

Highgate School – Dyne House – Carbon Management Planning Responses

Date
8th August 2025

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Introduction

Highgate School submitted planning application for the redevelopment of Dyne House located in Southwood Lane, Hornsey, London, N6 5EE. The proposal and the following supporting documents have been reviewed by Haringey Council:

- Energy Statement including Overheating assessment prepared by AECOM (dated Dec 2022)
- Sustainability Statement prepared by AECOM (dated Dec 2022)
- Whole Life Cycle Carbon Assessment prepared by AECOM (dated Dec 2022)
- Circular Economy Statement prepared by AECOM (dated Jan 2023)
- Relevant supporting documents.

On 10th April 2024, Haringey Council provided a Carbon Management Response (REF: HGY/2023/0328) which confirmed that the carbon management team would object to the application as submitted. The response detailed a number of concerns and queries in relation to the carbon performance of the proposed development. A meeting was held 10th March 2025 between AECOM, Highgate School, Haringey's Carbon Management team and the Case Officer to discuss the responses. AECOM has liaised with the design team in order to respond to the concerns raised. The response tracker below contains the concerns and queries raised by Haringey council and the design team responses to these.

In responding to the comments provided by Haringey, the design of the building has been updated to incorporate more efficient lighting and an increase in PV panel provision. This has had the result of improving the carbon savings after the "be lean" stage of the energy hierarchy, as well as the overall savings after all stages of the energy hierarchy. Overall savings after all stages of the energy hierarchy are now 16%, compared to 9% in the previously submitted energy statement. Following these improvements, the updated headline carbon emissions and savings at each stage of the energy hierarchy are outlined in Table 1 and Table 2 below.

	Carbon Dioxide Emissions for non-residential buildings (Tonnes CO ₂ per annum)	
	Regulated	Unregulated
Baseline: Part L 2021 of the Building Regulations Compliant Development	18.7	24.2
After energy demand reduction (be lean)	18.5	24.2
After heat network connection (be clean)	18.5	24.2
After renewable energy (be green)	15.6	24.2

Table 1 Carbon dioxide emissions after each stage of the energy hierarchy – Dyne House

	Regulated non-residential carbon dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Be lean: savings from energy demand reduction	0.2	1%
Be clean: savings from heat network	0.0	0%
Be green: savings from renewable energy	2.9	15%
Total Cumulative Savings	3.1	16%

Table 2 Regulated carbon dioxide savings from each stage of the energy hierarchy – Dyne House

As an improvement in the on-site regulated carbon savings is now proposed compared to that in the originally submitted energy statement, a reduced carbon offset payment is now proposed. The offset payment proposed for Dyne House is now £44,572. This is summarised in Table 3.

	Annual (tCO ₂)	Cumulative shortfall (tCO ₂)
Total Target Savings	18.7	-
Shortfall	15.6	469
Cash in-lieu contribution (£)	-	£44,572

Table 3 Carbon savings shortfall and offset payment – Dyne House

Response Tracker

Ref. No.	Haringey Comment	Applicant Response									
1.	Please report the cooling demand in the table below from the GLA Carbon Emission reporting Spreadsheet.	The cooling demand is as follows: <table> <tr> <th></th><th>Area weighted non-residential cooling demand (MJ/m²)</th><th>Total non-residential cooling demand (MJ/year)</th></tr> <tr> <td>Actual</td><td>4.945968</td><td>28670.09487</td></tr> <tr> <td>Notional</td><td>2.5488936</td><td>14775.06958</td></tr> </table> Table 4 Cooling Demand – Dyne House Note that while cooling demand is higher than for the notional building, it is a very small energy demand overall, with energy used for cooling representing just 1.4% of the proposed building energy demand and as such there is no potential for significant further savings. As outlined in section 4 of the energy statement and the overheating report in Appendix E of the energy statement, natural ventilation has been preferred in all suitable spaces and passive design measures incorporated into the design to reduce cooling demand and overheating risk. Only spaces with specific requirements (such as server rooms and the auditorium) or rooms which would otherwise overheat (for example on the south facade of the roadside building where noise, acoustic and safety considerations prevent large window openings) are proposed to have mechanical cooling.		Area weighted non-residential cooling demand (MJ/m ²)	Total non-residential cooling demand (MJ/year)	Actual	4.945968	28670.09487	Notional	2.5488936	14775.06958
	Area weighted non-residential cooling demand (MJ/m ²)	Total non-residential cooling demand (MJ/year)									
Actual	4.945968	28670.09487									
Notional	2.5488936	14775.06958									
2.	Both EUI and SHD are higher than the GLA benchmark. The space heating demand is more than thrice the GLA benchmark of 15 kWh/m ² /year. What measures are proposed in order to improve the heat loss and minimise the space heating demand?	The GLA benchmarks are ambitious and difficult to meet and it is not a policy requirement to meet them, but instead to report building performance and to outline reasons why the building energy use is modelled to be higher. In our professional experience most buildings do not meet the benchmarks. There are several reasons as to why the energy use intensity for the proposed building is higher than the benchmark. These include: - The constant volume AHU equipment already installed in the building is being retained and re-used for the auditorium bringing embodied carbon benefits. The constant volume AHU increases space heating demands compared to a variable volume system (as more fresh air is provided which requires heating) and therefore also increases the EUI compared to a variable volume system. - Current building modelling does not include recirculation of air from the system which is planned to be included in Dyne House which will reduce demand in reality.									

- As detailed in responses line 3, domestic hot water demand as modelled represents a high proportion of the building energy demand and cannot be easily reduced.

For space heating demand, all proposed U-values (with exception of doors and the existing ground floor, discussed further below) are better than the Part L 2021 notional building to minimise heating demand.

Following receipt of comments from Haringey, consideration has been given as to whether further improvements could be made to U-values. It was concluded that further commitments to improving U-values could not be made at this stage but that further consideration would be provided at the next stage of the design post planning. An area of focus was the glazing and consideration was given to increasing the G-value on windows from 0.29, to permit more beneficial solar gains in winter, which could help to reduce the space heating demand however, this would impact the overheating strategy and so has not been pursued further at this time.

Element	U-value (W/m ² K)			Comments
	Proposed	Part L 2021 Notional building	Part L 2021 Backstop	
Roof	0.13	0.15	Flat: 0.18 Pitched: 0.16	13% better than the Notional
Exposed walls	0.15	0.18	0.26	17% better than the notional
Basement walls	0.15	0.18	0.26	17% better than the notional
Exposed floors and ground floors (existing – 28% of total)	0.3	0.15	0.18	Limited scope to improve existing performance in retained floors
Exposed floors and ground floors (new build – 72% of total)	0.1	0.15	0.18	33% better than the notional

Windows and glazed doors	1.20	1.40	1.60	14% better than the Notional
Opaque pedestrian doors and high usage entrance doors	2.20	1.90	3.00	Performance limited by SBD requirements.
Rooflights	1.80	2.1 (however not applied in our notional building due to building type)	2.20	14% better than the Notional

Table 5: Dyne House U-values performance compared to notional

Although doors do not match the notional building, they are within Part L 2021 limits. The building is targeting Secured by Design (SBD) certification. Meeting the SBD requirements for doors often involves incorporating significant amounts of steel into opaque doors and this increases the U-value making the Part L notional building performance difficult to achieve. However, such doors represent a very small proportion of the building envelope and the losses due to higher U-values in these elements is relatively small.

For areas where the ground floor slab is being retained, it is expected that it will not be possible to achieve U-values of less than 0.3 as there is limited space available for adding additional insulation. Although this might have a relatively small impact on heating demand in the building, the retained areas are a small proportion of the overall building envelope. Further, there are significant embodied carbon benefits in retaining the floor slabs and structure in these areas. In areas where new buildings are to be constructed, the floor U-value is proposed to be 0.13, below that of the Part L 2021 notional building. Overall, the area-weighted U-value for ground floors is proposed to be 0.16, which is comparable to the Part L 2021 notional building and within Part L 2021 backstop limits. Performance of existing ground floor U-values will be kept under review during detailed design and improvements made where opportunities are identified.

3. The energy consumption for hot water is higher than the notional figures. Due to this high hot water demand, it is recommended to consider wastewater heat recovery. It is acknowledged that the energy modelling for non-residential development units is not currently able to account for this using the Part L methodology, however, to reap actual benefits, this should be considered. Accordingly, manual evidence can be submitted confirming the percentage offset in
- In the proposed building, the main hot water demands are from toilets (wash hand basins) and cleaners' sinks, which are spread throughout the building. For small, dispersed and intermittent hot water demands such as this, direct electric point of use water heating is preferable to heat pumps, largely eliminating storage and distribution losses. Direct electric water heating is proposed for Dyne House. This means (in Part L terms) that the building has higher energy demand for hot water than the Part L notional building and therefore includes an increase in energy demand and associated emissions against the baseline.
- There is difference between notional and actual building DHW energy use explained by a Part L 2021 modelling quirk which applies the power factor correction on direct electric water heating at system level in

	the hot water demand. Please provide manufacturers datasheets or correspondence to demonstrate the claimed performance. the notional building, and at carbon emissions level in the actual building. Associated emissions are actually the same. In addition, the notional building assumes no storage losses, this is not generally feasible in practice as these systems would require high electrical power capacity. In the as-designed building, a small amount of storage is included with the direct electric system to reduce instantaneous electrical demands. The actual building performance is therefore good for a direct electric system. Centralised DHW generation using heat pumps would not be a suitable solution as this would introduce storage and distribution losses in practice which would likely increase overall energy demand in real world use whilst also introducing additional plant and refrigerants into the building design. It is also likely that Part L overestimates DHW demand, meaning that this is likely to be a lower proportion of overall building energy demand in real world operation. As most water use is expected to be from hand washing in WC areas and there are no showers, there is no reasonable opportunity for waste water heat recovery, as there is not a consistent or large amount of waste hot water expected to be produced. These are typically more suitable for residential or hotel building types.
4. The cooling demand is double the notional cooling demand. Please provide a clear explanation of why it is not possible and outline the implications for building design.	Whilst cooling demand is higher than for the notional building, the overall energy demand is very small, representing just 1.4% of the proposed building energy demand, as shown in the Figure 1 below. Therefore, there is limited potential for further carbon savings.

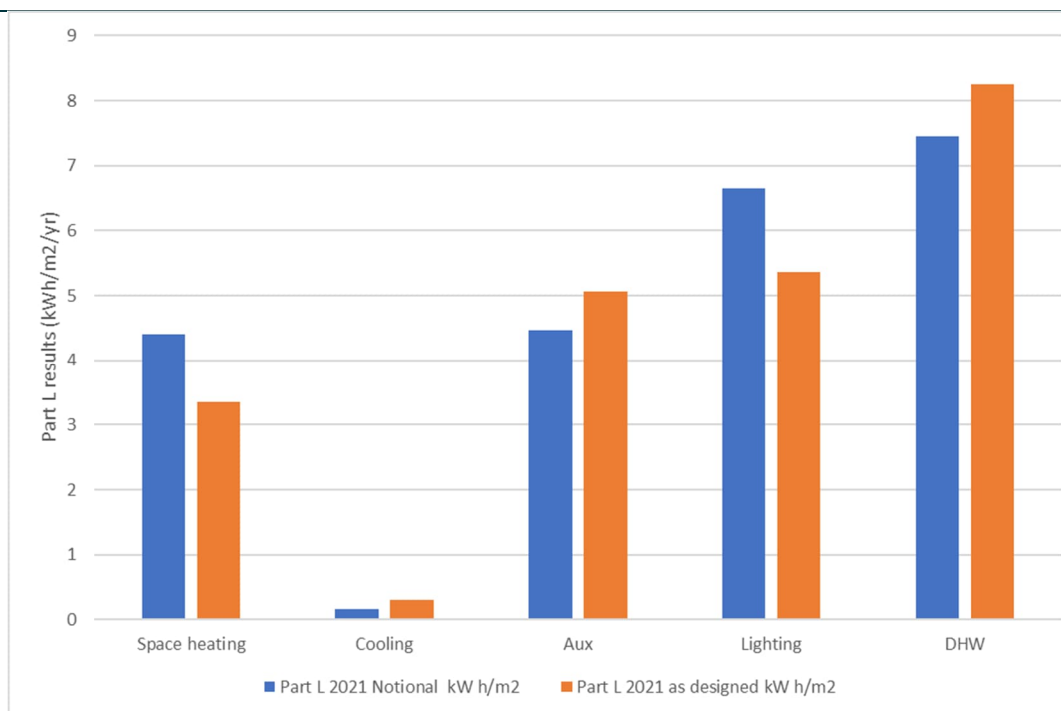


Figure 1 Energy demand breakdown for Dyne House

As outlined in section 4 and Appendix E (overheating report) of the energy statement, natural ventilation has been preferred in all suitable spaces and passive design measures incorporated into the design to reduce cooling demand and overheating risk. Only spaces with specific requirements (such as server rooms and the auditorium) or rooms which would otherwise overheat (for example on the south facade of the roadside building where noise, acoustic, safety and air quality considerations prevent large window openings) are proposed to have cooling. The cooling demand is to be met 100% through the ground source heat pump system (GSHP).

5.	Please also submit the space cooling demand in kWh/m²/year.	Space cooling demand as estimated in the Part L model is 1.37 kW h/m²/year.
6.	The applicant has proposed a deterioration rather than improvement beyond the notional building under Be Lean, this is not policy compliant. London Plan Policy SI2 requires non-residential developments to improve emissions by at least 15% under Be Lean. This goes against the Energy	A fabric first approach has been taken on the design for the proposed development. As outlined in response 2 above, average U-values across all elements are improved over the Part L 2021 notional building values with the exception of doors (where security requirements make this challenging) and the ground floors (where the retention of the structure prevents significant additional insulation). The overall building fabric

Hierarchy and requirement to take a fabric first approach in line with London Plan Policy SI2 and Local Plan Policy SP4. The development relies solely on Be Green measures to meet its energy targets and compensate for its poor performance under Be Lean. This is not supported.	specification represents good performance. Building space heating demand is reduced by 9.6% and building space heating energy consumption is reduced by 23.8% compared to the notional building. As discussed in response 3, making savings in DHW related emissions under Part L is difficult when utilising a practical design to reduce real-world energy use. There are few opportunities to reduce cooling demand as this is already a very small demand overall as demonstrated above with Figure 1. Auxiliary energy is largely governed by the efficiency of the fans providing air to the building. Fans that are more efficient require physically bigger units so they can run at a lower speed, so further efficiencies are difficult to achieve as plant room height and size is limited. In Dyne House, the auditorium uses existing building plant which has a constant volume. Whilst reusing plant is positive (particularly in terms of embodied carbon), this system type is penalised in Part L. As outlined in detail in section 8.7.1.1 of the energy statement, savings against Part L 2021 are more difficult to achieve as the updated version of Building Regulations includes improved notional building performance. The GLA guidance on energy statements at the time of submission acknowledged that non-domestic buildings might find achieving the 15% savings target challenging: <i>“Initially, non-residential developments may find it more challenging to achieve significant on-site carbon reductions beyond Part L 2021 to meet both the energy efficiency target and the minimum 35 per cent improvement. This is because the new Part L baseline now includes low carbon heating for non-residential developments but not for residential developments. However, planning applicants will still be expected to follow the energy hierarchy to maximise carbon savings before offsetting is considered.”</i>¹ Further, the building services are designed to be energy efficient. Following the planning submission and the carbon management responses from Haringey, design development has allowed the proposed lighting efficiency to be increased from 95 lm/W to 120 lm/W. The above improvements to lighting efficiency have resulted in the proposed development achieving a carbon saving at the “be lean” stage of the energy hierarchy and increased savings after the “be green stage”. “Be lean” savings are now 0.2 tCO₂/year or 1% of baseline regulated emissions and overall carbon savings after the “be green” stage (following the incorporation of increased PV panel area) are increased to 16%.
7. Please identify on a plan where the MVHR units will be located within the dwellings. The units should be less than 2m away from external walls. This detail can also be conditioned.	The MVHR units are located within the floor void or ceiling voids of rooms as appropriate and next to the external facade to allow of local fresh air supply to the classrooms. The images below show typical cross sections of rooms which incorporate MVHR:

¹ <https://www.london.gov.uk/media/99153/download?attachment>

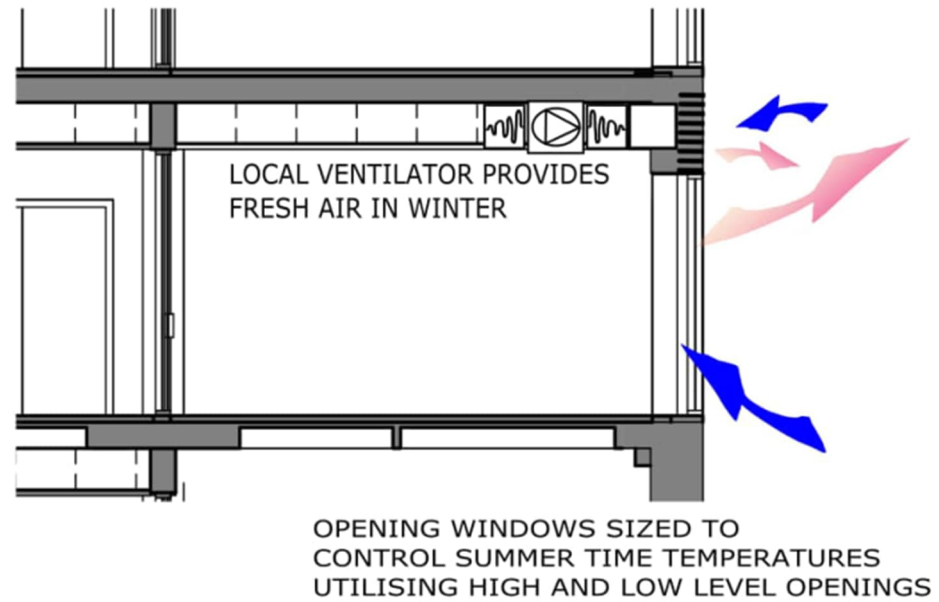
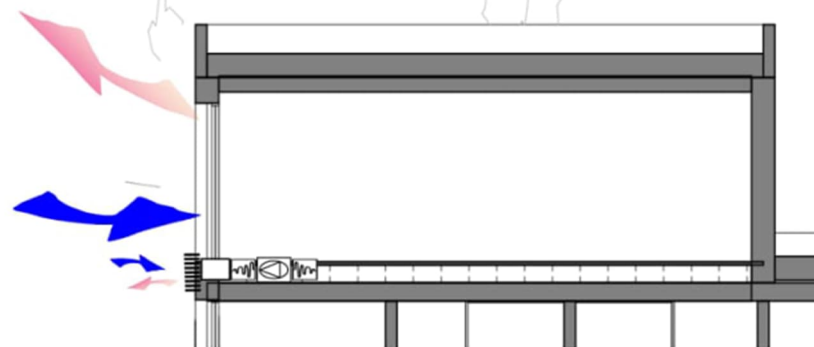


Figure 2 Natural Ventilation with Heat Recovery Strategy (Front Building)

OPENING WINDOWS SIZED TO
CONTROL SUMMER TIME TEMPERATURES
UTILISING HIGH AND LOW LEVEL OPENINGS



LOCAL VENTILATOR PROVIDES
FRESH AIR IN WINTER

Figure 3 Natural Ventilation with Heat Recovery Strategy (Rear Building)

Appendix 1 provides a section of the building indicating possible service zones for MVHR units.

8. The fabric efficiencies and thermal bridging should be improved upon to reduce heat losses.

A fabric first approach has been taken on the design for the proposed development. As described in response 2 above, average U-values across all elements are improved over the Part L 2021 notional building values with the exception of doors (where security requirements make this challenging) and the ground floors (where the retention of the structure prevents significant additional insulation).

9. Set out how the scheme's thermal bridging will be reduced. This is especially relevant for areas where new materials will meet existing fabric. No measures are proposed to reduce heat loss from junction details, and it does not set out the what the proposed Psi (Ψ) value is.

The above building fabric specification represents good performance. Building space heating demand is reduced by 9.6% and building space heating energy consumption is reduced by 23.8% compared to the notional building.

It is too early within the design to establish the psi values/y- values. Thermal bridging details will be developed and detailed at a later stage of the project to meet the energy performance committed to in the energy statement and improve on this where possible. At this stage, before detailed design is available, default Part L thermal bridging allowances have been used in building energy modelling to give a conservative estimate of energy performance.

In the next design stage, specialist software will be used to reduce the psi values as far as possible. The following topics will be considered: the materiality of bracketry (for example stainless steel has a better

		thermal performance than aluminium), the careful placement of thermal breaks, the placement of additional insulation where possible and if required at interfaces between components.
10.	What is the construction of the building and what is the assumed thermal mass?	The new superstructure will generally be an in-situ exposed reinforced concrete frame supported by piled foundations. The basement will typically be formed using steel sheet piles, supplemented by RC liner walls where required. The extension has exposed concrete soffits. The existing building's soffits are to be covered by suspended ceilings due to the likely condition of existing frame and the fact there are no raised floors in this part of the building.
11.	Please provide some commentary on how the remaining available roof space has been maximised to install solar PV. Has your feasibility shown that other roofs will not be viable? Will they be used for other purposes? Living roofs can also accommodate solar PV and will be ideally co-located to reduce the overheating risk of solar PV panels.	PV has been provided on all suitable roofs of the proposed development to maximise renewable energy generation in line with London Plan policy. This is the roof of the tall block adjacent to the road, as shown in drawings in section 6.1.2 of the energy statement. As outlined in the energy statement, other areas of the building are significantly lower as the site slopes away from the road and the buildings at the rear have fewer storeys. The potential to include PV on roof areas to the east of the Dyne House building has been reviewed (above the Auditorium, Bridge Link and Rear Block). As shown by the Google Earth image below and the Appendix 2, the site drops down significantly towards the Highgate Bowl with a difference of 17 m between road level at the front of Dyne House and the Parade Ground at the eastern extreme of the site. The roof levels of the buildings to the back of the site (Auditorium, Bridge Link and Rear Block) have been designed to be low level (max 3 storeys above ground level) to avoid visual intrusion to the surrounding properties. This aspect of the design, combined with the tall mature trees along the southern boundary means that these roofs are heavily shaded and not suitable for PV.

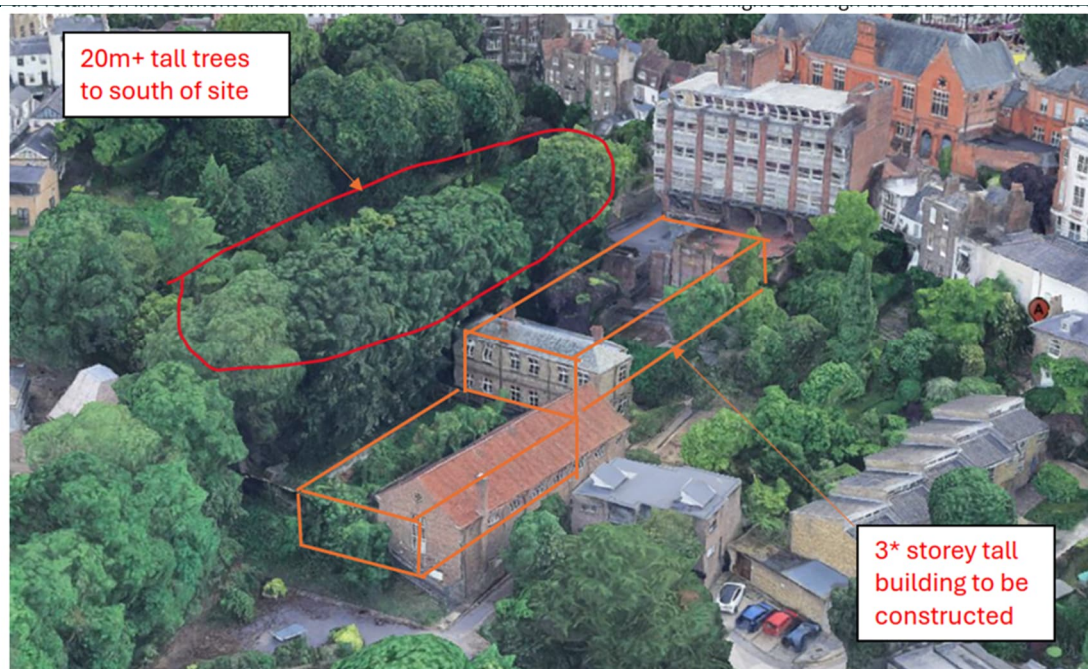


Figure 4 Shading details of Dyne House site

The heavy shading caused by the 20 m+ tall trees along the southern boundary of the site will significantly reduce the amount of sunlight which reaches the roof areas. PV panels rely on direct sunlight to generate energy efficiently, prolonged shading leads to lower energy production and compromised performance. The reduced sunlight exposure would result in a much lower energy output. Installation and maintenance costs might outweigh the benefits of minimal energy generation, leading to a very inefficient PV system in these areas. Reduced efficiencies and electricity generation would also increase the carbon payback period of the PV panels.

Considering the Council's comments made at meeting (1003/2025), a further review was undertaken of the roof area to the very east (on the Rear Block) where it adjoins the Parade Ground to determine if there was potential for PV to be installed there. Based on a desktop review, it is seen that the eastern section of the site would also receive significantly reduced sunlight and would not be suitable for PV panels.

Further, the space available on the top of the 6 storey building Dyne House at the front of site was reviewed with the aim of adding additional PV panels. A more detailed analysis of the space available confirmed that a further 26 m² of panels could be accommodated on the roof of the building.

Incorporation of the additional PV panels described above, combined with the lighting efficiency improvements described in response 2 results in the building achieving increased carbon savings after the

“be green” stage of the energy hierarchy compared to those in the originally submitted scheme. Overall site savings are now 3.1 tCO₂/year or 16% of the regulated baseline emissions.

Figure 5 below shows the proposed PV layout for Dyne House with the increased 102 m² of panel area.

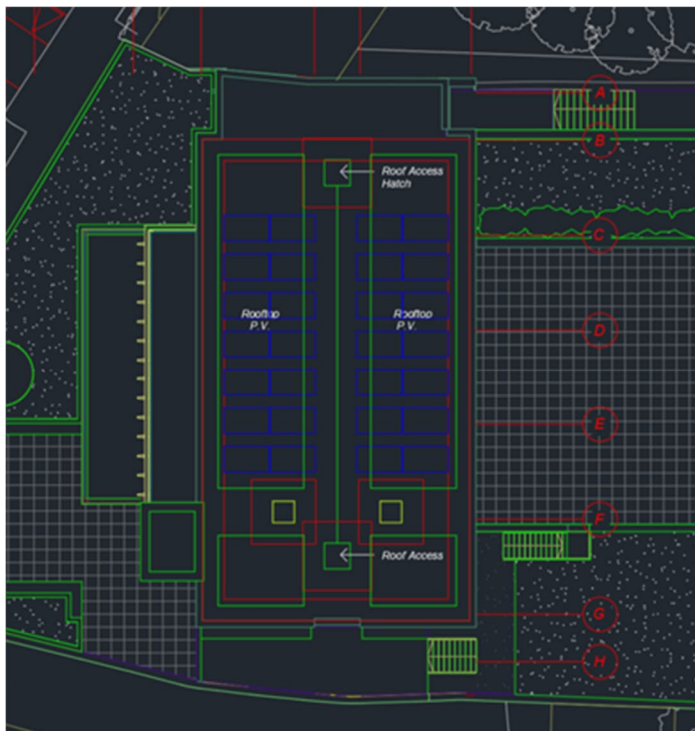


Figure 5 Proposed PV layout for Dyne House

12. How will the solar energy be used on site (before surplus is exported onto the grid)?

A PV area of 102 m² at 21% nominal efficiency is proposed, which has a peak power output of 16 kW_p. Any supply from the PV installation would automatically be fed into the buildings main LV switchboard to offset the building load and reduce the demand on the incoming DNO supply during normal school hours. When the school is unoccupied, e.g. school holidays it is possible that the PV will generate a net surplus that can be sold back to the school's electricity provider. The amount is dependent on, at Stage 3, modelling the installation's output during a 12-month period. The revenue generated would be subject to a specific tariff agreement between the school and their energy supplier.

13.	How much of the space heating demand will be met by the proposed types of heat pumps? If this cannot be met fully, how will this be supplemented?	The full cooling and heating demands of the building will be met by ground source heat pumps (GSHPs) located at Level -04 in the rear block. Heating for the island site toilets will be by way of electric heaters.
14.	What analysis was undertaken to determine why the GSHP system could not also provide hot water?	Centralised DHW generation using heat pumps would not be a suitable solution for WCs, cleaners' sinks and kitchenettes as this would introduce storage and distribution losses in practice which would likely increase overall energy demand in real world use. Also, additional plant and refrigerants would be required which would increase embodied carbon. This is discussed in more detail in line 3 above.
15.	Will the GSHP system also be used for cooling purposes (as indicated by the Overheating Strategy)?	The GSHP will be used to provide cooling to the building. As outlined in responses 1, 4 and 21, cooling is only provided to spaces where maintaining adequate thermal comfort is not possible through passive measures and natural ventilation alone, such as server rooms, the auditorium and rooms such as those on the south facade of the roadside building where noise, acoustic and safety considerations prevent large window openings.
16.	What is the proposed indicative capacity of the GSHP and the thermal storage? Where will this be located? Please ensure this is annotated on plans.	The GSHP system will provide 550 kW_p heating and 250 kW_p cooling. The proposed thermal storage tank size for heating purposes is 9,500 litres, and for cooling purposes is 4,500 litres. As shown in Figure 6 below (Figure 3 in the submitted energy statement), it is proposed that boreholes for the GSHP system are located under the parade ground at the eastern end of the site.

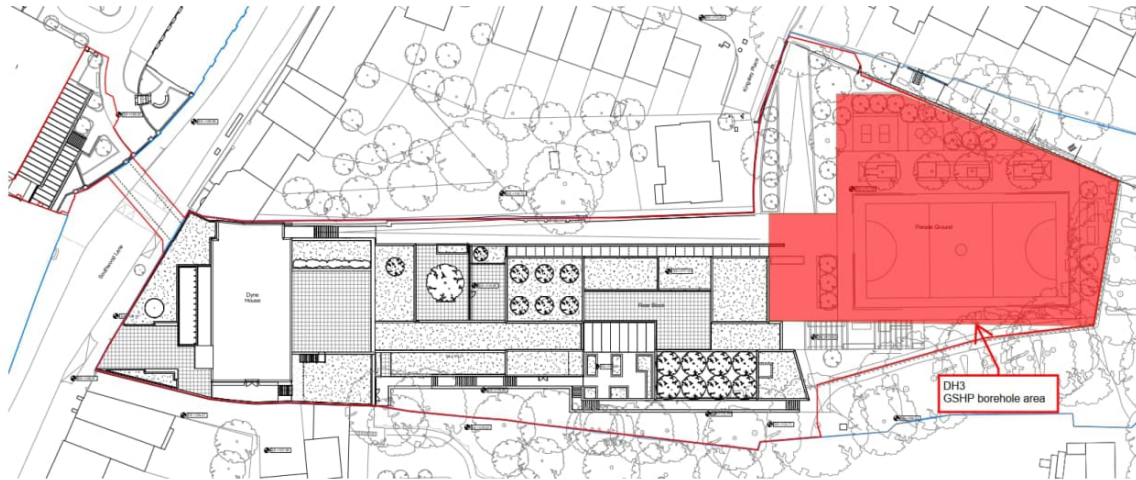


Figure 3 Proposed borehole location under the parade ground (shown in red shading)

Figure 6: Proposed location of the GSHP boreholes (energy statement Figure 3).

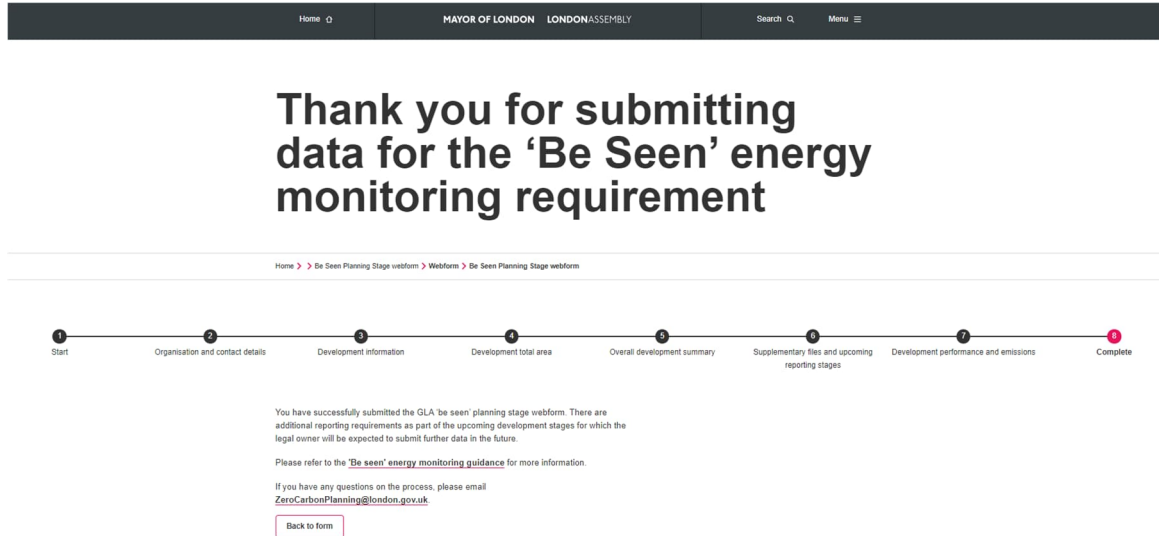
The heat pump system and thermal store is to be located in the plant room at L-04 as shown in Figure 7 below:



Figure 7 Plant room location at level -04 containing the GSHP and the thermal store

NOTE: the blue line represents the plant replacement route.

- | | |
|--|---|
| <p>17. The applicant should install metering equipment on site. A public display of energy usage and generation should also be provided in the main entrance area to raise awareness to staff members, students and visitors to the auditorium and other areas.</p> | <p>During the next stage of design overall wayfinding, graphics and signage will be developed.</p> <p>In response to comments from Haringey, the public display of energy usage and generation shall be provided by Highgate School. Energy usage content will be included in the scope of school displays in the main entrance or another prominent location as suitable.</p> |
| <p>18. What are the unregulated emissions and proposed demand-side response to reducing energy: smart grids, smart meters, battery storage?</p> | <p>The unregulated emissions as modelled in Part L 2021 are estimated to be 24.2 tCO₂/year, as outlined in section 2.1 of the submitted energy statement.</p> <p>Section 7 of the energy statement outlines the predicted peak energy demand and flexibility measures in the building design. As outlined in response 16, thermal storage tanks are proposed of 9,500 litres for heating and 4,500 litres for cooling.</p> <p>Battery storage is not proposed as this technology is not currently widely commercially available. It could be possible to retrofit this in future if technically and economically suitable systems were developed, and additional generation or carbon intensity-responsive electricity tariffs were introduced in future.</p> <p>Energy sub-metering is proposed to be included both by end use type and building function area.</p> |

		Smart grid connections are not proposed in the design currently but could be retrofitted if such energy distribution systems are developed in future.
19.	Demonstrate that the planning stage energy performance data has been submitted to the GLA webform for this development: (https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance/be-seen-energy-monitoring-guidance/be-seen-planning-stage-webform)	The GLA webform submission screenshot (Figure 8 below), confirms the planning stage energy performance data has been submitted to the GLA via the Be Seen webform:  Figure 8 Submitted “Be Seen” webform for Dyne House
20.	An indicative carbon shortfall of 17.1 tCO₂/year remains. The remaining carbon emissions will need to be offset at £95/tCO₂ over 30 years. However, it is expected that further emissions are reduced under the Be Lean and Be Green stage for this development to be policy compliant.	In response to Haringey’s comments improvements have been made to the to the building design, resulting in the modelled regulated carbon emissions of the proposed building after the energy hierarchy reducing. This results in a reduced shortfall to meet through offsetting. This is summarised in Table 1, Table 2 and Table 3 at the beginning of this document. The proposed carbon offset payment is now £44,572.
21.	The cooling demand is double the notional cooling demand. Please follow the cooling hierarchy in order and step by step, and first implement all passive measures to reduce the overheating risk and the cooling demand before introducing any mechanical form of cooling. It is unclear why revised opening arrangements were introduced at the end and not	Whilst cooling demand is higher than for the notional building, the overall energy demand is very small representing just 1.4% of the proposed building energy demand, as shown in the chart below. Therefore, there is limited potential for further carbon savings.

modelled earlier than temperature lopping and cooling.

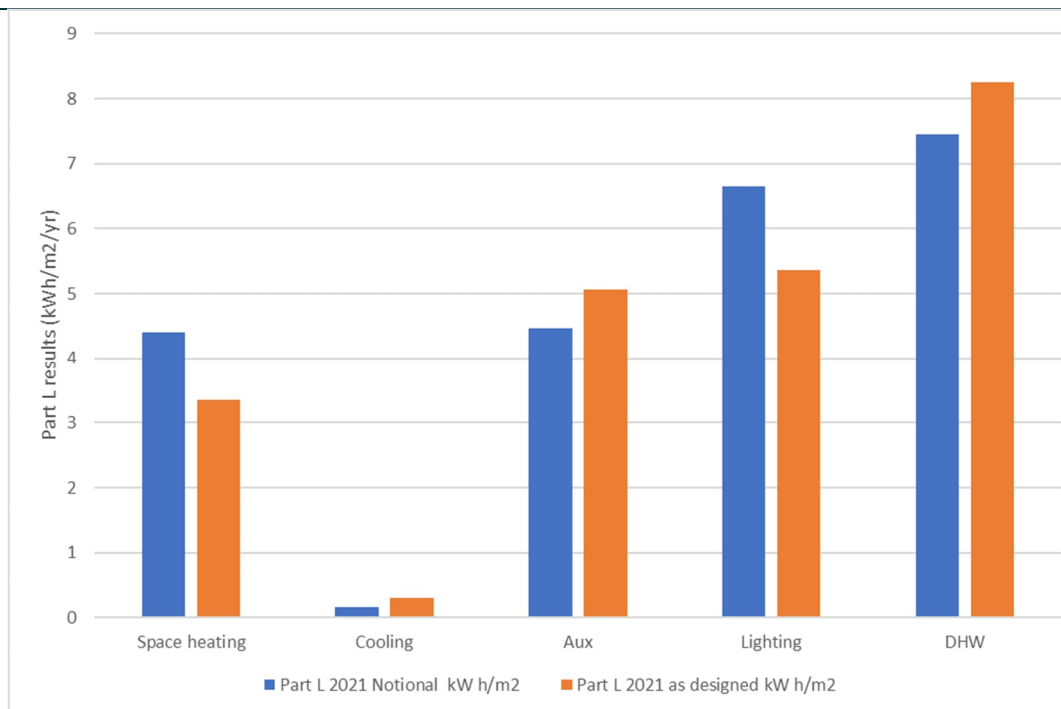


Figure 9 Natural Ventilation with Heat Recovery Strategy (Rear Building)

As outlined in section 4 and Appendix E (overheating report) of the energy statement, the cooling hierarchy has been followed, natural ventilation has been preferred in all suitable spaces and passive design measures incorporated into the design to reduce cooling demand and overheating risk. Only spaces with specific requirements (such as server rooms and the auditorium) or rooms which would otherwise overheat are proposed to have cooling.

Mechanical cooling is only proposed to areas which would otherwise overheat despite the inclusion of passive measures. In some areas, particularly the 5-storey block at the west of the development by the road, large openable windows would not be suitable for safety reasons. In addition, there are air quality and noise concerns from the location next to the main road. In some other areas, for example music practice rooms, openable windows have been avoided to respond to neighbours' concerns about noise escaping the building. Openable windows are included where these constraints allow.

The cooling energy demand is a very small compared to all other regulated energy uses and this is partly due to the cooling hierarchy being followed and few rooms having mechanical cooling included in the design.

	Regarding the query relating to revised opening arrangements, we understand this to relate to Scenario 5a of the Overheating Risk Assessment (PDF page 107 of the Energy Statement). The GLA Cooling Hierarchy was followed and the final step 5a was tested to assess the impact of a late design change. The baseline overheating scenario considered for Dyne House incorporated all measures designed to mitigate the effects of gains in spaces (following Stages 1 to 3 of the Cooling Hierarchy); including natural ventilation (opening windows) in all possible locations (i.e. rooms without acoustic constraints), which is supplemented by un-tempered mechanical ventilation in other spaces (those with acoustic constraints and those with no external windows). This resulted in 55 out of 97 compliant rooms. The overheating assessment considered a further 6 scenarios (Scenario 1 to 5a) aligning with the Cooling Hierarchy; described in Section 5 of the overheating report and summarised below: 1. Increased top hung window opening distance to 80° - this resulted in 66 out of 97 compliant rooms. 2. Increased window openings, to introduce low level openings in rooms with windows and failing under Scenario 1 – this resulted in 69 out of 97 compliant rooms. 3. Increased un-tempered mechanical ventilation (windows as Scenario 2) up to a maximum of 20l/s/person (accounting for spatial and acoustic constraints) – this resulted in 82 out of 97 compliant rooms 4. Added temperature lopping to spaces that did not comply with TM52 under scenario 3 – this resulted in 93 out of 97 compliant rooms. 5. Cooling added to spaces that did not comply with CIBSE TM52 under Scenario 4 – this resulted in 97 out of 97 compliant rooms. a. This scenario was run to confirm that a revised window opening arrangement to the front block still achieved compliance. High level windows now open to 90° and lower-level openings are removed to have only one transom per window and reduced fall risk from low level openings. Option 5a is proposed for the building. Table 9 of the submitted Overheating Risk Assessment demonstrates that scenario 5a Passed DSY1.
22. External shading features such as overhangs, Brise Soleil, etc) should be explored and proposed to reduce the cooling demand as much as possible.	The building front/west elevation visualisation and section, Appendix –4, shows the vertical fins to provide shading to vulnerable glazed areas of the façade to reduce overheating risk. As shown in Appendix 2 and Figure 4, the site has a significant gradient from east (higher) to west (lower) with the Parade Ground being 17 m lower than the road level at the front of Dyne House. The roof levels and subsequent facade heights of the buildings to the back of the site (Auditorium, Bridge Link and Rear Block) have been designed to be low level (max 3 storeys above ground level) to avoid visual intrusion to

		the surrounding properties. As a result of this, combined with the planting to the roofs of these buildings and the tall mature trees along the southern boundary, the rear buildings benefit from natural shading and therefore do not require additional shading features.
23.	Specify the shading strategy, including technical specification and images of the proposed shading feature, elevations and sections showing where these measures are proposed. Provide the technical specification and images of the proposed shading feature, elevations and sections showing where these measures are proposed.	As outlined above, shading is provided through vertical shading fins to the western façade and through the natural shading from the site topography and nearby tall trees. The fins are a bespoke design integrated to the architecture of the façade of the building. A detailed technical specification has not yet been developed at this stage of the project. The visualisation and section, in Appendix 3 shows the location of the shading fins.
24.	During the pre-application discussions it was noted that the solar gains are high on the front façade and causes overheating issues. How has this been addressed?	As outlined above, the overheating has been addressed through careful application of the cooling hierarchy. Passive design measures, including high performance solar control glazing and vertical shading fins are included in the design. The building is designed to utilise passive ventilation where possible within acoustic, safety and air quality constraints. Mechanical ventilation is provided to rooms only where thermal comfort requirements cannot be met through passive measures alone.
25.	Internal blinds cannot be used to pass the weather files but can form part of the delivered strategy to reduce overheating risk for occupants (as long as it does not compromise any ventilation requirements).	Internal blinds are not specified at this stage and blinds have not been included in the overheating modelling. Blinds will be investigated during detailed design and could be incorporated where they can be shown not to interfere with the natural ventilation features of the building.
26.	Undertake further modelling: - Model the 2020s DSY 2 and 3 and DSY1 for the 2050s and 2080s. Ensure the design has incorporated as many mitigation measures to pass these more extreme and future weather files as far as feasible. Any remaining overheating risk should inform the future retrofit plan.	GLA planning policy does not require the building to pass all rooms under the DSY 2 and DSY 3 weather files. As outlined above, measures to reduce overheating risk and reduce cooling demand have been incorporated as far as feasible, and additional potential retrofit measures are proposed which could help to meet weather scenarios if climate change causes the predicted changes in weather. Potential retrofit measures proposed include: • Updated glazing with larger openings. This may be more feasible in a future with more electric vehicles which produce lower noise levels than petrol/diesel vehicles. • Ceiling fans and additional mechanical cooling which delaying allows to benefit from future grid decarbonisation.

27. Submit a plan specifying the ventilation strategy and overheating risk mitigation strategy, as requested at pre-application stage. For example: Table 6 of the submitted report showing screenshots illustrating baseline (DSY1) results should annotate the names of the different rooms modelled and their ventilation/cooling strategy.

The building is predominantly to be served by assisted natural ventilation (openable windows during summer, local heat recovery unit during winter) wherever possible, with mechanical cooling and ventilation provided where heat gains, geometry and noise criteria dictate.

The overall building ventilation strategy is as follows:



Figure 10 Ventilation strategy for Dyne House

Free cooling utilising a night-time purge is currently part of the strategy taking advance of the building's thermal mass.

There are 4 types of ventilation strategy in the building:

-  NAT VENT WITH LOCAL HEAT RECOVERY
-  MECH VENT WITH COOLING - CENTRALISED
-  MECH VENT WITH COOLING - LOCAL
-  MECH EXTRACT

Ventilation with local heat recovering (purple)

Window openings are sized to provide the required ventilation in summer conditions during the school term. During winter and cooler shoulder months, a localised heat recovering system connected through the façade will provide background ventilation.

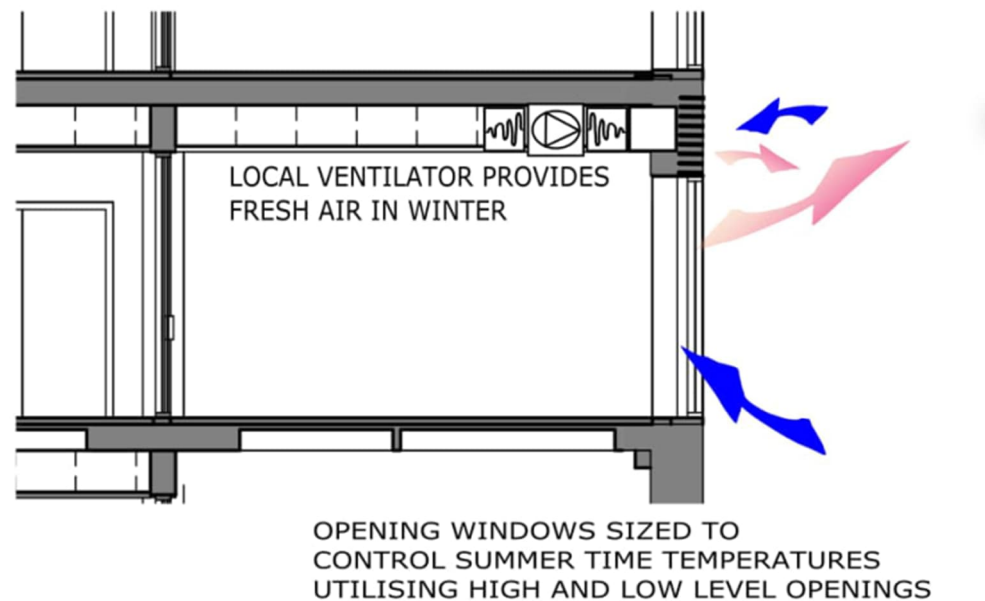
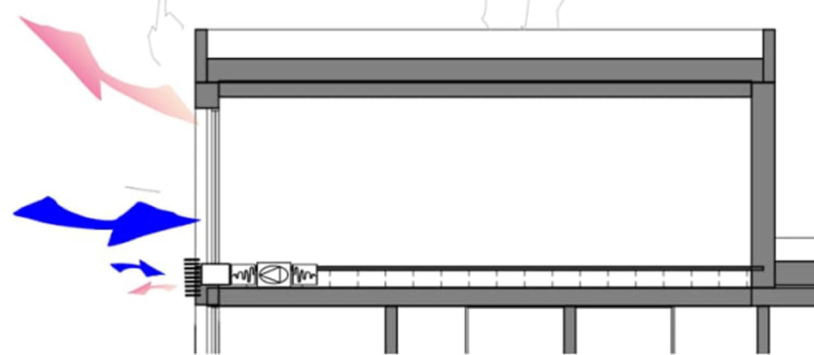


Figure 11 Natural Ventilation with Heat Recovery Strategy (Front Building)

OPENING WINDOWS SIZED TO
CONTROL SUMMER TIME TEMPERATURES
UTILISING HIGH AND LOW LEVEL OPENINGS



LOCAL VENTILATOR PROVIDES
FRESH AIR IN WINTER

Figure 12 Natural Ventilation with Heat Recovery Strategy (Rear Building)

The local ventilation system will provide night-time purge during summer to cool the building fabric. The system will utilise the fabric of the exposed slabs to maintain thermal comfort. The windows will be linked to the ventilation system to ensure fans will not run when windows are opened.

Centralised mechanical ventilation with cooling (Yellow)

Mechanical ventilation is provided to areas where heat gains dictate mechanical cooling or architecturally openable windows are not possible (internal rooms or basement areas).

New Air Handling Units (AHU) will be provided in the front building at L-01 to serve the Informal Assembly area and L-04 in the back building to serve rooms on L-04 and L-05 which have no access to atmosphere or are constrained by acoustic requirements.

It is proposed that these will be variable air volume (VAV) controlled on temperature and CO₂ to minimise energy use. The incoming air will be temperature lopped during Summer months to deliver tempered air. Areas of high heat gains will have additional local cooling units, such as Fan Coil Units (FCU's) as required.

Local Mechanical Ventilation with Cooling (Red)

As with the centralised mechanical ventilation above, mechanical ventilation is provided to areas where heat gains dictate mechanical cooling or architecturally openable windows are not possible (internal rooms or basement areas).

However, to minimise riser and primary plant space local heat recovery ventilation units will be provided to provide fresh air, intaking and exhausting directly through the façade, mounted at high level, working in conjunction with local fan coil units.

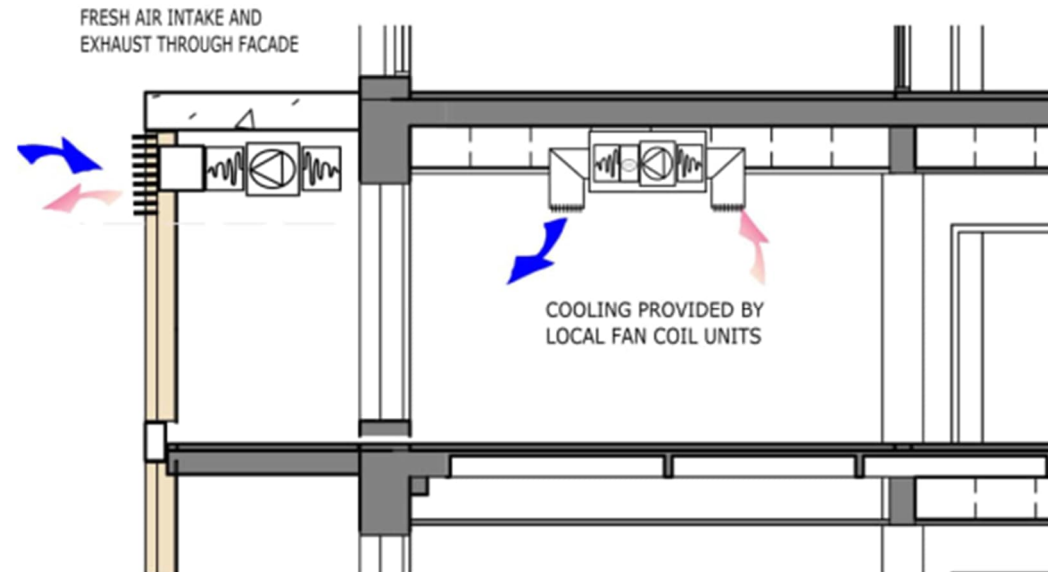


Figure 13 Local Mechanical Ventilation with Local Cooling Strategy (Front Building)

Dedicated Extract – Green

Dedicated extract will be provided to remove odours from areas such as toilets and cleaners stores.

Retained Mech Vent with Cooling – Red

Areas recently refurbished and upgraded with their own dedicated AHU's will be retained as far as possible.

The following drawings show the ventilation strategy:

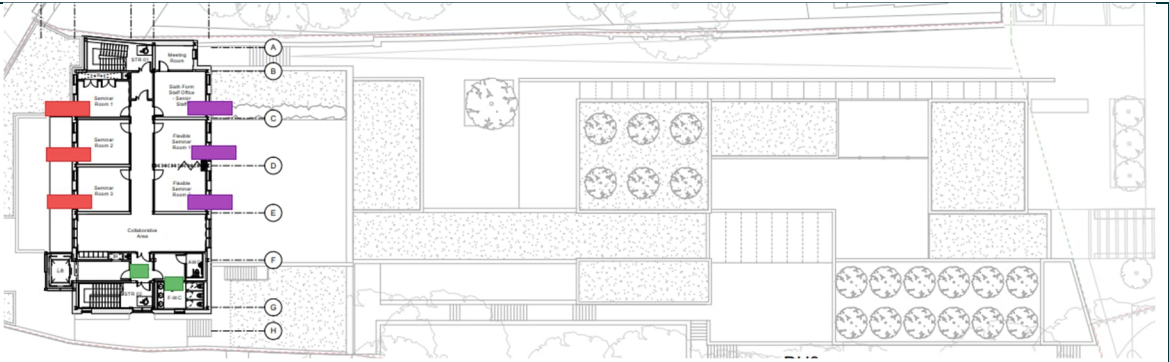


Figure 14 Level 04 Ventilation Strategy

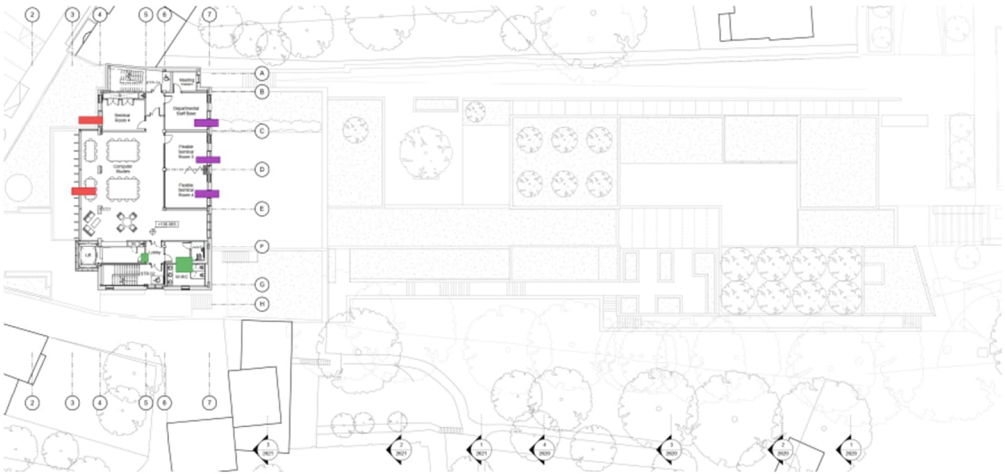


Figure 15 Level 03 Ventilation Strategy

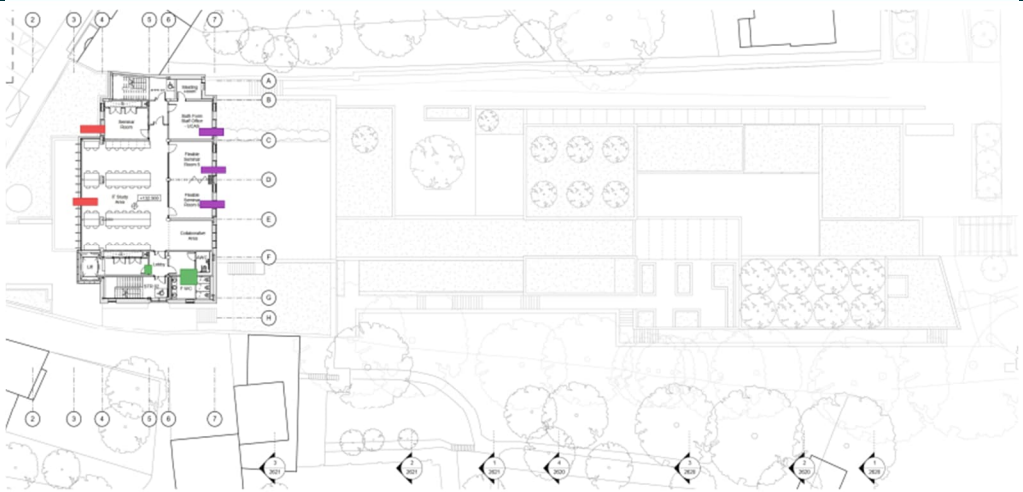


Figure 16 Level 02 Ventilation Strategy

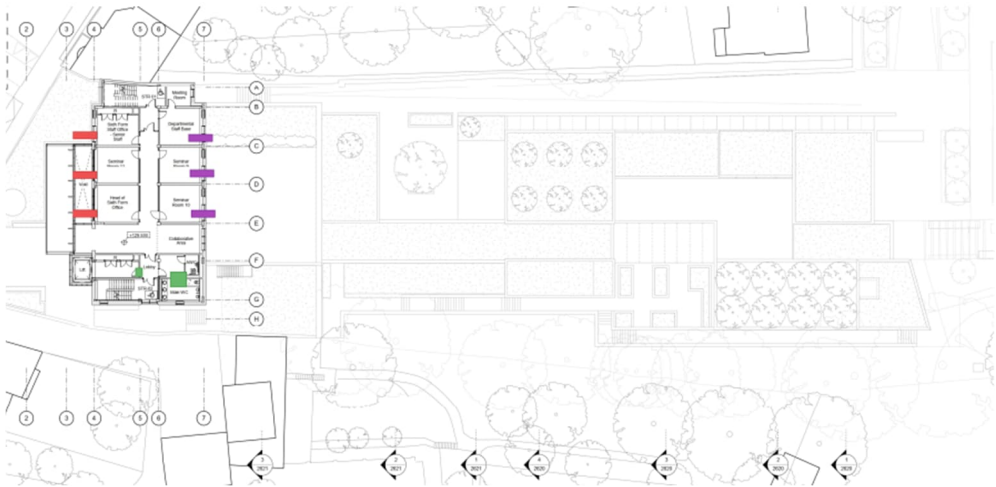


Figure 17 Level 01 Ventilation Strategy

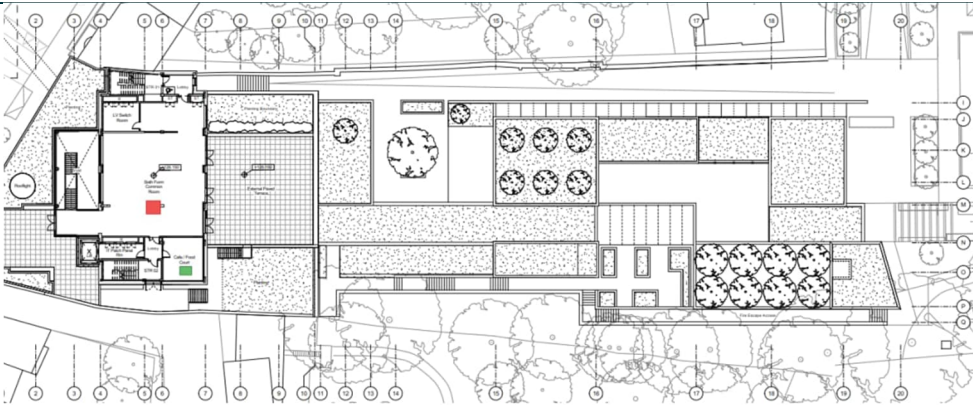


Figure 18 Level 00 Ventilation Strategy

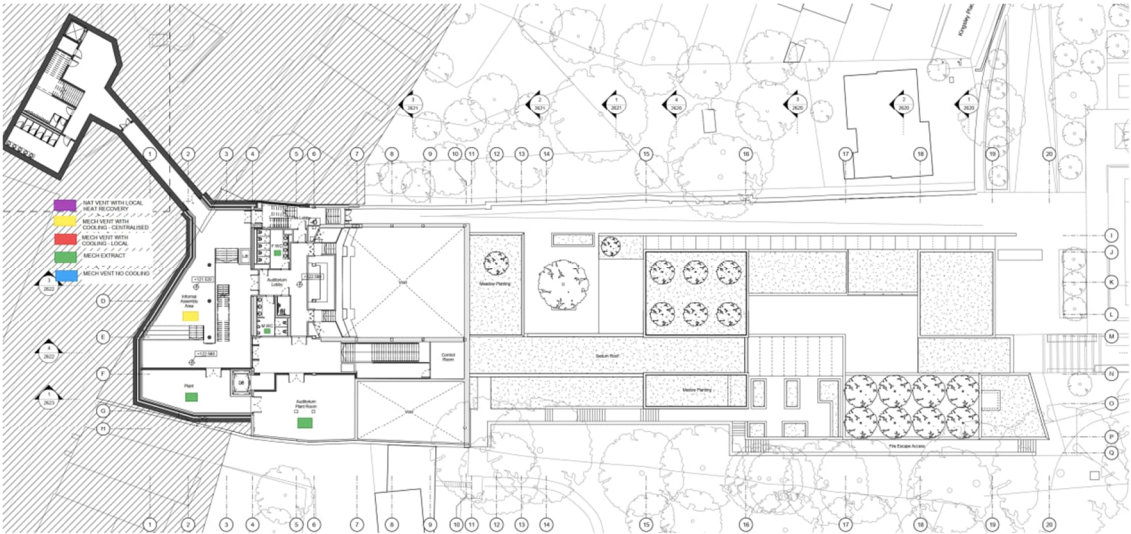
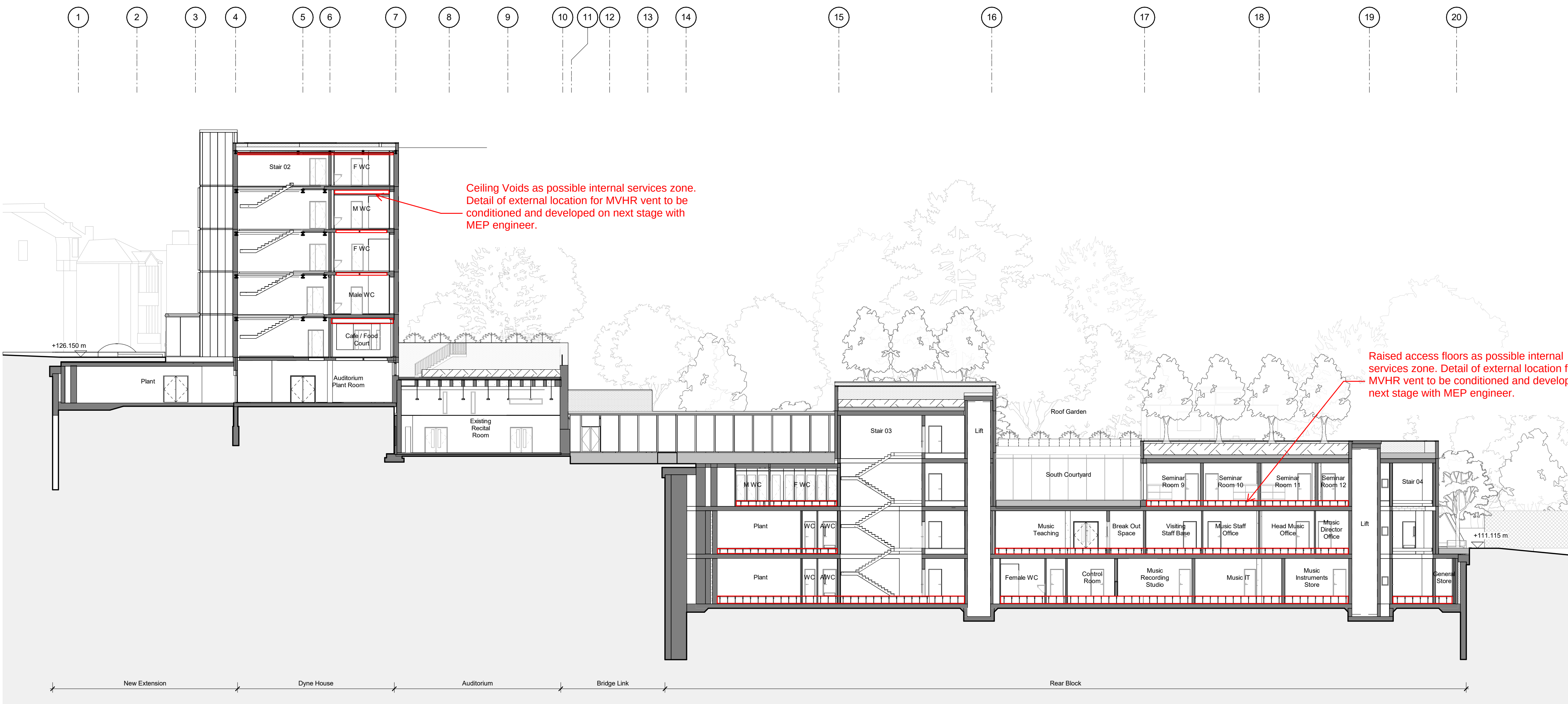


Figure 19 Level -01 Ventilation Strategy

28.	Demonstrate how the future mitigation measures will improve the overheating results.	GLA policy is to pass DSY 1 weather files which the building does as proposed with very limited mechanical cooling. Further mitigation would be best designed and modelled when it is required to allow the latest technology and known climate impacts to be accounted for. At present most rooms (95 of 97) pass TM52 when assessed using DSY2 2020 and 19 pass DSY3 2020. The overheating report outlines potential additional measures which could be retrofitted to mitigate overheating risk in future climate scenarios.
29.	This development should have a heatwave plan / building user guide to mitigate overheating risk for occupants.	A building user guide will be developed during detailed design in conjunction with the detailed MEP design. As part of the early development of this plan, cooling areas have been identified for Dyne House where students or staff can cool down. These areas will benefit from the shading of trees on the southern boundary, or will be spaces where mechanical cooling is specified. The floor plans, Appendix 29 confirm the parade ground, the sunken garden and terrace, existing auditorium and courtyard, informal assembly area and sixth form common room and external paved terrace as communal spaces could be used during a heatwave to cool down.
30.	Please provide the biodiversity net-gain calculation. It is recommended to use the Biodiversity Metric 4.0. The calculation tools and user guide for the biodiversity metric are published on Natural England's Access to Evidence website. The user guide describes how to gather the information needed for the metric calculations. https://nepubprod.appspot.com/publication/6049804846366720	The proposed plan demonstrates a 19.98% net gain in area habitat units and a 22.30% net gain in linear habitat units, this is above the 10% requirement in Environmental Act 2021. The application was submitted prior the introduction of the mandatory 10% BNG policy, therefore the applicant understands it is not a requirement. Nonetheless, the applicant has proposed estate wide biodiversity net gain improvements as long-term stewards within the community. See the Statutory BNG File Note (Dyne House Project - Highgate School N6 4AY) v2 in Appendix 5 for further information.

Appendices

Appendix 1 – Service zones for MVHR



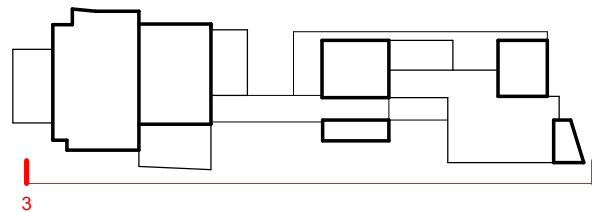
1 Long Section through Plant Rooms
2623 1:200

- General Notes:**
- G1** All Levels are above ordnance datum (AOD)
New Levels are shown thus: [Symbol] +20.345
Retained Existing Levels thus: [Symbol] EX+20.345
Existing Levels are shown: [Symbol] EX+20.345
- G2** Door tags are shown thus: [Symbol]
[Symbol] DG-011 - Door number
[Symbol] DRS-XXX - Instance of doors per room
[Symbol] - Door type
[Symbol] FR-XXs - Fire rating, 's' denotes smoke seal
- G3** Abbreviations:
GN/AWC: Gender Neutral / Accessible WC
CS: Cleaner's Store
PH: Printer hub
ST: Store
RWP: Rain water pipe

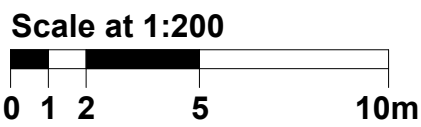
Notes:

- Topography information shown indicatively, refer to Ordnance Survey drawings for further information.

[Symbol] Spot height taken from OS information

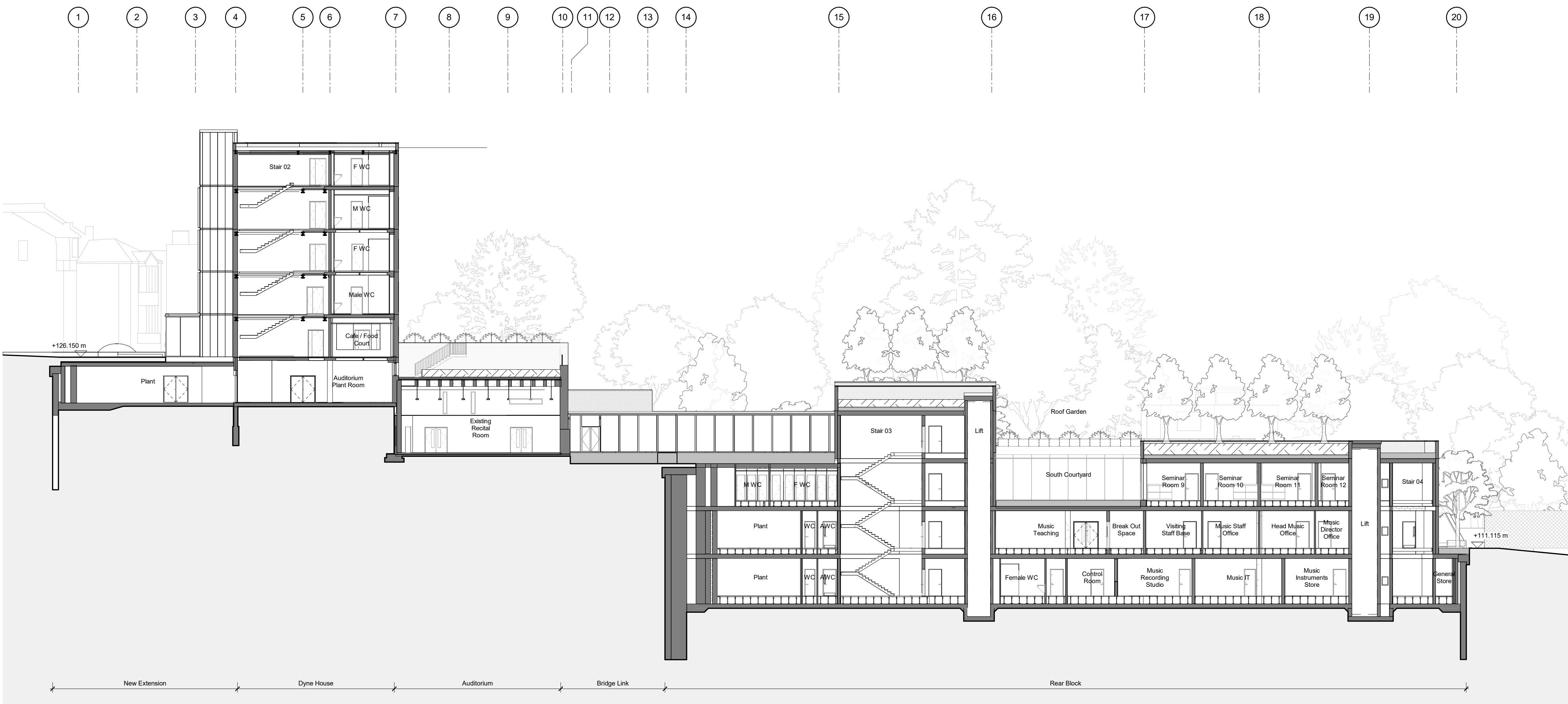


PLANNING



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Dyne House 3	Sort Code	Drawing Number	Rev.
						13.01.2023	J	ISS 0004 Planning Issue	MB					Subject	Dyne House - Long Sections Proposed Sections	A/HS-DH3	2623	J
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 05/25/18	Scale: 1 : 200	at A1

Appendix 2 – Long section of Dyne House



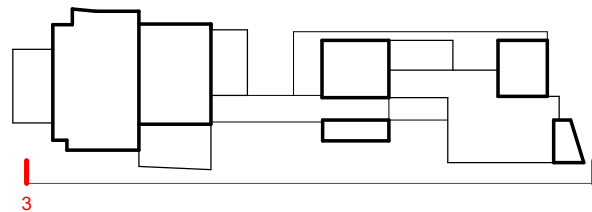
1 Long Section through Plant Rooms
2623 1:200

- General Notes:**
- G1** All Levels are above ordnance datum (AOD)
New Levels are shown thus: [Symbol] 20.345
Retained Existing Levels thus: [Symbol] EX-20.345
Existing Levels are shown: [Symbol] EX-20.345
- G2** Door tags are shown thus: [Symbol] DG-011 [Symbol] DRS-XXX [Symbol] FR-XXS
Door number
Instance of doors per room
Door type
Fire rating, 'V' denotes smoke seal
- G3** Abbreviations:
GN/AWC: Gender Neutral / Accessible WC
CS: Cleaner's Store
PH: Printer hub
ST: Store
RWP: Rain water pipe

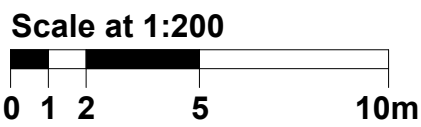
Notes:

- Topography information shown indicatively, refer to Ordnance Survey drawings for further information.

[Symbol] Spot height taken from OS information



PLANNING

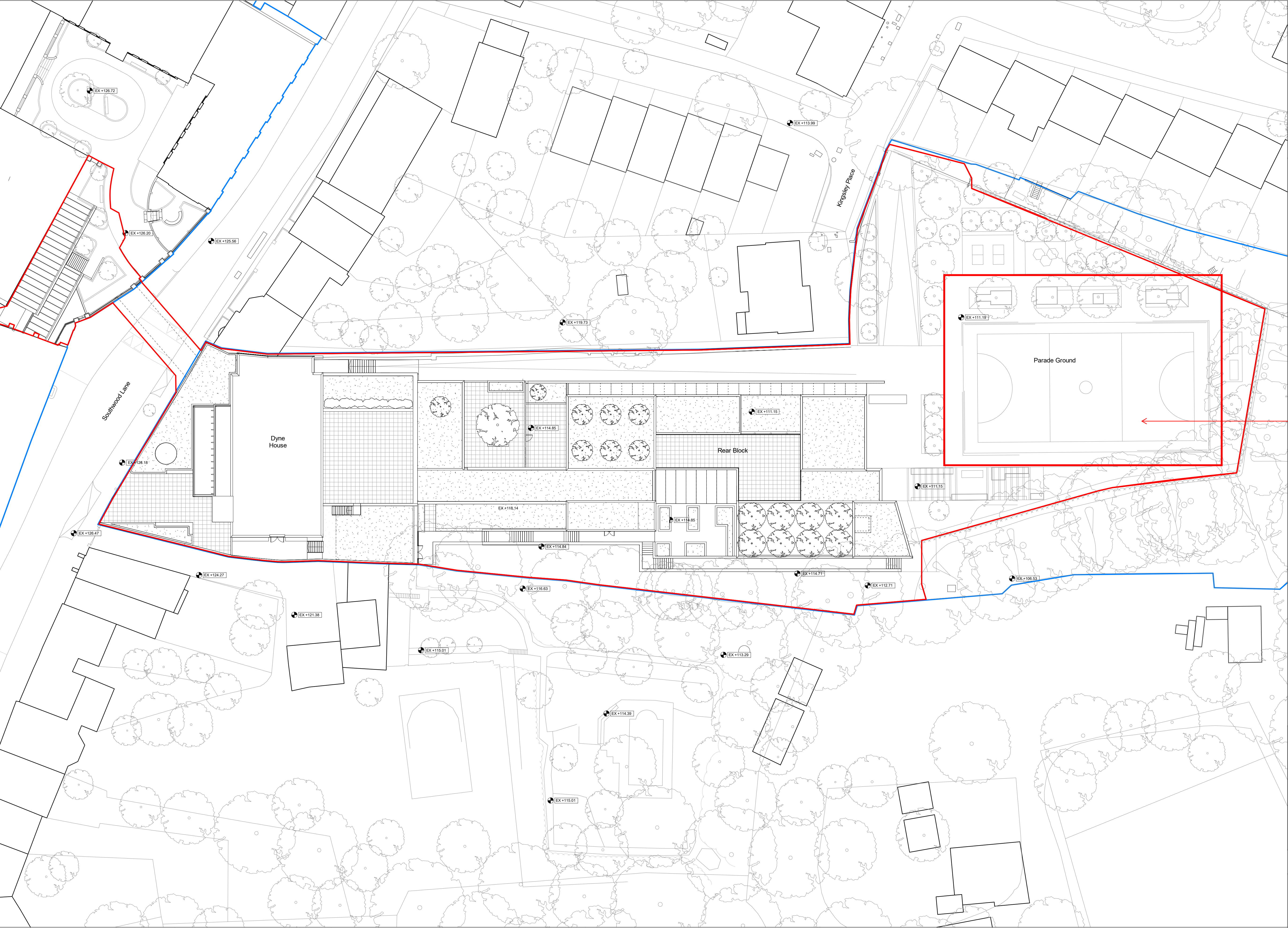


Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Dyne House 3	Sort Code	Drawing Number	Rev.
						13.01.2023	J	ISS 0004 Planning Issue	MB					Subject	Dyne House - Long Sections Proposed Sections	A/HS-DH3	2623	J
														Architects	Hopkins Architects Limited 27 Broadway Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 05/25/18	Scale: 1 : 200	at A1

Appendix 3 – Visualisation showing shading fins



Appendix 4 – Potential spaces that could be used during a heatwave to cool down



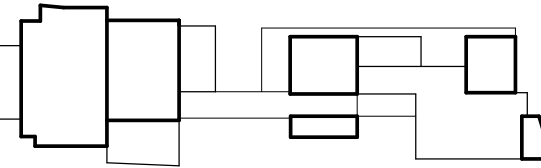
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Retained Existing Levels thus: [Symbol] EX+20.345
Existing Levels are shown: [Symbol] EX+20.345
- G2** Door tags are shown thus: [Symbol] DG-011 [Symbol] DRS-XXX [Symbol] FR-XXX
[Symbol] Door number
[Symbol] Instance of doors per room
[Symbol] Door type
[Symbol] Fire rating, 'V' denotes smoke seal
- G3** Abbreviations:
GN/AWC: Gender Neutral / Accessible WC
CS: Cleaner's Store
PH: Printer hub
ST: Store
RWP: Rain water pipe

Note: Refer to Landscape Architects drawings for detailed proposed landscape levels.

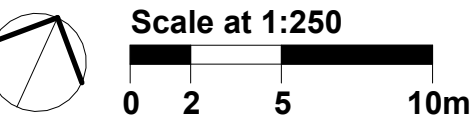
- Notes:**
- Structural information shown indicatively, refer to structural engineer's drawings for further information.
- [Blue line] Site Ownership Boundary
[Red line] Site Application Boundary

Room Key:	
SP	Small Practice Room
EP	Ensemble Practice Room
AWC	Accessible WC's
F.WC	Female WC's
M.WC	Male WC's
CS	Cleaners Store
R	Riser

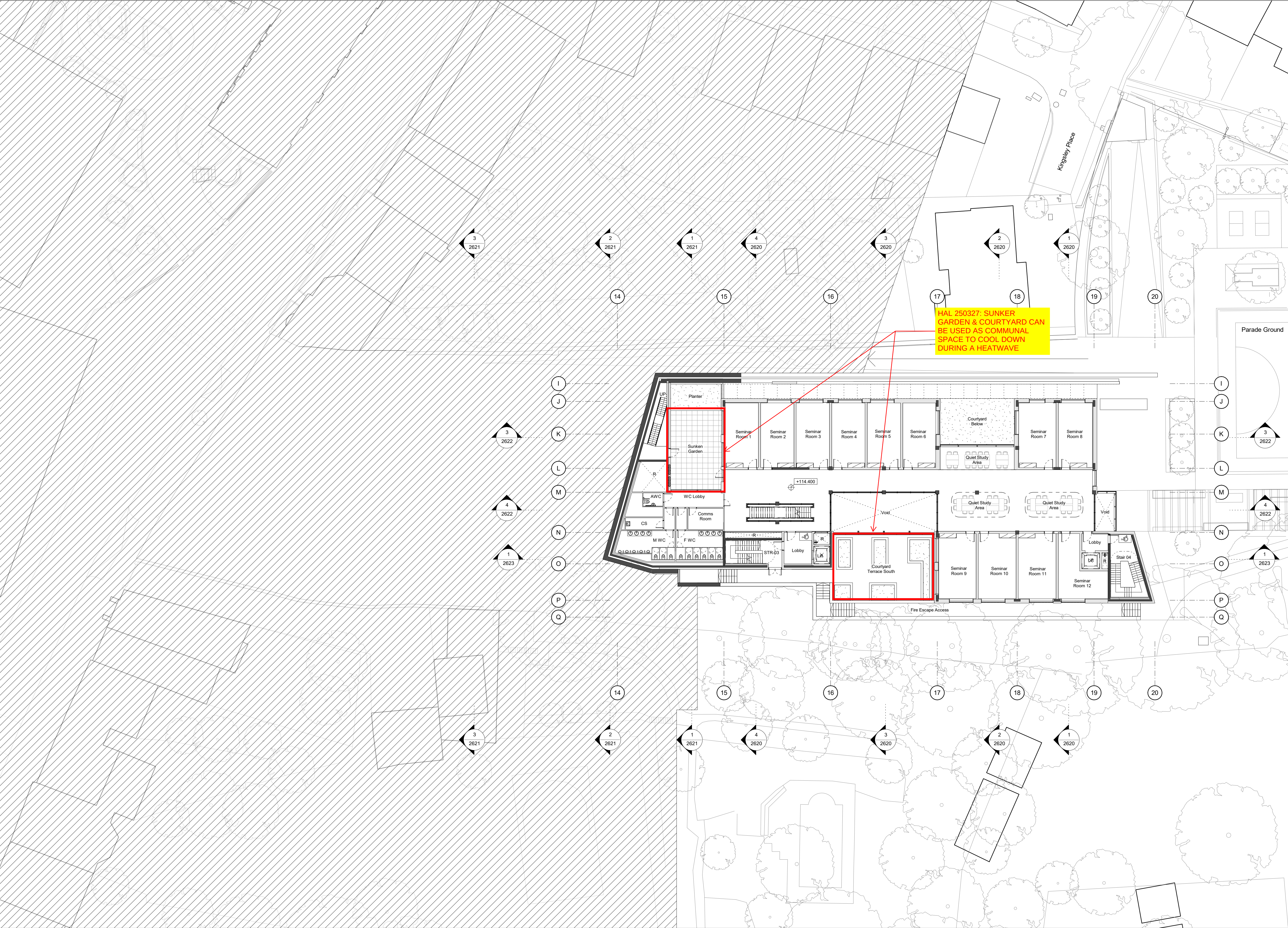
HAL 250327: PARADE GROUND CAN BE USED AS COMMUNAL SPACE TO COOL DOWN DURING A HEATWAVE



PLANNING



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Subject	Architects	Sort Code	Drawing Number	Rev.
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																	Date: 21/09/18	Scale: As indicated	A1

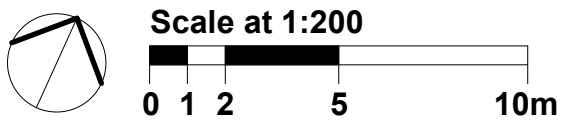


- General Notes:**
- G1** All Levels are above ordnance datum (AOD)
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Retained Existing Levels thus: [EX+20.345]
Existing Levels are shown: EX+20.345
- G2** Door tags are shown thus: DG-011 DRS-XXX FR-XXG
- G3** Abbreviations:
- GN/AWC: Gender Neutral / Accessible WC
CS: Cleaner's Store
PH: Printer hub
ST: Store
RWP: Rain water pipe

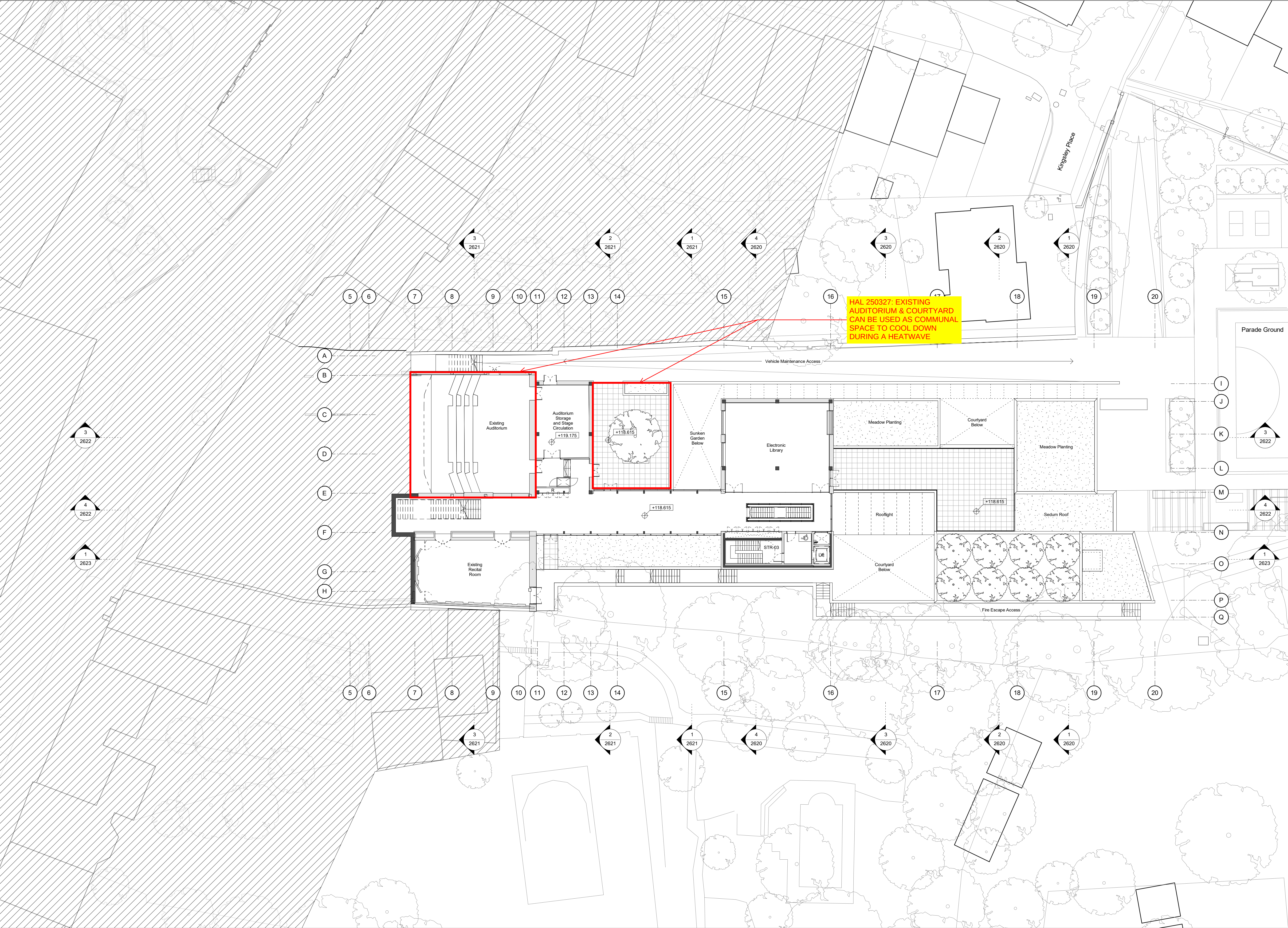
Room Key:	
SP	Small Practice Room
EP	Ensemble Practice Room
AWC	Accessible WC's
F.WC	Female WC's
M.WC	Male WC's
CS	Cleaners Store
R	Riser

-03

PLANNING



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Subject	Architects	Sort Code	Drawing Number	Rev.
						23.01.2023	M	ISS 0004_Planning Issue	MB					Highgate School Dyne House 3	Dyne House - Level -03	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	A/HIS-DH3	2422	M
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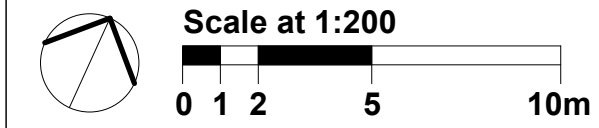


- General Notes:**
- G1** All Levels are above ordnance datum (AOD)
New Levels are shown thus: +20.345
Retained Existing Levels thus: [EX+20.345]
Existing Levels are shown: EX+20.345
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Door number
Instance of doors per room
Door type
Fire rating 'V' denotes smoke seal
- G3** Abbreviations:
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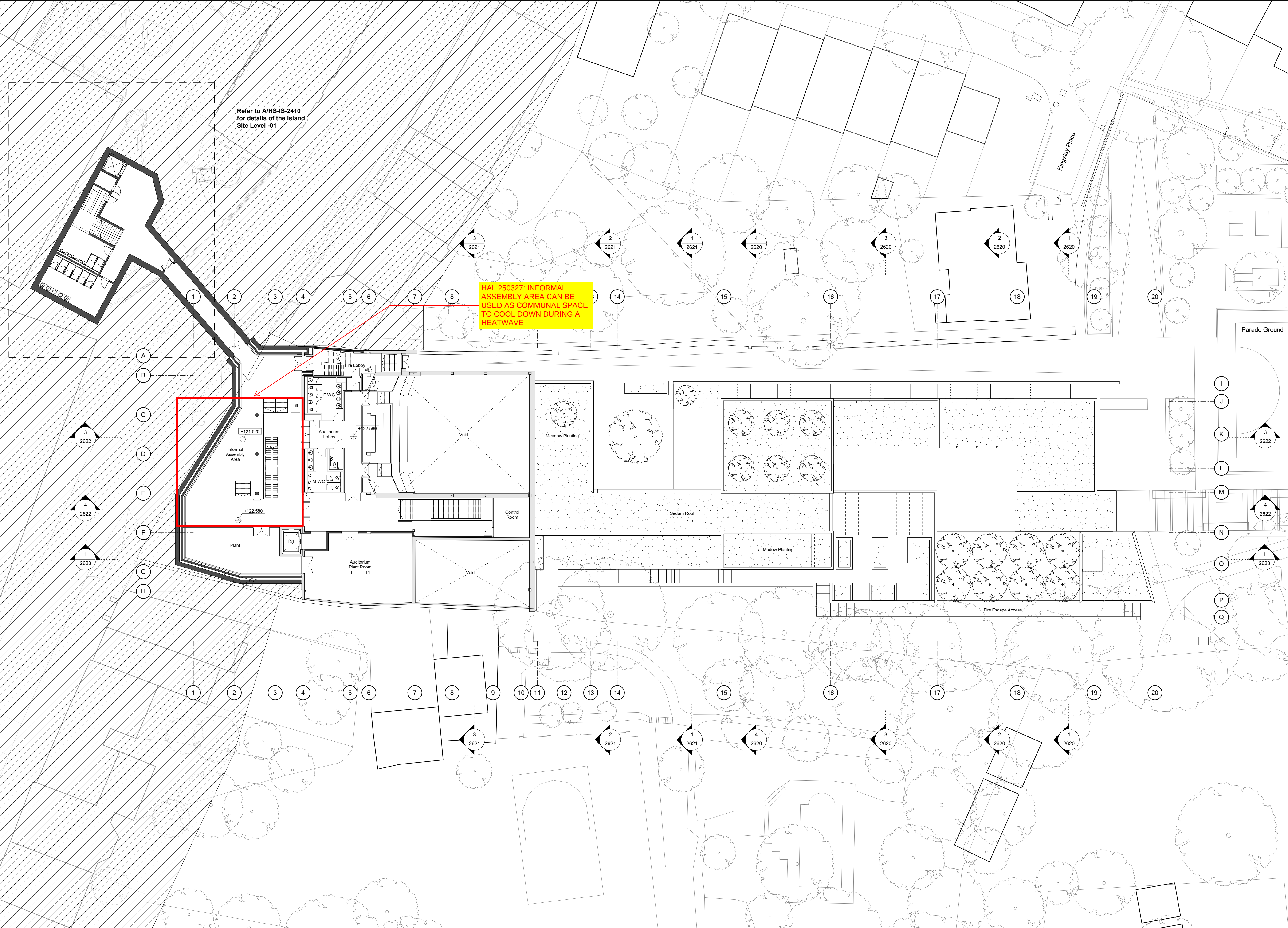
Room Key:	
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EP	Ensemble Practice Room
AWC	Accessible WC's
F.WC	Female WC's
M.WC	Male WC's
CS	Cleaners Store
R	Riser

-02

PLANNING



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date 23.01.2023	Rev. M	Description ISS 0004_Planning Issue	Approved By MB	Date	Rev.	Description	Approved By	Project Highgate School Dyne House 3	Sort Code A/Hs-DH3	Drawing Number 2423	Rev. M
														Subject Dyne House - Level -02 Proposed GA Plans			
														Architects Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 21/09/18	Scale: 1 : 200	at A1



Refer to A/HS-IS-2410
for details of the Island
Site Level -01

HAL 250327: INFORMAL
ASSEMBLY AREA CAN BE
USED AS COMMUNAL SPACE
TO COOL DOWN DURING A
HEATWAVE

General Notes:

G1 All Levels are above ordnance datum (AOD)
New Levels are shown thus: +20.345
Retained Existing Levels thus: EX+20.345
Existing Levels are shown: EX+20.345

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thus: DG-011 DRS-XXX FR-XXX
Door number
Instance of doors per room
Door type
Fire rating, 'V' denotes smoke seal

G3 Abbreviations:

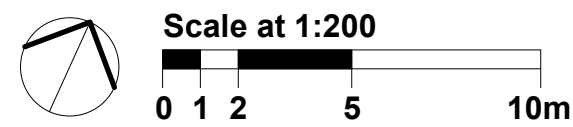
GN/AWC: Gender Neutral / Accessible WC
CS: Cleaner's Store
PH: Printer hub
ST: Store
RWP: Rain water pipe

Room Key:

SP	Small Practice Room
EP	Ensemble Practice Room
AWC	Accessible WC's
F.WC	Female WC's
M.WC	Male WC's
CS	Cleaners Store
R	Riser

-01

PLANNING



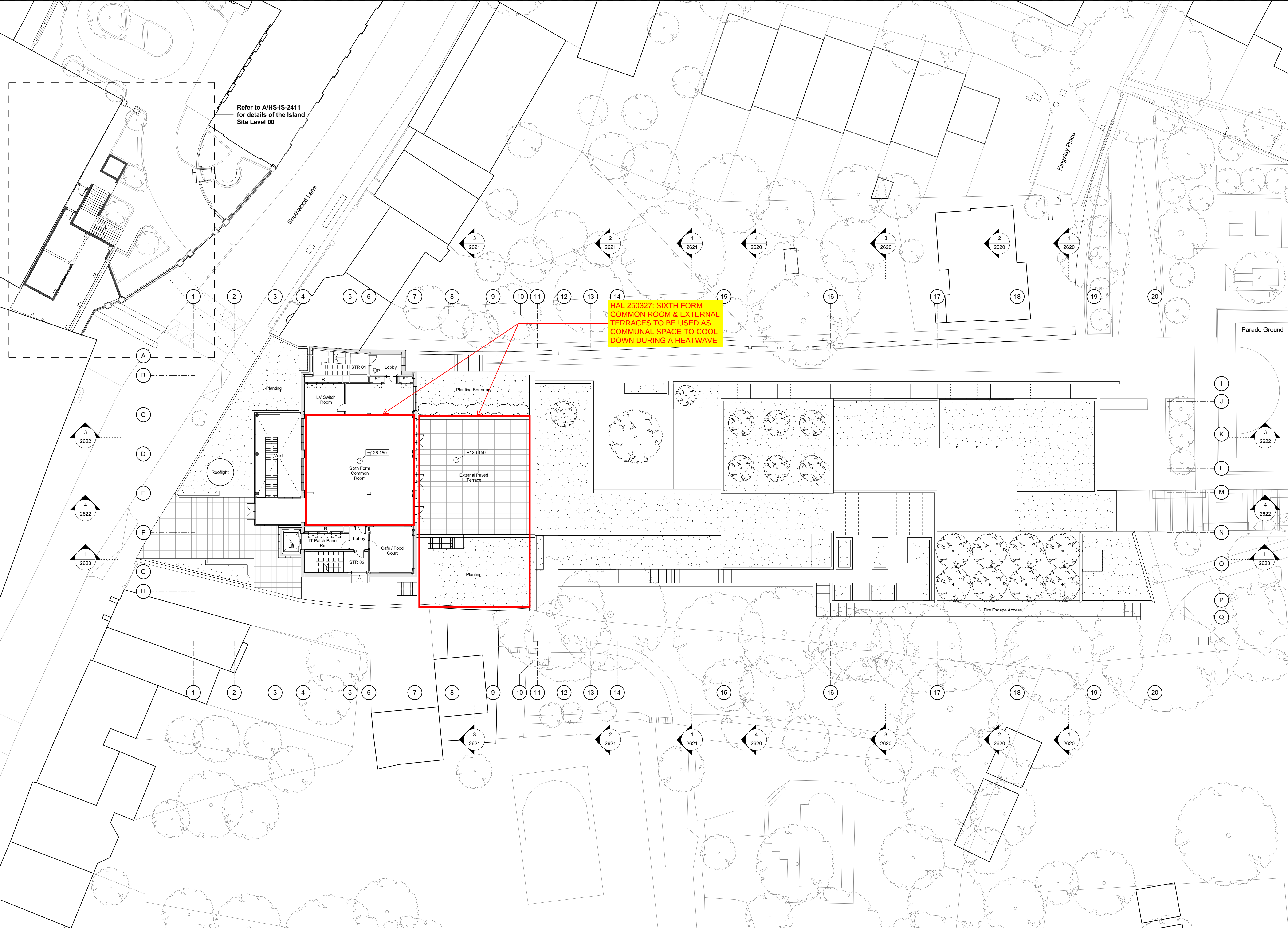
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23.01.2023	M	ISS 0004_Planning Issue	MB

Date	Rev.	Description	Approved By

Project	Highgate School Dyne House 3
Subject	Dyne House - Level -01 Proposed GA Plans
Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk

Sort Code	Drawing Number	Rev.
A/HS-DH3	2424	M
Date: 21/09/18	Scale: 1 : 200	at A1



General Notes:

G1 All Levels are above ordnance datum (AOD)
New Levels are shown thus: +20.345
Retained Existing Levels thus: [EX-20.345]
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G2 Door tags are shown thus: DG-011 DRS-XXX FR-XXX
Door number
Instance of doors per room
Door type
Fire rating, 'V' denotes smoke seal

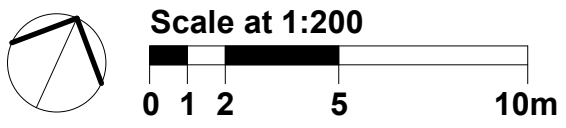
G3 Abbreviations:

GN/AWC:	Gender Neutral / Accessible WC
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AWC	Accessible WC's
F.WC	Female WC's
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CS	Cleaners Store
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00

PLANNING



Work Package	Cost Check	Info/Briefing	Tender	Contract	Construction	Date	Rev.	Description	Approved By	Date	Rev.	Description	Approved By	Project	Highgate School Dyne House 3	Sort Code	Drawing Number	Rev.
						23.01.2023	M	ISS 0004 Planning Issue	MB					Subject	Dyne House - Level 00 Proposed GA Plans	A/HS-DH3	2425	M
														Architects	Hopkins Architects Limited 27 Broadley Terrace, London, NW1 6LG T: 020 7724 1751 E: mail@hopkins.co.uk	Date: 21/09/18	Scale: 1 : 200	at A1

Appendix 5 – Biodiversity net gain file note and Statutory Biodiversity Metric Calculation Tool (Dyne House Project N6 4AY) v2

13th October 2024**File Note: BNG for Dyne House Project - Highgate School**

Ref: Biodiversity Net Gain (BNG) statutory metric reporting file note**Site address:** Highgate School, North Road, London N6 4AY**National Grid Reference:** Centred on TQ 2845 8753**Site area:** 0.54799 BNG area assessed.**Recipients:** Highgate School

	Area units	Linear units	Watercourse
% Change	+19.98%	+22.30%	0
More units required for a 10% net gain	0.00 more area units are required for a gross net gain in excess of 10%, although there is a requirement in the metric for satisfying the current BNG trading rules deficit of 0.45 individual tree units, making this the de facto unit requirement for an overall net gain.	N/A	N/A

Record of activity**➤ Background**

Arbtech consulting Ltd were instructed by Highgate School to undertake a Biodiversity Net Gain (BNG) evaluation of a development on the site, subject to a planning application with the London Borough of Haringey, described as:

Demolition of the existing school buildings and the construction of replacements.

➤ Purpose of survey

The National Planning Policy Framework (NPPF) makes it clear (para 170) that “Planning policies and decisions should contribute to and enhance the natural and local environment

by; minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”.

Paragraph 174 requires the promotion of “the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity”.

Proposals for net gain should be clearly recorded and reported through use of an appropriate metric such as the DEFRA Statutory Biodiversity Metric. Natural England advise that any net gain should be fully secured and funded for the lifetime of the development.

Therefore, the purpose of this survey report is to provide an evaluation of the proposed plans compared to the ecological baseline, and to report any net gain (or loss) to biodiversity using the DEFRA Statutory Biodiversity Metric.

➤ **Surveyor and date of survey**

This survey report was carried out by Craig Williams, BSc (Hons), MSc, DIC, MRSB of Arbtech Consulting Ltd iteratively, with the latest version (2nd) dated 13th October 2024. A previous preliminary ecological appraisal (PEA) is used as the ecological baseline and was carried out on 27th August 2022. The baseline habitat map and the current proposed soft landscaping plans are found in appendix 1 and 2.

Summary findings

- The full results of the metric are included in the excel file:

Statutory_Biodiversity_Metric_Calculation_Tool (Dyne House Project N6 4AY) v2

This highlights that the current change in the biodiversity habitat metric is:

- +19.98% in area units
- +22.30% in linear units.

- The results indicate a net gain in both area and linear habitat units in habitat area units. This is mainly due to the loss of baseline large, medium and small trees, which have a significant negative effect on area units although offset in gross unit terms by large areas of new vegetated planting, mixed native scrub, green roofs and the planting of small trees. The tree

line present within the site boundary is also being retained, with a small length of native hedge also proposed leading to a net gain in linear units.

Discussion

- The currently proposed plan results in a 19.98% net gain in area habitat units (a gain of 0.34 area units from a baseline of 1.70).
- The currently proposed plan results in a 22.30% net gain in linear habitat units (a gain of 0.04 linear units from a baseline of 0.19).
- The change in area and linear units are more than the overall positive target of 10% of biodiversity net gain, however the proposed site also has a trading deficit of 0.45 individual tree units, making this the de facto BNG requirement.

BNG metric update recommendations

- Updated proposed plans could be used to recalculate the metric, to achieve parity for tree units lost on site. The updated plans should aim to retain more of the baseline habitat but would otherwise need to include around 0.45 more tree units (equivalent to 36 more new trees than the currently planned 53).
- This provision may be possible to achieve on site or adjacent with the current arrangement (within the redline boundary or offsite on other owned land) considering the size of the proposed development area and the amount of soft landscaping within the parcel.

Creation and management

- The creation and management of the habitats on the compensation site to the appropriate condition would need to be secured for at least 30 years - linked to the application through a planning obligation in Section 106 (S106) agreement.
- If the plans are not changed and no other significant ecological habitats are proposed on site, the de facto habitat deficit of 0.45 more individual tree units can be compensated for on other off-site land owned by the client, a financial contribution to off-site ecological enhancements, with the LPA directly through a s106 agreement, purchasing the units from a third party registered BNG provider (e.g. a habitat bank), or within the government's approved

statutory biodiversity credits scheme. One or a mixture of these routes is required to make up to the overall net gain for area units.

Statutory credits cost

- As a last resort, the costs for BNG compensation using statutory credits have been issued by the government as outlined here:

<https://www.gov.uk/guidance/statutory-biodiversity-credit-prices>

- This approach is also only to be used after exhausting all possibility of achieving net gain on site or nearby, and also after exploring if any habitat can be retained on site as far as possible.
- Statutory biodiversity credit prices are not guideline prices for biodiversity units sold in the off-site private market. Prices are based on the cost to create, maintain and monitor different habitat types. There is also a mark-up to prevent statutory credit prices undercutting the off-site market.
- These units may be cheaper to source in the local third party BNG unit market, or in collaboration with the LPA.
- If you buy statutory biodiversity credits, a 'spatial risk multiplier' (SRM) will apply, which doubles the number of statutory credits you need.
- For each habitat type in the table, you can see its 'tier'. Statutory biodiversity credits are priced in tiers according to habitat type for area-based biodiversity units. There are separate prices for hedgerow and watercourse biodiversity units.
- For the units required for this development, this would equate to:

Area units

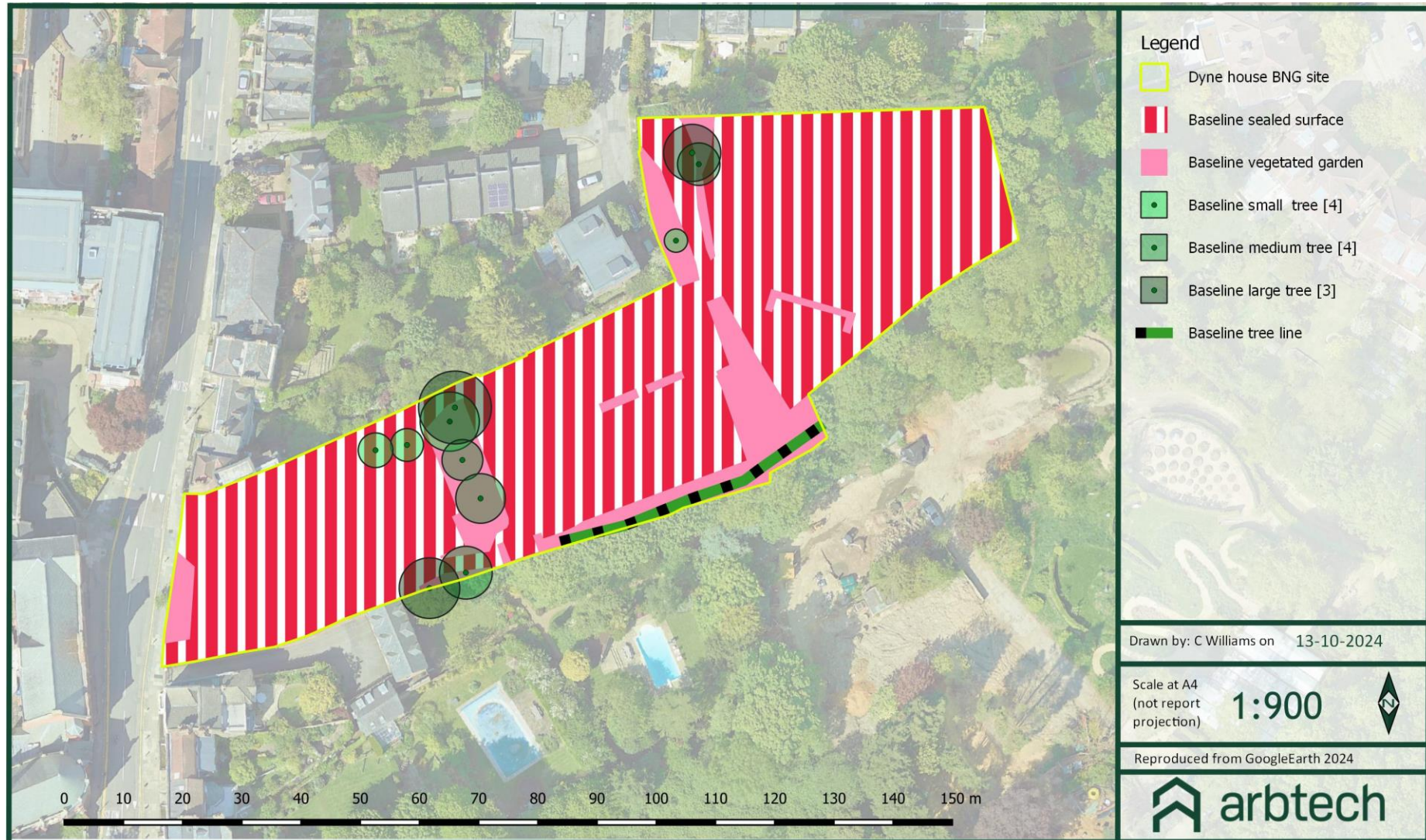
0.89 tier A1 units at £42,000 per credit = £37,380

These prices do not include VAT. You will see VAT in the invoice for any statutory credit purchase.

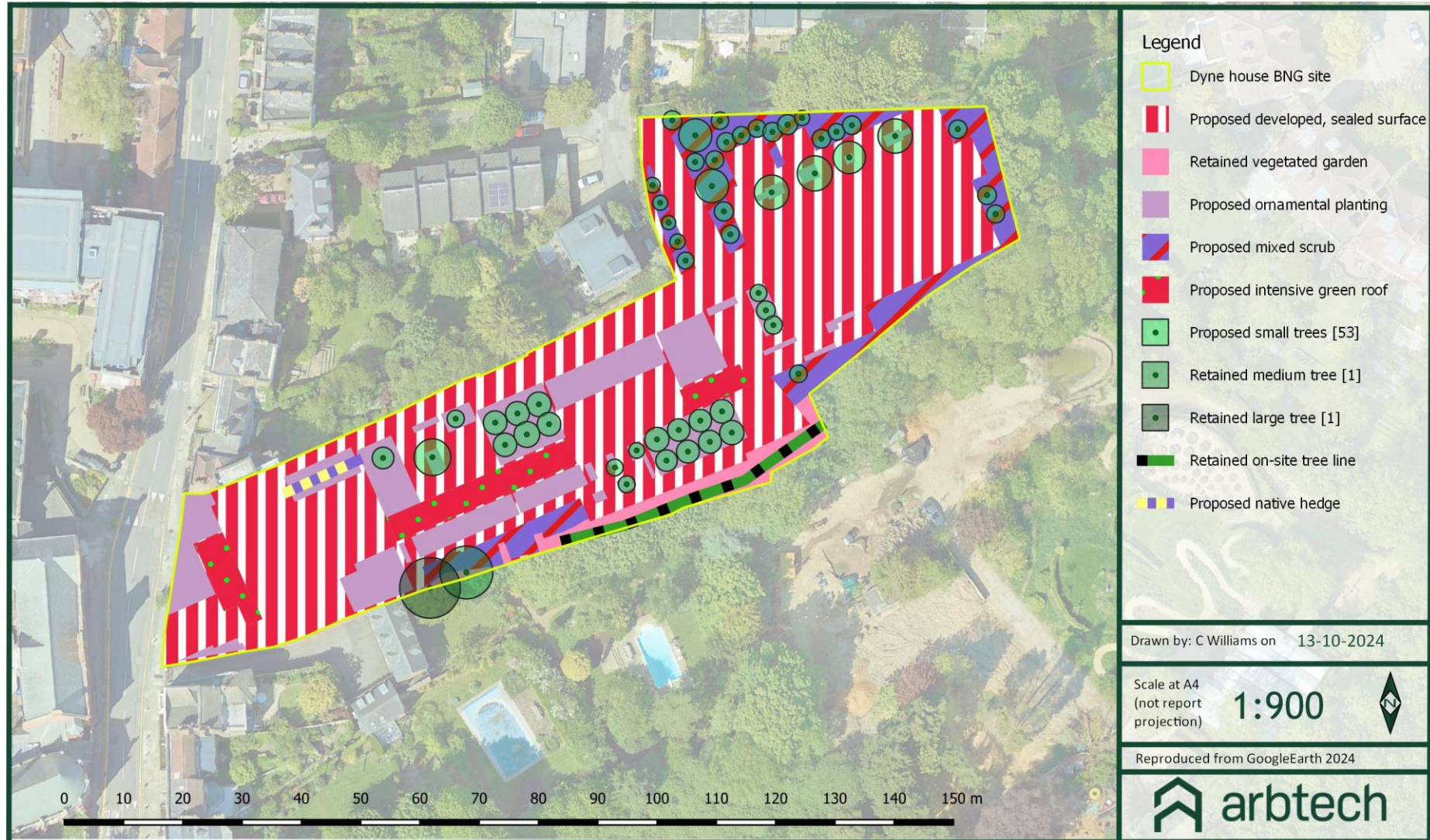
- Whichever method (or combination) is chosen for the compensation, the specific mechanism for securing this compensation will need to be proposed to and confirmed by the LPA. As well

as the creation of the habitat, this should also secure the management and monitoring of any significant habitat to the appropriate condition either on site or offsite for at least 30 years - linked to the application through a planning obligation in Section 106 (S106) agreement. This is likely to require a dedicated creation and management plan if created on site or off site by the developer themselves.

Appendix 1: Habitat baseline map



Appendix 2: Currently proposed ecological map of the site (based on the site habitats in the metric)



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