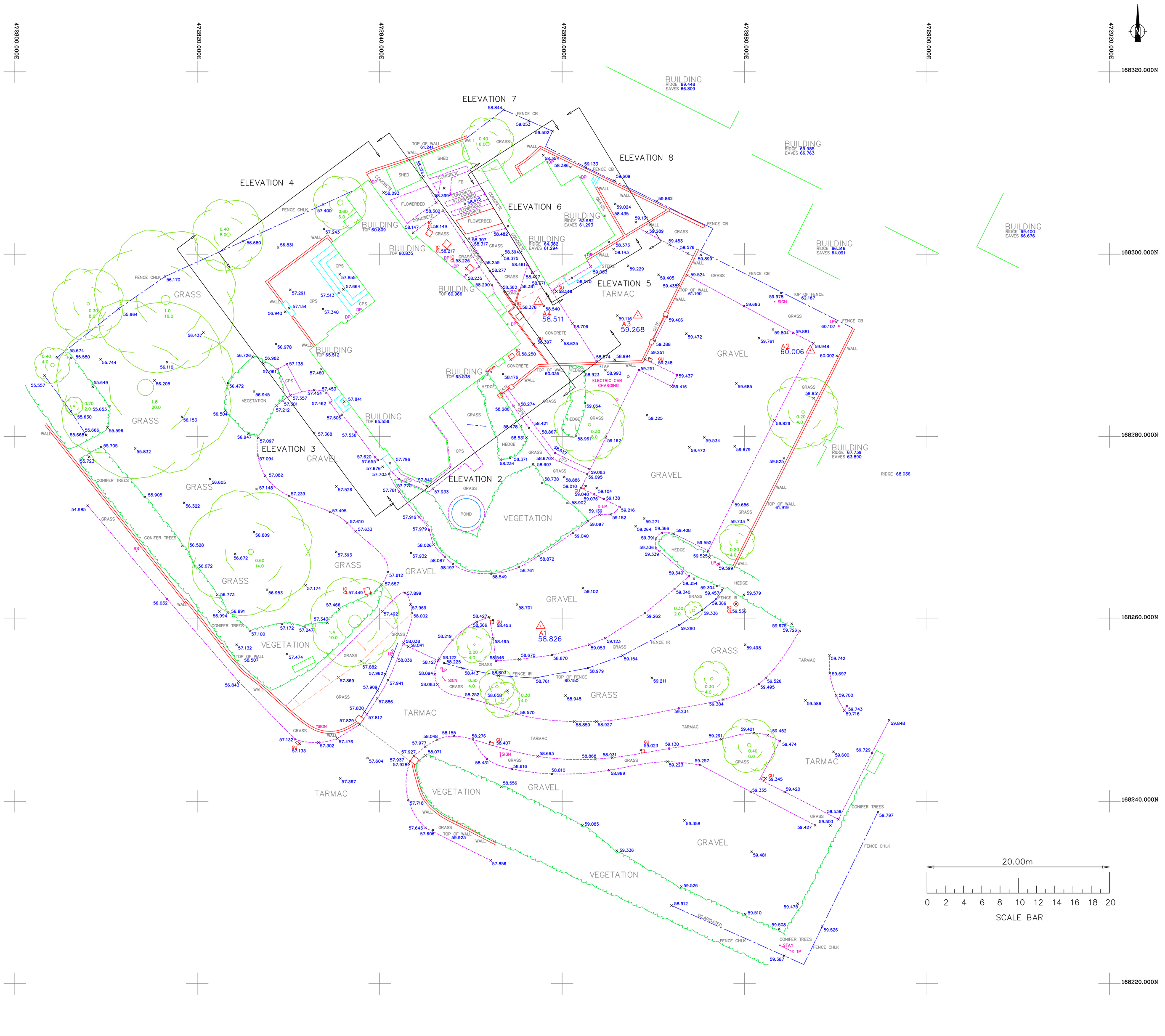
ANCILLARY BUILDING
PROPOSED ELEVATIONS

ADDRESS:

L'ORTOLAN, CHURCH LANE
SHINFIELD, READING, RG2 9BY

JOB No	DRAWING NUMBER
1149	P26

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height	H Level	Window Head Level
25.26	or Ceiling Level	-------	Detail Approx. Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

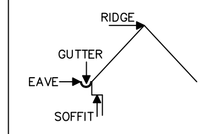
Topographical Abbreviations

A/R	Assumed Route	MKR	Marker
BH	Borehole	MT	Mercury Telecom Cover
BOL	Bollard	OHC	Overhead Cable
BT	British Telecom Cover	OHP	Overhead Pipe
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
BWK	Brickwork	PB	Post Box
CATV	Cable TV Cover	PGM	Permanent Ground Marker
CB	Close Boarded Fence	PR	Post & Rail Fence
CCTV	Closed Circuit TV	PW	Post & Wire Fence
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence
CHPL	Chestnut Paling Fence	RE	Rodding Eye
CL	Cover Level	RG	Road Gully
CM	Cable Marker	RN	Road Name
CP	Catch Pit	RS	Road Sign
CPL	Catch Pit Base Level	RW	Retaining Wall
DIA	Diameter	RWP	Rain Water Pipe
DK	Drop Kerb	SAP	Sapling
DP	Down Pipe	SC	Stop Cock
EJB	Electricity Junction Box	SPR	Spread
EC	Electricity Cover	STA	Traverse Station
EP	Electricity Pole	SV	Stop Valve
ER	Earthing Rod	SVP	Soil Vent Pipe
FH	Fire Hydrant	SW	Storm Water
FIG	Feed Into Ground	TB	Telephone Box
FW	Foul Water	TBM	Temporary Bench Mark
GU	Gully	TFR	Taken From Records
GV	Gas Valve	THL	Threshold Level
H	Height	TJB	Telephone Junction Box
IC	Inspection Cover	TPT	Trial Pit
IL	Invert Level	TL	Traffic Light
IR	Iron Railing Fence	TP	Telephone Pole
KO	Kerb Outlet	UTL	Unable To Lift
LB	Litter Bin	UTT	Unable To Trace
LC	Lamp Column	VP	Vent Pipe
LP	Lamp Post	WKH	Water Key Hole
MH	Manhole	WM	Water Meter
		WV	Water Valve
		- - -	Approximate

Legend

F Foul Water Pipe

S Surface Water Pipe



THIS SURVEY DATA HAS BEEN PREPARED FOR THE CLIENT DETAILED BELOW TO AN AGREED SPECIFICATION. UNLESS OTHERWISE AGREED IN WRITING THE LIABILITY OF REED GEOMATICS LTD IS LIMITED TO THE CLIENT OR HIS APPOINTED AGENT AND DOES NOT EXTEND TO USE BEYOND THE LIMITATIONS OF THE SPECIFICATION.

Survey Station Information

STA No.	Easting	Northing	Level	Type
STN A1	472857.648	168259.222	58.826	Nail
STN A2	472887.204	168289.432	60.006	Nail
STN A3	472868.302	168293.275	59.268	Nail
STN A4	472857.386	168294.783	58.511	Nail

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.
Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
TEL 01932 221358
E-MAIL info@reedgeomatics.com
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
CELL 07939 100008
www.reedgeomatics.com

SURVEYED	TR	CLIENT: LE4D LIMITED
DRAWN	TR	
SCALE	1:200	

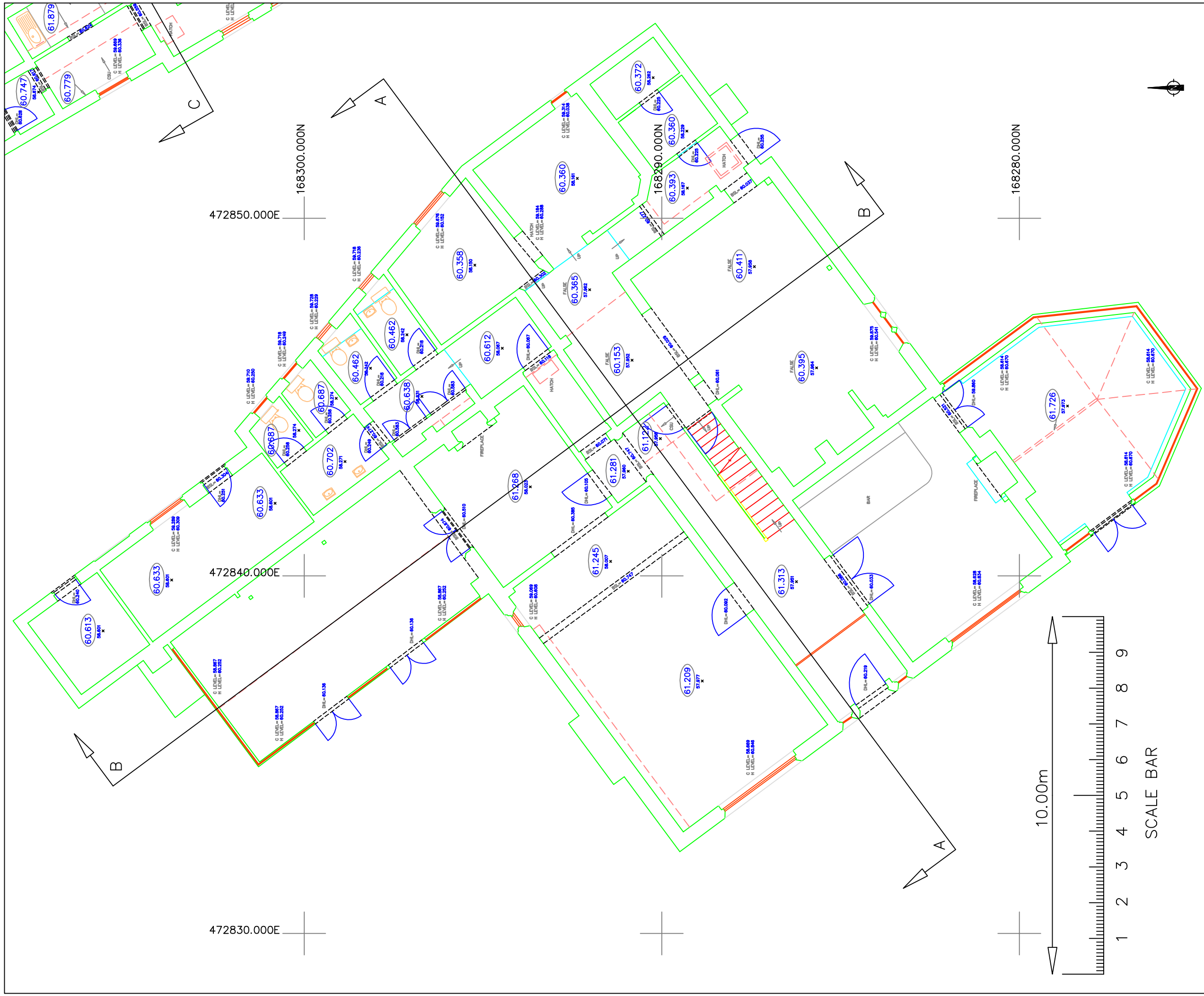
TOPOGRAPHICAL SURVEY

ADDRESS:

Lortalan Church Lane
Shinfield RG2 9BY

JOB No	DRAWING NUMBER
RGT24 2788	01

A1 Sheet - 841mm X 594mm



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.50			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
TEL 01932 221358
CELL 07939 100008
E-MAIL info@reedgeomatics.com
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

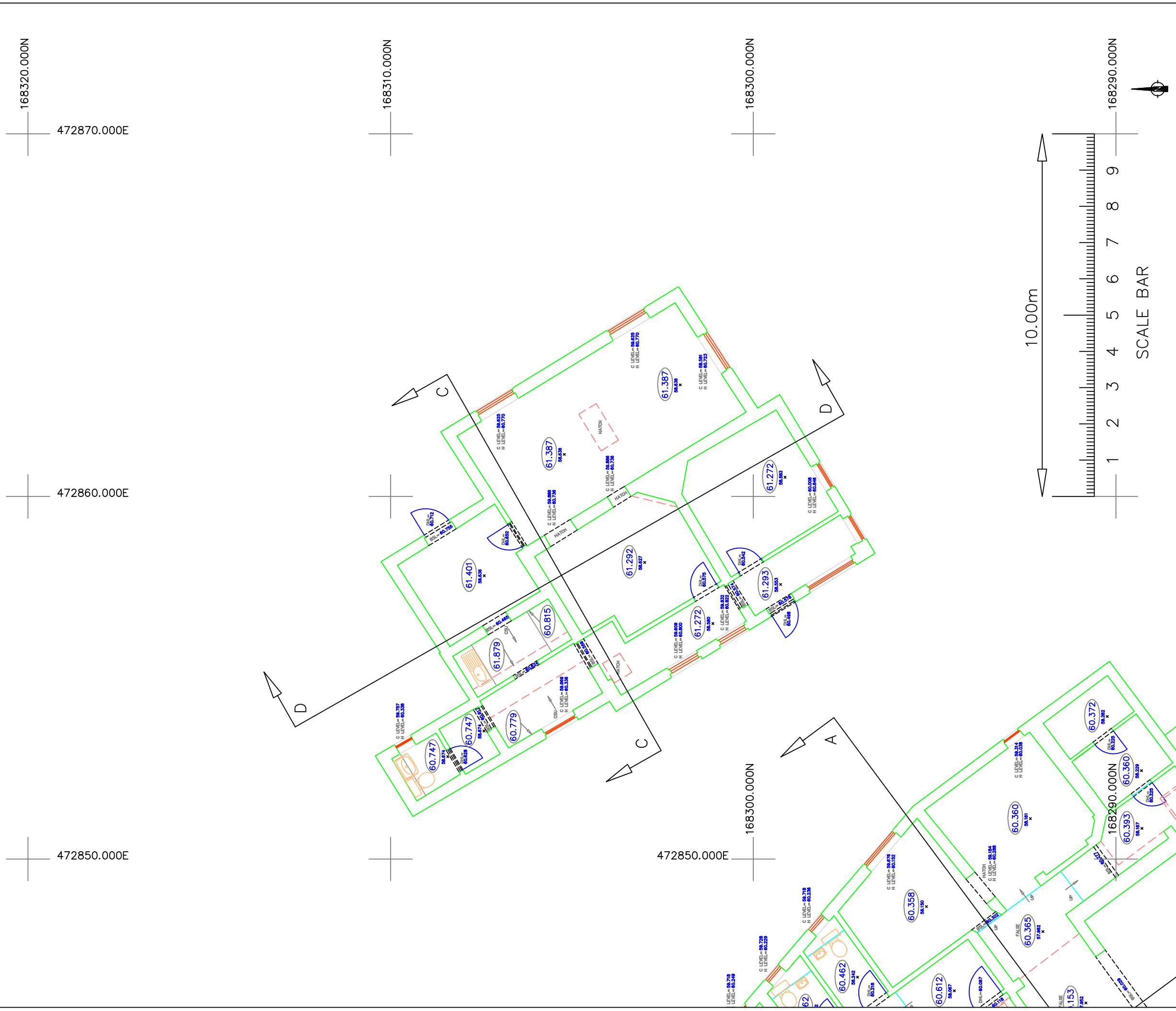
GROUND FLOOR

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT 2788	03A

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.56			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
TEL 01932 221358
E-MAIL info@reedgeomatics.com
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
CELL 07939 100008
www.reedgeomatics.com

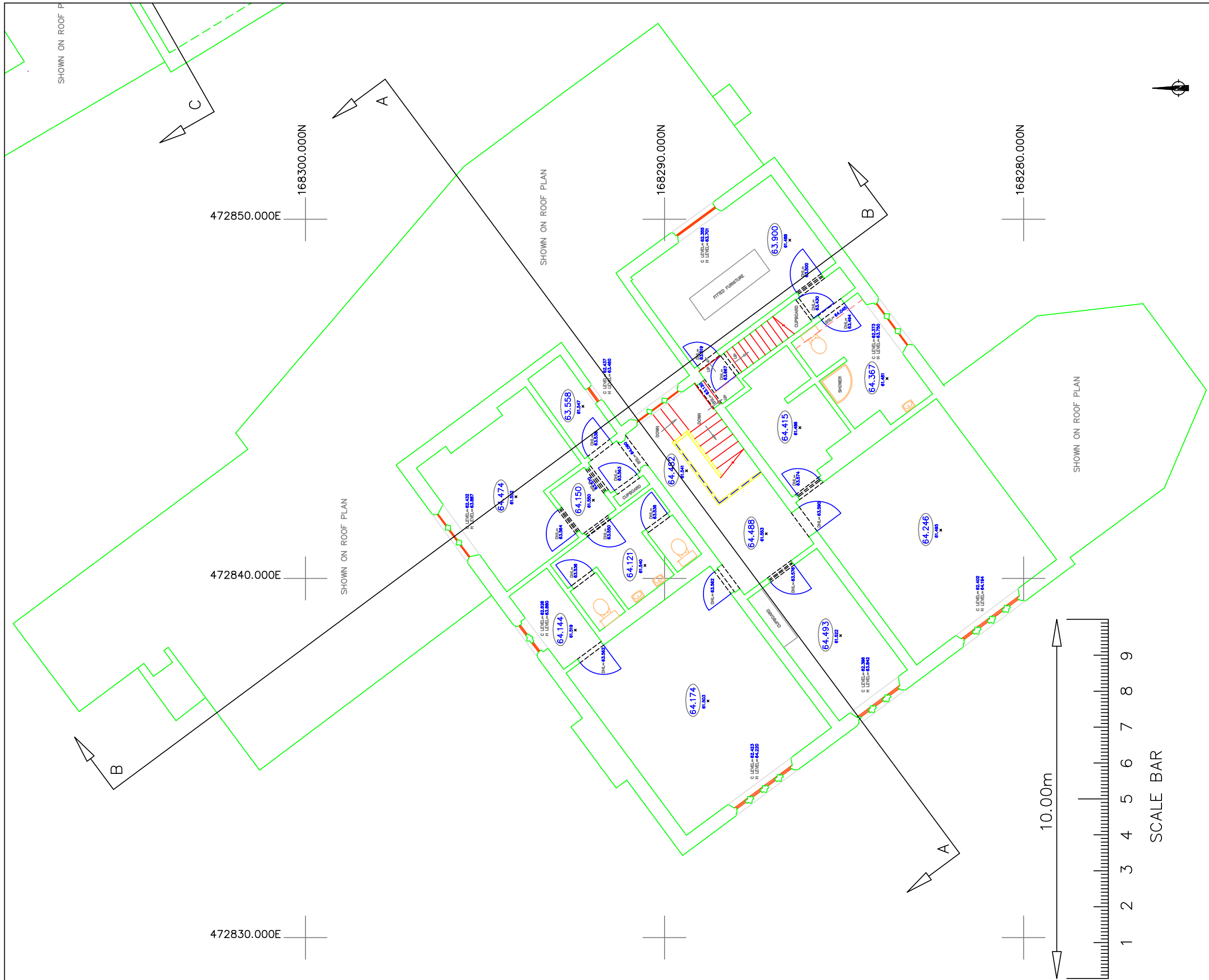
SURVEYED	TR	CLIENT:
DRAWN	HR	Zubair Hussain
SCALE	1:100	

GROUND FLOOR

ADDRESS:
Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT24 2788	03B

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.50			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
TEL 01932 221358
E-MAIL info@reedgeomatics.com
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
CELL 07939 100008
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

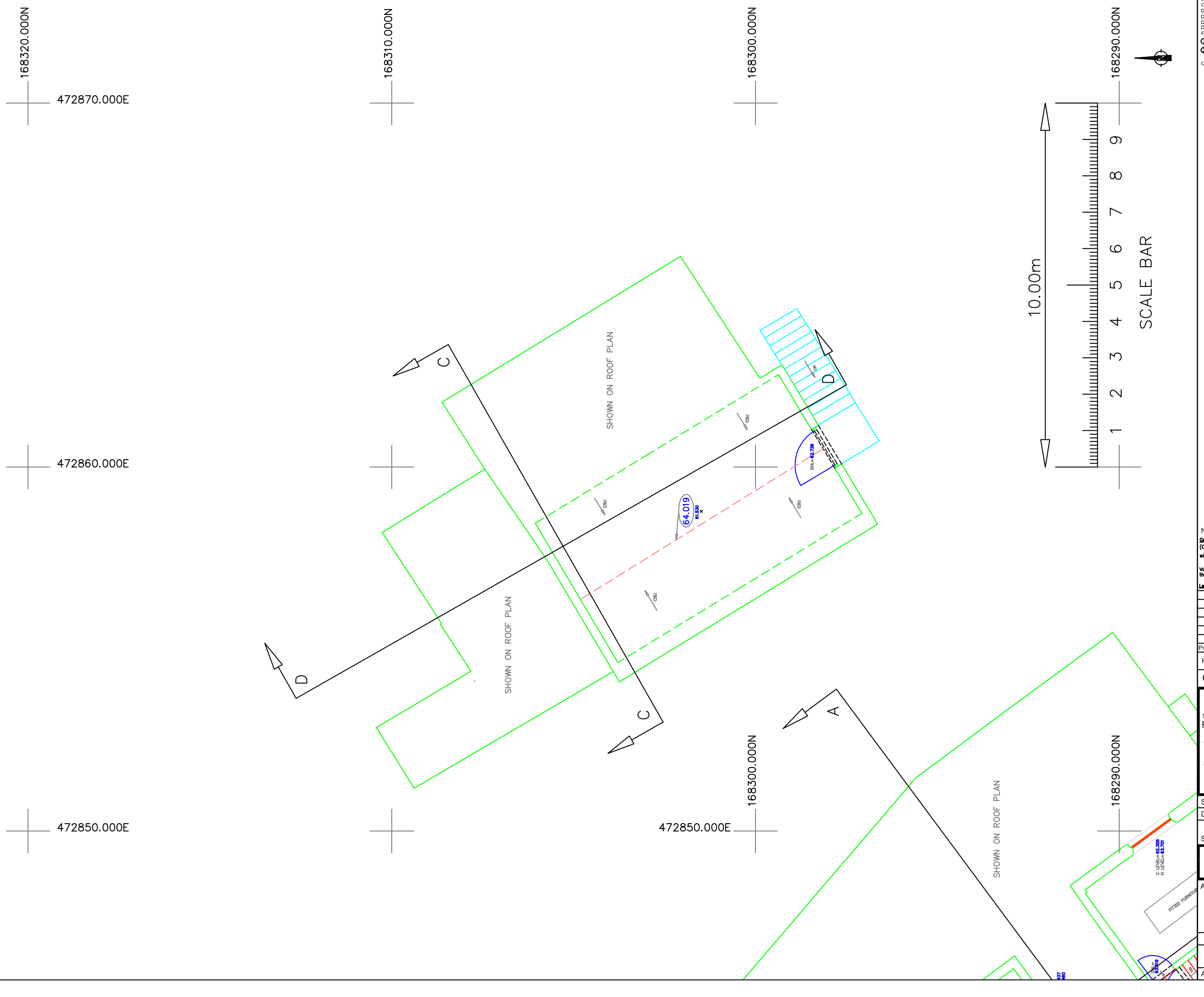
FIRST FLOOR

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT24 2788	04-A

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.56			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
TEL 01932 221358
CELL 07939 100008
E-MAIL info@reedgeomatics.com
www.reedgeomatics.com

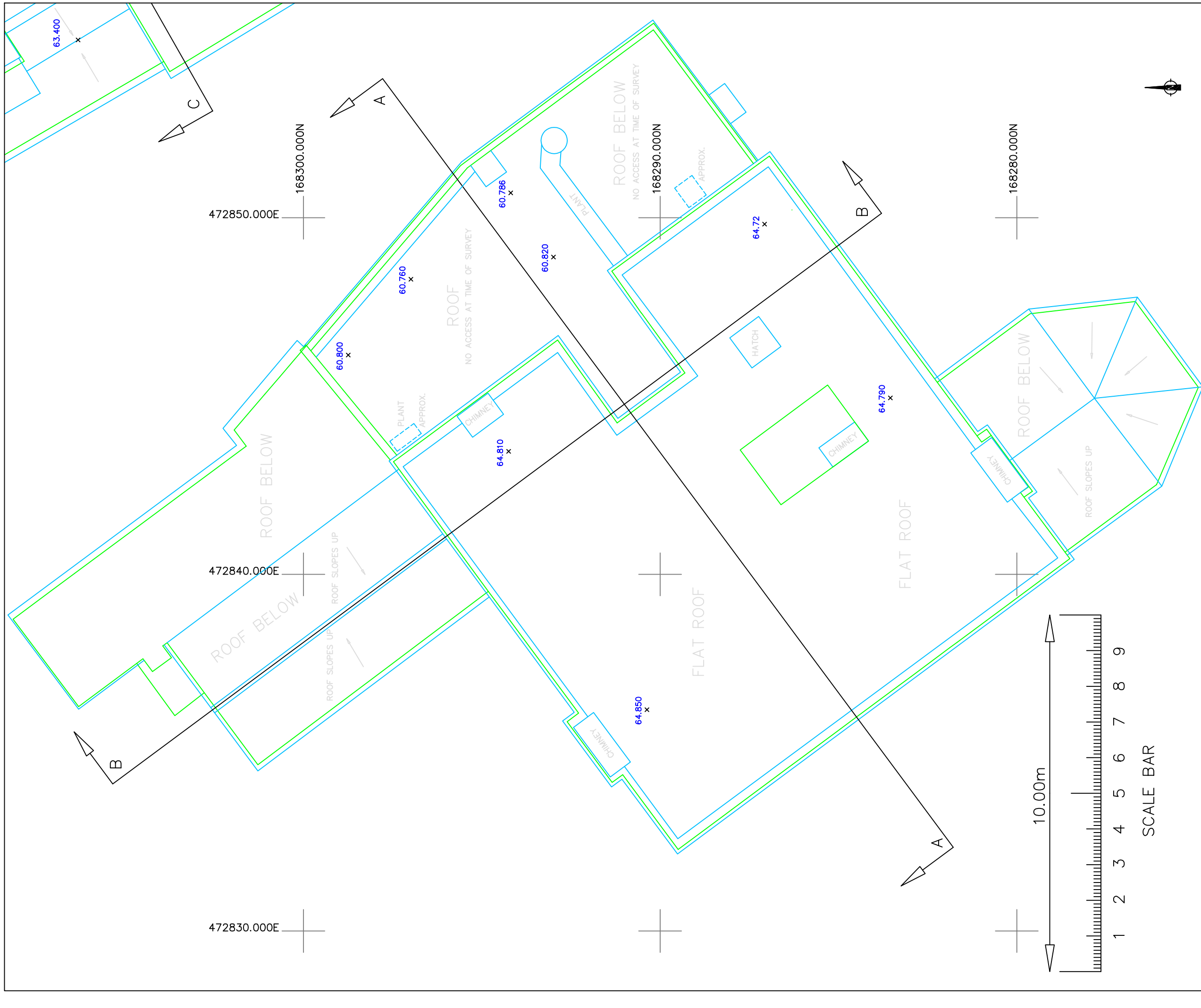
SURVEYED	TR	CLIENT: LE4D LIMITED
DRAWN	HR	
SCALE	1:100	

FIRST FLOOR

ADDRESS:
Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT24 2788	04-B

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
2100	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
25.50			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
TEL 01932 221358
CELL 07939 100008
E-MAIL info@reedgeomatics.com
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

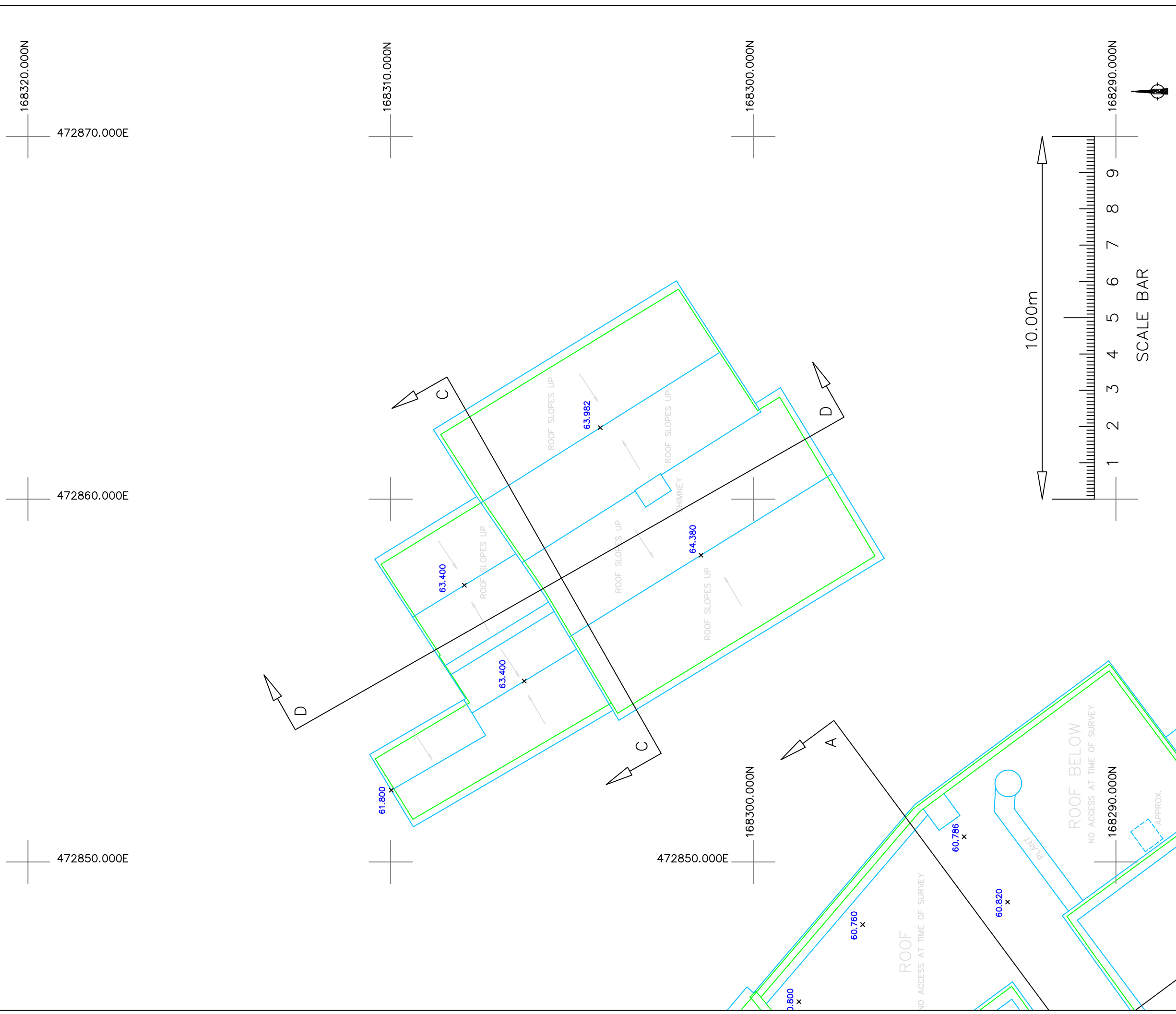
ROOF PLAN

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT24 2788	05-A

A3 Sheet



Building Abbreviations

BL	Basement Level	HD	Heating Duct
BH	Beam Soffit Height	H	Height
BSL	Beam Soffit Level	RWP	Rain Water Pipe
C	Cill Height from FFL	SL	Soffit Level
DP	Down Pipe	SVP	Soil and Vent Pipe
DPC	Damp Proof Course	VP	Vent Pipe
DH	Door Height	W	Window Height from cill
DHL	Door Head level		Direction of Floor Joist Span
FFL	Finished Floor Level	C Level	Cill Level
(2100)	Floor to Ceiling Height or Ceiling Level	H Level	Window Head Level
(25.56)			Detail Approx.
		CSU	Ceiling slopes up
CH	Ceiling Height	F-H	Floor - Window head Ht

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	06-01-2025
0	GR	First Complete Issue	-
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics
SURVEYED BY
REED Geomatics Topographical Ltd
HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD
TEL 01932 221358
E-MAIL info@reedgeomatics.com
BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW
CELL 07939 100008
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

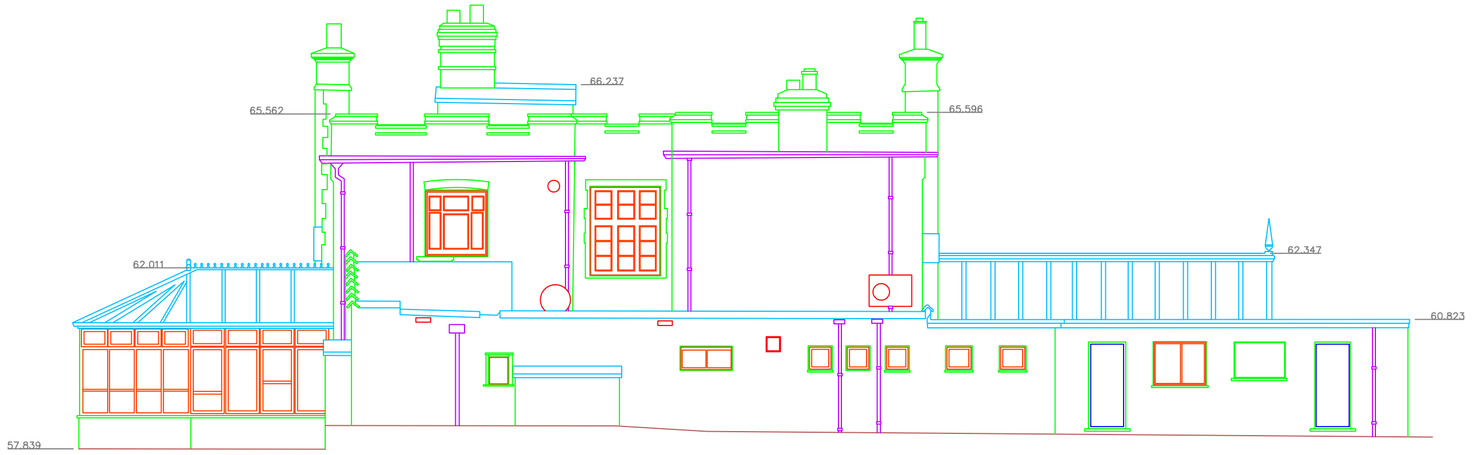
ROOF PLAN

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

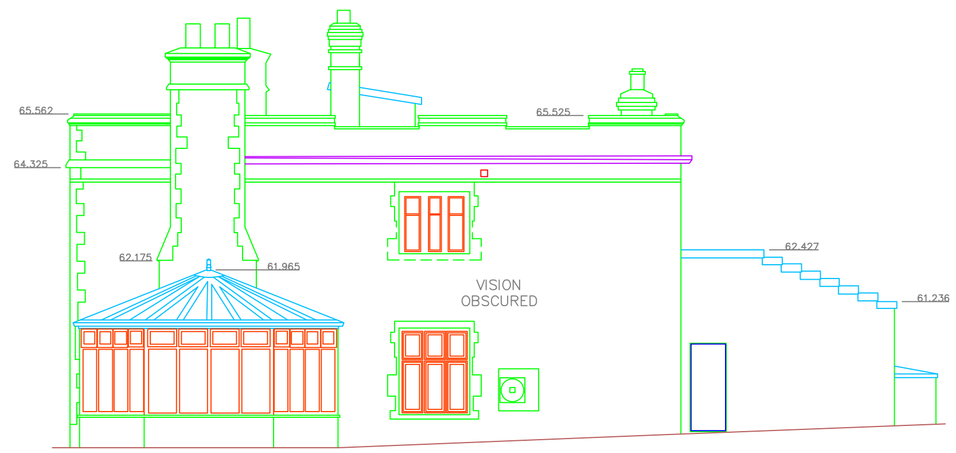
JOB No	DRAWING NUMBER
RGT24 2788	05-B

A3 Sheet



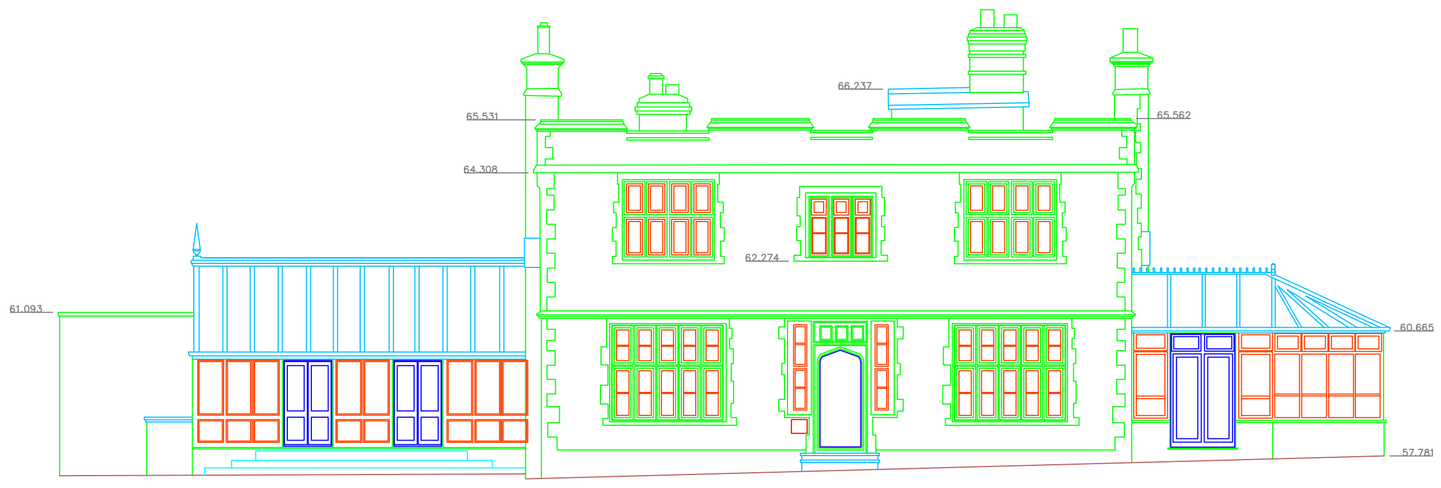
ELEVATION 1

DATUM 55.00m



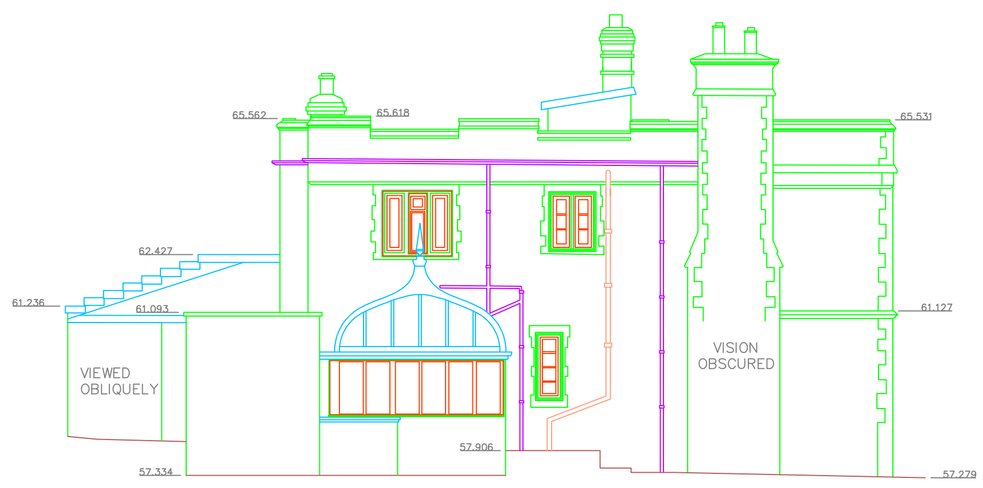
ELEVATION 2

DATUM 55.00m



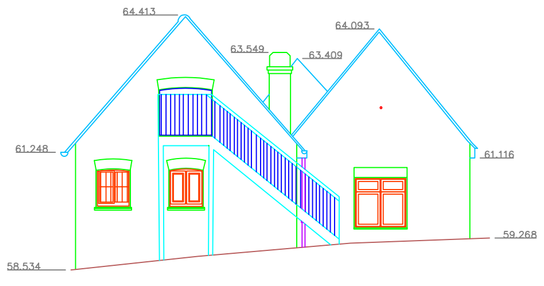
ELEVATION 3

DATUM 55.00m



ELEVATION 4

DATUM 55.00m

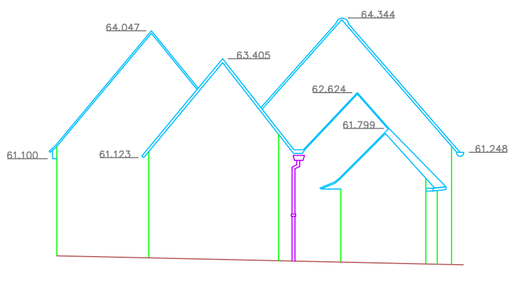


ELEVATION 5

DATUM 55.00m

ELEVATION 6

DATUM 55.00m

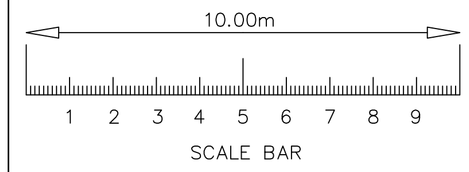


ELEVATION 7

DATUM 55.00m

ELEVATION 8

DATUM 55.00m



SCALE BAR

Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics

SURVEYED BY

REED Geomatics Topographical Ltd

HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD

BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW

TEL 01932 221358
CELL 07939 100008
E-MAIL info@reedgeomatics.com
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

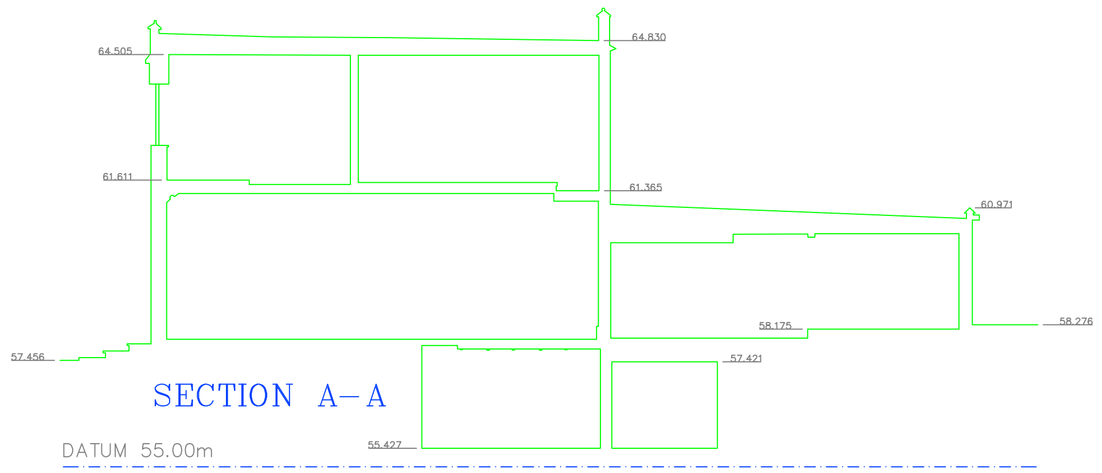
ELEVATIONS / SECTIONS

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

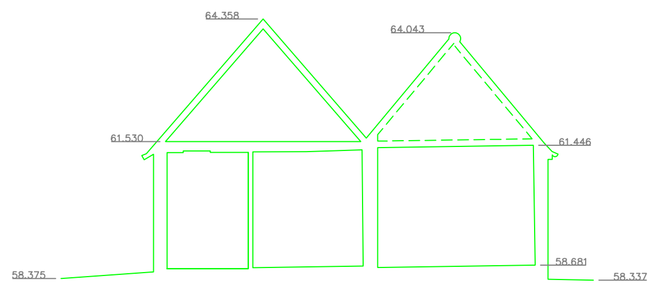
JOB No	DRAWING NUMBER
RGT 2788	06A

A1 Sheet



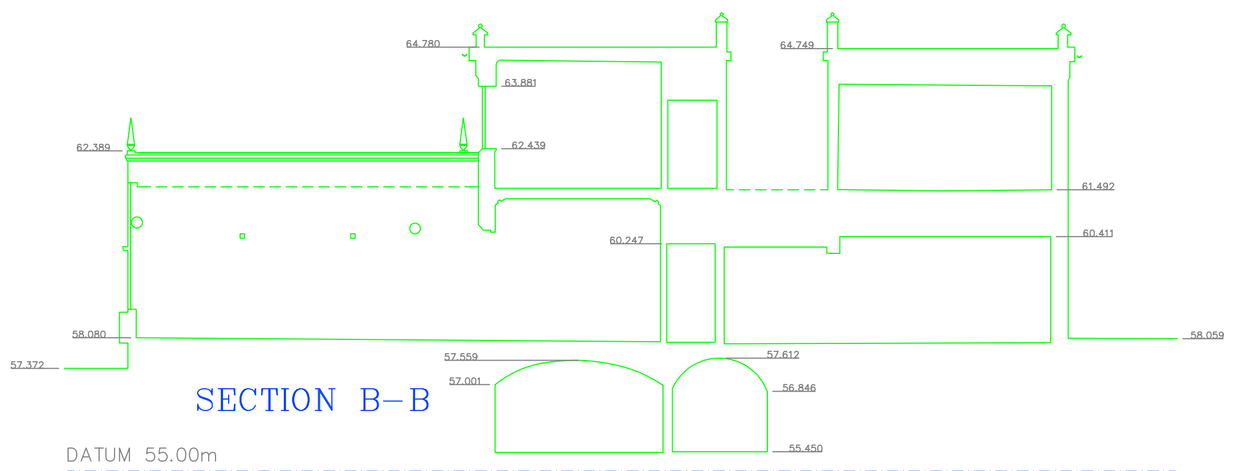
SECTION A–A

DATUM 55.00m



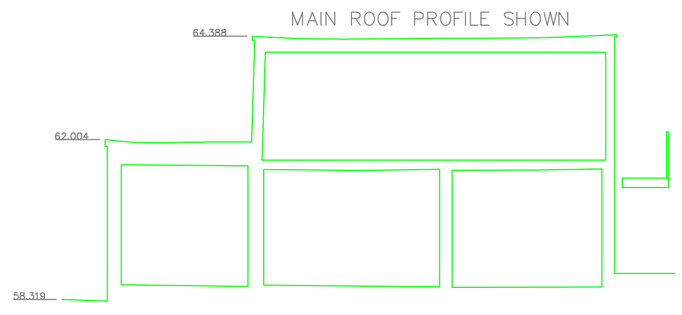
SECTION C–C

DATUM 55.00m



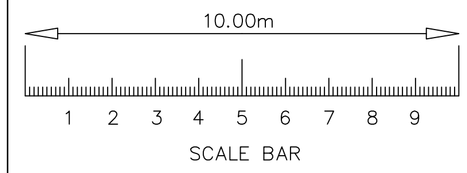
SECTION B–B

DATUM 55.00m



SECTION D–D

DATUM 55.00m



Notes

Grid: Survey is based on a modified Ordnance Survey National Grid (OSGB36), site centered (or centered on STN A1 where present) with a scale factor of 1 applied.

Values have been derived via GPS using the OS active network using the OSGM15 transformation and OSGM15 geoid model.

Level datum: Ordnance Datum Newlyn (ODN).

Rev	QA Check	Description	Date
5	-	-	-
4	-	-	-
3	-	-	-
2	-	-	-
1	-	-	-
0	GR	First Complete Issue	06-01-2025
Prelim	-	Preliminary - Not Complete	-

REEDgeomatics

SURVEYED BY

REED Geomatics Topographical Ltd

HEAD OFFICE
16 St NICHOLAS DRIVE
SHEPPERTON
MIDDX
TW17 9LD

BRANCH OFFICE
BRANDONS VENNS GATE
CHEDDAR
SOMERSET
BS27 3LW

TEL 01932 221358
CELL 07939 100008
E-MAIL info@reedgeomatics.com
www.reedgeomatics.com

SURVEYED	TR	CLIENT:
DRAWN	HR	LE4D LIMITED
SCALE	1:100	

ELEVATIONS / SECTIONS

ADDRESS:

Lortalan, Church Lane
Shinfield, RG2 9BY

JOB No	DRAWING NUMBER
RGT 2788	06b

A1 Sheet

GeoSmart Information

Appendix B

Rainfall runoff calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)		Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)		Minimum Backdrop Height (m)	0.200
Ratio-R		Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)		Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Node Type	Depth (m)
eastbuilding	0.012	10.000	Manhole	1.400
westbuildings	0.026	10.000	Manhole	1.400

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	10	0
30	0	10	0
100	0	10	0
100	40	10	0

Node eastbuilding Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.11250	Invert Level (m)	8.600	Depth (m)	1.000
Side Inf Coefficient (m/hr)	0.11250	Time to half empty (mins)	292	Inf Depth (m)	1.000
Safety Factor	2.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	2.500		

Node westbuildings Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.11250	Invert Level (m)	8.600	Depth (m)	1.000
Side Inf Coefficient (m/hr)	0.11250	Time to half empty (mins)	344	Inf Depth (m)	1.000
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	4.500		

Results for 2 year +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	eastbuilding	176	8.765	0.165	0.4	1.2047	0.0000	OK
180 minute winter	westbuildings	136	8.748	0.148	1.1	2.5986	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute winter	eastbuilding	Infiltration	0.1
180 minute winter	westbuildings	Infiltration	0.3

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	eastbuilding	148	9.109	0.509	1.2	3.7259	0.0000	OK
120 minute winter	westbuildings	118	9.065	0.465	3.6	8.1479	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
180 minute winter	eastbuilding	Infiltration	0.2
120 minute winter	westbuildings	Infiltration	0.4

Results for 100 year +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	eastbuilding	172	9.276	0.676	1.5	4.9421	0.0000	OK
120 minute winter	westbuildings	120	9.217	0.617	4.6	10.8042	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
180 minute winter	eastbuilding	Infiltration	0.2
120 minute winter	westbuildings	Infiltration	0.4

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	eastbuilding	176	9.594	0.994	2.1	7.2679	0.0000	OK
240 minute winter	westbuildings	232	9.524	0.924	3.7	16.1808	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
180 minute winter	eastbuilding	Infiltration	0.3
240 minute winter	westbuildings	Infiltration	0.5

GeoSmart Information

Appendix C

Thames Water Asset Location Plan

Asset Location Search

Property Searches

Geosmart Information Ltd
Suite 9-11
1st Floor
Old Bank
SHREWSBURY
SY1 1HU

Search address supplied L'ortolan Restaurant
Church Lane
Reading
RG2 9BY

Your reference 86724

Our reference ALS/ALS Standard/2025_5204303

Search date 4 August 2025

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .

Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB

property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches

0800 009 4540

Asset Location Search

Property Searches

Search address supplied: L'ortolan Restaurant, Church Lane, Reading, RG2 9BY

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk
Web: thameswater.co.uk/propertysearches

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. The public sewer map 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.

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. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over 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

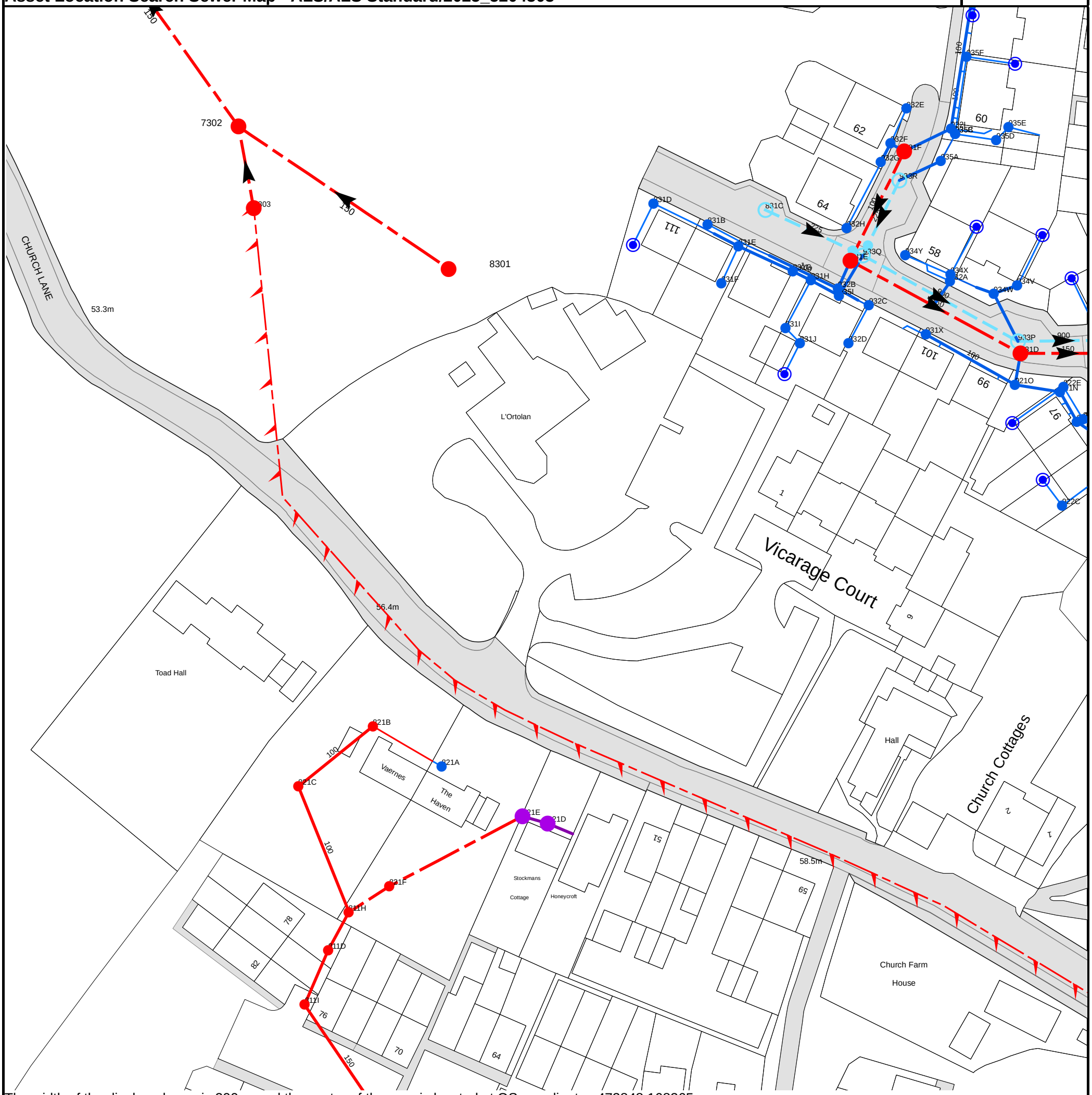
Clean Water queries

Should you require any advice concerning clean water 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/2025_5204303



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 472848,168265

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.

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
934W	n/a	n/a
935D	n/a	n/a
935E	n/a	n/a
921O	n/a	n/a
934V	n/a	n/a
933P	61.66	58.08
931D	61.61	60.01
921N	n/a	n/a
922C	n/a	n/a
922E	n/a	n/a
921M	n/a	n/a
922F	n/a	n/a
934R	n/a	n/a
931E	61.49	60.27
933Q	61.5	58.62
932C	n/a	n/a
932G	n/a	n/a
932F	n/a	n/a
933R	61.87	59.91
931F	62.08	60.63
934Y	n/a	n/a
932E	n/a	n/a
931X	n/a	n/a
935A	n/a	n/a
932A	n/a	n/a
934X	n/a	n/a
932I	n/a	n/a
935B	n/a	n/a
935C	n/a	n/a
935F	n/a	n/a
821C	n/a	n/a
811I	n/a	n/a
811D	n/a	n/a
811H	n/a	n/a
821F	n/a	n/a
821E	n/a	n/a
821D	n/a	n/a
821A	n/a	n/a
821B	n/a	n/a
932D	n/a	n/a
831J	n/a	n/a
831I	n/a	n/a
935I	n/a	n/a
932B	n/a	n/a
831F	n/a	n/a
831H	n/a	n/a
831G	n/a	n/a
8301	57.83	55.16
831E	n/a	n/a
932H	n/a	n/a
831B	n/a	n/a
831C	61.58	58.92
7303	57.05	54.8
831D	n/a	n/a
7302	56.8	54.47

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.

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

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

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

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

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

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
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

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

- Ancillary
- Drop Pipe
- Control Valve
- 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.

- Inlet
- Outfall
- Undefined End

Other Symbols

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

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

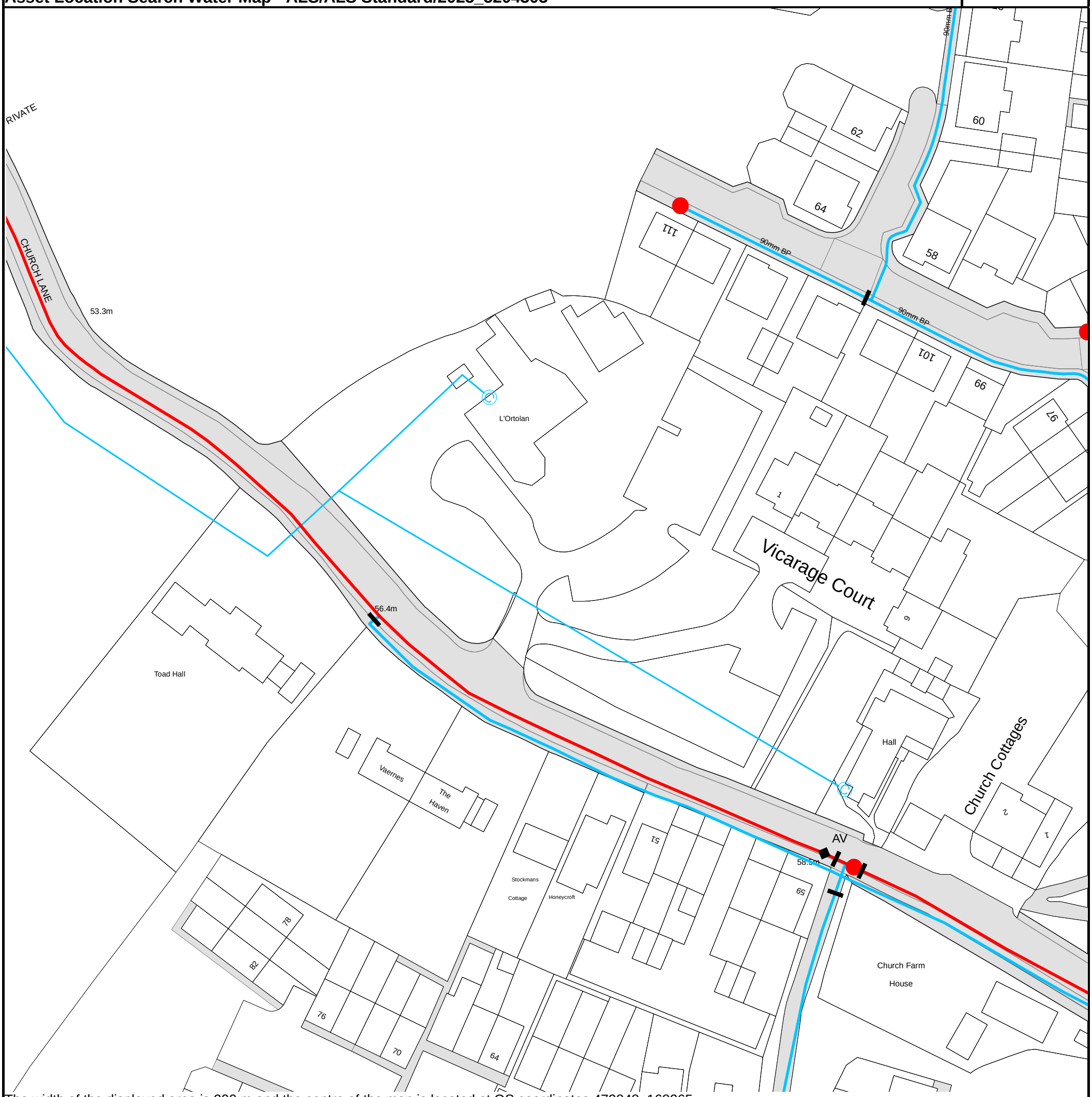
Ducts may contain high voltage cables. Please check with Thames Water.

- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the 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 indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. 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, please contact Property Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2025_5204303



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 472848, 168265.

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.

Asset Location Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger
- **Casement:** Ducts may contain high voltage cables. Please check with Thames Water.

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Disclaimer

This report has been prepared by GeoSmart in its professional capacity as soil, groundwater, flood risk and drainage specialists, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client and is provided by GeoSmart solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to GeoSmart at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

This report is confidential to the client. The client may submit the report to regulatory bodies, where appropriate. Should the client wish to release this report to any other third party for that party's reliance, GeoSmart may, by prior written agreement, agree to such release, provided that it is acknowledged that GeoSmart accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known. GeoSmart accepts no responsibility for any loss or damage incurred as a result, and the third party does not acquire any rights whatsoever, contractual or otherwise, against GeoSmart except as expressly agreed with GeoSmart in writing.

For full T&Cs see http://geosmartinfo.co.uk/terms-conditions

Further information

Information on confidence levels and ways to improve this report can be provided for any location on written request to info@geosmart.co.uk or via our website. Updates to our model are ongoing and additional information is being collated from several sources to improve the database and allow increased confidence in the findings. Further information on groundwater levels and flooding are being incorporated in the model to enable improved accuracy to be achieved in future versions of the map. Please contact us if you would like to join our User Group and help with feedback on infiltration SuDS and mapping suggestion.

Important consumer protection information

This search has been produced by GeoSmart Information Limited, Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU.

Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

GeoSmart Information Limited is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom.
- sets out minimum standards which firms compiling and selling search reports have to meet.
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals.
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.
- By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports.
- act with integrity and carry out work with due skill, care and diligence.
- at all times maintain adequate and appropriate insurance to protect consumers.
- conduct business in an honest, fair and professional manner.
- handle complaints speedily and fairly.
- ensure that products and services comply with industry registration rules and standards and relevant laws.
- monitor their compliance with the Code.

GeoSmart Information

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs contact details:

The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk.

Please ask your search provider if you would like a copy of the search code

Complaints procedure

GeoSmart Information Limited is registered with the Property Codes Compliance Board as a subscriber to the Search Code. A key commitment under the Code is that firms will handle any complaints both speedily and fairly. If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Liz Lloyd

Finance Manager

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

support@geosmartinfo.co.uk

16 Terms and conditions, CDM regulations and data limitations

Terms and conditions can be found on our website:

http://geosmartinfo.co.uk/terms-conditions/

CDM regulations can be found on our website:

http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/

Data use and limitations can be found on our website:

http://geosmartinfo.co.uk/data-limitations/