7. TECHNICAL CONSIDERATIONS

7.1 MEP, ENERGY & SUSTAINABILITY STRATEGY

MECHANICAL SERVICES - VENTILATION

Apartments:

MHVR (Mechanical Ventilation with Heat Recovery) will be installed to each apartment in a dedicated utility cupboard. This will be set to a minimum air change rate as defined by Approved Document F and controlled via a humidity sensor to provide a boost to ventilate the apartment at up to 1 ACH.

All bathrooms and WC's will be installed with extract valve grilles with supply valve grilles being provide to the living room and bedroom areas. The grilles can be used to balance the system within the apartment. The kitchens are to be installed with a re-circulating cooker hood to prevent grease entering the extract system with a separate grille installed connected to the mechanical ventilation system.

Landlords:

- Auxiliary fans will be provided as required to bin and bike stores.
- Car Park ventilation system to be design by specialist as mixed mode (natural and impulse fans).
- Car Park lobbies to cores to be ventilation naturally with a 0.4m2 duct.
- Corridor smoke venting will be provided via mechanical smoke shaft with AOVs. A staircase AOV will be provided for smoke clearance of the staircase and markup air.

HEATING AND COOLING

Centralised plant rooms are located on the roof of the buildings to provide district heating and district hot water to the dwellings.

The bulk of the heating will be delivered through the MVHR unit via a reversible coil. Electric panels will be installed to all rooms to provide top up if required and to enable different rooms to be set to different temperatures and to circulation areas. An interlock between the MVHR coil and electric panels is to be provided to ensure that the MVHR coil is always utilised first.

The coil will be reversed in summer to provide beneficial cooling to the dwelling to ensure the internal temperature does not exceed 26oC.

All bathrooms will have electric towel rails.

Heating and Cooling is to be metered via a heat meter. A prepayment metering system is to be installed such as Switch2. This system is also linked to the hot water system to record the consumption via a flow meter and CTs to the incoming electric to allow the tenant to view all energy consumption in one location.

Pre-insulated pipework is to be installed between the street and a location in the ground floor plant room to allow for the installation of future District Heating pipework. Space to be provided in this plantroom with a route set out to the roof plantroom to allow connection into the heating and hot water system. Space will be indicated on the drawings.

COLD WATER SERVICES

The cold-water distribution to the dwellings will be via a sectional water storage tank and packaged pressure boosting unit. Boosted cold water will be supplied to all sanitary fittings and items of equipment. An electromagnetic water conditioner will be fitted to the incoming mains water supply to the water storage tank.

A water storage tank will provide a buffer against supply interruptions. Water distribution through the building will be pressurised through an inverter drive controlled automatic water booster set.

A separate Category 5 water storage tank and booster set shall be provided for irrigation of the landscaping and to external water points around the site alongside cleaners sinks and bid taps for washdown of bin and bike stores.

A water meter will be provided for each apartment. These will be located within the risers at each floor level.

Metered mains water supply will be provided for Landlord use.

HOT WATER SERVICES

The domestic hot water provision will be met by the central district hot water system to each of the dwellings.

Thermostatic mixing valves will be used to reduce the risk of scalding, within allocated dwellings. All tenants will be metered through a flow meter which is read remotely.

Cleaner's cupboards or welfare facilities will be provided with instantaneous hot water heater.

The system will be designed to ensure hot water delivery with 45 seconds in line with CIBSE CP1 recommendations.

Pre-insulated pipework is to be installed between the street and a location in the ground floor plant room to allow for the installation of future District Heating pipework. Space to be provided in this plantroom with a route set out to the roof plantroom to allow connection into the heating and hot water system. Space will be indicated on the drawing.

DOMESTIC FOUL WATER DRAINAGE

All sanitary fittings will be connected to a modified single stack system in accordance with BS EN 12056-2:2000. The pipework will be installed in uPVC for the stacks and branches.

Access will be provided at all branches, changes of direction and connections to horizontal runs.

Where baths are installed, the ability to convert to a shower connection will be designed in.

RAINWATER DRAINAGE

All roofs are to be drained via traditional gravity downpipes located internally. Balconies to be free draining where possible apart from over entrances..

All runs within ceilings and risers will be thermally insulated and vapour sealed to prevent condensation.

All rainwater pipes to be installed externally where possible. Where pipework is installed internally this will be installed in uPVC pipework. Internal rainwater pipework located in communal areas will not require any insulation. If rainwater pipework is installed with apartment, then pipework to be insulated against noise breakout.

Water butts to provided to ground floor dwellings.

The rainwater disposal system will be designed in accordance with BS EN 12056-3:2000.

All rainwater drainage will pass into a rainwater attenuation tank before reaching the public drain. Please refer to the Civil Engineer's information for details.

SPRINKLERS - RESIDENTIAL

Following the BS9251:2021, a Category 4 domestic sprinkler system will be provided to Phase 1b and Category 3 domestic sprinkler system to Phase 2.

A separate sprinkler tank and booster set is to be installed to serve the residential units including appropriately sized booster pumps. Sprinkler supply for will be for 60 minutes to meet the Cat 4 requirements and 30 minutes for Cat 3 The pumps for the Cat 4 system will be provided with secondary power supply.

SPRINKLERS - CAR PARK AND AUXILIARY AREAS

A separate commercial sprinkler system is to be installed to serve the car park and auxiliary areas such as bin and bin stores. This system is to be a category OH3 system and requires 140,000litres of stored water.

Currently one system per building is being installed.

Watkins Payne

SERVICES DISTRIBUTION

The proposed main services riser sizes have been identified and shown on the architects GA plans.

Distribution routes are generally concealed within ceiling voids and riser cupboards.

A / 233-6

M / 232

MEP, ENERGY & SUSTAINABILITY STRATEGY

Watkins Payne

ENERGY & SUSTAINABILITY OVERVIEW

An Energy and Sustainability Statement has been prepared by Watkins Payne on behalf of the London Borough of Hillingdon ('LBH') in support of a reserved matters application for Land at Avondale Drive, pursuant to Condition 1 of the hybrid permission for the site. A Section 73 application (application ref: 76551/APP/2025/2861) is currently pending and will be determined prior to the approval of this Reserved Matters Application. Therefore, this RMA responds to the revised wording of the planning conditions proposed within the Section 73 application. which is set out in Condition 34.

The document presents the energy and sustainability strategy for the proposed development in line with the energy hierarchy and the local planning policies outlined in the London Borough of Hillingdon Local Plan.

ENERGY & SUSTAINABILITY SUMMARY

The reduction in regulated CO2 emissions for the overall development under each scheme is summarised to the right.

The energy strategy for Avondale Drive Estate achieves an overall 88% reduction in regulated CO_2 emissions against the Part L compliant baseline.

In alignment with The London Plan and Hillingdon's Local Plan, the energy strategy has made the fullest contribution to minimising energy demand, maximising on-site carbon savings and making the fullest contribution to the efficient supply of energy through renewable technologies. The strategy has maximised all technically and economically viable energy efficiency measures, including:

- Enhanced building fabric performance (meeting or surpassing Part L standards)
- Low g-value glazing to reduce solar gains
- High-efficiency mechanical and electrical services
- Installation of circa 483No. of photovoltaic solar panels to support on-site electricity generation.

These measures collectively ensure that the development achieves the fullest possible contribution toward a low-carbon, energy-efficient refurbishment, while remaining compliant with National and Local Plan

A / 024 A / 233-6

M / 232

Be Lean	30% reduction	An overall 30% reduction in regulated carbon emissions over the Part L 2021 Building Regulations Compliant Development.
Be Clean	0% reduction	No carbon emission reductions achieved at this stage.
Be Green	58% reduction	An overall 58% reduction in regulated carbon emissions over the Part L 2021 Building Regulations Compliant Development.

Be Lean.
Use less energy

30% reduction in regulated CO_2 emissions.

The reduction in carbon emissions is attained through the optimisation of the building envelope design using a fabric first approach. This includes fabric U-values that meet or surpass the Building Regulations Part L minimums and high performance double glazing with low solar transmittance.

Be Clean.
Supply energy efficiently

No carbon emission reductions are achieved at this stage

Connection to a district heat network is not possible for the proposed development. The London Heat map indicates that there is an proposed network located within a circa 1,200m from the development, however, with no start date being published for this heating network a connection has been deemed unviable and has not been pursued any further within this assessment.

Be Green.
Use renewable energy

58% reduction in regulated CO_2 emissions.

An all-electric fossil fuel-free heating and cooling strategy featuring high efficiency heat recovery air source heat pumps for space heating and domestic hot water is proposed to leverage ongoing grid decarbonisation. Additionally, the installation of roof-mounted photovoltaic panels will generate renewable electricity on site.

7.2 TRANSPORT STRATEGY

PEDESTRIAN ACCESS

The proposals maintain a 2.5m wide footway width along the Avondale Drive frontage, which continues along the frontage of Abbotswood Way. North of the Phase 2 parking access the proposals accommodate a 2m footway, which connects with the existing provision to the north along the Hitherbroom Park frontage. In this location it is acknowledged that there are proposed works outside of the redline boundary to deliver this continuous footway provision and soft landscaping. If required, a further full planning application will also be submitted to secure permission for these works falling between the redline and the adopted highway along Abbotswood Way.

A proposed 1.8m wide footpath wraps around the north of Phase 1B, providing ground floor access to duplex units on that northern frontage.

Direct pedestrian access to each of the proposed lobbies is taken from the footway.

The proposals include a pedestrian route between Phase 1B and Phase 2, which will provide public access to Hitherbroom Park to the north.

Vehicle crossovers will include raised entry treatments and tactile paving in order to support pedestrian movements.

CYCLE PARKING

Cycle parking will be provided in accordance with Planning Condition 15 and London Plan standards both in terms of quantum and type, within each block. The cycle parking is accommodated within either the undercroft parking areas or dedicated ground floor stores, which by default will ensure they are secure and sheltered. Access to the stores will be via the existing local highway network and then the sites internal access routes.

In addition to the residential provision, short-stay visitor provision will be provided, located within the public realm between phases, meeting the minimum policy requirement of 1 space per 40 units + 1 space (i.e. 8).

SERVICING

The development proposals include a series of bin stores, located along the site frontage within 10m of the existing kerbline, which will be accessed via kerbside collection, with drop-kerbs provided in front of these bin stores.

In order to ensure these bin stores are accessible to LBH refuse collection vehicles and not obstructed by parked vehicles, it will be necessary to introduce waiting controls in front of them, which will also permit general loading activity associated with other delivery vehicles.

If necessary, a formalised loading bay can be introduced along the site frontage as part of the subsequent implementation of any Parking Management Scheme.

CAR PARKING

The development proposals include a total of 70 car parking spaces. Of this total 8 spaces are reserved for blue badge holders only, meeting the minimum London policy requirement of 3% of households having access to a blue badge parking space from the outset of occupation. The RMA is also supported by a Parking Management Plan, which identifies strategies for allocation and ongoing management as well as how the car parking provision can evolve to increase blue badge allocation in the future should demand dictate.

Phase 1B parking is accessed via a proposed 4.5m wide access with Abbotswood Way, above which there is a resident's courtyard at first floor podium level.

Phase 2 parking is accessed via a 4.5m wide proposed access with Avondale Drive, between Blocks B and C.

A number of initiatives are proposed to mitigate potential parking overspill concerns, namely:

- Secure and sheltered cycle parking where there is currently none provided;
- Provision of car club spaces;
- Travel Plan measures such as car share database;
- Structural changes such as increased cost of car ownership/ insurance; road space charging; increase in uptake of electric bikes/ scooters, which are likely to dampen car ownership levels in the future; and
- Contributions towards improved active mode infrastructure.

More importantly, in addition to these interventions, the S106 Agreement in relation to the approved development has also secured contributions towards the consultation and implementation of a potential Parking Management Scheme in order to mitigate the impacts of the development, along with an additional clause that would ensure residents of the development would not be able to apply for parking permits should a parking management scheme be necessary.

EMERGENCY ACCESS

The core associated with each of the proposed blocks is located within 18m of the existing Avondale Drive and Abbottswood Way carriageway, allowing fire tender access from the existing kerbline.

Block E does however require a fire tender to access the southern extent of the pedestrianised route through to Hitherbroom Park in order to get within an acceptable distance of the associated core.

Access to this area will be facilitated by the introduction of a vehicle crossover in front of the pedestrianised route and a row of removable bollards that fire crews will be able to operate with a fire key, with these bollards otherwise ensuring the pedestrianised nature of this route on a day to day basis.

STOPPING UP / ADOPTION

Consistent with the original approval and the pending S73 proposals, the RMA proposals result in the indicative Phase 1B building footprint encroaching onto existing footpaths around the existing building perimeter that form part of the adopted public highway.

It will therefore be necessary to submit a stopping up allocation in accordance with Section 247 of the Town and County Planning Act, in good time prior to the delivery of Phase 1B.

The stopping up is mitigated via the delivery of an alternative footway around the proposed building footprint, with the section fronting the highway able to be offered for adoption.

HIGHWAY WORKS

The proposals will remove any redundant crossovers and reinstate as footway provision as necessary.

The proposals will introduce vehicle crossovers to serve the proposed car parks and emergency access between the phases.

These works will necessitate subsequent detailed designs and highway approvals to form part of a subsequent S278 Agreement

MARKIDES ASSOCIATES

M / 103-5 M / 111-13 M / 115

7.3 WASTE STRATEGY

SUMMARY STRATEGY

The development proposals are designed to be convenient for residents and collection operatives, as well as compliant with relevant standards. Overall, the proposed waste strategy has been integrated with the design to provide facilities that promote residential recycling and align with relevant environment objectives.

Internally, residents in all homes will use containers to promote the segregation of waste at source, including Dry Mixed Recycling (DMR) and food waste. Selected homes at ground level adjacent to the public highway will store waste in suitable receptacles within their frontage. Residents within the majority of homes will be provided with access to ground level communal waste stores to deposit their segregated waste within each block.

The communal waste stores are conveniently positioned close to building entrances and provide clearly labelled containers for residual waste, DMR and food waste, helping residents understand how to dispose of waste correctly and encouraging higher recycling rates. The stores are designed to be clean, well-lit, and easy to use for residents.

On collection days, the LBH Refuse Collection Vehicles (RCVs) will stop in safe and legal loading position on the kerb adjacent to each of the communal waste stores, allowing collection staff to access bins directly from the stores and return them once emptied.

For larger unwanted items (such as furniture), residents are provided with access to facilities for the storage of bulky waste for council collection, helping to prevent clutter and fly-tipping.

M / 081 M / 116

7.4 FIRE STRATEGY

SUMMARY

Introba has been engaged as a specialist fire and life safety consultant to develop and validate the Fire Strategy in support of a Hybrid Planning Application submitted to the Hillingdon Council by the Applicant, London Borough of Hillingdon. The Fire Strategy for the development has been designed in accordance with BS 9999:2024. Additionally, guidance from The London Plan has been introduced. Both pieces of guidance have been developed to ensure the highest standard of fire safety is designed into the building development at an early stage of design.

The development has been split into 2 phases; Phase 1B and Phase 2. Buildings B, C & D (11–18 m) will each have a single-stair residential core configured to satisfy BS 9991:2024 means of escape, lobby protection, fire-fighting facilities and smoke control principles for this height band. Buildings E & F (18–30 m) are provided with two independent stairs, configured to satisfy BS 9991:2024 escape, lobby protection. The travel distance and occupancy capacities have been designed in accordance with BS 9991:2024. Where travel distances are extended this will be justified via smoke control and CFD analysis at a later stage of development.

Each stair forms part of a protected route with associated smoke control and fire-fighting facilities. Each stair core will have an evacuation lift which is separated from the accommodation and stair by a lift lobby, to satisfy the recommendations of both BS 9991:2024 and the London Plan, the evacuation lifts will be designed and installed in accordance with EN 81-72.

7.5 STRUCTURAL STRATEGY

IESISSTRUCTURES

THE SITE

Hesi completed the site investigation for the Phase 1 site in November 2022. The site investigation noted that Made Ground was encountered across the site at variable depths of between 0.00m and 0.50m below ground level. The Made Ground is above the Langley Silt Member with a depth range of 1.10m to 1.40m below ground level. The Langley Silt Member is above Lynch Hill Gravel with a depth up to 6.50m below ground level. The Lynch Hill Gravel is above London Clay. No groundwater was encountered up to 30m below ground level. The site investigation notes that the sulphate class for the concrete in contact with the ground should be Class DS-1 / AC-1. A new geotechnical site investigation will need to be carried out for the Phase 1B and Phase 2 sites; however, similar ground conditions are expected.

STRUCTURAL DESIGN PRINCIPLES

Both blocks will be constructed using reinforced concrete frames, Phase 1B - 10 storeys and Phase 2 - 6 storeys. The structure will be supported on pad foundations at least 1300mm deep, where the allowable bearing capacity of the ground is 250kN/m2. RC columns and walls will be supported on the pad foundations, with the ground floor suspended slabs also supported by the pad foundations.

The superstructure for all blocks will comprise of RC frames with 225mm deep reinforced concrete flat slabs at typical upper floors and a column grid in the region of 6m. Rectangular or blade columns (typically 800mm x 225mm) will be utilised within the construction in order that they are concealed within party walls and partially within external walls. In order to provide lateral stability to the buildings, to resist wind loads or notional horizontal forces, it is necessary to provide reinforced concrete shear walls (250mm thick) to transfer the loads into the foundations.

KEY ELEMENTS

The transfer beams, transfer slabs and all columns below them will be designed as key elements.

DISPROPORTIONATE COLLAPSE CLASSIFICATION

The structure includes up to 10 storeys of residential accommodation, giving the buildings a class of 2b in accordance with table 11 of Part A of the approved documents. Classification 2b requires effective horizontal and vertical ties for all floors, walls and columns.

PERFORMANCE CRITERIA

All elements of structure will be designed for a life of 60 years. Unless specified otherwise, tolerances will (where applicable) be within the limits given in BS EN 13670-2009.

MATERIALS

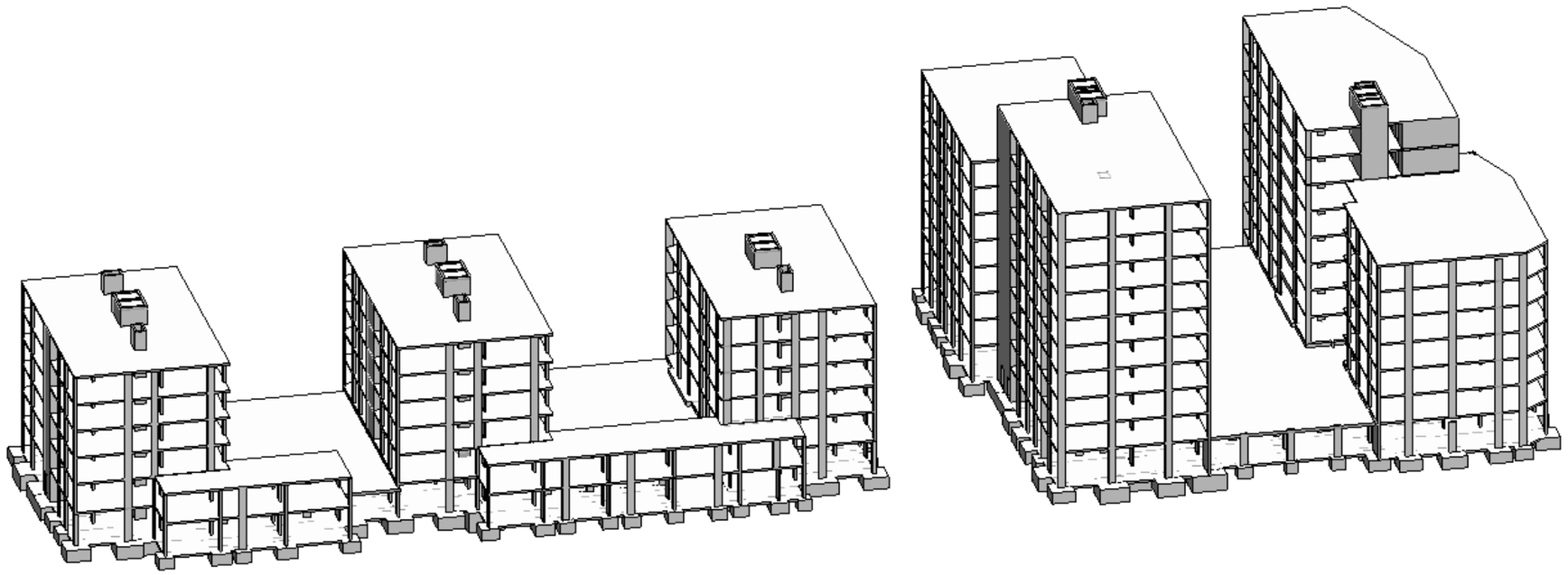
Unless noted on the drawings otherwise all concrete will be grade C32/40 and all steelwork will be grade S355.

DEMOLITION

All three blocks are constructed as reinforced concrete frames. There are no elements or design principles that should be unusual for a competent contractor.

STANDARDS AND REFERENCES

All designs are to be carried out in accordance with the appropriate Eurocodes, Codes of Practice and the Building Regulations.



PROPOSED INDICATIVE STRUCTURAL FRAME

7.6 DRAINAGE STRATEGY

IESISSTRUCTURES

DRAINAGE STRATEGY

The proposed drainage strategy for the Avondale Drive development follows the design principles set out in the previously approved drainage strategy prepared by Whitby Wood in 2021 and submitted as part of the S73 application.

SURFACE WATER DRAINAGE

Surface water will be managed through a gravity drainage system incorporating shallow attenuation tanks located beneath the proposed car park and landscaped areas. These tanks will control runoff before discharging at two locations: one connection to the Phase 1 drainage system, limited to a discharge rate of 1.0 l/s, and a second connection to the public Thames Water surface water sewer in Avondale Drive, limited to 2.3 l/s. This dual-discharge arrangement provides controlled runoff in accordance with sustainable drainage requirements.

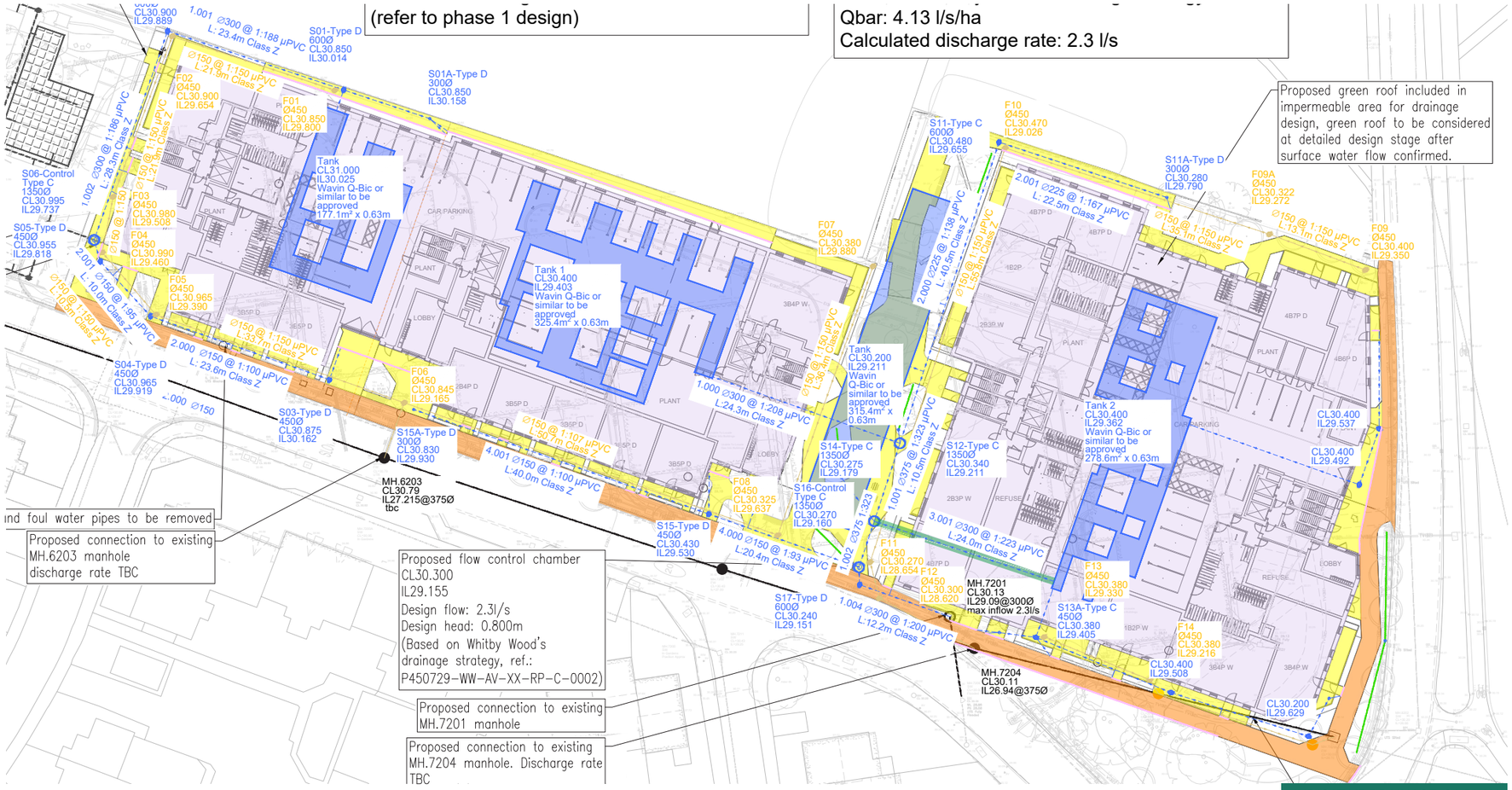
Proposed impermeable highway areas will connect to the existing highway drainage network and will be designed in detail as part of the S278 works.

Rain gardens are proposed across the site, each with an underlying perforated pipe to manage overflow. Green roofs at first-floor level are also included. The current drainage strategy incorporates these green roofs within impermeable catchment calculations, providing flexibility to reduce attenuation volumes during the detailed design stage if required.

FOUL WATER DRAINAGE

Foul water will be conveyed via a gravity drainage network with two proposed connections to the existing public Thames Water foul sewer in Avondale Drive. An existing foul sewer located adjacent to the southeast corner of the building footprint will require local diversion to accommodate the new development layout. Following diversion, this sewer will provide an additional foul discharge connection point. The diversion will be subject to both a build-over agreement and a diversion agreement with Thames Water.

All new on-site drainage infrastructure will remain private and will be managed and maintained by the development's management company. The diverted foul sewer will be adopted and maintained by Thames Water, subject to their approval. All proposed connection points and discharge rates will be confirmed with Thames Water as part of the application process.



INDICATIVE DRAINAGE GA PLAN

M / 193

7.7 ACCESS, CLEANING AND MAINTENANCE

PLANT ACCESS

Most of the ground floor plant rooms have level access into them, accessed either directly from the street or internally via the car parks in each phase. There is a small, single step down into the phase 2 commercial sprinkler tank room, and the phase 1B tank is located underground, below the car park with access hatches in the communal cycle stores.

ROOF ACCESS

In each phase, the tallest block with roof level plant rooms, blocks C and E, will have access via permanent stairs with a pop-up enclosure to the roof level, providing safe and easy access for maintenance and equipment replacement purposes only. This will be secured to prevent access to residents. Any major plant replacement could also be done by crane from ground level.

The top roofs of blocks B, D and F, without dedicated plant rooms, will allow access via a 'coffin' hatch with permanent stairs leading up to this. These allow for easy access for maintenance and replacement of smaller parts. These hatches will also be secured to prevent access to residents.

The lower roofs of blocks E and F are accessed from doors out of the taller parts of the block. This accessed will be stepped, but will be limited to maintenance only with some kind of access control to prevent use by residents.

Access to the green roofs atop of the phase 2 duplexes will be via ladder from the level 1 podium in the areas indicated. This ladder will either be non-permanent or fixed with a drop down that prevents ordinary use by residents.

PARAPETS

All parapets are a minimum of 1100mm high for safe use by residents and/or maintenance workers.

The access and maintenance strategy will be developed further at the next design stage.

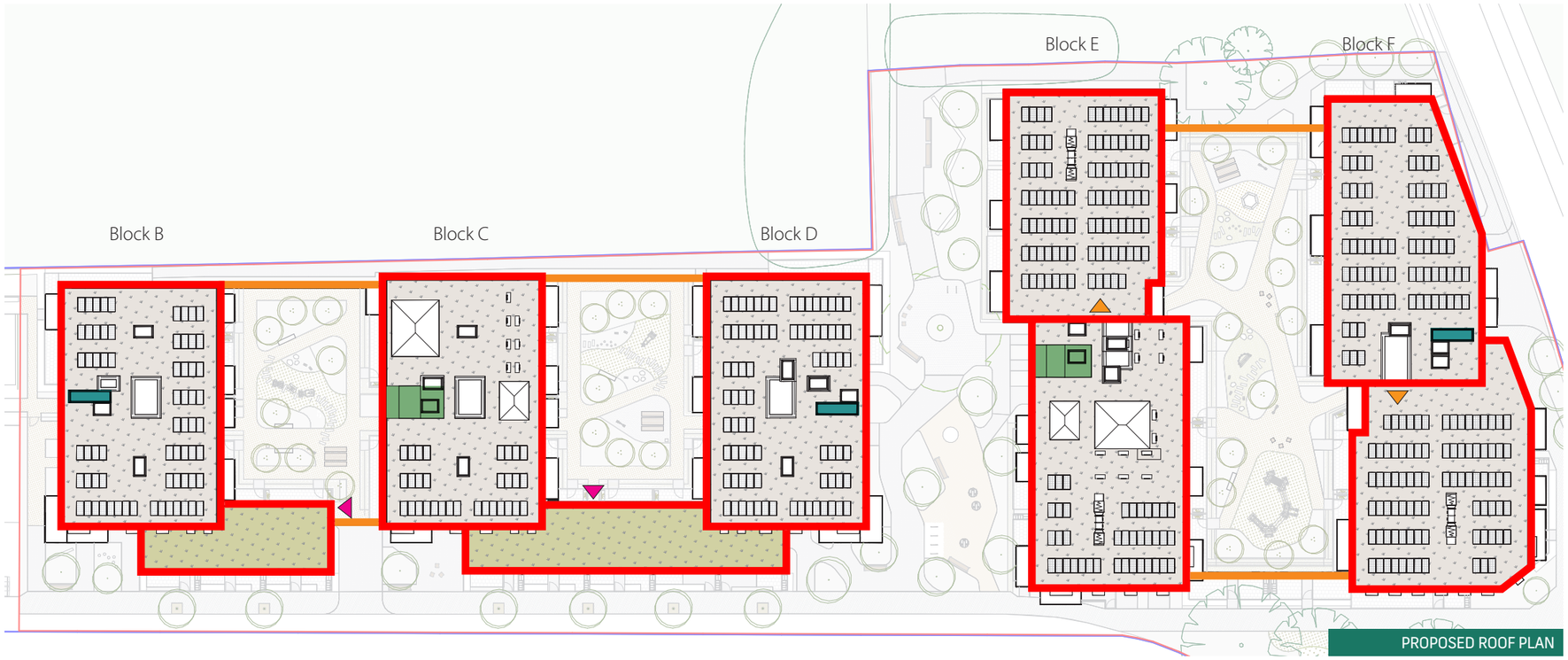
PV panels on brown roofs

'Coffin' roof hatch access with stair up to hatch

Key

- Roof parapet - 1100mm min
- Podium parapet - 1100mm min
- Full stair access with pop-up to roof level allowing safe and easy access to plant rooms and to roof, for maintenance only
- 'Coffin' roof hatch with full stair up to hatch for safe and easy access to roofs with limited plant equipment, access for maintenance only
- Access to green roofs via ladder (one storey height change from podium), for maintenance only
- Access to lower roofs via door at lower level with stepped access, for maintenance only

ROOF PLAN ACCESS AND CDM CONSIDERATIONS



PROPOSED ROOF PLAN

A / 021

7.8 WINDOW CLEANING STRATEGY

SITE WIDE STRATEGY

Window cleaning strategies were developed early in the detailed design process.

For easily accessible windows, the following methods are adopted:

- Windows within balconies are externally accessible from the balcony.
- Ground floor windows can be cleaned externally from ground level.
- First-floor windows facing the podium are externally cleaned from the podium terrace.

To mitigate overheating, and for all other windows – specifically those on the north and south elevations, in duplexes, and facing the Phase 1B podium courtyard – full-height, inward-opening windows with Juliet balconies are proposed. These windows are designed for internal cleaning.

Pole Cleaning

PHASE 2

Phase 2's mid-rise buildings are all six storeys. Their east and west elevation windows will be externally cleaned using long poles, a strategy consistent with Phase 1A.

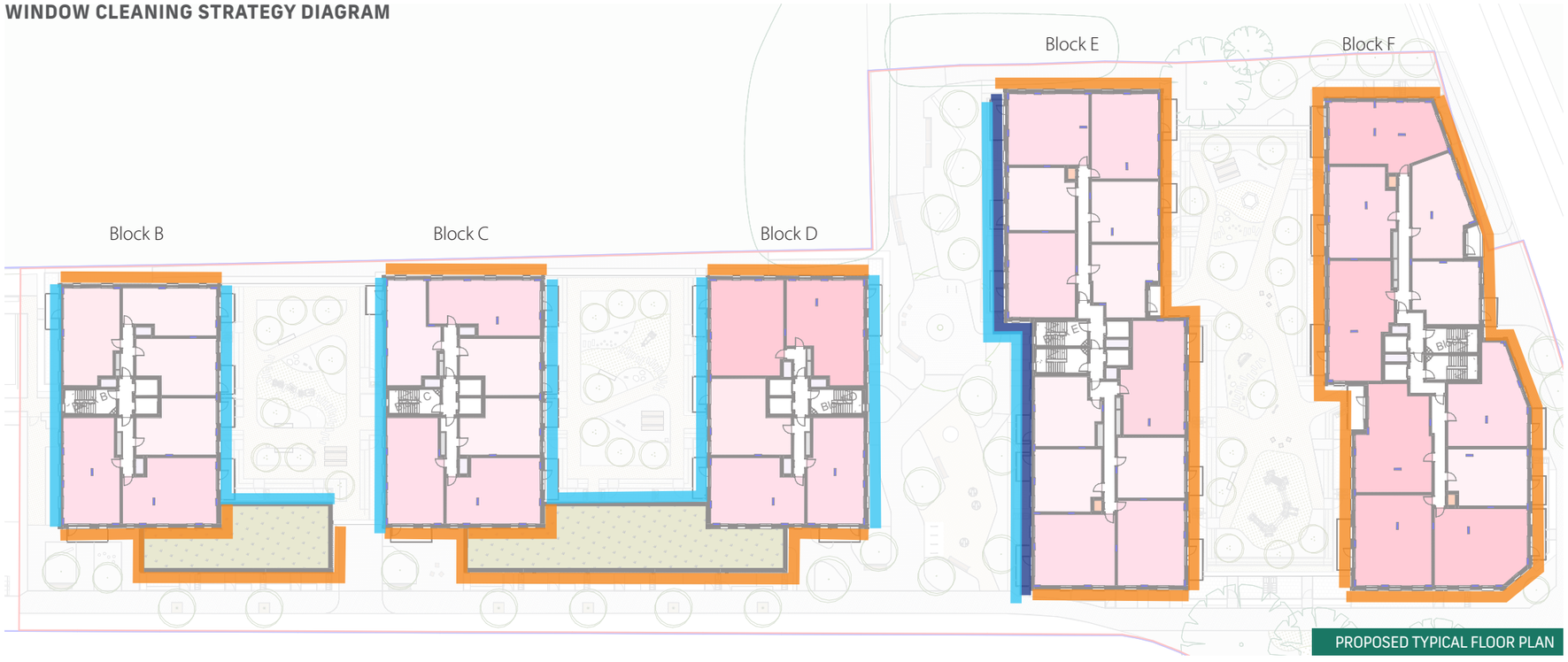
PHASE 1B

For Block E's west elevation in Phase 1B, windows up to six storeys will be externally cleaned via long poles. Windows above the sixth storey will utilize "self-cleaning glass" to limit maintenance.

Key

- Window to be cleaned internally - Juliet balcony
- Window to be cleaned externally by poles (same as phase 1A) - upto 6 storey
- "Self-cleaning glass" applied for window over 6 storey.

WINDOW CLEANING STRATEGY DIAGRAM



PROPOSED TYPICAL FLOOR PLAN

7.9 DAYLIGHT SUNLIGHT STRATEGY

SUMMARY STRATEGY

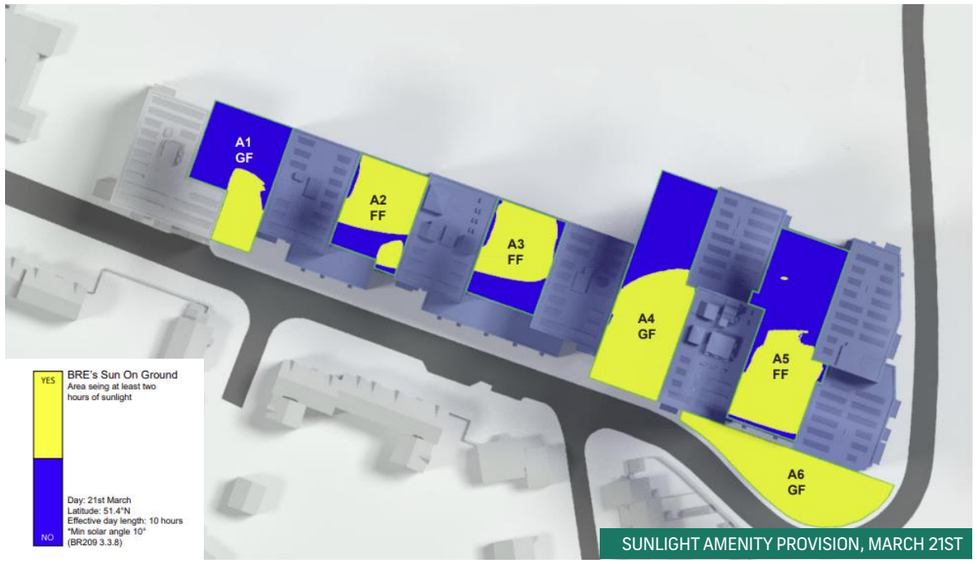
The updated daylight and sunlight assessment reviews the revised Avondale Drive proposals against the S73 scheme. The assessment examines impacts on neighbouring properties, internal daylight and sunlight performance within the proposed accommodation, sunlight availability to new amenity spaces, and overshadowing effects on Hitherbroom Park, in accordance with the 2022 BRE guidance.

When compared with the S73 scheme, changes in internal daylight and sunlight performance, including Vertical-Sky-Component, No-Sky Line (NSL) and Annual Probable Sunlight Hours (APSH), are generally limited. The majority of assessed rooms demonstrate negligible change, with any localised reductions remaining modest and within the range anticipated for a high-density town centre location.

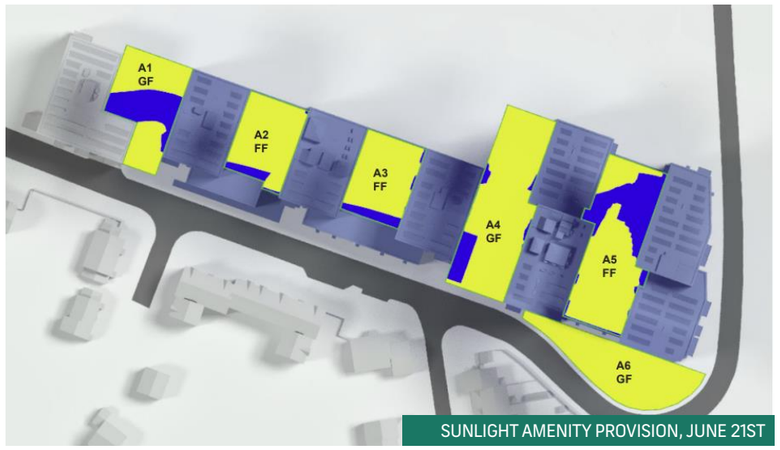
Internal daylight levels across the proposed residential accommodation remain consistent with BRE guidance and relevant residential quality standards. The layouts have been carefully developed to optimise access to daylight and sunlight, with primary living spaces positioned closest to windows, appropriate room depths, and window arrangements designed to maximise sky visibility. These design measures ensure that good levels of daylight are achieved where they are most beneficial to residents, supporting a high-quality internal environment.

The sunlight assessment confirms that adequate levels of sunlight are maintained to the proposed accommodation, with the majority of dual-aspect and south-facing units achieving good APSH performance. Any shortfalls are limited and reflect the urban context and constraints of the site.

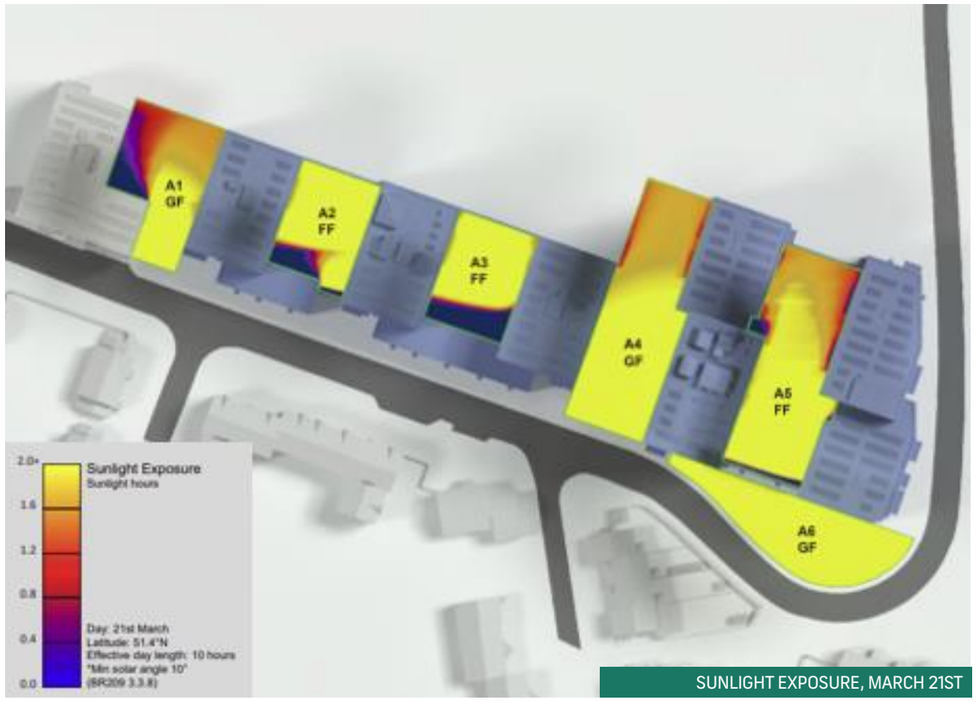
The overshadowing analysis demonstrates that Hitherbroom Park continues to achieve the BRE target of a minimum of two hours of sunlight on 21 March, with no material reduction in sunlight compared to the S73 scheme. Overall, the revised massing and layout strategy delivers an appropriate daylight and sunlight environment that responds to site constraints while remaining aligned with planning policy and design standards.



SUNLIGHT AMENITY PROVISION, MARCH 21ST



SUNLIGHT AMENITY PROVISION, JUNE 21ST



SUNLIGHT EXPOSURE, MARCH 21ST

A / 162 A / 231

M / 004 M / 028 M / 057 M / 125

M / 131 M / 226-28

7.10 OVERHEATING STRATEGY

OVERVIEW

This overheating risk assessment has been prepared by Watkins Payne on behalf of the London Borough of Hillingdon ('LBH') in support of a reserved matters application for Land at Avondale Drive, pursuant to Condition 1 of the hybrid permission for the site. A Section 73 application (application ref: 76551/APP/2025/2861) is currently pending and will be determined prior to the approval of this Reserved Matters Application. Therefore, this RMA responds to the revised wording of the planning conditions proposed within the Section 73 application.

The purpose of this assessment is to evaluate the potential risk of overheating within the proposed development (Phases 1b and 2) and to demonstrate compliance with Approved Document Part O (2021) and CIBSE TM59 (2017). The overheating mitigation strategy has been developed in accordance with the London Plan (2021) Policy SI 4 Managing Heat Risk, adopting a passive first approach that prioritises design measures which minimise reliance on mechanical cooling while supporting occupant comfort.

An iterative modelling and design process has been undertaken to guide the development towards compliance with policy and regulatory requirements. Sequential simulations were carried out to test and refine passive design measures and, where necessary, to incorporate targeted mechanical interventions to ensure acceptable thermal comfort conditions. This structured methodology ensures that all phases of the development accord with the overarching objective of delivering a high quality, climate resilient residential development, consistent with both local and regional planning policy expectations.

METHODOLOGY

Dynamic thermal simulation modelling has been undertaken using EDSL TAS (version 9.5.7) for a representative sample of apartment and duplex units across Phases 1b and 2 (Blocks B to F) covering 54% of the total proposed dwellings. The sample selection encompasses all typologies and orientations across multiple floor levels, including those located in the most heat sensitive areas. All communal areas, including internal corridors, staircores and entrance lobbies, were also assessed to evaluate performance against CIBSE TM59 overheating criteria.

The assessment has been carried out using the DSY1 (2020s high emissions, 50th percentile) weather file for London Heathrow, in accordance with the requirements of Part O and TM59, with additional testing under DSY2 (short duration heatwave) and DSY3 (prolonged warm summer) conditions to assess future climate resilience.

COOLING HIERARCHY

The proposed overheating mitigation strategy has been developed in full accordance with the London Plan cooling hierarchy, prioritising passive design measures before the introduction of low energy mechanical ventilation and, where necessary, beneficial cooling to ensure compliance.

Watkins Payne

Measure	Implementation
1. Reduce the amount of heat entering the building	
External fabric	Highly insulated external walls and roofs to minimise heat gain through conduction.
Solar control glazing	All windows to achieve a solar transmittance (g-value) of 0.40 or lower.
External shade from balconies, birse soleil window reveals	Incorporation of recessed windows on all facades, balconies and horizontal brise soleil where appropriate.
2. Minimise internal heat generation through energy efficient design	
LED lighting	High efficiency LED lighting installed throughout to reduce internal heat gains.
Pipework insulation	Well insulated hot water pipework to reduce heat loss from the centralised distribution network.
Energy efficiency equipment	Energy efficient equipment with low heat output.
3. Manage heat within the building through exposed thermal mass and high ceilings	
Medium thermal mass	Moderate thermal mass (190 kJ/m2K) for buffering effect.
4. Provide passive ventilation	
Natural ventilation via openable windows, patio doors and AOVs	All habitable spaces benefit from fully openable windows and/or balcony doors to enable natural ventilation, openable to at least 90° for enhanced air flow.
5. Provide mechanical ventilation	
MVHR with boost mode	All habitable spaces will have MVHR units with in-built summer bypass function, providing continuous background ventilation. In addition, a boost mode capable of delivering up to 2ACH will be available to provide enhanced ventilation.
5. Provide cooling	
MVHR cooling coil	Beneficial cooling from MVHR cooling coil is provided where acoustic constraints limit the feasibility of natural ventilation.

A / 039 A / 230

M / 028 M / 057 M / 227 M / 229

OVERHEATING STRATEGY

SUMMARY OF RESULTS

RESIDENTIAL UNITS

Across Phases 1b and 2, the overheating assessment demonstrates a clear progression in performance through the application of the London Plan cooling hierarchy. Under the baseline natural ventilation scenario, 81% of sampled residential units achieve full compliance with TM59, increasing to 93% with targeted MVHR boost ventilation. With the proposed MVHR cooling coil strategy in place, full compliance is achieved across all sampled units. These results confirm that the proposed design delivers an effective and policy-compliant approach to managing overheating risk across the development.

Noise measurements have been taken on site to establish dominant sources such as traffic noise, construction noise, and overhead aircraft. The roadways at the boundaries of the site have recorded levels which are considered as too high for openable windows during night-time for overheating purposes as set out in the new Part O. Therefore, whilst windows have been designed to be openable to aid window cleaning & rapid ventilation into apartments. The summertime overheating strategy is based on a mechanical MVHR ventilation solution (coiling coil installed in supply duct), reducing / eliminating the need to open windows to overcome summertime overheating.

The internal ambient noise level is important for comfort and therefore careful selection of plant and attenuators will also be required.

COMMUNAL CORRIDORS, STAIRCORES AND ENTRANCE LOBBIES

The assessment confirms that the proposed design for Phases 1b and 2 achieves full compliance with TM59 criterion 1 for non-residential communal areas under natural ventilation. Targeted design refinements, including reductions in glazing ratios to entrance lobby areas, additional external shading from overhanging balconies and improved natural ventilation provision through AOVs, have demonstrably reduced peak operative temperatures. The assessment indicates that all communal spaces maintain acceptable thermal conditions during the DSY1 design summer year.

THERMAL MASS

A high thermal mass will help reduce the risk of overheating.

To prevent the risk of overheating within the flats and communal areas the flats have been designed with openable windows to provide purge ventilation rate during periods of warm weather albeit with the extra noise. The operable windows enable occupants to achieve thermal comfort via passive means however due to the noise levels the occupants can also achieve this via keeping the windows closed and using the beneficial cooling provided via the MVHR coil. The design of the glazing and the brise soleil in the façade helps minimise the amount of solar gain getting in through the building fabric. Internal gains from waste heat have been minimised through low running temperatures for the heating and hot water systems and internal District Heating risers located within the flats.

All circulation spaces within the block will be installed with natural ventilation (via AOV) to minimise overheating.

RENEWABLES / LOW CARBON DESIGN

The Avondale Drive Estate development shall meet the London Plan requirements using a combination of Heat Pumps, thermal storage and PV panels.

The energy strategy that was submitted for planning was developed in-line with the Mayors' Energy Hierarchy of "Be Lean, Be Clean, Be Green and Be Seen". The key principles of the energy are set out below: -

1) Installation of a mixture of Air Heat Pumps and Water Source heat pumps to be used for heating, cooling and domestic hot water production

2) PV panels to be installed on the roof.

Watkins Payne

	TM59 Compliance Summary DSY1 – Development						
	Block					Development	
	B	C	D	E	F		
Baseline	14/19	17/18	15/17	49/52	21/38	**116/144**	**81%**
Targeted MVHR Boost	18/19	17/18	16/17	50/52	33/38	**134/144**	**93%**
Beneficial Cooling	**19/19**	**18/18**	**1717**	**52/52**	**38/38**	**144/144**	**100%**

A / 039 A / 230

M / 028 M / 057 M / 227 M / 229

7.11 WIND TESTING

SUMMARY STRATEGY

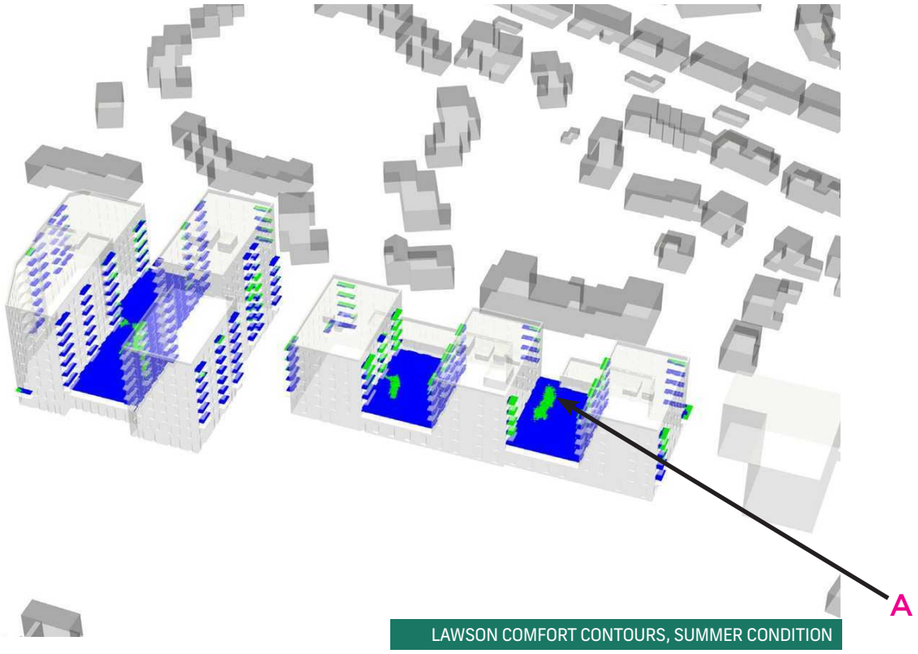
The wind environment CFD study has been undertaken by WINDTECH Consultants to assess the wind microclimate around the proposed Avondale Drive Estate development in London. The key findings from the Wind Environment CFD report are:

• The wind conditions at the ground are safe and suitable for the intended use.

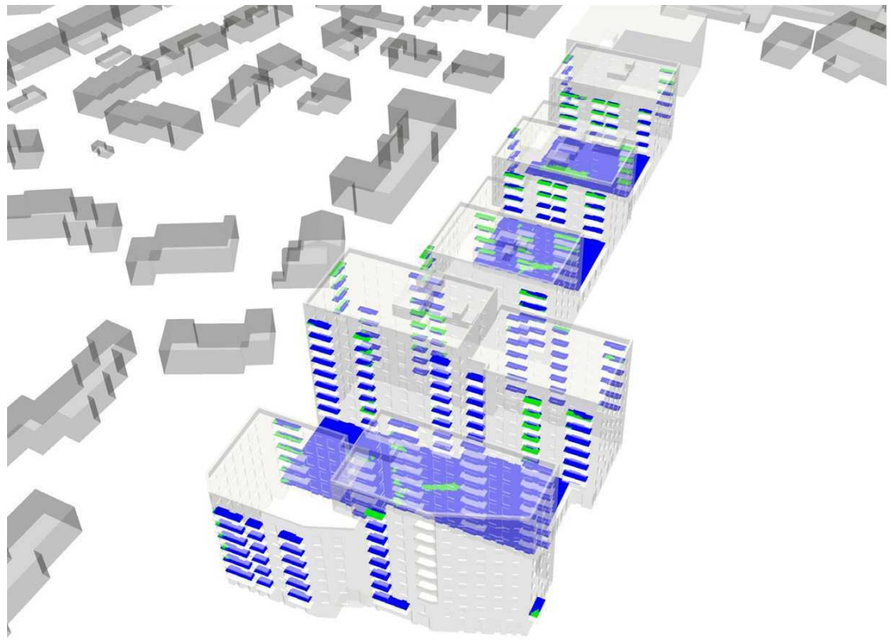
• The wind conditions at the elevated levels are safe and suitable for the intended use in most areas. However, there is an outdoor seating area on Phase 2 where the wind conditions are unsuitable for the intended use.

For the seating area where the wind conditions are unsuitable for the intended use, it was recommended that further mitigation measures be implemented such as the hard and soft landscaping. This has been incorporated into the final RMA design.

For further detail refer to the wind environment report (Ref: WH590-03F02 (rev1) - CFD WE Report).

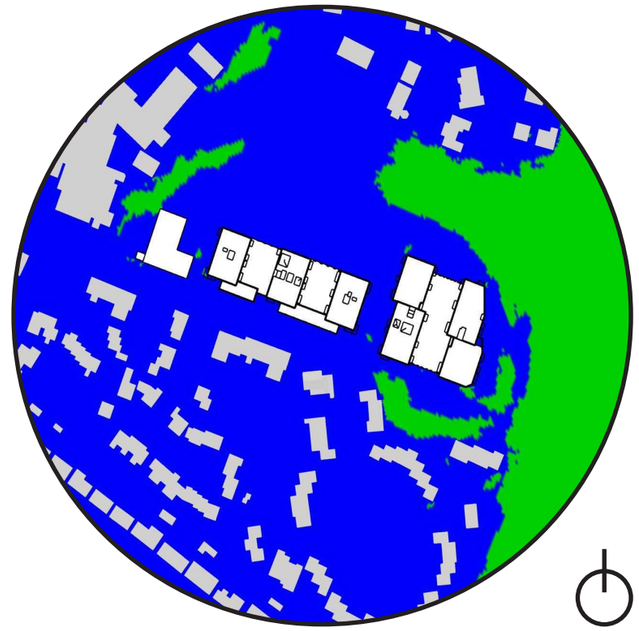


LAWSON COMFORT CONTOURS, SUMMER CONDITION



LAWSON COMFORT CONTOURS, SUMMER CONDITION

WINDTECH



M / 227