100 Avenue Road

Drainage Report

February 2025

REGAL

Drainage Strategy Report

100 Avenue Road

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Regal Avenue Road Ltd

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We design for delivery

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Report Amendment Register

Issue Ref	Amended Section(s)	Issue/Amendment Details	Author(s)	Reviewer	Date
P01	-	Draft Issue	Kirtan Chag	-	10/01/25
P02	-	Final Issue	James Black	Jonathan Gold	06/02/25
P03	4.0, App	Planning Issue	James Black	Jonathan Gold	17/02/25
P04	App	Minor Amendment	James Black	Jonathan Gold	17/02/25

James Black
Senior Engineer

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Associate Director

PP.

Executive Summary

This Drainage Strategy report has been produced in support of the s.73 Amendment Application for the proposed development at 100 Avenue Road (the Site). This development includes demolition of the existing building and redevelopment comprising residential units (Class C3) and flexible commercial, business and service use (Class E) and community use (Class F2(b)) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements.

This report replaces the previous Drainage Strategy report prepared by URS Infrastructure and Environment UK Ltd for Essential Living (Swiss Cottage) Limited, approved under the Implemented Permission ref. 2014/1617/P and subsequent amendments. The previous Drainage Strategy report considered 184 residential units.

This report considers the uplift of residential units and commercial space, as well as revised planning policies and considers the impact in terms of drainage on the Site.

The surface water and foul water drainage strategy is outlined in this report and includes the use of Sustainable Drainage Systems (SuDS); namely,

- Green roof systems.
- Soft landscaping.
- Attenuation storage.
- Flow control units.

Further details regarding flood risks can be found in the accompanying Flood Risk Assessment report 5416-RBG-XX-XX-RP-CV-86002.

Contents

Appendices

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1. Introduction

1.1 General

Robert Bird Group (RBG) has been appointed by Regal Avenue Road Limited as the Civil Engineers for the 100 Avenue Road project in Swiss Cottage. This report outlines the below-ground drainage strategy and assesses the existing drainage against the proposed s.73 Amendment Application.

1.2 Scope

The objective of this report is to assess the as-built drainage system, which is part of the Implemented Permission, in comparison to the new design and comment on suitability for the s.73 Amendment Application.

The assessment includes information on the following topics:

- Site background and existing conditions: A review of the site's history and status.
- Proposed discharge strategy for surface water drainage: Recommendations for managing surface water runoff.
- Surface water discharge proposals and attenuation: Plans for surface water discharge along with strategies for attenuation.
- Maintenance requirements for drainage systems: Guidelines for maintaining the drainage systems.
- Foul and grey water drainage strategy: An outline of the approach for managing foul and grey water.

This assessment is supported by drawings that illustrate the layouts of the as-built surface, foul, and grey water networks.

2. Site Context

2.1 Site Location

The site is in the London Borough of Camden at 100 Avenue Road as shown in Figure 1 below.

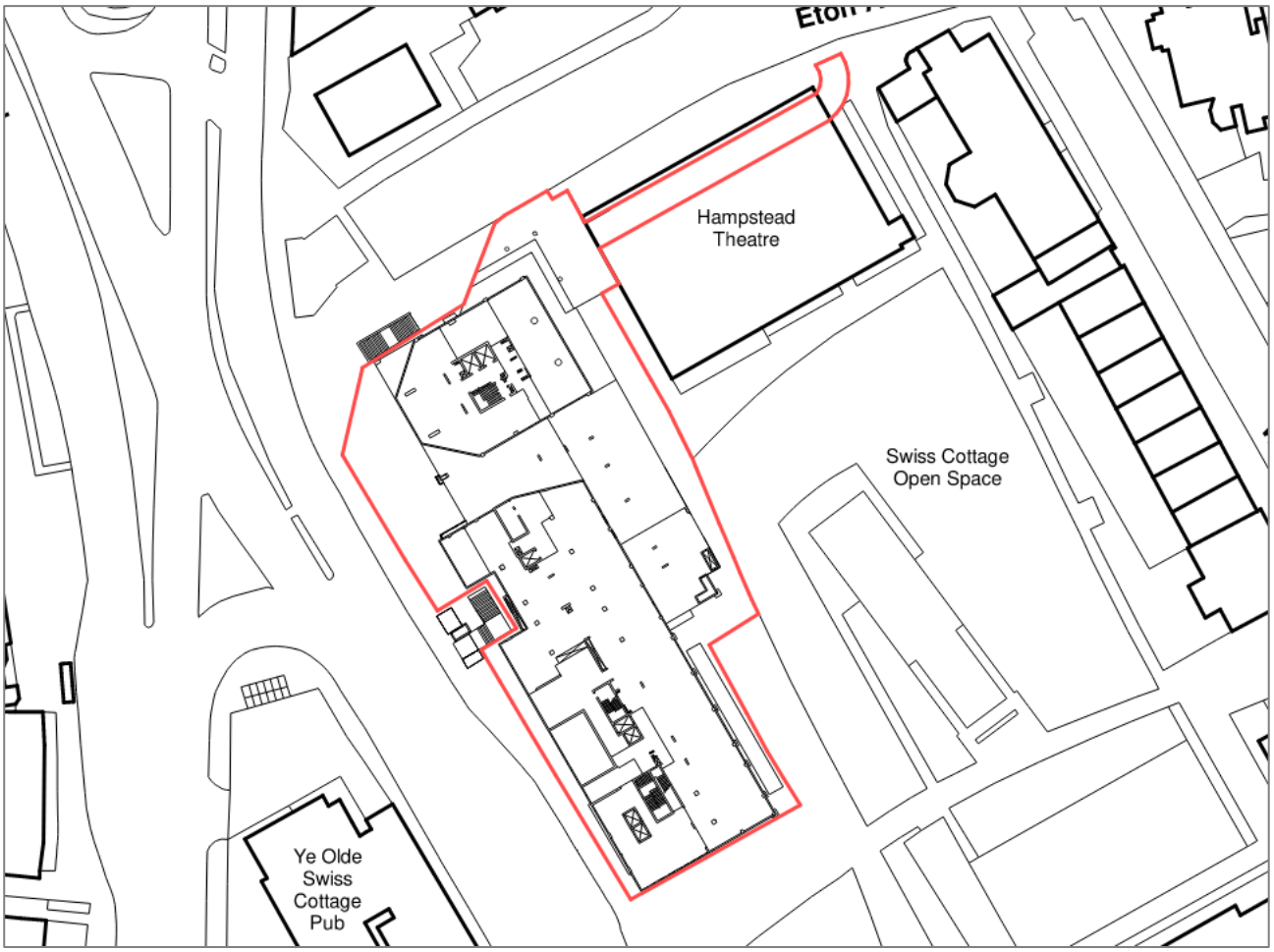

Figure 1 Site Location

The Site is bounded on its western side by Avenue Road and the Swiss Cottage/Finchley Road junction and gyratory. Ye Olde Swiss Cottage pub is located directly opposite on the western side of Avenue Road, facing on to the junction. On the northern side the Site is bounded by the western end of Eton Avenue which is pedestrianised. To the east of the Site is Swiss Cottage Open Space and to the south of the Site is Swiss Cottage Library.

The site is within the Finchley Road town centre and is designated in both the Camden Local Plan and the draft Camden Local Plan for an indicative capacity of 184 additional permanent self-contained homes.

The existing ground falls from north to south, from a level of around 57.62mOD to a level of around 55.00mOD in the southeast corner.

Demolition works and basement construction works have been undertaken by the previous owner (Essential Living (Swiss Cottage) Limited) in respect of the Implemented Permission. However, the above ground construction works in respect of the Implemented Permission have stalled.

Regal Avenue Road Limited acquired the Site in 2024 and intend to bring forward the scheme as soon as practicable, subject to securing some amendments to the Implemented Permission to ensure its deliverability and compliance with the latest standards / Building Regulations

2.2 The Implemented Permission

The previous proposal, which received full planning permission, includes the demolition of the existing building and redevelopment with a 24 storey building and a part 7 part 5 storey building comprising a total of 184 residential units (Class C3) and up to 1,041sqm of flexible retail/financial or professional or café/restaurant floorspace (Classes A1/A2/A3) inclusive of part sui generis floorspace or potential new London Underground station access fronting Avenue Road and up to 1,350sqm for community use (Class D1) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements.

The Implemented Permission (ref. 2014/2617/P) was granted via Appeal (ref. APP/X5210/W/14/3001616) on 18 February 2016 for the previous scheme.

This permission has undergone further amendments under Section 96A of the Town and Country Planning Act (1990) (as amended) and has been lawfully implemented, as confirmed by a certificate of lawfulness issued on 8 February 2018 (ref: 2017/6884/P).

While demolition and basement construction work were carried out by the previous owner, Essential Living (Swiss Cottage) Limited, above-ground construction related to the Implemented Permission has stalled.

2.3 The Proposed Development

In 2024, Regal Avenue Road Limited acquired the site and plans to advance the scheme as soon as possible. This will depend on securing some amendments to the Implemented Permission to ensure its feasibility and compliance with the latest standards and Building Regulations.

The proposed amendments include residential units (Class C3), flexible commercial, business, and service use (Class E), and community use (Class F2(b)), along with associated works. These works involve enlarging the existing basement to accommodate disabled parking spaces, cycle parking, landscaping, and access improvements. The new scheme aims to include a total of 237 residential units, an increase from the 184 units in the previous scheme.

3. Planning Policy

3.1 National Policy

Paragraphs 181 and 182 of the National Planning Policy Framework, December 2024 (NPPF) relate to Planning and Flood Risk. The key points relevant to this report are summarised below:

Paragraph 181

"Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

Paragraph 182

"Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. The systems used should:

a) take account of advice from the lead local flood authority;

b) have appropriate proposed minimum operational standards;

c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and

d) where possible, provide multifunctional benefits."

3.2 Regional Policy

The London Plan 2021 sets out policy requirements for flood risk management, surface water drainage and climate change with the objective of reducing flood risk

a) Policy SI 13 seeks to reduce peak surface water discharge by using Sustainable Drainage Systems (SuDS) and managing run-off close to its source.

3.3 Local Policy

The London Borough of Camden Local Plan 2017 includes the following policies relating to surface water and flooding:

Policy CC1 – Climate change mitigation

"The Council will require all development to minimise the effects of climate change..."

Policy CC2 – Adapting to climate change

"The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

a) the protection of existing green spaces and promoting new appropriate green infrastructure.

b) not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage Systems.

c) incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and

d) measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy."

Policy CC3 – Water and flooding

"The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible."

Camden Local Plan 2017 is supported by Camden Planning Guidance for Water and flooding (CPG) 2019. The document provides guidance on sustainable drainage systems and flood risk assessment. In particular, the CPG 2019 specifies an uplift in rainfall intensity due to climate change of 40%. Previously, the Camden Local Plan 2010 required 30% uplift due to climate change.

In addition, the London Borough of Camden has produced the following documentation to support planning applications:

- Flood Risk Management Strategy 2022-2027.
- Thames Flood Risk Management Plans 2021-2027.
- Camden Strategic Flood Risk Assessment 2024 (SFRA).
- Managing Flood Risk in Camden 2022.
- Surface Water Management Plan 2011 (non-statutory).
- Preliminary Flood Risk Assessment 2014.
- The London Borough of Camden Flood Risk Management Strategy 2013.

This Drainage Strategy report has been prepared with consideration given to the above planning documentation.

3.4 Design Guidance Documents

In addition to the planning policy documents, the following design guidelines have been adopted for the below-ground drainage network:

- CIRIA753SuDS Manual
- Building Regulations Part H - Drainage and Waste Disposal
- BS EN 752 – Drain and Sewer Systems Outside Buildings
- BS EN 12056 – Gravity Drainage Systems Inside Buildings
- Sewer for Adoption, 7th Edition

Specifically, the following requirements have been incorporated into the drainage design of the as-built network:

- The development should aim to achieve greenfield runoff rates and implement sustainable drainage systems (SuDS), unless there are valid practical reasons for not doing so. Surface water runoff should be managed as close to its source as possible, in line with the SuDS hierarchy outlined in The SuDS Manual, CIRIA 753.
- Where greenfield runoff rates are not proposed, developers must clearly demonstrate all opportunities taken to minimize final site runoff to be as close to greenfield rates as practical.
- Thames Water requires that the post-development combined discharge rate for this site be limited to 27.5l/s in accordance with the Implemented Permission.
- The attenuation of surface water required for the development must be based on a 1-in-100-year storm event probability, with an allowance for 40% climate change, as outlined in the accompanying Flood Risk Assessment 5416-RBG-XX-XX-RP-CV-86002.

The as-built drainage design was originally developed using a climate change factor of 30%. However, the Department for Environment, Food & Rural Affairs (DEFRA) peak rainfall allowances map now indicates that the climate change factor should be increased to 40%. Furthermore, the Camden Planning Guidance 2019, specifically in section 3.7, states that 'The Council expects the Flood Risk Assessment (FRA) to evaluate the potential impacts of a 40% increase in peak rainfall intensity on the drainage network.' Consequently, the as-built drainage network will be reassessed using a 40% climate change factor.

4. Drainage Strategy

4.1 Site Surveys Undertaken

A site walkover was carried out by RBG on 28 February 2017, identifying the existing 225mm discharge pipe in the northern basement. This appears to connect to the existing Thames Water manhole 7302 in Eton Road.

Greenhatch Group undertook an underground utilities survey in July 2014. This survey identifies existing private foul and surface water manholes around the site as well as the TW sewers. It is understood that this survey is currently being updated.

Lanes carried out a CCTV and manhole inspection survey in 2016, including the northern basement drainage and outfall and Thames Water manholes 7301, 7302, and 6303.

Infotec completed a sewer survey in 2017 (which was later updated in 2018), identifying an additional existing outfall via an external manhole which connects to the trunk sewer on Avenue Road. Infotec also confirmed that manhole 7301 and the downstream pipe appeared to be abandoned. It was also noticed that the external manhole (and upstream pipe) upstream of 7301 on Avenue Road was blocked and required clearing.

A Thames Water Asset Map indicating Thames Water MH 7031 and MH 7032 is included in Figure 2 below.

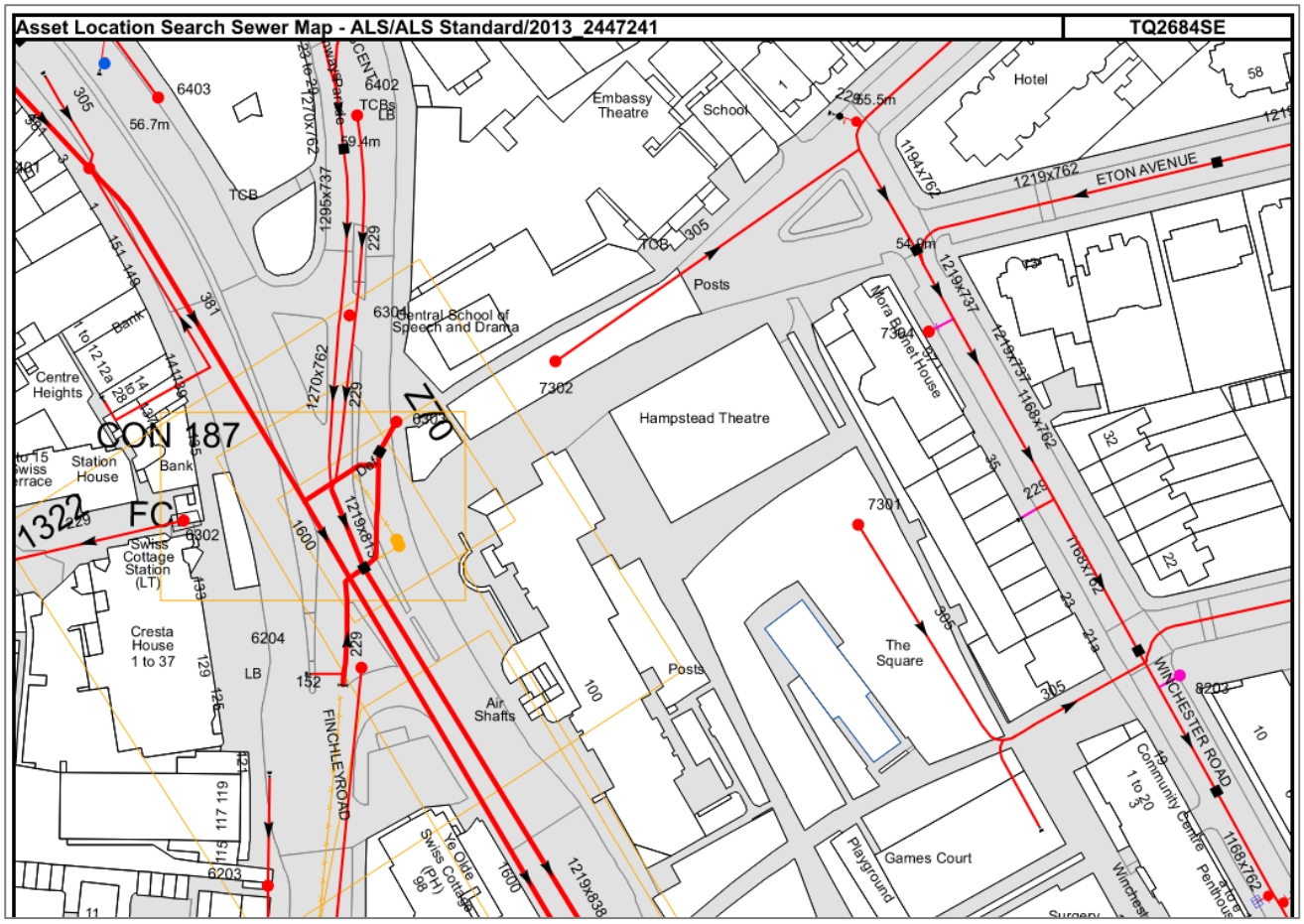

Figure 2 Thames Water Asset Map

4.2 Proposed Drainage Strategy

4.2.1 Surface Water

4.2.1.1 Drainage Hierarchy

To comply with the applicable planning policies, the development should aim to achieve Greenfield run-off rates and utilise sustainable drainage systems (SuDS) unless there are practical reasons for not doing so. Surface water run-off should also be managed as close to its source as possible in line with the SuDS hierarchy set out in CIRIA C753, The SuDS Manual.

In line with the London Plan, the development should prioritise SuDS to the following hierarchy:

- Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- Rainwater infiltration to ground at or close to source
- Rainwater attenuation in green infrastructure features for gradual release.
- Rainwater discharge direct to a watercourse (unless not appropriate).
- Controlled rainwater discharge to a surface water sewer or drain
- Controlled rainwater discharge to a combined sewer.

A summary of the SuDS features that have been incorporated into the design (highlighted) has been presented in Table 1.

Table 1 Summary of SuDS Features

SuDS Technique	Benefit	Reason
1.0 Rainwater harvesting	Re-use of surface water on-site which reduces runoff and mains supply demand.	May be considered within the MEP design. This option can be considered at RIBA Stage 3.
2.0 Infiltration	Replicates natural conditions as rainwater filtrates into the ground, reducing runoff.	Not included due to the extent of the basement, ground conditions and water table level. This is not a suitable technique for the development.
3.0 Green roof systems	This will provide a level of treatment at source by filtrating rainwater through the soil/planting, delaying its discharge and therefore reducing peak flow rates.	Green roof included on the Tower Block and Lower Block are provided.. This has assisted in reducing attenuation volumes.
4.0 Blue roof systems	This provides attenuation at the source and presents opportunities for rainwater harvesting and reuse.	Blue roofs are not required for the Site as an attenuation tank has been constructed on the ground level as part of the Implemented Permission. This tank provides adequate surface water attenuation for the Site.

5.0 Permeable paving	This allows infiltration through paving and is a good sustainable solution, providing treatment and attenuation at source.	Not included due to the extent of the basement across the Site which does not permit infiltration. Proposed permeable paving will be considered outside of the basement line at Stage 3.
6.0 Soft landscaping	This provides ecological benefits as well as reducing peak discharge rates, allowing rainwater to filtrate through the soil and delay runoff.	As part of the development, soft landscaping is provided in external areas not located over the basement. These features enhance biodiversity/ecology. However, due to the proximity to the basement extent these cannot filtrate into the ground. Soft landscaping areas account for 37% site coverage.
7.0 Swale/pond features	This type of attenuation provides ecological benefits as well as reducing peak discharge rates and providing attenuation.	Not included due to the extent of the basement across the Site.
8.0 Internal tank attenuation	One of the lesser sustainable solutions, this provides temporary storage of stormwater prior to discharge for large storm events in a tank below ground.	Due to the extent of the basement, proposed Site levels, and limited headroom, attenuation is provided by two separate tanks: the first one located below the basement slab within the Tower Block, and the second one below ground to the east of the Lower Block. Both tanks have been sized to achieve the required discharge rates.

The SuDS features presented above reflect the as-built drainage strategy on the site and the available methods for mitigating site runoff. The methods not included in the scheme reflect the decisions that were agreed for the Implemented Permission.

4.2.1.2 Attenuation Tank

Under the Implemented Permission, the site requires an attenuation volume of 125m^3 for surface water runoff based on 30% climate change factor. In comparison, the s.73 Amendment Application is subject to an uplift in the rainfall intensity due to climate change (40%) in the 1 in 100-year event.

Additionally, the impervious area scheme for the Site under the s.73 Amendment Application has increased to approximately 33.7% of the overall Site area. This is based on the overall site drainage catchment area 0.414ha and the proposed soft landscaping areas as prepared by Turkington Martin (Appendix B).

The report acknowledges the site boundary area (0.40Ha) and site drainage catchment (0.415Ha) are dissimilar. This is due to approximately 0.015Ha of external area that drains into the Site and therefore must be captured for treatment by the drainage network. The additional area is included in the assessment of the attenuation volume.

To assess the change in storage volume required, a quick storage estimate (QSE) has been undertaken using Micro Drainage hydraulic modelling software. The estimated attenuation tank volume is provided as an upper and lower bound, with the upper bound being the recommended volume at this stage of design. The result of the QSE is shown in Figure 3.

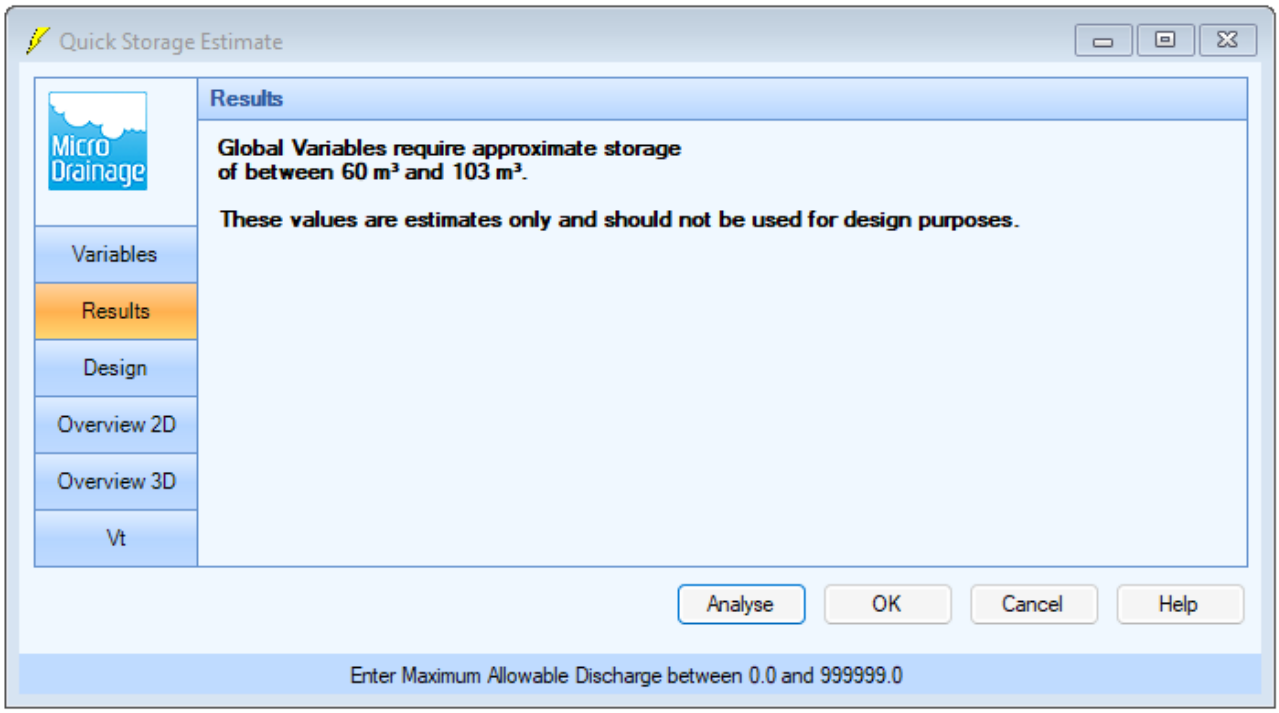

Figure 3 QSE Attenuation Volume

The QSE requires less storage for the s.73 Amendment Application when compared with the Implemented Permission. Increases in the total soft landscaping area is likely to have contributed to the reduction in the calculated volume. Further, the outlet control used for the QSE assumes gravity flow, whereas the previous attenuated volume relied on a pump to discharge surface water to the outlet.

The attenuation tank is proposed as a proprietary geo-cellular system. Therefore, the size and shape can be modified to increase or decrease the total volume. It is anticipated that further refinement of the surface water drainage network will be undertaken at Stage 3. If required, surplus geo-cellular storage units can be reconfigured to reduce the footprint of the tank.

4.2.2 Foul Water

All foul drainage located above ground are collected and routed to the two existing outfalls via gravity, which removed the need for additional pipework and pumps in the basement. The gullies within the plant rooms in the basement have been built to be pumped up to ground level and connect into the existing sewer connection. When connected, the pumps will have a dual power supply with two pumps (duty and standby) to mitigate the risk of pump failure. The pumps will be connected to the site-wide BMS providing information on pump health and status to the maintenance team.

A separate greywater network has been built to capture areas of the basement where solids are not expected to enter the system. All pumping stations are vented.

Under the previous scheme, it was planned that the development would include 184 residential units. The proposed scheme sees an increase to 237 residential units. A peak flow calculation using the population method was conducted to evaluate this increase. Table 2summarises the outcome:

Table 2 Peak Foul Water Discharge by Population Method

	Residential (No. Units)	Residential Peak Factor[1]	Retail & Commercial (m^2)	Retail & Commercial Peak Factor[1]	Peak Flow Rate (l/s)
Implemented Permission	184	6	2,289	3	9.16
s.73 Amendment Application	237	6	2,767	0.6	12.39

[1]Peak factor in accordance with British Water Code of Practice: Flows and Loads – 4.

4.2.3 Combined Sewers Discharge

The foul and surface water combine at the last demarcation manhole/connection before discharging to the Thames Water combined sewers surrounding the Site. This is internal for the northern outfall due to the restricted space from the basement wall to the highway boundary.

4.2.4 Management and Maintenance

The proposed SuDS techniques will need to be maintained to ensure they are performing efficiently. The details of the maintenance procedures that will be carried out are listed in Table 3 Estimated SuDS Maintenance Programme.

The contact details of the Maintenance Manager will be confirmed at the operational stage of the project.

Table 3 Estimated SuDS Maintenance Programme

SuDS Component:	Green Roof / Soft Landscape	
Maintenance	**Action**	**Frequency**
Regular maintenance	- Mow grasses / pruning	Monthly
Occasional tasks	- Remove litter - Inspect drains - Inspect for leaks	Bi-annually
Remedial work	- Reestablish eroded channels	As required

SuDS Component:	Attenuation Tank	
Maintenance	**Action**	**Frequency**
Regular maintenance	- Inspect inlets, outlets, catchpits and overflows	Monthly
Occasional tasks	- Jetting and suction where silted	As required
Remedial work	- Repair and replace	As required

SuDS Component:	Outlet Control		
Maintenance	**Action**		**Frequency**
Regular maintenance	-	Sedimentation check and clean-out	Quarterly
Occasional tasks	-	Damage inspection	Bi-annually
Remedial work	-	Damage inspection and repair / replacement	Significant Rain Events

SuDS Component:	Traps and Gullies		
Maintenance	**Action**		**Frequency**
Regular maintenance	-	Sedimentation check and clean-out	Quarterly
Occasional tasks	-	Inspect and remove debris / blockages (if required)	Significant Rain Events
Remedial work	-	Damage inspection and repair / replacement	As required

The SuDS design risk register for the features above is included in Appendix C.

4.3 Consultations

Thames Water was consulted for the Implemented Permission and consented to a discharge rate of 27.5l/s for combined surface water and foul water drainage (ref. Thames Water Pre-Planning Enquiry DS6058589). This discharge was shared between the northern catchment connection (22.5l/s), which services the Tower Block and part of the underground carpark, and western catchment connection (5l/s), servicing the Lower Block and balance of the underground carpark.

The s.73 Amendment Application increases the density of the site that will increase the peak discharge rate at the site. Thames Water are being consulted about the resulting uplift due to the the s.73 Amendment Application and their advice is expected prior to the commencement of Stage 3 design development.

5. Conclusion

This Drainage Strategy report has been produced in support of the s.73 Amendment Application for the proposed development at 100 Avenue Road (the Site). This development includes demolition of the existing building and redevelopment comprising residential units (Class C3) and flexible commercial, business and service use (Class E) and community use (Class F2(b)) with associated works including enlargement of the existing basement level to contain disabled car parking spaces and cycle parking, landscaping and access improvements.

This report replaces the previous Drainage Strategy report prepared by URS Infrastructure and Environment UK Ltd for Essential Living (Swiss Cottage) Limited, approved under the Implemented Permission ref. 2014/1617/P and subsequent amendments. The previous Drainage Strategy report considered 184 residential units.

The drainage strategy for the Implemented Permission has been constructed at the Site and is proposed to be maintained for the s.73 Amendment Application. However, due to the increase in population and

commercial spaces on the Site, Thames Water advice is being sought regarding sewer capacity. It is anticipated this advice will be received prior to commencing Stage 3 design development.

Opportunities for Sustainable Drainage Systems are presented with respect to green roofs, attenuation tanks and flow control chambers. Such solutions reduce the peak surface water discharge to the combined sewer network and improve surface water quality.

Due to the increase in pervious area on the site, the required attenuation volume will decrease to 103m^3. The attenuation tank is constructed from proprietary geo-cellular units, which can be configured with the existing structure to decrease the volume as required.

In addition, Table 4 below summarises the outcomes of this report against the relevant planning policies outlined.

Table 4 Planning Policy Outcomes

Planning Policy	Outcome Sought	Proposal Delivered	Compliance
NPPF 2024	Use of SuDS	Green roof, landscaping uplift, attenuation and flow control	Yes
	Seek LLFA Advice	The purpose of this report	Yes
	Maintain SuDS	Route maintenance and BMS to be negotiated with LBC and LLFA	Yes
London Plan 2021	Reduce peak runoff (with SuDS)	Green roof, landscaping uplift, attenuation and flow control	Yes
	Manage runoff close to the source	SuDS and flow control located on-site	Yes
Camden Local Plan 2017	CC1 Climate change mitigation	Attenuating 1 in 100-year with 40% climate change uplift	Yes
	CC2 Adapting to climate change	Landscape uplift, reduction in peak runoff rate, use of SuDS	Yes
	CC3 Water and flooding	Sewer capacity consultations with Thames Water	Yes
Camden Planning Guidance 2019	Climate change uplift 40%	Attenuating 1 in 100-year with 40% climate change uplift.	Yes
	Constrain runoff volume	Attenuating 1 in 100-year, 6-hour rainfall event (with 40%).	Yes

Further details of the accompanying Flood Risk Assessment can be found in the accompanying report 5416-RBG-XX-XX-RP-CV-86002.

Contact Details

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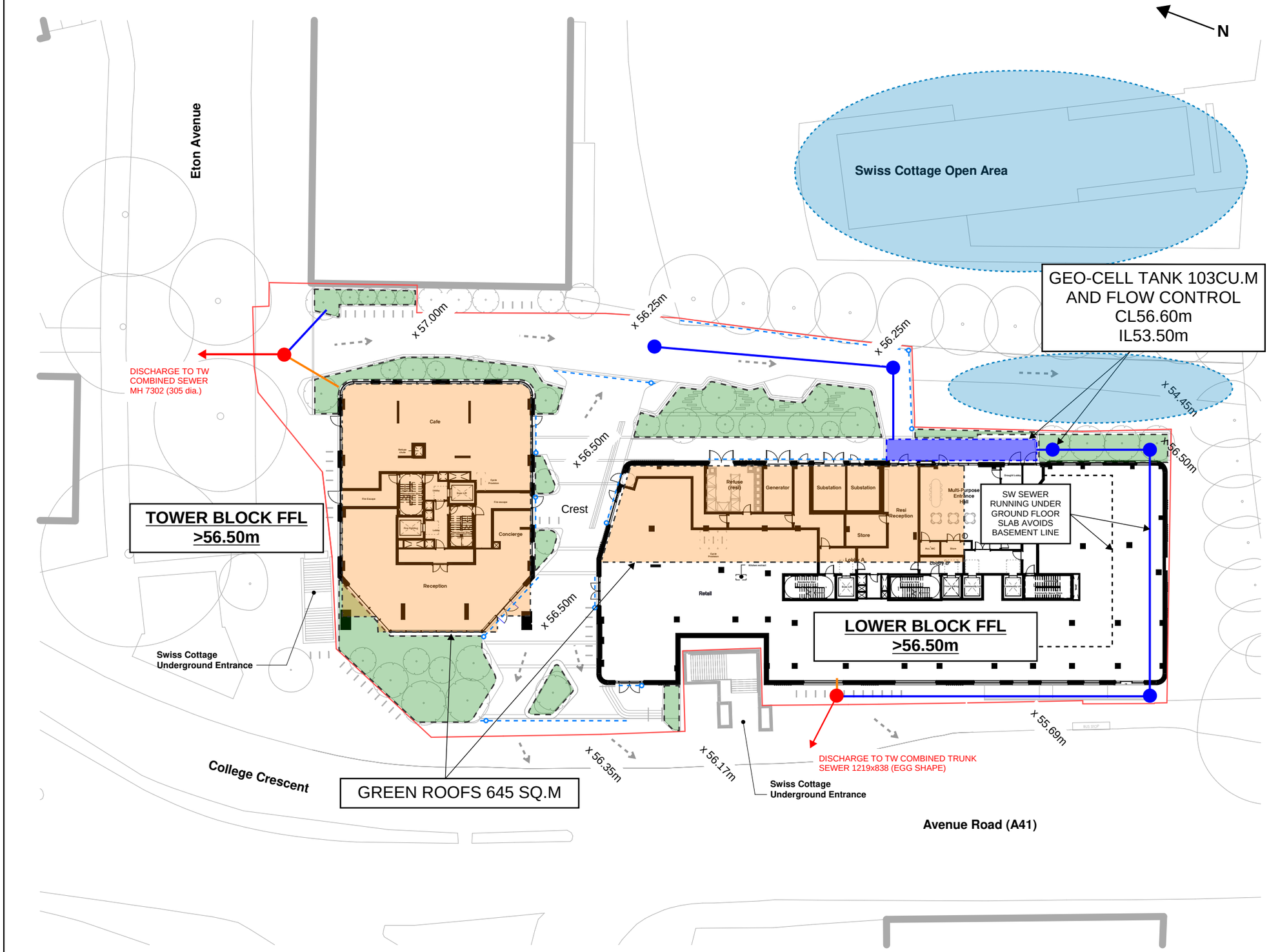
Appendix A
Civil Drainage Drawings

100 Avenue Road



LEGEND

- SITE BOUNDARY
- GEO-CELL TANK (103CU.M)
- GREEN ROOF (15.5% SITE AREA)
- SOFT LANDSCAPING (18.2% SITE AREA)
- SURFACE WATER PIPE
- FOUL WATER PIPE
- COMBINDED SEWER PIPE
- SHALLOW SURFACE DRAIN
- OVERLAND FLOW DIRECTION
- CONNECTION (IN ABEYANCE)
- SURFACE WATER MH
- COMBINED SEWER MH
- ENVIRONMENT AGENCY HIGH RISK SURFACE WATER FLOODING MAP (2040 & 2060)
- BASEMENT EXTENT LINE

FLOODING / EXCEEDANCE

- APPLICABLE RIVERINE FLOOD LEVEL = N/A (ZONE 1)
- EA MAPPED SURFACE WATER FLOOD = OFFSITE (SHOWN)
- SURFACE WATER DRAINS SIZED FOR 100YR + 40% STORM EVENT
- BUILDING FFL >56.50m AOD THROUGHOUT

GENERAL

- SUDS HIERACHY INCLUDES GREEN ROOF, GEO CELLULAR STORAGE TANK AND LANDSCAPING
- RESTRICTED DISCHARGE RATE 27.5L/S (TO BE AGREED WITH THAMES WATER)
- RESTRICTED DISCHARGE FROM SITE TO COMBINED SEWER IN AVENUE ROAD (WEST) AND ETON AVENUE (NORTH)
- GEO CELLULAR STORAGE VOLUME REQUIRED IS 103 CU.M.
- SHALLOW DRAINS COLLECT RUNOFF ABOVE BASEMENT SLAB. CONNECTIONS SHOWN IN ABEYANCE.

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Rev.	Revision Description	App	Date
P01	ISSUED FOR INFORMATION	JG	14/02/25

Client: REGAL AVENUE ROAD	Designer: JB	Design Checker: JG	S2 - FOR INFORMATION
Project: 100 AVENUE ROAD	Drawn: JB	Approved: JG	Job No: 5416 / Sheet No: RBG-ZZ-ZZ-SK-CV-00001 / Rev: P01
Title: DRAINAGE STRATEGY PLAN	Scale at A3: NTS	Date: FEB 2024	

Appendix B
Architectural Drawings

100 Avenue Road

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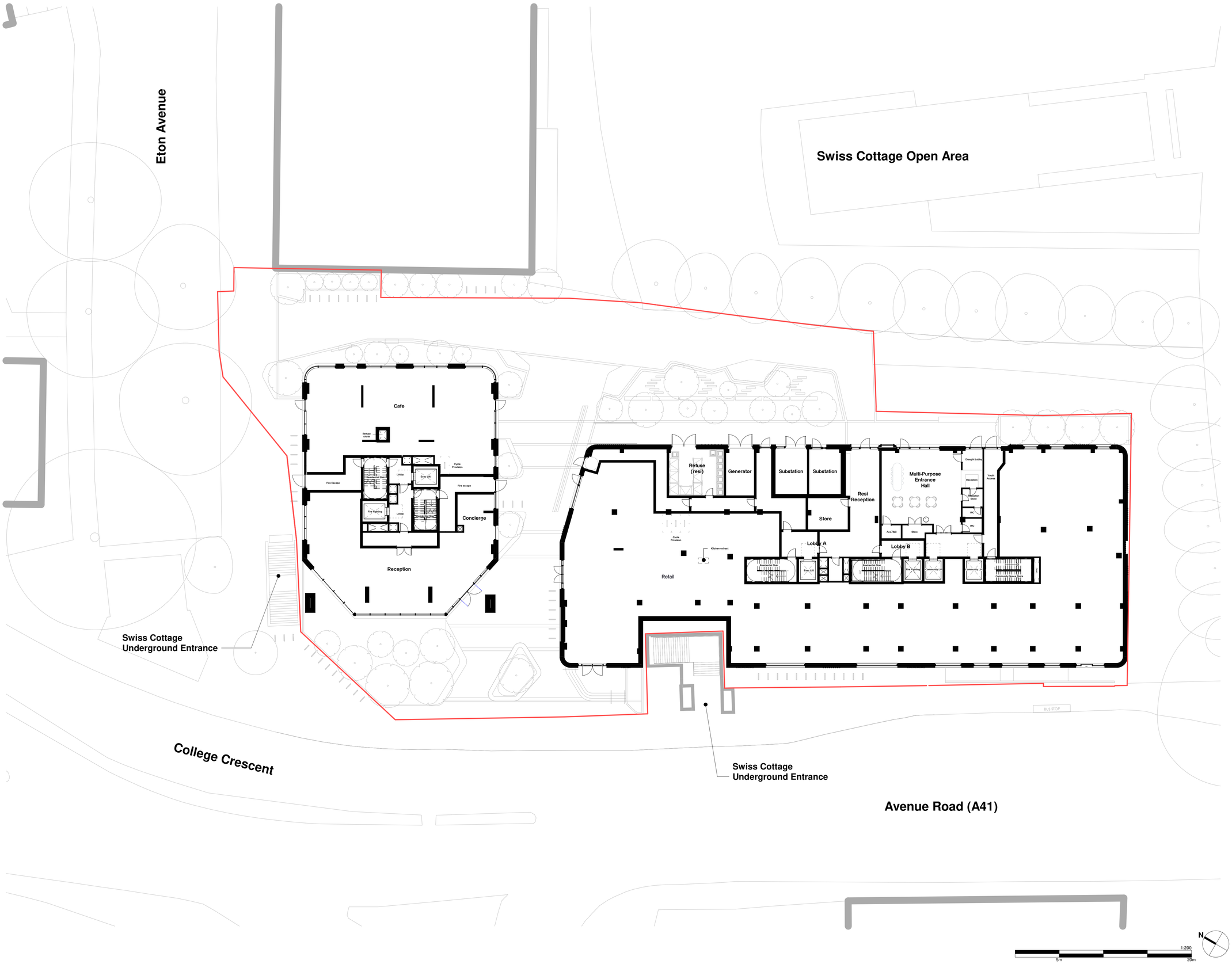

Drawing Original Size
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Drawing Revisions

Date:	Rev:	Note:	Check:
31.01.25	P01	Section 73 Application Submission	DR

CARTWRIGHT PICKARD

Client
Regal Avenue Road Ltd.

Project
1016 | 100 Avenue Road

Building Name
Tower & Lower Building

Drawing Title
Ground Floor Plan

Scale
1: 200 @ A1

Drawing Created
August 2024

Revision
P01

Drawing No.
1016-CPA-ZZ-ZZ-DR-A-0200

London Office
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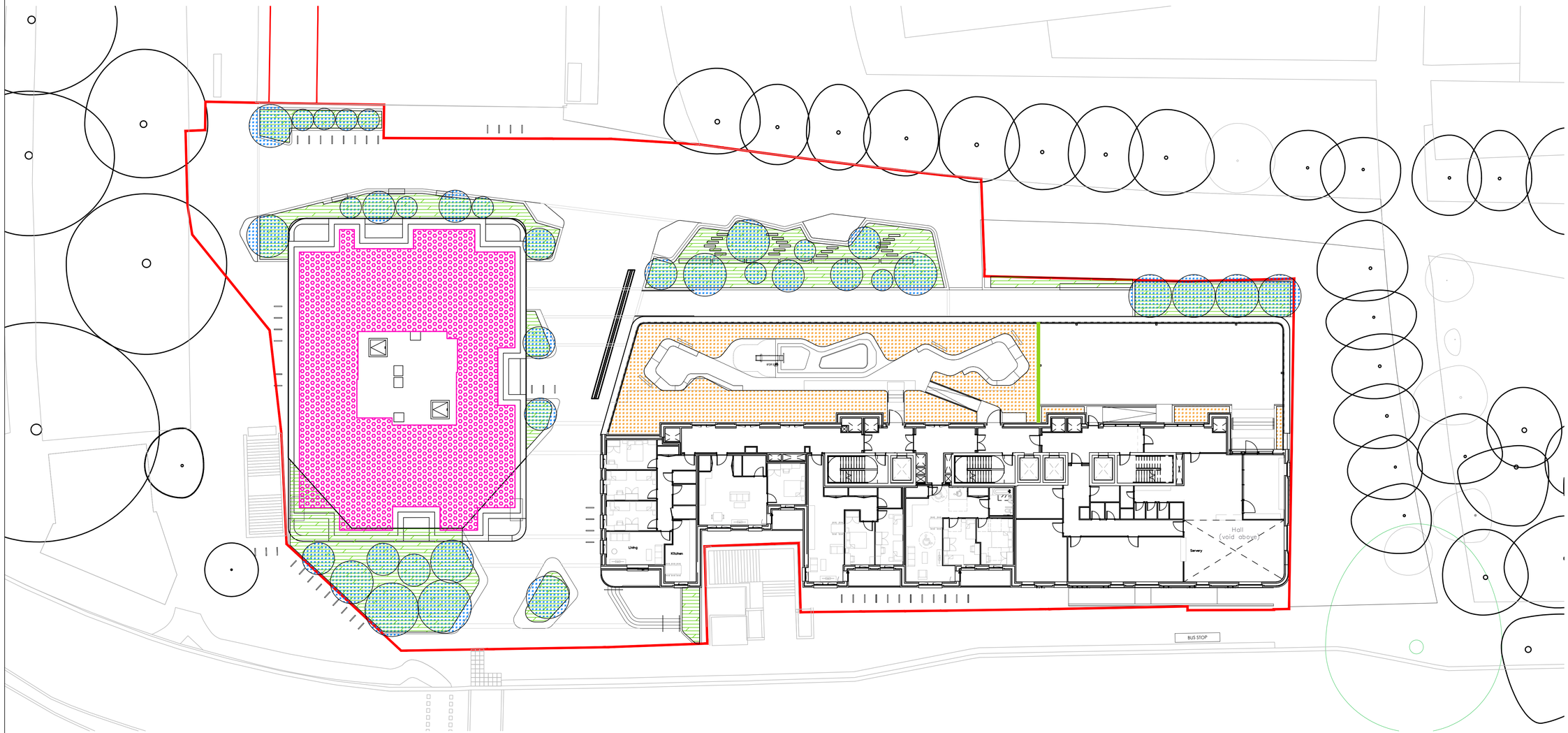

NOTES:

1. This drawing is to be read in conjunction with all relevant contract documentation from the design team, with any conflicting information to be brought to the attention of Turkington Martin Landscape Architects in writing before commencing on site.

2. The contractor is to check and verify all levels and dimensions before construction. Any discrepancies are to be brought to the attention of Turkington Martin Landscape Architects in writing before commencing on site.

3. All dimensions in mm, unless otherwise stated.

4. Do not scale from this drawing.

5. All sub base and concrete design and specification to engineer's details. All diagrams provided here are purely indicative.

6. Waterproofing of any element to be specified by others.

7. All proprietary products shall be installed in accordance with manufacturers written instructions.

8. Plant numbers are an indication only and plants should be ordered to suit site areas in accordance with scheduled plant densities.

9. Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.

Urban Greening Measures m^2		
Surface Cover Type	Factor	Area (m^2)
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on site.	1.0000	0
Wetland or open water (semi-natural; not chlorinated) maintained or established on site.	1.0000	0
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm.	0.8000	217
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree.	0.8000	306
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014.	0.7000	428
Flower-rich perennial planting.	0.7000	455
Rain gardens and other vegetated sustainable drainage elements.	0.7000	0
Hedges (line of mature shrubs one or two shrubs wide).	0.6000	0
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6000	0
Green wall –modular system or climbers rooted in soil.	0.6000	9mx2.5m=22.5
Groundcover planting.	0.5000	0
Amenity grassland (species-poor, regularly mown lawn).	0.4000	0
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014.	0.3000	0
Water features (chlorinated) or unplanted detention basins.	0.2000	0
Permeable paving.	0.1000	0
Total contribution		
Total Site Area **Total site area (m^2)**		4148.7
Urban Greening Factor		0.2500

DATE	DRAWN	DESCRIPTION OF REVISION	REVISION LETTER	CHECKED BY
2024.02.07	NG	S2 - For planning	P03	JT
2024.12.12	NG	For planning draft	P02	JT
2024.11.17	NG	For information	P01	JT

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CLIENT
Regal

PROJECT TITLE
100 Avenue Road

DRAWING TITLE
Urban Greening Factor Plan

DRAWING STATUS
For Planning

DRAWING SCALE :	DRAWN BY :	DRAWN DATE :
1:250	NG	2024.12.04
PAPER SIZE :	CHECKED BY :	CHECKED DATE :
A1	JT	2024.12.04

DRAWING NUMBER :
AR657-TML-ZZ-ZZ-DR-L-0260

REVISION :
P03

Turkington Martin LANDSCAPE ARCHITECTS

Appendix C
Design Risk Register

100 Avenue Road

Project Specific Hazard/Risk Register

Job No: 5416

Job Name: 100 Avenue Road

Category:
CDM = Construction Design Management;
P = Project; E = Environmental;

Status:
L = Live;
C = Closed

Ref	Category	Subject	Hazard/Risk Description	Consequence	Actions/Mitigation	Risk/Hazard Owner	Residual Risk Comments	CDM Note?	Status
Civil									
C1	CDM	Moderate exavation depths (>1.0m) beside existing basement structure.	Injury to workers, damage to existing structures	Personal injury, reputation damage, and commercial or programme damage.	Contractor to consider risk of injury / damage, and request relocation of attenuation tank if necessary. Designer to complete if necessary after consultation with Contractor / Client.	Contractor / Designer / Client		Y	L
C2	CDM	Access to flow control chamber to perform maintenance.	Injury to workers, inability to maintain compromising performance.	Personal injury, reputation damage, flooding.	Ensure flow control chamber is specified correctly for the size and depth of the MH, ensure the maintenance strategy is clear.	Client / Designer		Y	L
C3	CDM	Contact with unidentified buried services	Injury to workers, changes to design and programme, cost implications.	Personal injury, reputation damage, flooding.	Client / Contractor to obtain relevant survey information and review prior to commencing works. Intrusive investigation and testing by reasonably experienced and qualified professional asset locators to be proposed where necessary.	Client / Contractor		Y	L
C4	CDM	Delivery, laydown and lifting of soft landscape and green roof components on the site.	Soft landscaping supplies delivered or laid-down on site become a hazard, lifting green roof supplies onto roofs become a hazard.	Personal injury, environmental contamination (construction runoff).	Contractor to make themselves aware of proper storage and weights of supplies. Contractor to make provision for storage and installation in programme schedule. Contractor to develop safe method of installation which minimises manual handling risk.	Client / Contractor		Y	L
C5	P	Capacity of proposed sewer connections	Reliance on connection approval to outfall to Thames Water combined sewers.	New manhole to be construction on Avenue Road, new connection to be made on Eton Avenue, S106 agreement needed with Thames Water.	Plot team to confirm capacity	Design Team		Y	L