Auston Road, Hayes
Phase 1

Noise Assessment in relation to Condition 13 of Decision Notice ref. 76550/APP/2021/4499

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Issued to
Higgins Partnerships

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1. INTRODUCTION

Higgins Partnerships are planning a residential scheme to be located on land adjacent to Auston Road, Hayes. The scheme is to be built out in several phases.

A hybrid planning application has been submitted for the scheme, with full planning permission now granted for Phase 1, subject to conditions, and outline planning permission granted for Phases 2-5 with all matters reserved.

Spectrum has been instructed by Higgins Partnerships to carry out a noise assessment in line with the requirements set out in the noise related conditions.

The assessment detailed within this report focusses on Phase 1. However, the assessment also considers the presence of the other proposed phases within the noise model, based on the latest available information.

2. SITE DESCRIPTION

The proposed development site is located on land to the northwest of Auston Road, Hayes and is bounded to the northwest by Crown Close, to the north east by Pump Lane, and to the southwest by the Grand Union Canal.

Phase 1 is to comprise 80 apartments over part five, six and eight storeys, across two blocks and is at the north-eastern end of the site, overlooking Pump Lane.

The latest proposals for Phases 2-3, in the middle of the site, will comprise various blocks ranging from three to nine storeys high. Phase 4, at the south-western end of the site, will comprise various blocks ranging from six to twelve storeys high. Phase 5 will comprise a row of two storey terraced houses along the south-eastern side of Auston Road.

Drawings of the proposed scheme are presented in Appendix A.

3. PLANNING CONDITION

Condition 13 states:

> *'Each phase of the development shall not be occupied until full and final details are provided to, and approved by, the Local Planning Authority for that relevant development phase of the sound insulation scheme(s), and any other control measures, such that ambient sound levels are no higher than the relevant internal targets within the current version of the ProPG: Planning & Noise accounting for both ventilation and overheating conditions, and to minimise levels within external amenity areas as far as practicable. Any sound generated within the development by associated plant shall be controlled to not exceed relevant targets, such as those within the current version of the Acoustics, Ventilation and Overheating Residential Design Guide.*
>
> *'REASON*

'To safeguard the amenity of the occupants of the development in accordance with Policy EM8 of the Hillingdon Local Plan: Part One - Strategic Policies (November 2012) and Policy DMHB 11 of the Hillingdon Local Plan Part 2 (2020).'

4. RELEVANT POLICY AND GUIDANCE

4.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF)[1] sets out the Government's planning policies for England and how these should be applied by establishing a framework within which locally prepared plans for development can be produced.

The NPPF requires (174) that '*planning policies and decisions should contribute to and enhance the natural and local environment by:* […] *preventing new and existing development from contribution to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of* […] *noise pollution* […]*.'*

In relation to noise (185) '*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

'a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life[2];

'b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'

Planning policies and decisions should also (187) *'ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed'.*

Throughout the NPPF reference is made to other policies, such as the Noise Policy Statement for England (NPSE), which should also be applied as appropriate.

[1] *National Planning Policy Framework, MHCLG, July 2021*

[2] *See Explanatory Note to the Noise Policy Statement for England, paragraphs 2.23 and 2.24 , DEFRA,15 March 2010.*

4.2 NOISE POLICY STATEMENT FOR ENGLAND (NPSE)

The Noise Policy Statement for England (NPSE)[3] sets out the long term vision of government noise policy which is to *'Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'*

The aims of the NPSE are to (2.23-2.25):

- avoid significant adverse impacts on health and quality of life;
- mitigate and minimise adverse impacts on health and quality of life; and
- where possible, contribute to the improvement of health and quality of life

These aims are developed by reference (2.20-2.21) to the concepts of:

- NOEL (No Observed Effect Level). This is the level below which no effect can be detected.
- LOAEL (Lowest Observed Adverse Effect Level). This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL (Significant Observed Adverse Effect Level). This is the level above which significant adverse effects on health and quality of life occur.

It recognises that there is no universally applicable objective threshold for these concepts. Consequently, the NOEL, LOAEL and SOAEL are likely to be different for different noise sources and receptors and at different times (2.22).

Situations of significant adverse effect (SOAEL) should be avoided (2.23). Where the impact is between LOAEL and SOAEL reasonable steps should be taken to minimise and mitigate adverse effects on health and quality of life, but does not mean that such adverse effects cannot occur (2.24). It is also implied that situations of NOEL would be acceptable in noise terms.

4.3 PLANNING PRACTICE GUIDANCE (PPG)

Planning Practice Guidance on Noise[4] (PPG-N) sets out government guidance on '*how planning can manage potential noise impacts in new development'*.

Whilst it does advise that noise can override other planning concerns, *'where justified'*, it states that *'it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect on whether noise is likely to pose a concern.' (002)*

It also details the hierarchy of noise exposure, including the thresholds LOAEL and SOAEL, based on the likely average response, referred to within NPSE[5]. The noise exposure categories are summarised below.

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[3] *Noise Policy Statement for England (NPSE), DEFRA, 15 March 2010*

[4] *PPG - Noise, MHCLG, 22 July 2019*

[5] *Explanatory Note to the Noise Policy Statement for England, paragraphs 2.19 and 2.20, DEFRA,15 March 2010)*

- No Observed Adverse Effect: Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.
- Observed Adverse Effect: Noise can be heard and causes small changes in behaviour, attitude or other physiological response.
- Significant Observed Adverse Effect: The noise causes a material change in behaviour, attitude or other physiological response.
- Unacceptable Adverse Effect: Extensive and regular changes in behaviour, attitude or other physiological response, and/or an inability to mitigate effect of noise leading to psychological stress.

The guidance advises, in accordance with the first and second aims of the NPSE, that where there is no observed effect or no observed adverse effect, no specific measures are required to manage the acoustic environment; where there is an observed adverse effect, consideration needs to be given to mitigating and minimising those effects; where there is significant adverse effects, the planning process should be used to avoid these effects occurring; where there are unacceptable adverse effects, the situation should be prevented.

In establishing values for LOAELs and SOAELs, which represent the onset levels of adverse effects and significant adverse effects, respectively, the guidance advises because of the subjective nature of noise, there is no simple relationship between noise level and its impact. It will instead depend on a number of factors in a particular situation. These will include:

- The source, its absolute level and the time of day.
- For intermittent sources, the number and duration of events;
- The spectral frequency content of the noise

And also other factors will need to be considered in many cases, which are more fully described and detailed within the full PPG guidance, but include matters such as:

- The cumulative impacts with other sources
- Whether internal effects can be completely removed for example by closing windows (relevant with new residential development subject to ventilation being developed)
- Whether existing noise sensitive locations already experience high noise levels,
- Where Noise Action Plans, and, in particular Important Areas are identified nearby.
- The effect on wildlife especially on nationally designated sites.
- The use of external amenity spaces intrinsic to an overall design and including private gardens.
- The potential effect of a new residential or other sensitive development being located close to an existing noisy business or site, and for noise mitigation to be considered.
- Whether there are nearby areas of tranquility relatively undisturbed by noise from human caused sources that undermine the intrinsic character of the area and likely already valued for their tranquillity.

It should be observed that the PPG guidance does not provide any detail on the how such assessment including these factors, should be carried out. However, reference is made to documents published by other organisations, such as:

- *BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings (British Standards Institute 2014);*
- *Guidelines for Environmental Noise Impact Assessment (Institute of Environmental Management and Assessment, 2014);*
- *ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise – New Residential Development (Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health, May 2017).*

This should not be considered an exhaustive list, however, as reference may also be made to other existing British Standards, where relevant, and to scientific exposure-response studies or reviews relating to noise and its effects on human and, where appropriate, animal populations.

4.4 GUIDELINES FOR COMMUNITY NOISE - WORLD HEALTH ORGANIZATION (WHO), 1999

Guidelines for Community Noise (GCN) was published in 1999 with the aim of informing legislation and guidance produced at the national and regional levels for the purposes of minimising any potential adverse health effects resulting from noise in the community. It presents guideline noise level criteria for the avoidance of adverse effects such as sleep disturbance and annoyance in a range of specific environments. The preface to WHO states that community noise includes road, rail and air traffic, industries, construction and public work, and the neighbourhood.

New guidance from WHO titled Environmental Noise Guidelines for the European Region (ENG) was published in 2018. The document takes a very different approach to guidance set out in the previous document (GCN) by identifying separate thresholds for specific sources rather than for community noise as a whole. Consequently, much of the earlier guidance set out in GCN is now absent from ENG. While ENG was intended to supersede GCN, it recognises this absence and states that *'indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid*.*'*

It is recommended that all WHO guidance should be noted but that it should not be relied upon in assessments without reference to other relevant detailed guidance, especially that in British Standards. These may align better with Planning Practice Guidance[6] in England.

4.5 BS 8233:2014 GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

BS 8233:2014[7] '*provides guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use*'. '*The Standard is not*[8] *intended to be used routinely where noise sources are brought to existing noise sensitive buildings'*.

For residential use dwellings (7.7.1), *'the main considerations, for bedrooms, are the acoustic effect on sleep; and for other rooms, the acoustic effect on resting, listening and communicating*' *(7.7.1).*

[6] *PPG - Noise, MHCLG, 6 March 2014*

[7] *BS 8233:2014 Guidance on sound insulation and noise reduction for buildings*

[8] *The word 'not' is omitted from the text in the Standard. The Institute of Acoustics advised 'not' to be added following a meeting of their London Branch in March 2015.*

Internal noise criteria are advised relating to sources of external noise *'"without a specific character", previously termed "anonymous noise". (…). For simplicity, only noise without character is considered. Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate'.(7.7.1)*

'For steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values', which are set out in Table 1.

Activity	Location	07:00-23:00	23:00-07:00
Resting	Living room	35 dB $L_{Aeq,16\ hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16\ hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\ hour}$	30 dB $L_{Aeq,8\ hour}$

Table 1: Indoor ambient noise levels for dwellings

There are a number of notes to the table. These include:

Note 4: Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.

BS 8233 does not give guidance on what might constitute a guideline value. However, as the standard does cross reference WHO, we suggest that the guideline value of L_{AFmax} 45dB, inside bedrooms, should not be exceeded during the night more than 10-15 times, which reflects the WHO position.

'Note 5: If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the facade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment'.

'Note 7: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved'.

'For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited'. (7.7.3.2)

Although small balconies in flats or apartments used only for drying washing or growing pot plants should not have noise limits*, 'the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to*

achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space' (7.7.3.2).

4.6 PROFESSIONAL PRACTICE GUIDANCE ON PLANNING & NOISE (PROPG)

ProPG was published in May 2017 and was produced jointly by the Association of Noise Consultants, the Institute of Acoustics, and the Chartered Institute of Environmental Health, with the aim of providing *'guidance on a recommended approach to the management of noise within the planning system in England.'*

'The approach encourages early consideration of noise issues, facilitates straightforward accelerated decision making for lower risk sites, and assists proper consideration of noise issues where the acoustic environment is challenging.' (2.2)

ProPG recommends a two-stage approach (2.3):

- *'Stage 1 – an initial noise risk assessment of the proposed development site; and*
- *Stage 2 – a systematic consideration of four key elements.'*

The Stage 1 assessment aims to provide and early indication of the risk of adverse effects from noise where no subsequent mitigation is included in the development proposal. The approach is *'considered to support wider Government planning and noise policy and guidance.' (2.11)*

The Stage 2 assessment comprises four key elements, to be undertaken in parallel, which are based on existing National Policy, Guidelines and Standards, and are summarised as follows (2.4):

- *'Element 1 – demonstrating a "Good Acoustic Design Process";*
- *Element 2 – observing internal "Noise Level Guidelines";*
- *Element 3 – undertaking an "External Amenity Area Noise Assessment"; and*
- *Element 4 – consideration of "Other Relevant Issues".'*

It should be noted that 'good acoustic design' is not limited to Element 1 but is instead an overarching principle that extends across ProPG's recommended 2-stage approach to the management of noise within the planning system. The approach set out within Elements 2 and 3, is based on existing guidance set out within BS 8233:2014 and WHO. The approach within element 4 considers compliance with relevant national and local policy and considers the acoustic design in relation to any unintended adverse impacts the design may have caused, as well as any wider planning objectives, among other potential considerations. It is noted, however, that *'Not all of the issues listed above will arise in every planning application and some may already have been addressed as an inherent part of good acoustic design.' (2.57)*

4.7 ACOUSTICS VENTILATION AND OVERHEATING RESIDENTIAL DESIGN GUIDE (AVO)

AVO was first published in January 2020 and was produced jointly by the Association of Noise Consultants and Institute of Acoustics with the aim of assisting *'acoustics practitioners as well as all those involved in the planning, development, design and commissioning of new dwellings. It recommends an approach to*

acoustic assessments for new residential development that take due regard of the interdependence of provisions for acoustics, ventilation, and overheating.' (1.4)

AVO clarifies that *'it is important to differentiate between the need to provide 'purge ventilation' as required occasionally under ADF (i.e. to remove smoke from burnt food etc.); against the provision of ventilation to help control overheating, which is not covered by The Building Regulations.' (2.4)* It also clarifies that there is no specific acoustic criterion that need be met for purge ventilation.

Additionally, AVO makes a clear distinction between the acoustic requirements as they relate to whole dwelling ventilation rates ('ADF ventilation condition'), which applies for the entire time, and to ventilative cooling to mitigate overheating ('overheating condition'), which applies only part of the time. It states, *'desirable internal noise standards within Table 4 of BS 8233:2014 should be achieved when providing adequate ventilation as defined by ADF whole dwelling ventilation. However, it is considered reasonable to allow higher levels of internal ambient noise from transport sources when higher rates of ventilation are required in relation to the overheating condition.' (3.9)*

Where mitigation of a potential overheating condition is to rely on opening windows, AVO advises a 'two-level noise assessment procedure'.

Level 1 is a 'Site Risk Assessment' based on a sliding scale of external noise levels from transportation noise sources, which categorises the site in terms of negligible, low, medium, or high risk of adverse effect during the overheating condition, without mitigation. The scale ranges from $L_{Aeq,T}$ 50dB/45dB (day/night) to $L_{Aeq,T}$ 65dB/55dB (day/night); however, these values are not to be taken as fixed thresholds. Where there is negligible risk, no further assessment is required. Where the risk is low or medium, a Level 2 assessment may optionally be considered. Where there is a high risk, a Level 2 assessment is recommended. Although no scale is provided for individual noise events, AVO advises that where L_{AFmax} 78dB is normally exceeded at night, a Level 2 assessment is recommended.

Level 2 is an 'Assessment of Adverse Effect', which is based on a sliding scale of internal ambient noise levels from transportation noise sources relating to the overheating condition. The guidance for the Level 2 assessment is copied in Table 2. It should be noted that the values in the table should not be regarded as fixed thresholds and that the potential for adverse effect will also depend on how frequently and for what duration the overheating condition occurs.

<table>
<tr><th colspan="3">Internal ambient noise level</th><th colspan="2" rowspan="2">Examples of Outcomes</th></tr>
<tr><th>$L_{Aeq,T}$ during 07:00-23:00</th><th>$L_{Aeq,8h}$ during 23:00-07:00</th><th>Individual noise events during 23:00-07:00</th></tr>
<tr><td>> 50dB</td><td>> 42dB</td><td>Normally exceeds 65dB L_{AFmax}</td><td>Noise causes a material change in behaviour e.g. having to keep windows closed most of the time</td><td>Avoiding certain activities during periods of intrusion. Having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.</td></tr>
<tr><td colspan="3" rowspan="2"> 
</td><td rowspan="2">Increasing likelihood of impact on reliable speech communication during the day or sleep disturbance at night</td><td>At higher noise levels, more significant behavioural change is expected and may only be considered suitable if occurring for limited periods.
As noise levels increase, small behaviour changes are expected e.g. turning up the volume on the television; speaking a little more loudly; having to close windows for certain activities, for example ones which require a high level of concentration. Potential for some reported sleep disturbance. Affects the acoustic environment inside the dwelling such that there is a perceived change in quality of life.
At lower noise levels, limited behavioural change is expected unless conditions are prevalent for most of the time.</td></tr>
<tr><td>≤ 35dB</td><td>≤ 30dB</td><td>Do not normally exceed L_{AFmax} 45dB more than 10 times a night</td><td>Noise can be heard, but does not cause any change in behaviour, attitude, or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.</td></tr>
</table>

Table 2: Guidance for Level 2 assessment of noise from transportation noise sources relating to overheating condition (copied from AVO)

5. AMBIENT NOISE SURVEY

5.1 METHODOLOGY

Unattended ambient noise measurements were carried out during a site survey between Monday 31 October and Friday 4 November 2022.

Noise loggers were installed at two locations as indicated on the Noise Monitoring Location (NML) plan in Appendix B. The NMLs are summarised as follows:

NML 1: Northeast end of site overlooking Pump Lane (6m above ground level)
NML 2: Overlooking Austin Road (6m above ground level)

Noise measurement parameters consisted of equivalent continuous (L_{Aeq}) noise levels and maximum (L_{Amax}) noise levels as well as statistical noise levels (termed Ln, where n is the percentage of time the level is exceeded during the measurement period). Both overall and 1/1 octave band measurements were stored for later analysis.

The following equipment was used:

NML 1

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3009933
- Bruel & Kjaer Type 4189 Microphone s/n 3043744
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2115516

NML 2

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3010857
- Bruel & Kjaer Type 4189 Microphone s/n 3060877
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2291483

Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

Weather was monitored remotely based on information available online of weather stations around Heathrow Airport. During the survey there were periods of elevated wind and rain. These periods were therefore excluded from the dataset before further analysis was undertaken to determine the representative daytime and night time noise environment affecting the site.

5.2 RESULTS

The results of the ambient noise measurements are presented in Appendix B and summarised in Table 3.

Noise Measurement Location (NML)	Ambient noise level L_{Aeq} (dB)		Night typical L_{Amax} (dB)
	Day	Night	
NML 1: Pump Lane	65	61	77
NML 2: Auston Road	54	49	68

Table 3: Summary of results of ambient noise survey results

The L_{Aeq} levels are the log average of all the measured 5-minute values, which is considered to be representative of the long-term typical levels at the NMLs. The L_{Amax} levels are the 10th highest measured values taken from the full 8-hour night time periods. These levels are considered to be representative of the levels that would not typically be exceeded (more that 10-15 times) over the full night time period, as per WHO guidance.

Noise levels affecting the site are dominated by road traffic movements on local roads surrounding the site during both the day and night time periods.

6. PREDICTION OF NOISE PROPAGATION ACROSS THE SITE

The particular prediction model that has been used for this analysis is SoftNoise's Predictor software. This acoustic model implements the procedures set out in ISO 9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation to determine noise levels", and is Quality Assured to all parts of ISO 17534:2015 "Acoustics – Software for the calculation of sound outdoors". The Predictor model takes account of the following features in its calculation procedure:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

Detailed noise calculations are then computed of the contribution of each individual noise source to combined noise levels at the receptor location.

In order to calculate the day and night time L_{Aeq} and L_{AFmax} levels across the site, road traffic sources have been included within the model of the existing site and attributed sound power levels based on the results of the noise measurement survey. Additional survey data has been taken from sampled daytime measurements of Station Road and Crown Close presented in the planning noise report submitted with the initial planning application. Night time sound power levels for Station Road and Crown Close have been determined based on the relative diurnal fluctuations observed on Pump Lane (NML 1) and Auston Road (NML 2), respectively, which are similarly trafficked roads, typical of the surrounding area.

The model has been validated by comparing the results of an initial model simulation with the measured survey results. Where necessary, small adjustments are made to the model such that the modelled results are within 1dB of the measured results within each octave band. The model is then considered validated and suitable for accurately predicting noise propagation across the site.

Once validated, the model is updated to include the proposed development such that noise can be calculated at each dwelling façade and within external amenity spaces.

The results of the model are presented in Appendix C.

7. ASSESSMENT

7.1 NOISE INGRESS TO HABITABLE ROOMS

Calculations of the noise intrusion have been carried out for representative plots using the methodology set out in Annex G2.1 of *BS 8233:2014 Guidance on sound insulation and noise reduction for buildings*.

Incident noise levels have been taken from the results of the noise model.

The apartments are proposed to have brick and block external walls. Sound insulation data for the external walls has been taken from BS 8233. Sound insulation data for glazing has been taken from manufacturers' data for typical systems. It is understood that the development will benefit from mechanical ventilation and so no trickle vents are required.

The calculations assume typical internal finishes for habitable rooms, based on reverberation times that Spectrum have measured in a range of occupied dwellings at other sites, and on the room geometry and volumes taken from the floor plans and elevation drawings in Appendix A.

A scheme of façade sound insulation has been developed to ensure acceptable internal ambient noise levels are achieved at the site. The scheme separates the dwellings into two groups that each require a different level of mitigation: Scheme 1 and Scheme 2.

A sample of the detailed calculations for the most noise exposed plots is presented in Appendix D and summarised in Table 4.

Sample room	Period	External noise levels (dB)		Internal noise levels (dB)	
		Incident L_{Aeq}	Typical incident L_{Amax}	L_{Aeq}	Typical L_{Amax}
Phase 1 - Plot A-01-04					
Living/Kitchen/Dining	Day	66	-	32	-
Bedroom	Day	66	-	32	-
Bedroom	Night	62	80	28	44
Phase 1 - Plot A-02-06					
Living/Kitchen/Dining	Day	59	-	32	-
Bedroom	Day	62	-	32	-
Bedroom	Night	57	75	27	42

Table 4: Calculated indoor ambient noise levels

The results of the calculations indicate that the desirable noise criteria set out in BS 8233 will be achieved at this site with the proposed scheme of mitigation installed.

The proposed scheme of mitigation is set out in Table 5 and Appendix E.

	Glazing	
	R_w / R_w+C_{tr} (dB)	Example unit
Scheme 1 –facades marked red in Appendix E		
Living/Kitchen/Dining	35 / 32	10/6-16/6mm
Bedrooms	35 / 32	10/6-16/6mm
Scheme 2 – all other facades		
Living/Kitchen/Dining	29 / 25	4/6-16/4mm
Bedrooms	29 / 25	4/6-16/4mm

Table 5: Mitigation to external facades

Glazing is specified using the weighted sound reduction index, R_w, with a correction applied to account for the acoustic character of road traffic noise, C_{tr}. Vents are specified using the normalised element weighted sound level difference, $D_{n,e,w}$, also corrected for traffic noise, C_{tr}. The acoustic specifications should be met both with and without the traffic noise correction term.

Additionally, the acoustic specification should apply to the window set, as a whole, not just the glazing. For many windows, the influence of the frame materials on the composite sound reduction of the window set is largely negligible. However, for windows that must achieve R_w 40dB and R_w+C_{tr} 34dB, or more, the influence of the frame becomes increasingly significant and must be taken into account. In these cases, it is recommended that compliance is demonstrated by comparing the results of supplier test data with the required specifications.

7.2 NOISE IN EXTERNAL AMENITY AREAS

At this site external amenity spaces comprise small private balconies for individual apartments and a communal space at ground level within the internal courtyard to Phase 1, screened from road traffic noise.

Additionally, there will be a temporary external amenity area to the east of the Phase 1 building, in place of the section of Austin Road that connects to Pump Lane, which will temporarily connect to Crown Close, to the rear of the Phase 1 building. During development of the subsequent phases, this temporary external amenity space will be removed, and Austin Road will be reconnected to Pump Lane.

As advised in BS 8233, specific noise limits would not be appropriate for the smaller balconies as these provide beneficial private external space, which is inherently limited for apartments. However, the guideline limits should be achieved in larger external amenity spaces such as the ground level communal space.

The results of the noise model indicate that noise levels during the day will not exceed L_{Aeq} 50dB in the ground level communal amenity space in the Phase 1 internal courtyard. This is in line with guideline limits set out in BS 8233.

Noise levels in the temporary communal amenity space will vary with proximity to Pump Lane. Around 50% of the area will have noise levels not exceeding L_{Aeq} 55dB. The other 50% of the area will have noise levels ranging from L_{Aeq} 55-63dB. This is generally considered acceptable, in accordance with the guidance in BS 8233, given the location, the extent of amenity space available with noise levels below guideline limits, and the temporary nature of this space.

7.3 ACOUSTICS AND OVERHEATING

At this stage, it is not known what the potential for or extent of overheating will be for the proposed development. However, the postcode for the site indicates that it is within an area that is subject to a high risk of overheating occurring, as set out in Appendix C of the Building Regulations Approved Document O (ADO). It is therefore likely that some form of mitigation will need to be considered.

ADO sets out the following strategies for reducing the risk of overheating:

1) **Limiting solar gains using:**
   a) Fixed shading devices such as:
      i) Shutters
      ii) External blinds
      iii) Overhangs
      iv) Awnings
   b) Glazing design, including:
      i) Size
      ii) Orientation
      iii) G-value
      iv) Depth of window reveal

2) **Removing excess heat using:**
   a) Open windows
   b) Ventilation louvres in external walls

c) A mechanical ventilation system
d) A mechanical cooling system

The strategy chosen to remove excess heat will typically be constrained by the external noise environment and in many cases, it will not be possible to rely on open windows.

ADO advises that windows are likely to be closed during sleeping hours where noise levels in bedrooms at night exceed $L_{Aeq,8hr}$ 40dB and L_{AFmax} 55dB. ADO sets out a simplified method for compliance but advises that where these noise levels are exceeded a more rigorous approach is required involving dynamic thermal modelling. ADO also refers to Acoustics, Ventilation and Overheating Residential Design Guide. V1.1, ANC and IOA, January 2020 (AVO), which should be referenced in this case.

AVO takes a risk-based approach to the assessment of noise impact during an overheating condition and aims to strike a balance between increased internal noise levels and lower internal temperatures. The methodology considers the situation where open windows are used to increase the level of ventilative cooling provided. Generally, it is accepted that higher noise levels may be tolerated for short periods of time where this leads to more temperate internal conditions. The higher the noise level, the less time this condition may be tolerated.

AVO sets out the expected outcomes given a range of internal noise levels under an overheating condition, as described in Section 4.7, above. Although there are no fixed thresholds provided, it is helpful to consider the following ranges of internal noise levels for which various outcomes may be expected, as set out in Table 6.

Windows open	**Internal ambient noise levels during an overheating condition**		
	Day, $L_{Aeq,16hr}$ (dB)	**Night, $L_{Aeq,8hr}$ (dB)**	**Typical Night L_{AFmax} (dB)**
Unacceptable	> 50	> 42	> 65
Acceptable on rare occasions	46-50	39-42	60-65
Acceptable sometimes	41-45	35-38	53-59
Acceptable often	36-40	31-34	46-52
Acceptable for all the time	≤ 35	≤ 30	≤ 45

Table 6: Outline category boundaries for window opening locations and durations

Night time noise levels, incident at the most noise exposed façade of Phase 1, are up to $L_{Aeq,8hr}$ 62dB and L_{AFmax} 80dB. To provide sufficient ventilative cooling at night to mitigate overheating it is typically required that windows are wide open, rather than partially open, particularly in a high-risk postcode. In this case, the external to internal level difference provided by such a window would likely be only 4dB. Therefore, internal noise levels would be up to $L_{Aeq,8hr}$ 58dB and L_{AFmax} 76dB with windows wide open.

Other passive ventilation solutions have been considered such as wintergardens, attenuated windows, and large attenuated wall vents. However, it is considered that existing passive solutions with sufficient free area for ventilative cooling may only be able to achieve up to 10-20dB attenuation, with options in the upper end of this range likely being impracticable due to the physical size of elements involved.

Accordingly, the proposed scheme will incorporate a mechanical solution to mitigate the potential for overheating while maintaining acceptable internal ambient noise levels for residents.

As per Planning Condition 13, internal noise generated by such plant should be designed to achieve the noise limits set out in AVO, as transcribed in Table 7, below.

Condition	Desirable internal ambient noise levels from mechanical services			
	Bedrooms	Living Rooms	Dining Rooms	Bathroom / WC / Kitchen
ADF Whole Dwelling Ventilation	≤ L_{Aeq} 30 dB	≤ L_{Aeq} 30 dB	-	-
ADF Extract Ventilation	≤ L_{Aeq} 30 dB	≤ L_{Aeq} 35 dB	≤ L_{Aeq} 35 dB	≤ L_{Aeq} 45 dB
Ventilative Cooling or Comfort Cooling	L_{Aeq} 30 (± 5) dB	L_{Aeq} 35 (± 5) dB	L_{Aeq} 35 (± 5) dB	-

Table 7: AVO guideline internal noise levels for mechanical services

Synergy Consulting Engineers Ltd are the Mechanical Designers on the project with design responsibility for the mechanical ventilation system. Synergy has carried out calculations to determine the noise level produced by the MVHR system in habitable rooms under both the normal operating condition and the summer boost condition. These calculations are presented in Appendix F for ease of reference.

8. CONCLUSIONS

Higgins Partnerships are planning a residential development at Austin Road, Hayes for which full planning permission has been granted for Phase 1, subject to conditions, with outline permission granted for the rest of the site with all matters reserved.

The assessment for Phase 1, set out within this report, indicates that acceptable internal ambient noise levels will be achieved at the site with the recommended acoustic performance for glazing set out in Table 5 and Appendix E. Acceptable noise levels in external amenity areas will also be achieved. This, in part, meets the requirements of Condition 13.

Condition 13 also requires that internal noise from mechanical services meets the criteria set out within AVO, as set out in Table 7 of this report. Synergy Consulting Engineers Ltd have assumed design responsibility for the mechanical ventilation system and their noise calculations are presented in this report for ease of reference.

APPENDIX A

Proposed development drawings

GENERAL NOTES
This drawing is © 2019 PTE architects.
Use figured dimensions only. **DO NOT SCALE**.
All dimensions are in millimetres unless noted otherwise.

This drawing must be read in conjunction with all other relevant drawings and specifications from the Architect and other consultants.
If in doubt, ask.

SETTING OUT NOTES:
All setting out to be confirmed on site prior to construction - any discrepancy must be immediately reported to the Architect.

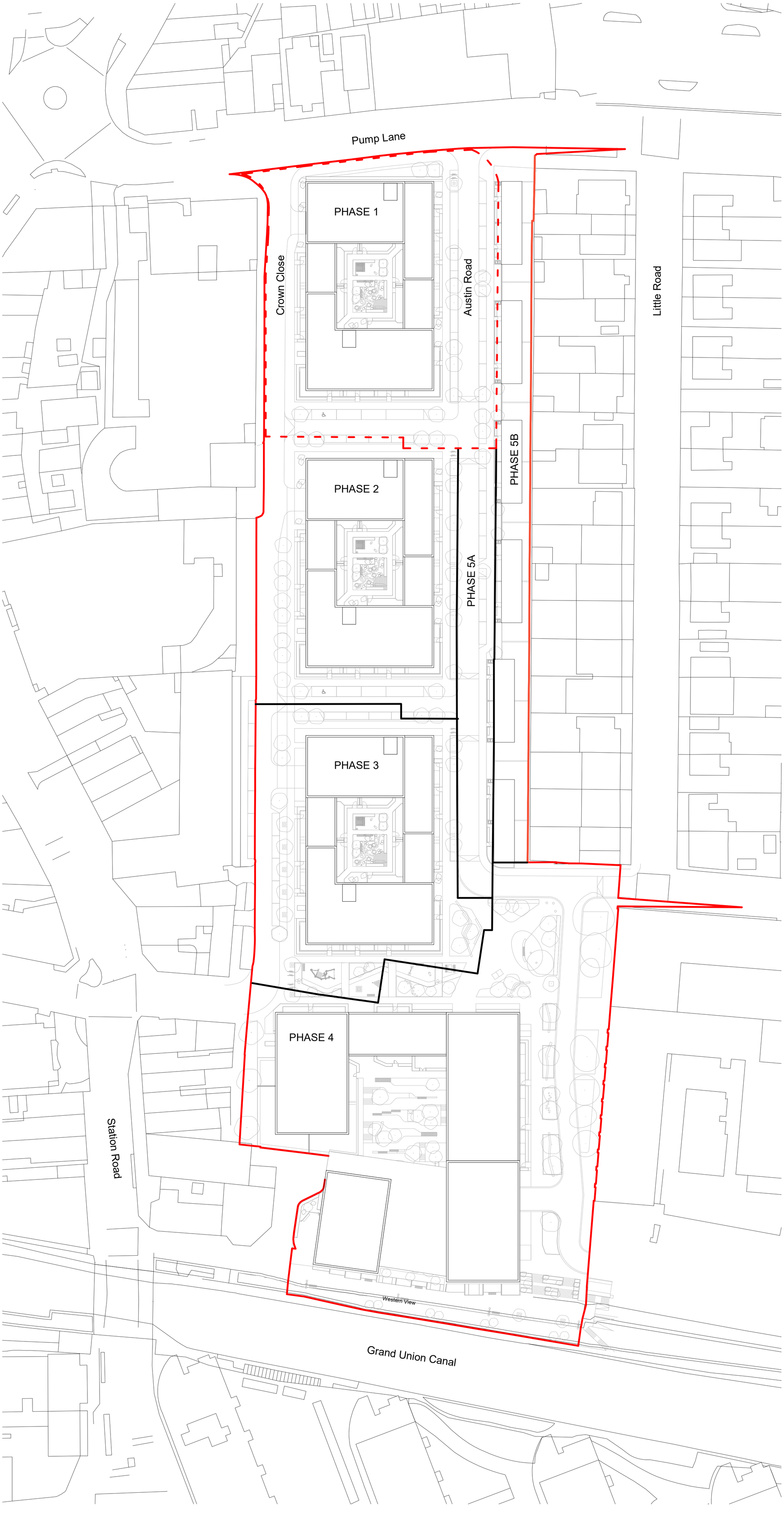
All setting out to face of structure or to grid. All partitions set out to studwork or structure.

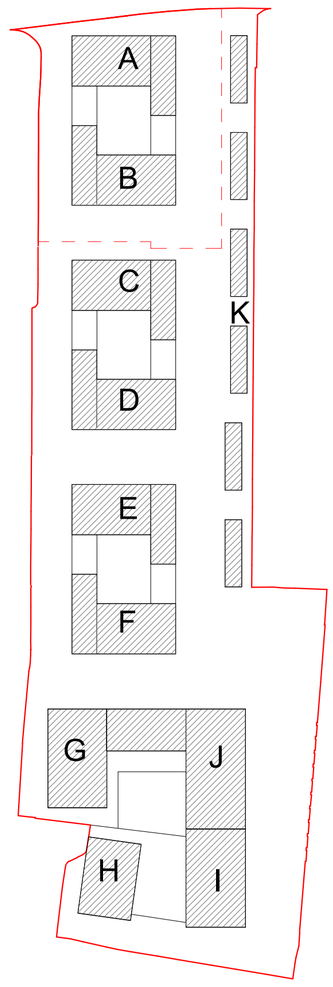
For setting out and specification of M&E services refer to M&E Consultants documents.

For setting out and specification of structure refer to Structural Engineer's documents.

5 0 5 10 25 m
Metres 1:500

N





Phasing Boundary

Red Line for Hybrid Planning Application

Phase 1 Definition Red Line as part of Hybrid Planning Application

rev	date	description	drawn	audited
C4	04.03.22	Phase 5 changed to Phase 5B. Phase 5A added. Landscape layout updated.	DW	LB
C3	10.12.21	PLANNING ISSUE	MR	LB

drawing status

PLANNING

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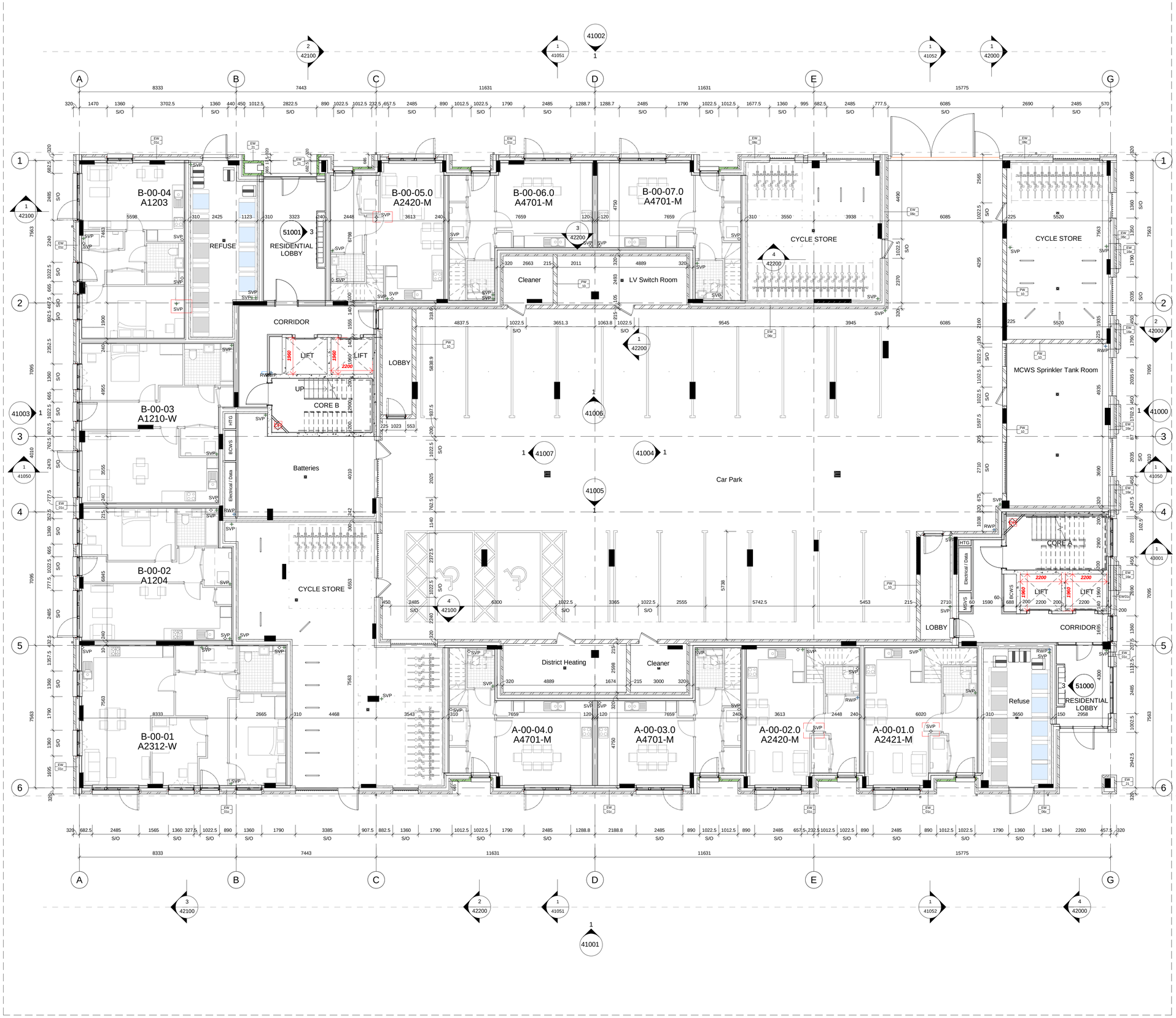
38 Graham Street
London N1 8JX
020 7336 7777
forename.surname@ptea.co.uk
@ptearchitects
www.pollardthomasedwards.co.uk

Pollard Thomas Edwards

project	job number	drawn	scale	date created
Hayes Town Centre Estate	19-100	DW	1 : 500@A1	Dec' 21

drawing title	drawing number	revision	suitability
Indicative Phasing Plan	**HTC-PTE-ZZ-XX-DR-A-10002**	**C4**	**S2**

The Proposed Masterplan



GRID REFERENCE — Block Ref / Grid Ref: A8

SECTION REFERENCE — Section Ref: 1 / 8888

ELEVATION REFERENCE — Elev Ref: 8888 / 1

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1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS:

Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

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KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD

WIN TYPE

WIN MARK Block / Level / ID

28 / P

W10

A01 01 05

TYPE / FIRE RATING / FUNCTION

ID10

FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

External Doors & Windows Note:

Acoustics	SBD
XX(dB $R_{W}+C_{Tr}$)	P: PAS 24
XX(dB $R_{W}+C_{Tr}$)	L: LPS
XX(dB $R_{W}+C_{Tr}$)	1175-SR2

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser

ER - Electric Riser

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"A" denotes a apartment — Number of beds — Number of people — Last two digits denote uniqued layout (type)

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SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
O/F	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
FFG	FFG - Future Floor Gully
FFO	FFO - Future Floor Gully - Connection Above Slab
FG	FG - Floor Gully
PG	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES

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Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
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Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

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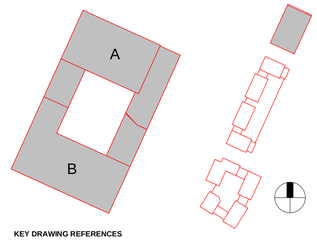

KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
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Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	
P1	18/11/22	First Issue	JC RB

Drawn/Checked

Hayes Town Centre

PRP project No.HTC

GA Plan-Blocks A&B-L00

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-00-GA-A-40100

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

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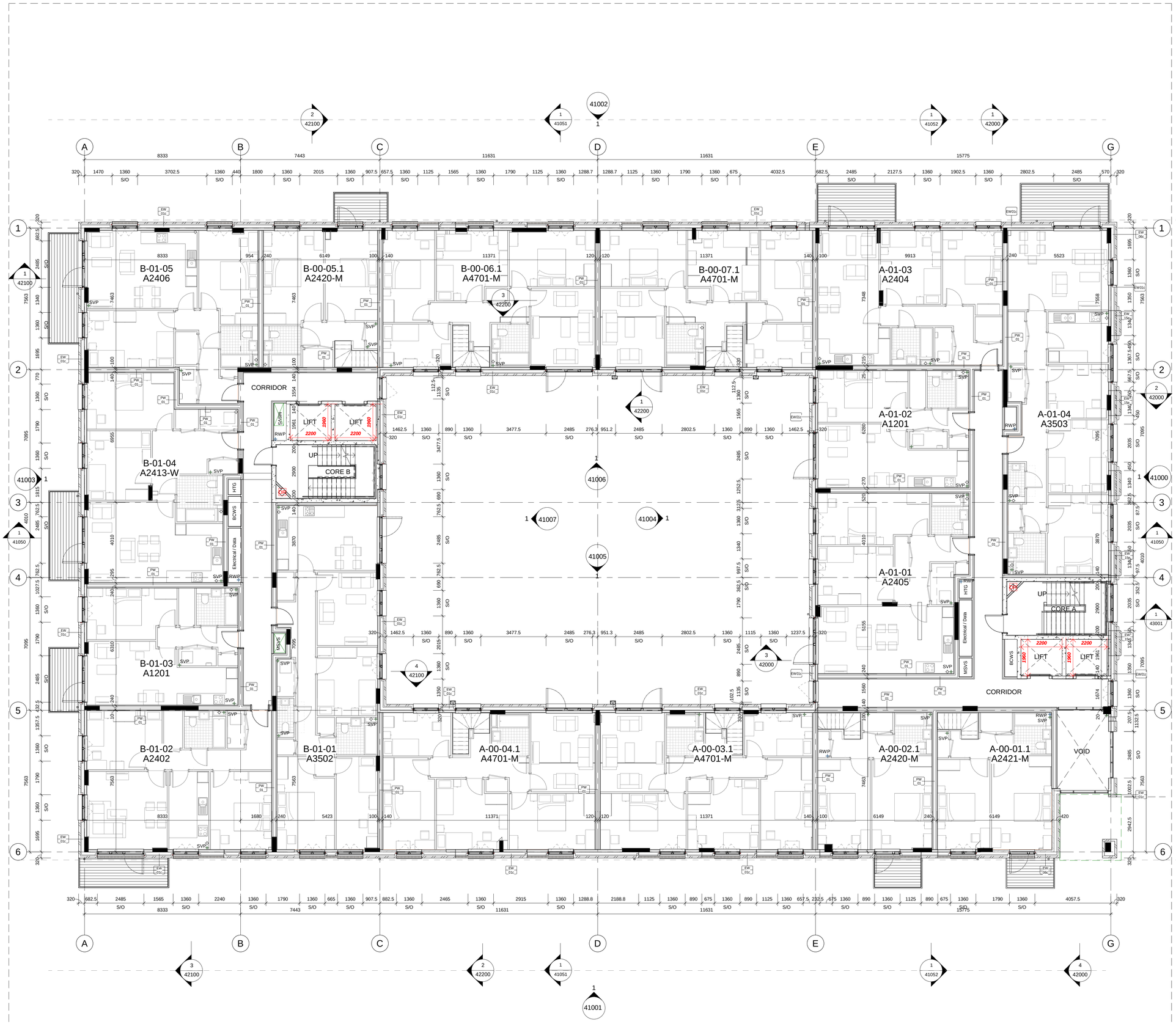

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KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK
Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

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Acoustics	SBD
XX(dB $R_{w}+C_{tr}$)	P: PAS 24
XX(dB $R_{w}+C_{tr}$)	L: LPS
XX(dB $R_{w}+C_{tr}$)	1175-SR2

Functions:
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sc: Self Closing
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*D	Doors Internal
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PC	Precast Elements
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SS	Stub stack	FFO	FFO - Future Floor Gully - Connection Above Slab
VP	Vent pipe	FG	FG - Floor Gully
AAV	Air admittance valve	PG	PG - Podium Gully
OF	Roof overflow	MJ	Denotes location of movement joint.
O/F	Rainwater overflow below balcony decking	DRi	Dry Riser inlet
RWP A	100 RWP - Square	DRo	Dry Riser outlet
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RWOph	Parapet rainwater outlet into hopper	IG	Internal Guarding
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BR/SR	Wall integrated Bat/Swift Refuge	FRS	Fall Restraint System
BC 0X X	Balcony Number	TOC	Top of Concrete
T 0X X	Terrace Number	TOS	Top of Steel
		IG 0X	Internal Guarding

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+15 / -15

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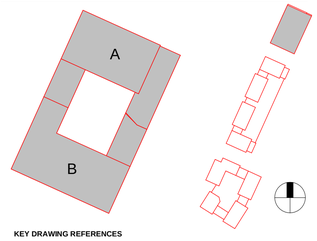

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Drawn/Checked

Hayes Town Centre

PRP project No.HTC

GA Plan-Blocks A&B-L01

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HTC-PRP-P1ZZ-01-GA-A-40101

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

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GRID REFERENCE — Block Ref, Grid Ref (e.g. A8)

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NOTE 1:

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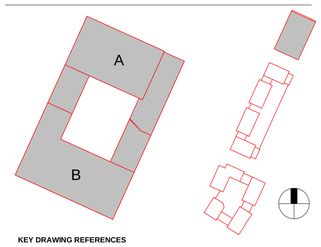
CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

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GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
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MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a' Red multi-stock with light coloured mortar.

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Brick Type 'e' Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description		Drawn/Checked
P1	18/11/22	First Issue	JC	RB

Hayes Town Centre PRP project No.HTC

GA Plan-Blocks A&B-L02

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-02-GA-A-40102

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
prp-co.uk
London
020 7653 1200
Higgins

GRID REFERENCE — Block Ref / Grid Ref: A8

SECTION REFERENCE — Section Ref: 1 / 8888

ELEVATION REFERENCE — Elev Ref: 8888 / 1

PLAN CALLOUT / DETAIL REFERENCE — Plan Ref: 00 / 8888 (last 4 digits of drawing no. Project/author/level/zone data as this drawing)

DIMENSIONS:

1430.3* — Dimensions are to Structure (face of Light guage steel Frame stud or concrete)

1430.3* — Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS: Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

ADJACENT DRAWING REF': X/XXXX — Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD	28 / P
WIN TYPE	W10
WIN MARK Block / Level / ID	A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

Acoustics	SBD
XX(dB $R_{w}+C_{tr}$)	P: PAS 24
XX(dB $R_{w}+C_{tr}$)	L: LPS
XX(dB $R_{w}+C_{tr}$)	1175-SR2

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Julliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "M" denote Maisonette; "W" denotes Wheelchair adaptable

"A" denotes a apartment — Number of beds — Number of people — Last two digits denote uniqued layout (type)

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
O/F	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
FFG	FFG - Future Floor Gully
FFO	FFO - Future Floor Gully - Connection Above Slab
FG	FG - Floor Gully
PG	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

+15 / -15

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
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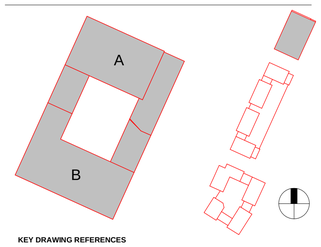

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Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
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Envelope Details	64000
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External Walls:	**0.15** W/m²K
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Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre

PRP project No.HTC

GA Plan-Blocks A&B-L03

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-03-GA-A-40103

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
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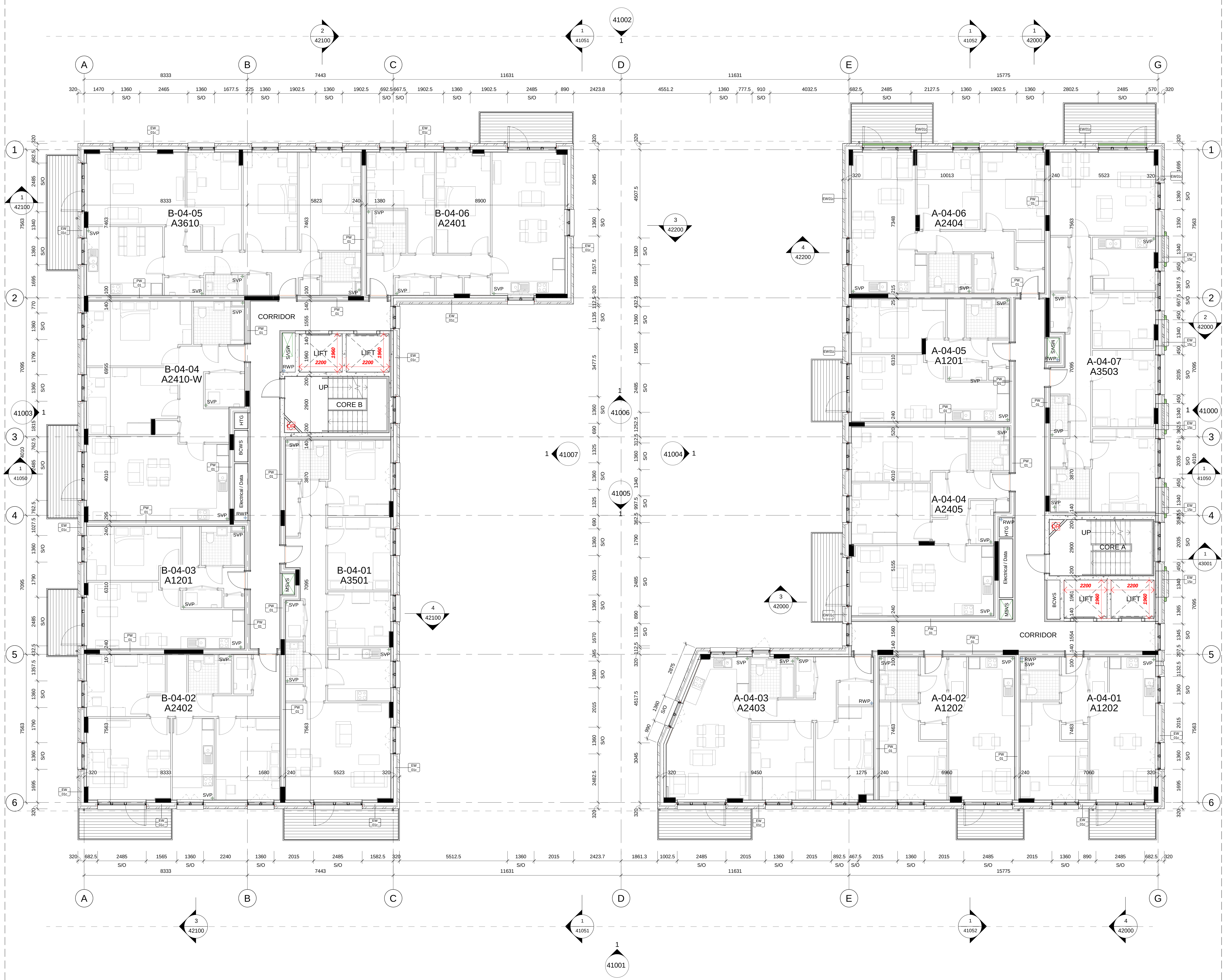
020 7653 1200
Higgins Retension



GRID REFERENCE — Block Ref / Grid Ref (A8)

SECTION REFERENCE — Section Ref (1 / 8888)

ELEVATION REFERENCE — Elev Ref (8888 / 1)

PLAN CALLOUT / DETAIL REFERENCE — Plan Ref (00 / 8888) last 4 digits of drawing no. Project/author/level/zone data as this drawing:

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* Denotes non-standard brick dimension.

SPOT LEVELS:

Plan
Elevation

Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF':

X/XXXX — Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK Block / Level / ID

28 / P
W10
A01 01 05

External Doors & Windows Note:

Acoustics	SBD
XX(dB Rw+Ctr)	**P**: PAS 24
XX(dB Rw+Ctr)	**L**: LPS
XX(dB Rw+Ctr)	1175-SR2

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

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Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
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SS	Stub stack
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AAV	Air admittance valve
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BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
	FFG - Future Floor Gully
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MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
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BRICK DATUM

+15
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Note on Brick Rulers:
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Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

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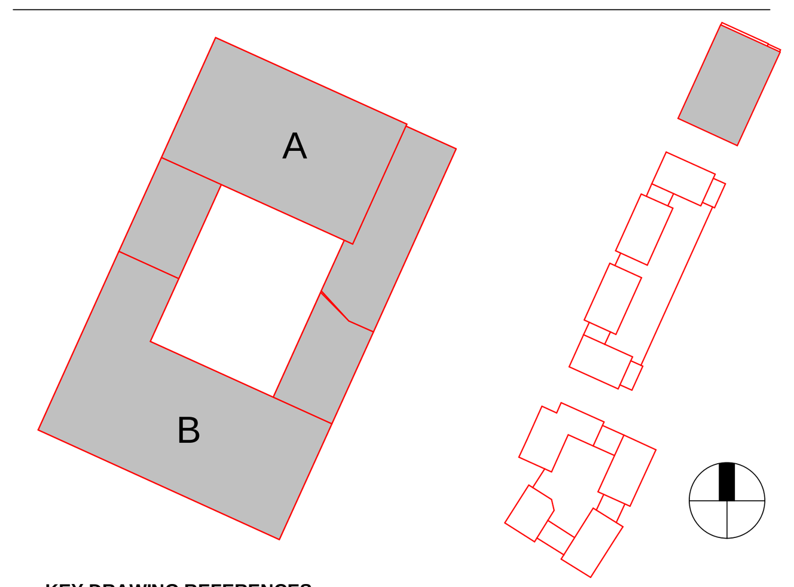

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FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m^2K
External Walls:	**0.15** W/m^2K
Party Walls:	**0.00** W/m^2K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m^2K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m^2K
Solid Door:	**1.2** W/m^2K
Window:	**1.2** W/m^2K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** $m^3/h.m^2$ at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre

PRP project No.HTC

GA Plan-Blocks A&B-L04

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-04-GA-A-40104

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

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prp-co.uk
London
020 7653 1200

GRID REFERENCE — Block Ref: A8; Grid Ref

SECTION REFERENCE — Section Ref: 1; 8888

ELEVATION REFERENCE — Elev Ref: 8888; 1

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SPOT LEVELS: Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

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KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD; WIN TYPE; WIN MARK Block / Level / ID — 28 / P; W10; A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

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XX(dB $R_{w}+C_{tr}$)	P: PAS 24
XX(dB $R_{w}+C_{tr}$)	L: LPS
XX(dB $R_{w}+C_{tr}$)	1175-SR2

Functions:
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s: Smoke Seal

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+15 / -15

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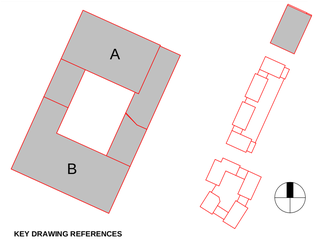

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Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre — PRP project No.HTC

GA Plan-Blocks A&B-L05

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-05-GA-A-40105

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
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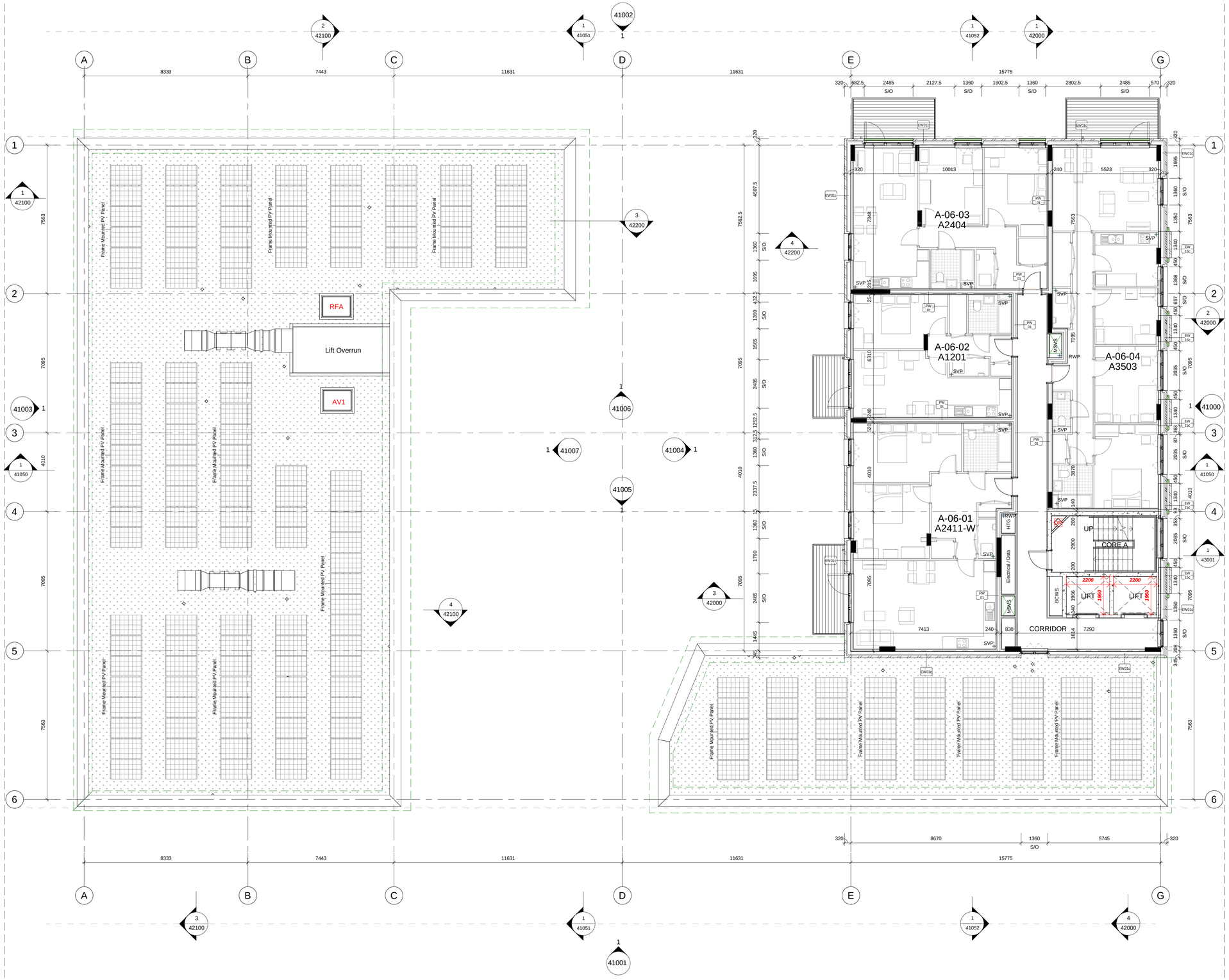
020 7653 1200
Higgins



GRID REFERENCE — Block Ref / Grid Ref (A8)

SECTION REFERENCE — Section Ref (1 / 8888)

ELEVATION REFERENCE — Elev Ref (8888 / 1)

PLAN CALLOUT / DETAIL REFERENCE — Plan Ref (00 / 8888); last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:

1430.3* Dimensions are to Structure (face of stud or concrete)

1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS: Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

ADJACENT DRAWING REF': X/XXXX — Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

Acoustics	SBD
XX(dB $R_{w}+C_{tr}$)	P: PAS 24
XX(dB $R_{w}+C_{tr}$)	L: LPS
XX(dB $R_{w}+C_{tr}$)	1175-SR2

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Julliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "M" denote Maisonette; "W" denotes Wheelchair adaptable

"A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type)

LEGEND

SVP	Soil vent pipe	FFG	FFG - Future Floor Gully
SS	Stub stack	FFO	FFO - Future Floor Gully - Connection Above Slab
VP	Vent pipe		
AAV	Air admittance valve	FG	FG - Floor Gully
OF	Roof overflow	PG	PG - Podium Gully
O/F	Rainwater overflow below balcony decking	MJ	Denotes location of movement joint.
RWP A	100 RWP - Square	DRi	Dry Riser inlet
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RWO	Rainwater outlet		Service opening over door.
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RWOp	Parapet rainwater outlet	EV TD	Threshold Drain (Refer to details for spec)
RWOph	Parapet rainwater outlet into hopper	IG	Internal Guarding
*	Denotes Non Brick Dimension	OG	Obscured Glazing
	Brick Special	AOV	Automatic opening vent to stair
BR/SR	Wall Integrated Bat/Swift Refuge	FRS	Fall Restraint System
		TOC	Top of Concrete
		TOS	Top of Steel
BC 0X X	Balcony Number	IG 0X	Internal Guarding
T 0X X	Terrace Number		

BRICK DATUM

+15 / -15

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel
from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
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SVP location - ongoing coordination with M&E

NOTE 2:
PVC panels - ongoing Coordination with MEP and roof system manufacturer

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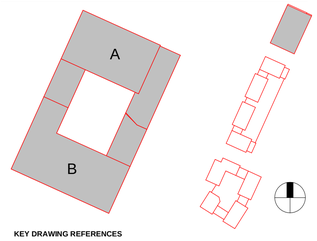

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Building Co-Ordinates	31000
GA Plans	40000
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GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

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Brick Type 'b' Dark red multi-stock with light coloured mortar.

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Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
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Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Plan-Blocks A&B-L06

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-06-GA-A-40106

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

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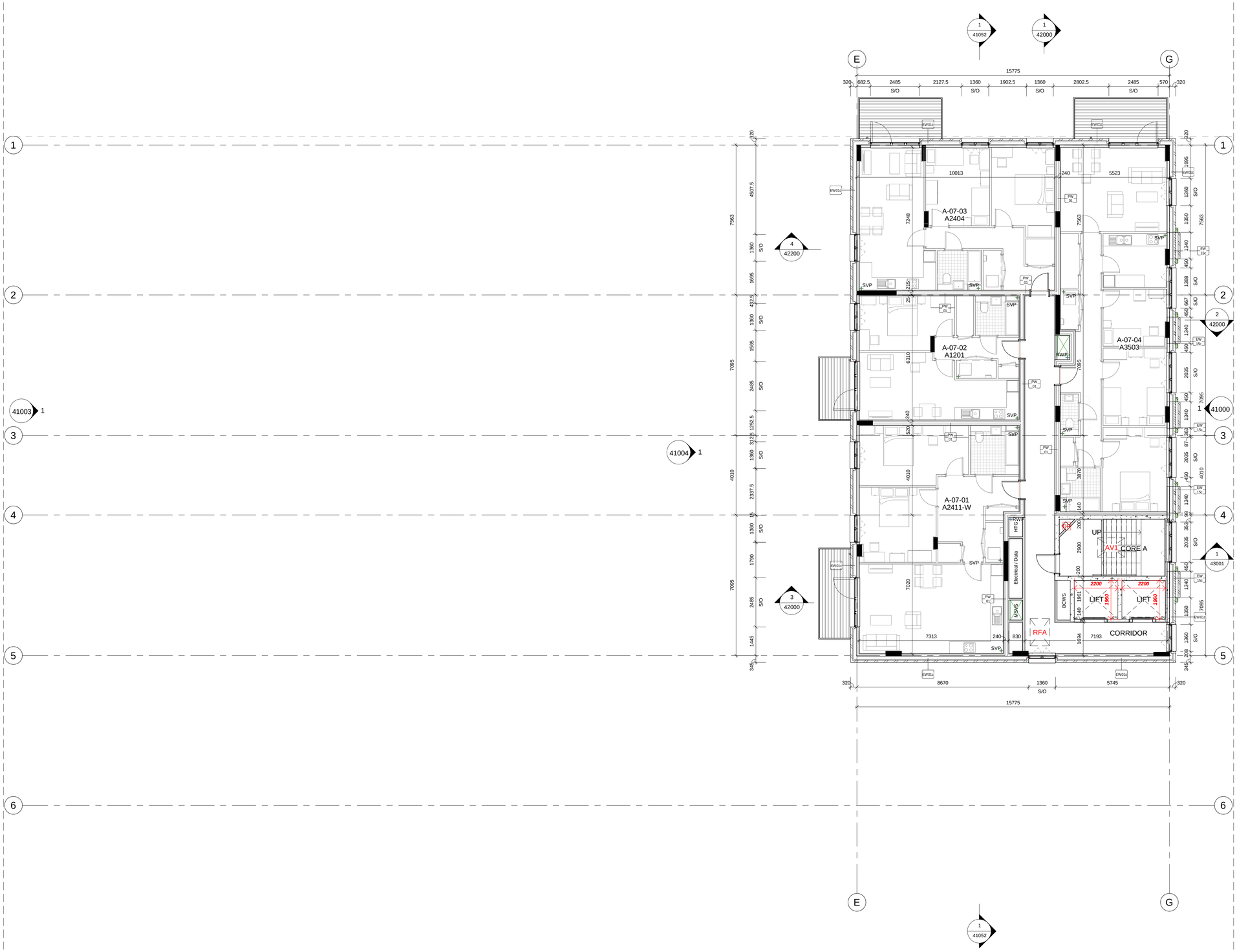

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ELEVATION REFERENCE Elev Ref: 8888 / 1

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BC 0X X	Balcony Number	TOC	Top of Concrete
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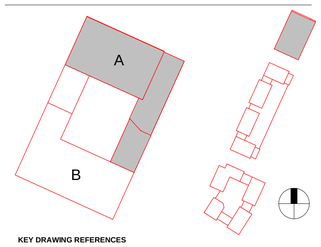

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All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Plan-Blocks A&B-L07

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-07-GA-A-40107

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP prp-co.uk London 020 7653 1200 Higgins

GRID REFERENCE — Block Ref: A8; Grid Ref: 8888

SECTION REFERENCE — Section Ref: 1; 8888

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Plan / Elevation

Spot Level Prefixes:
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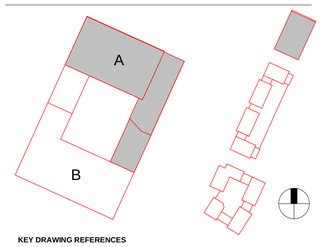

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All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre — PRP project No.HTC

GA Plan-Blocks A&B-Roof

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-RF-GA-A-40108

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

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London
020 7653 1200
Higgins

1 GA Elevation-Block A-North
1 : 100

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VP	Vent pipe		
AAV	Air admittance valve		FG - Floor Gully
OF	Roof overflow		PG - Podium Gully
O/F	Rainwater overflow below balcony decking	MJ	Denotes location of movement joint.
RWP A	100 RWP - Square	DRi	Dry Riser inlet
RWP B	150 RWP - Circular	DRo	Dry Riser outlet
RWO	Rainwater outlet		Service opening over door.
BRWO	Rainwater outlet below balcony decking	EV	Extract vent duct
RWOp	Parapet rainwater outlet	TD	Threshold Drain (Refer to details for spec)
RWOph	Parapet rainwater outlet into hopper	IG	Internal Guarding
*	Denotes Non Brick Dimension	OG	Obscured Glazing
	Brick Special	AOV	Automatic opening vent to stair
BR/SR	Wall integrated Bat/Swift Refuge	FRS	Fall Restraint System
		TOC	Top of Concrete
		TOS	Top of Steel
BC 0X X	Balcony Number	IG 0X	Internal Guarding
T 0X X	Terrace Number		

BRICK DATUM

+15 / -15
Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

Keynote Legend

Key Value	Keynote Text
PLH-1.01	Brick type 1: Light brick with light coloured mortar, stretcher bond
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.03	Brick type 3: Glazed green brick with dark mortar, stretcher bond
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-1.08	Brick detail: Recessed brick detail
PLH-1.10	Brick detail: Glazed green single bullnose brick with dark mortar, stacked bond
PLH-1.11	Brick detail: Glazed green single bullnose brick with dark mortar, single soldier course
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-2.02	Composite windows and doors: 215mm brick reveal, dark grey frame colour with matching pressed metal cill
PLH-2.04	Substation, plant, cycle and refuse store doors: Metal railings made up of vertical flats with solid metal panels behind in informal pattern. PPC finish in dark grey colour to match metalwork
PLH-3.02	Balcony Type 2: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light green with metal soffits to match
PLH-3.03	Balcony Type 3: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light taupe with metal soffits to match
PLH-3.10	PPC metal coping in light taupe colour

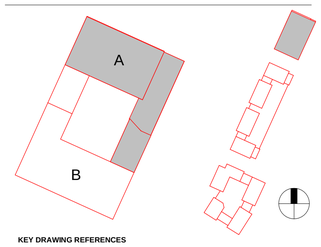
The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
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Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a' Red multi-stock with light coloured mortar.
Brick Type 'b' Dark red multi-stock with light coloured mortar.
Brick Type 'c' Light brick with light coloured mortar.
Brick Type 'd' Warm grey multi-stock with light coloured mortar.
Brick Type 'e' Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC
GA Elevation-Block A-North

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41000
S1-PRELIMINARY **Revision:P1**
Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP prp-co.uk London 020 7653 1200 Higgins PARTNERSHIPS

1 GA Elevation-Block A&B-East

1 : 100

GRID REFERENCE — Block Ref / Grid Ref (A8)

SECTION REFERENCE — Section Ref (1 / 8888)

ELEVATION REFERENCE — Elev Ref (8888 / 1)

PLAN CALLOUT / DETAIL REFERENCE — Plan Ref (00 / 8888); last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:

1430.3* Dimensions are to Structure (face of stud or concrete)

1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS:

Plan / Elevation

Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF':

X/XXXX Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating	/ SBD
WIN TYPE	
WIN MARK Block / Level / ID	

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

Acoustics	SBD
XX(dB R_{w+Ctr})	P: PAS 24
XX(dB R_{w+Ctr})	L: LPS
XX(dB R_{w+Ctr})	1175-SR2

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "A" denotes a apartment; Number of beds; Number of people; Last two digits denote uniqued layout (type); "M" denote Maisonette; "W" denotes Wheelchair adaptable

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
O/F	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
FFG	FFG - Future Floor Gully
FFO	FFO - Future Floor Gully - Connection Above Slab
FG	FG - Floor Gully
PG	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

+15 / -15

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES

GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

Keynote Legend

Key Value	Keynote Text
PLH-1.01	Brick type 1: Light brick with light coloured mortar, stretcher bond
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.03	Brick type 3: Glazed green brick with dark mortar, stretcher bond
PLH-1.05	Brick detail: Single soldier course
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-1.07	Brick detail: Triple basketweave bond
PLH-1.11	Brick detail: Glazed green single bullnose brick with dark mortar, single soldier course
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-2.02	Composite windows and doors: 215mm brick reveal, dark grey frame colour with matching pressed metal cill
PLH-2.05	Substation, plant, cycle and refuse store doors: Metal railings made up of vertical flats with solid metal panels behind in informal pattern. PP finish in light green colour to match metalwork
PLH-3.01	Balcony Type 1: Metal railing made up of vertical metal flats. PPC finish in light taupe colour with metal soffits to match
PLH-3.02	Balcony Type 2: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light green with metal soffits to match
PLH-3.06	Canopy: Light steel frame with PPC metal claddin in light green
PLH-3.10	PPC metal coping in light taupe colour
PLH-3.11	PPC metal rainwater goods in light taupe colour

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

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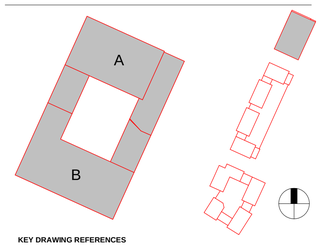
Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre

PRP project No.HTC

GA Elevation-Blocks A&B-East

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-ZZ-ELV-A-41001

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP prp-co.uk London 020 7653 1200 Higgins Partners

1 GA Elevation-Block A&B-West
1 : 100

GRID REFERENCE Block Ref / Grid Ref: A8
SECTION REFERENCE Section Ref: 1 / 8888
ELEVATION REFERENCE Elev Ref: 8888 / 1
PLAN CALLOUT / DETAIL REFERENCE Plan Ref: 00 / 8888 — last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:
1430.3* Dimensions are to Structure (face of Light guage steel Frame stud or concrete)
1430.3* Dimensions to finishes or face of brickwork.
* Denotes non-standard brick dimension.

SPOT LEVELS:
Plan / Elevation
Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF':
X/XXXX Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD	28 / P
WIN TYPE	W10
WIN MARK Block / Level / ID	A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

External Doors & Windows Note:

Acoustics	SBD
XX(dB R_{w+Ctr})	P: PAS 24
XX(dB R_{w+Ctr})	L: LPS
XX(dB R_{w+Ctr})	1175-SR2

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type
F00 — Floor type reference
R00 — Roof type reference
WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01
DWELLING TYPING: A1201-M
"A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type)
"M" denote Maisonette
"W" denotes Wheelchair adaptable

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
O/F	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
	FFG - Future Floor Gully
	FFO - Future Floor Gully - Connection Above Slab
	FG - Floor Gully
	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
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Keynote Legend

Key Value	Keynote Text
PLH-1.01	Brick type 1: Light brick with light coloured mortar, stretcher bond
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.03	Brick type 3: Glazed green brick with dark mortar, stretcher bond
PLH-1.04	Brick detail: Stretcher bond alternating between brick type 1 and 3
PLH-1.05	Brick detail: Single soldier course
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-1.07	Brick detail: Triple basketweave bond
PLH-1.08	Brick detail: Recessed brick detail
PLH-1.11	Brick detail: Glazed green single bullnose brick with dark mortar, single soldier course
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-2.02	Composite windows and doors: 215mm brick reveal, dark grey frame colour with matching pressed metal cill
PLH-2.03	Private entrance doors in light green colour to match metalwork
PLH-2.04	Substation, plant, cycle and refuse store doors: Metal railings made up of vertical flats with solid metal panels behind in informal pattern. PPC finish in dark grey colour to match metalwork
PLH-2.05	Substation, plant, cycle and refuse store doors: Metal railings made up of vertical flats with solid metal panels behind in informal pattern. PP finish in light green colour to match metalwork
PLH-3.01	Balcony Type 1: Metal railing made up of vertical metal flats. PPC finish in light taupe colour with metal soffits to match
PLH-3.03	Balcony Type 3: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light taupe with metal soffits to match
PLH-3.10	PPC metal coping in light taupe colour
PLH-3.11	PPC metal rainwater goods in light taupe colour

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

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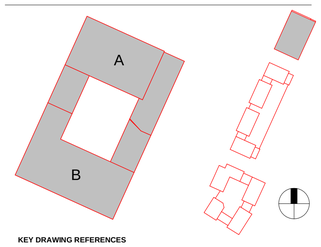

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Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
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Window & Door Schedule	70000
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Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Elevation-Block A&B-West

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41002

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
prp-co.uk
London
020 7653 1200
Higgins

1 GA Elevation-Block B-South
1 : 100

GRID REFERENCE Block Ref / Grid Ref: A8

SECTION REFERENCE Section Ref: 1 / 8888

ELEVATION REFERENCE Elev Ref: 8888 / 1

PLAN CALLOUT / DETAIL REFERENCE Plan Ref: 00 / 8888 — last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:

1430.3* Dimensions are to Structure (face of Light guage steel Frame stud or concrete)

1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS:

Plan / Elevation — Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF': X/XXXX — Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

External Doors & Windows Note:

Acoustics	SBD
XX(dB Rw+Ctr)	P: PAS 24
XX(dB Rw+Ctr)	L: LPS
XX(dB Rw+Ctr)	1175-SR2

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type) — "M" denote Maisonette, "W" denotes Wheelchair adaptable

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
O/F	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
	FFG - Future Floor Gully
	FFO - Future Floor Gully - Connection Above Slab
	FG - Floor Gully
	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

+15 / -15

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

Keynote Legend

Key Value	Keynote Text
PLH-1.05	Brick detail: Single soldier course
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-1.07	Brick detail: Triple basketweave bond
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-2.03	Private entrance doors in light green colour to match metalwork
PLH-3.06	Canopy: Light steel frame with PPC metal claddin in light green
PLH-3.10	PPC metal coping in light taupe colour
PLH-3.11	PPC metal rainwater goods in light taupe colour

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

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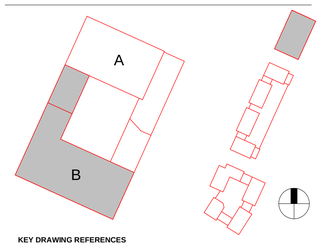
Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a' Red multi-stock with light coloured mortar.

Brick Type 'b' Dark red multi-stock with light coloured mortar.

Brick Type 'c' Light brick with light coloured mortar.

Brick Type 'd' Warm grey multi-stock with light coloured mortar.

Brick Type 'e' Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Elevation-Block B-South

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-ZZ-ELV-A-41003

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
prp-co.uk
London
020 7653 1200
Higgins

1 GA Elevation-Block A-Courtyard North
1 : 100

GRID REFERENCE Block Ref / Grid Ref: A8

SECTION REFERENCE Section Ref: 1 / 8888

ELEVATION REFERENCE Elev Ref: 8888 / 1

PLAN CALLOUT / DETAIL REFERENCE Plan Ref: 00 / 8888 — last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:

1430.3* Dimensions are to Structure (face of Light guage steel Frame stud or concrete)

1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS:

Plan / Elevation — Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF': X/XXXX — Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK
Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

External Doors & Windows Note:

Acoustics	SBD
XX(dB Rw+Ctr)	P: PAS 24
XX(dB Rw+Ctr)	L: LPS
XX(dB Rw+Ctr)	1175-SR2

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Julliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type) — "M" denote Maisonette, "W" denotes Wheelchair adaptable

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
OIF	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
FFG	FFG - Future Floor Gully
FFO	FFO - Future Floor Gully - Connection Above Slab
FG	FG - Floor Gully
PG	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
TOC	Top of Concrete
TOS	Top of Steel
IG 0X	Internal Guarding

BRICK DATUM

+15 / -15

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

Keynote Legend

Key Value	Keynote Text
PLH-1.01	Brick type 1: Light brick with light coloured mortar, stretcher bond
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-1.11	Brick detail: Glazed green single bullnose brick with dark mortar, single soldier course
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-2.02	Composite windows and doors: 215mm brick reveal, dark grey frame colour with matching pressed metal cill
PLH-3.01	Balcony Type 1: Metal railing made up of vertical metal flats. PPC finish in light taupe colour with metal soffits to match
PLH-3.02	Balcony Type 2: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light green with metal soffits to match
PLH-3.03	Balcony Type 3: Metal railing made up of vertical metal flats with solid metal panel behind. PPC finish in light taupe with metal soffits to match
PLH-3.10	PPC metal coping in light taupe colour
PLH-3.11	PPC metal rainwater goods in light taupe colour

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

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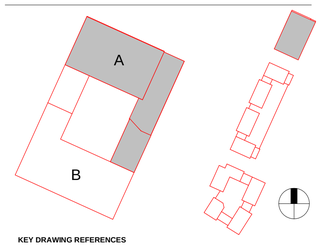
Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
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Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Elevation-Block A-Courtyard North

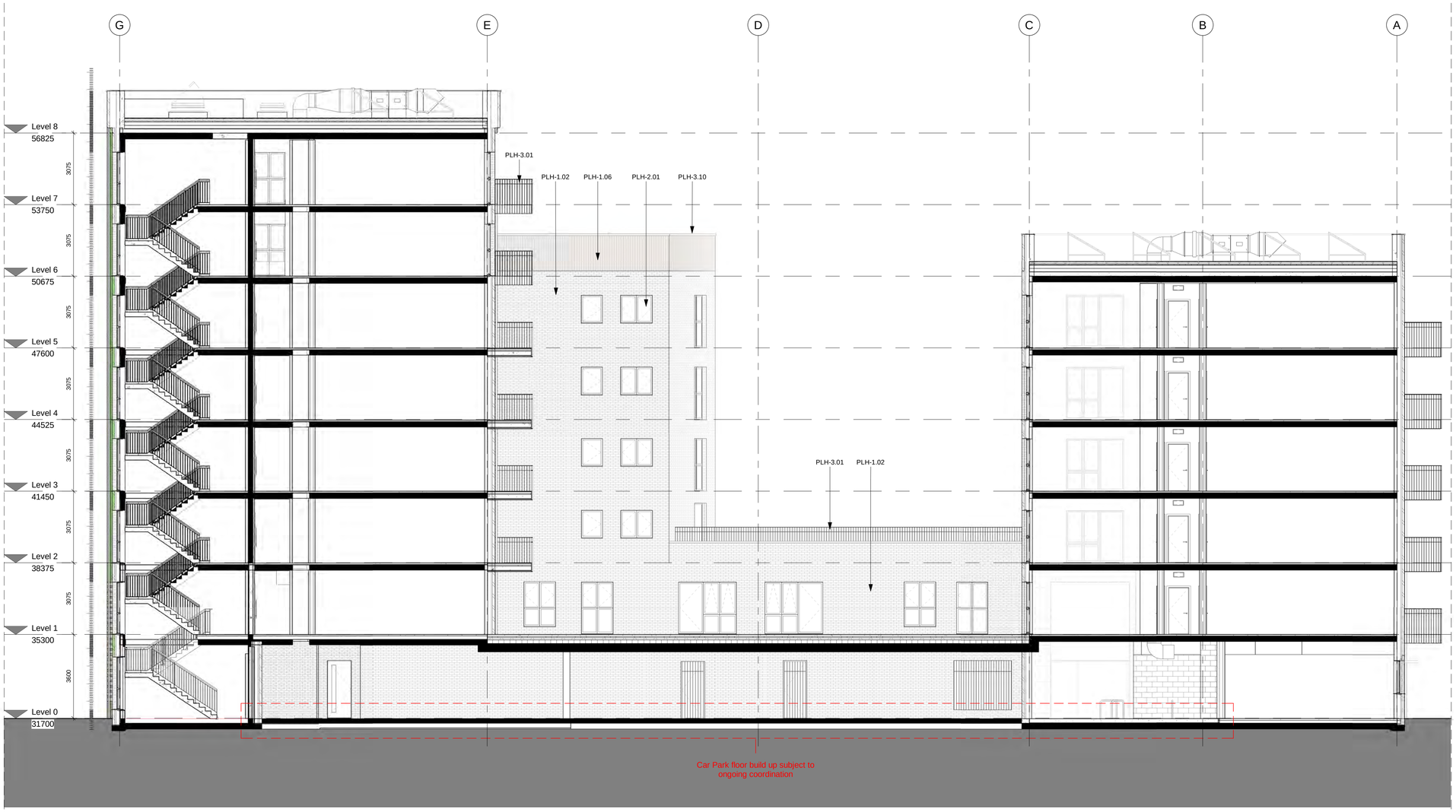
Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-ZZ-ELV-A-41004

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP prp-co.uk London 020 7653 1200 Higgins Partnership



1 GA Elevation-Blocks A&B-Courtyard East
1 : 100

GRID REFERENCE — Block Ref / Grid Ref (A8)
SECTION REFERENCE — Section Ref (1 / 8888)
ELEVATION REFERENCE — Elev Ref (8888 / 1)
PLAN CALLOUT / DETAIL REFERENCE — Plan Ref (00 / 8888); last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:
1430.3* Dimensions are to Structure (face of stud or concrete)
1430.3* Dimensions to finishes or face of brickwork.
* Denotes non-standard brick dimension.

SPOT LEVELS:
Plan / Elevation
Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF':
X/XXXX Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK
Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

Acoustics	SBD
XX(dB Rw+Ctr)	P: PAS 24
XX(dB Rw+Ctr)	L: LPS
XX(dB Rw+Ctr)	1175-SR2

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting	EW / 01a	Wall type prefixes : EW prefix indicates an external wall type
BA	Bathrooms	F00	Floor type reference
CE	Ceilings	R00	Roof type reference
CW	Curtain Walls	WR -	Water Riser
DE	Doors External	ER -	Electric Riser
*D	Doors Internal		
F	Floors		
LV	Louvres		
PC	Precast Elements		
J	Julliet Railings		
R	Roofs		
EW	Walls (External)		
IW	Walls (Internal)		
PW	Walls (Party)		
WN	Windows		
T	Terraces		

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01
DWELLING TYPING: A1201-M
"M" denote Maisonette
"W" denotes Wheelchair adaptable
"A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type)

LEGEND

SVP	Soil vent pipe		FFG - Future Floor Gully
SS	Stub stack		FFO - Future Floor Gully - Connection Above Slab
VP	Vent pipe		FG - Floor Gully
AAV	Air admittance valve		PG - Podium Gully
OF	Roof overflow	MJ	Denotes location of movement joint.
OIF	Rainwater overflow below balcony decking	DRi	Dry Riser inlet
RWP A	100 RWP - Square	DRo	Dry Riser outlet
RWP B	150 RWP - Circular		Service opening over door.
RWO	Rainwater outlet	EV	Extract vent duct
BRWO	Rainwater outlet below balcony decking	TD	Threshold Drain (Refer to details for spec)
RWOp	Parapet rainwater outlet	IG	Internal Guarding
RWOph	Parapet rainwater outlet into hopper	OG	Obscured Glazing
*	Denotes Non Brick Dimension	AOV	Automatic opening vent to stair
	Brick Special	FRS	Fall Restraint System
BR/SR	Wall integrated Bat/Swift Refuge	TOC	Top of Concrete
BC 0X X	Balcony Number	TOS	Top of Steel
T 0X X	Terrace Number	IG 0X	Internal Guarding

BRICK DATUM
+15 / -15
Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
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Keynote Legend

Key Value	Keynote Text
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-3.01	Balcony Type 1: Metal railing made up of vertical metal flats. PPC finish in light taupe colour with metal soffits to match
PLH-3.10	PPC metal coping in light taupe colour

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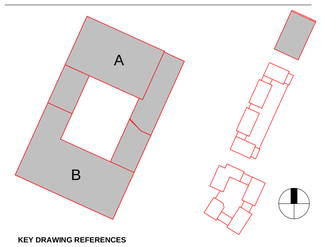

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Balconies	67000
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MATERIAL REFERENCES

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Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

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Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

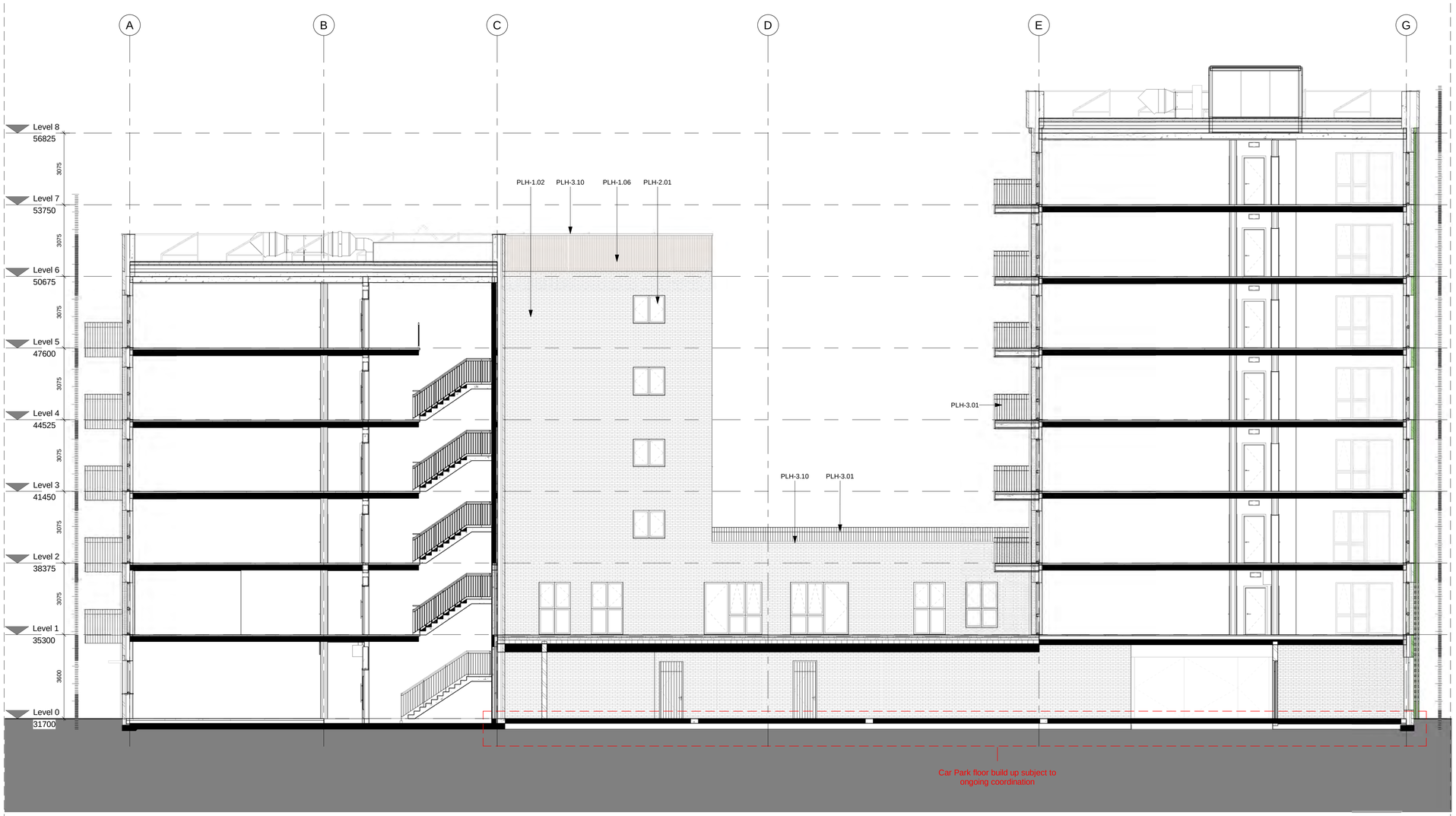
GA Elevation-Blocks A&B-Courtyard East

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41005

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
prp-co.uk
London
020 7653 1200
Higgins



1 GA Elevation-Block A&B-Courtyard West
1 : 100

GRID REFERENCE — Block Ref / Grid Ref (A8)
SECTION REFERENCE — Section Ref (1 / 8888)
ELEVATION REFERENCE — Elev Ref (8888 / 1)
PLAN CALLOUT / DETAIL REFERENCE — Plan Ref (00 / 8888); last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:
1430.3* Dimensions are to Structure (face of stud or concrete)
1430.3* Dimensions to finishes or face of brickwork.
* Denotes non-standard brick dimension.

SPOT LEVELS:
Plan / Elevation
Spot Level Prefixes:
SSL indicates structural slab level
FFL indicates top of screed

ADJACENT DRAWING REF':
X/XXXX Detail no. / last 4 digits of drawing no.
Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD	28 / P
WIN TYPE	W10
WIN MARK Block / Level / ID	A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

External Doors & Windows Note:

Acoustics	SBD
XX(dB $R_{tra+Ctr}$)	P: PAS 24
XX(dB $R_{tra+Ctr}$)	L: LPS
XX(dB $R_{tra+Ctr}$)	1175-SR2

TAGS: SYMBOLS & ABREVIATIONS:

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BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
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EW / 01a — Wall type prefixes : EW prefix indicates an external wall type
F00 — Floor type reference
R00 — Roof type reference
WR - Water Riser
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LEGEND

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RWP B	150 RWP - Circular		Service opening over door.
RWO	Rainwater outlet	EV	Extract vent duct
BRWO	Rainwater outlet below balcony decking	TD	Threshold Drain (Refer to details for spec)
RWOp	Parapet rainwater outlet	IG	Internal Guarding
RWOph	Parapet rainwater outlet into hopper	OG	Obscured Glazing
*	Denotes Non Brick Dimension	AOV	Automatic opening vent to stair
	Brick Special	FRS	Fall Restraint System
BR/SR	Wall integrated Bat/Swift Refuge	TOC	Top of Concrete
		TOS	Top of Steel
BC 0X X	Balcony Number	IG 0X	Internal Guarding
T 0X X	Terrace Number		

BRICK DATUM

Note on Brick Rulers:
+15 indicates Projecting Brick/Panel
-15 indicates Recessed Brick/Panel from Brick Datum

Note:
Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES
GA Plans, Elevations, Height Rods:
Elevations will be referenced from GA plans and **only** elevation drawings will include detail references, height rod section lines and callouts to bay studies.
Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

Keynote Legend

Key Value	Keynote Text
PLH-1.02	Brick type 2: Warm grey multi-stock with light colour mortar, stretcher bond
PLH-1.06	Brick detail: Vertical stretcher bond
PLH-2.01	Composite windows and doors: 215mm brick reveal, light green frame colour with matching
PLH-3.01	Balcony Type 1: Metal railing made up of vertical metal flats. PPC finish in light taupe colour with metal soffits to match
PLH-3.10	PPC metal coping in light taupe colour

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Do not scale drawing. Figured dimensions to be worked to in all cases.

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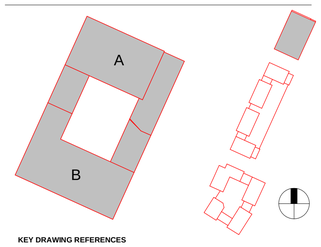
CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Paletes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cycle Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a'	Red multi-stock with light coloured mortar.
Brick Type 'b'	Dark red multi-stock with light coloured mortar.
Brick Type 'c'	Light brick with light coloured mortar.
Brick Type 'd'	Warm grey multi-stock with light coloured mortar.
Brick Type 'e'	Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Elevation-Block A&B-Courtyard West

Project - Originator - Zone - Level - Doc - Discipline - Number
HTC-PRP-P1ZZ-ZZ-ELV-A-41006

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

PRP
prp-co.uk
London
020 7653 1200
Higgins

1 GA Elevation-Block B-Courtyard South
1 : 100

GRID REFERENCE Block Ref / Grid Ref: A8

SECTION REFERENCE Section Ref: 1 / 8888

ELEVATION REFERENCE Elev Ref: 8888 / 1

PLAN CALLOUT / DETAIL REFERENCE Plan Ref: 00 / 8888 — last 4 digits of drawing no. Project/author/level/zone data as this drawing:

DIMENSIONS:

1430.3* Dimensions are to Structure (face of Light guage steel Frame stud or concrete)

1430.3* Dimensions to finishes or face of brickwork.

* Denotes non-standard brick dimension.

SPOT LEVELS: Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

ADJACENT DRAWING REF': X/XXXX — Detail no. / last 4 digits of drawing no. Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

Acoustic rating / SBD
WIN TYPE
WIN MARK Block / Level / ID

28 / P
W10
A01 01 05

TYPE / FIRE RATING / FUNCTION
ID10
FD30S/ VP

Internal Doors Note:
Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

External Doors & Windows Note:

Acoustics	SBD
XX(dB Rw+Ctr)	P: PAS 24
XX(dB Rw+Ctr)	L: LPS
XX(dB Rw+Ctr)	1175-SR2

Functions:
vp: Vision Panels
sc: Self Closing
ls: Locked Shut
s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting
BA	Bathrooms
CE	Ceilings
CW	Curtain Walls
DE	Doors External
*D	Doors Internal
F	Floors
LV	Louvres
PC	Precast Elements
J	Juliet Railings
R	Roofs
EW	Walls (External)
IW	Walls (Internal)
PW	Walls (Party)
WN	Windows
T	Terraces

EW / 01a — Wall type prefixes : EW prefix indicates an external wall type

F00 — Floor type reference

R00 — Roof type reference

WR - Water Riser
ER - Electric Riser

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — A-00-01

DWELLING TYPING: A1201-M — "A" denotes a apartment / Number of beds / Number of people / Last two digits denote uniqued layout (type) — "M" denote Maisonette, "W" denotes Wheelchair adaptable

LEGEND

SVP	Soil vent pipe
SS	Stub stack
VP	Vent pipe
AAV	Air admittance valve
OF	Roof overflow
OIF	Rainwater overflow below balcony decking
RWP A	100 RWP - Square
RWP B	150 RWP - Circular
RWO	Rainwater outlet
BRWO	Rainwater outlet below balcony decking
RWOp	Parapet rainwater outlet
RWOph	Parapet rainwater outlet into hopper
*	Denotes Non Brick Dimension
	Brick Special
BR/SR	Wall integrated Bat/Swift Refuge
BC 0X X	Balcony Number
T 0X X	Terrace Number
	FFG - Future Floor Gully
	FFO - Future Floor Gully - Connection Above Slab
	FG - Floor Gully
	PG - Podium Gully
MJ	Denotes location of movement joint.
DRi	Dry Riser inlet
DRo	Dry Riser outlet
	Service opening over door.
EV	Extract vent duct
TD	Threshold Drain (Refer to details for spec)
IG	Internal Guarding
OG	Obscured Glazing
AOV	Automatic opening vent to stair
FRS	Fall Restraint System
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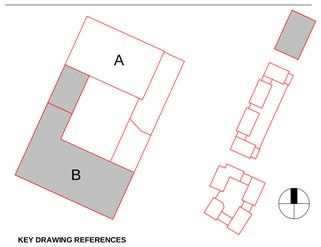

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Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Elevation-Block B-Courtyard South

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-ZZ-ELV-A-41007

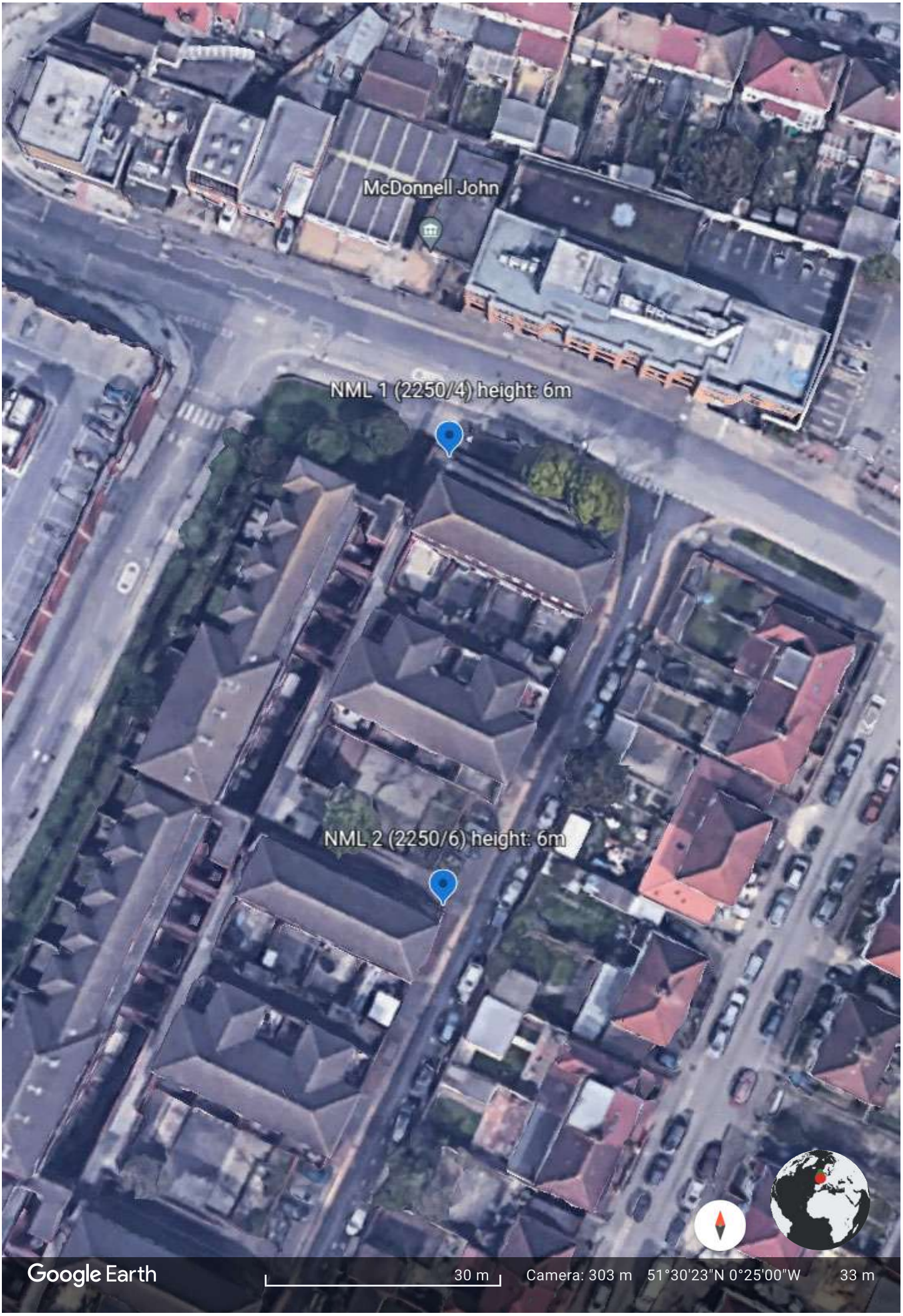
S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

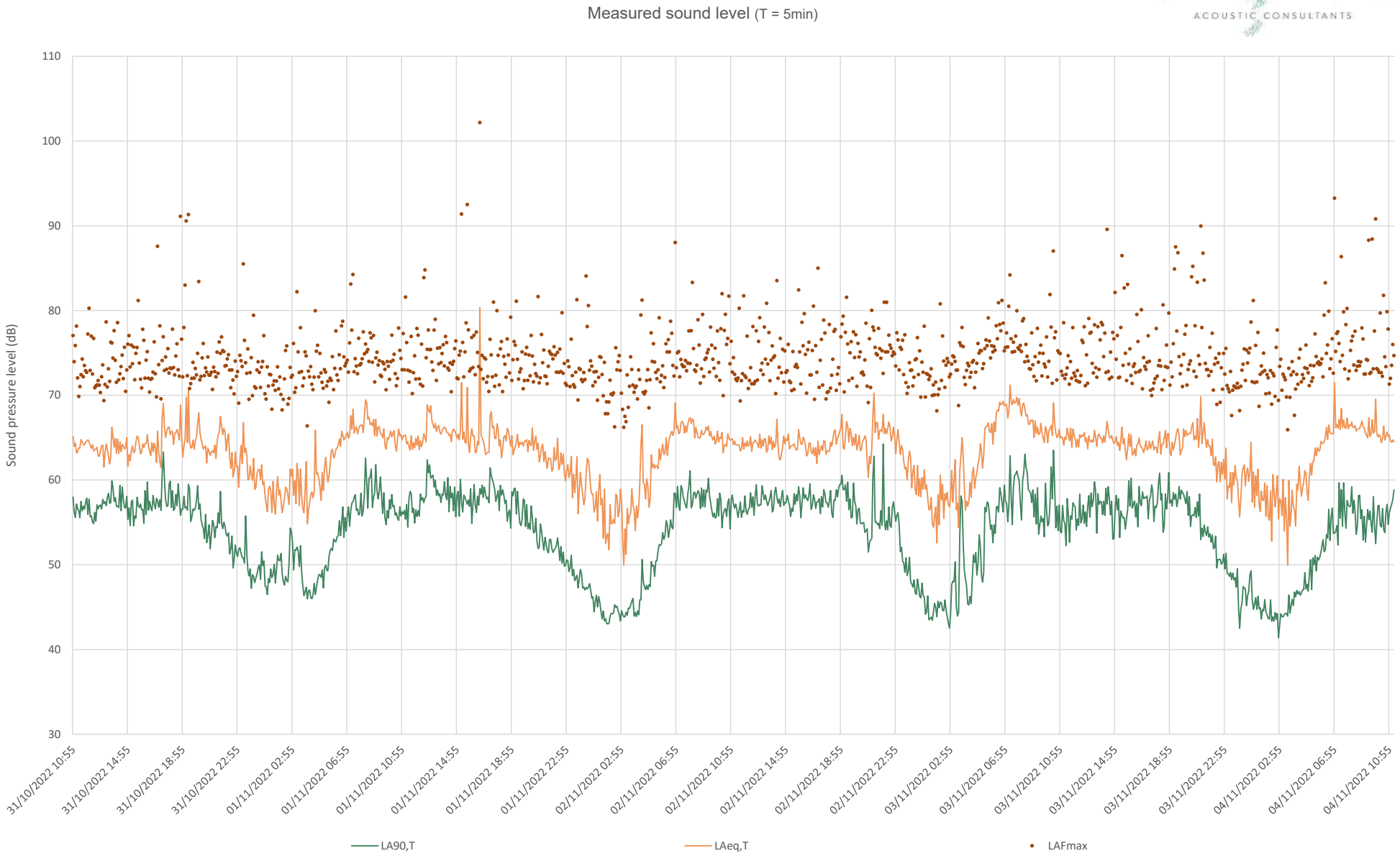
PRP prp-co.uk London 020 7653 1200 Higgins PARTNERSHIP

APPENDIX B

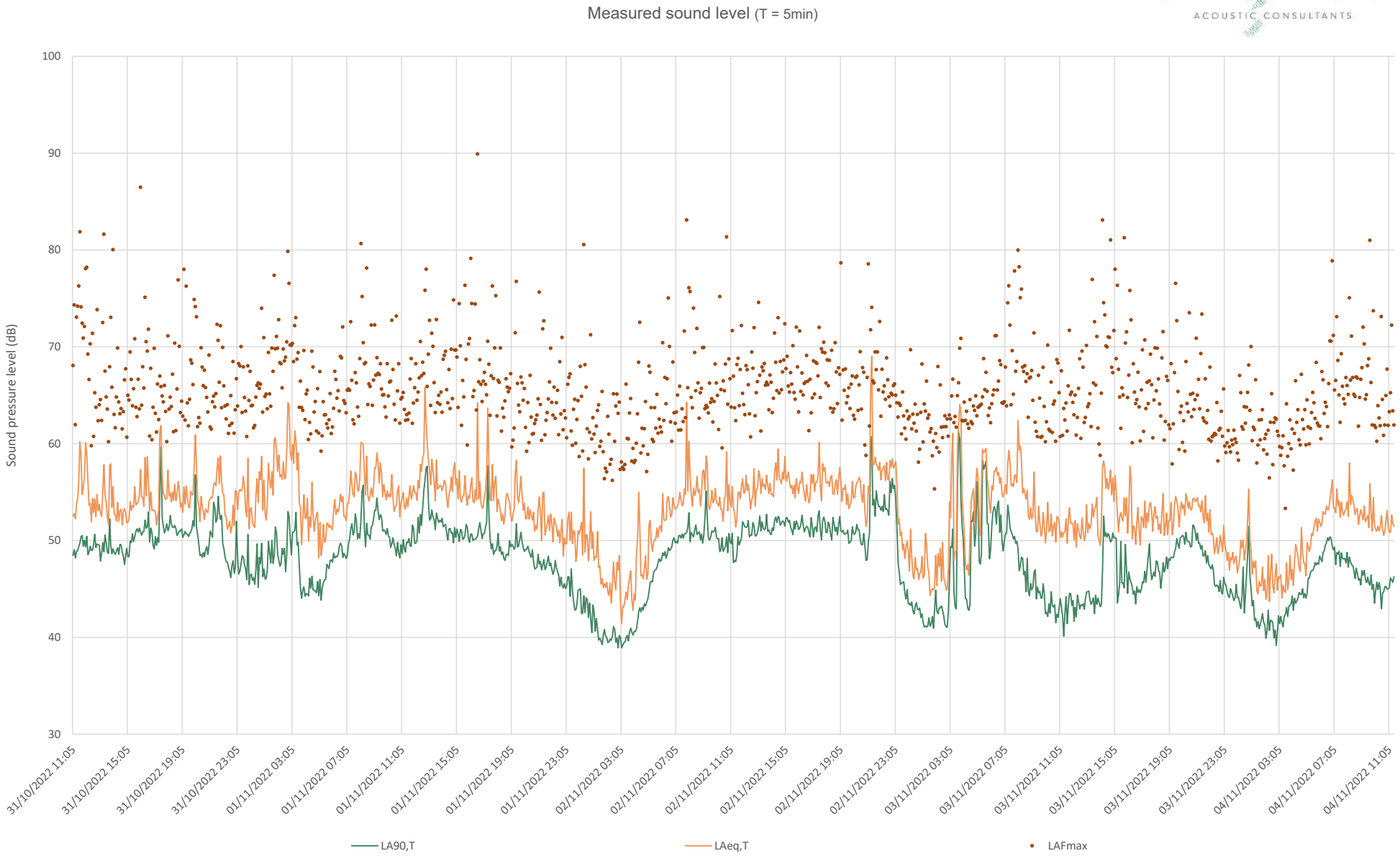
Noise monitoring locations and results


McDonnell John
NML 1 (2250/4) height: 6m
NML 2 (2250/6) height: 6m
Google Earth
30 m
Camera: 303 m 51°30'23"N 0°25'00"W 33 m

NML 1: Overlooking Pump Lane



NML 2: Overlooking Austin Road

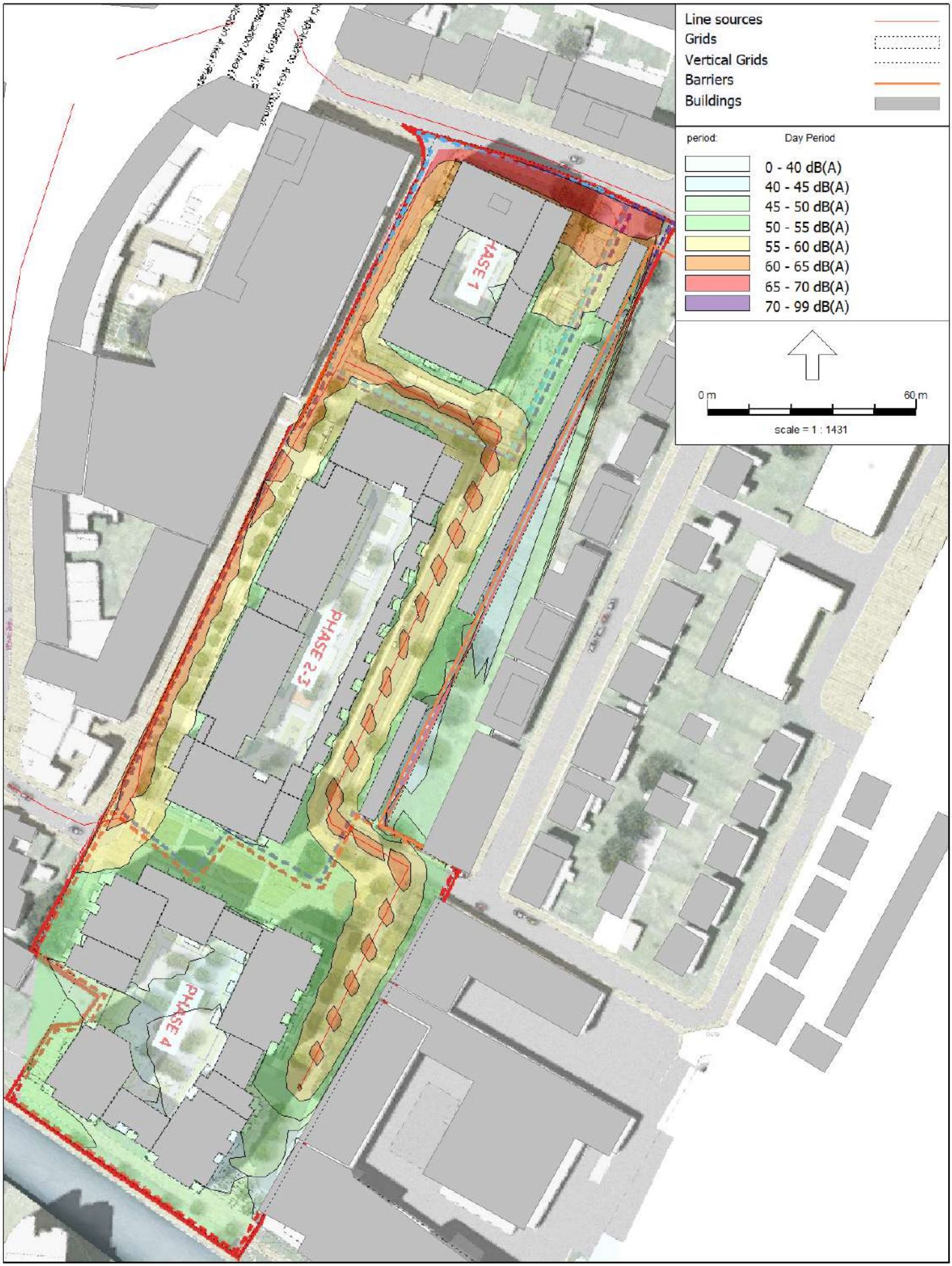


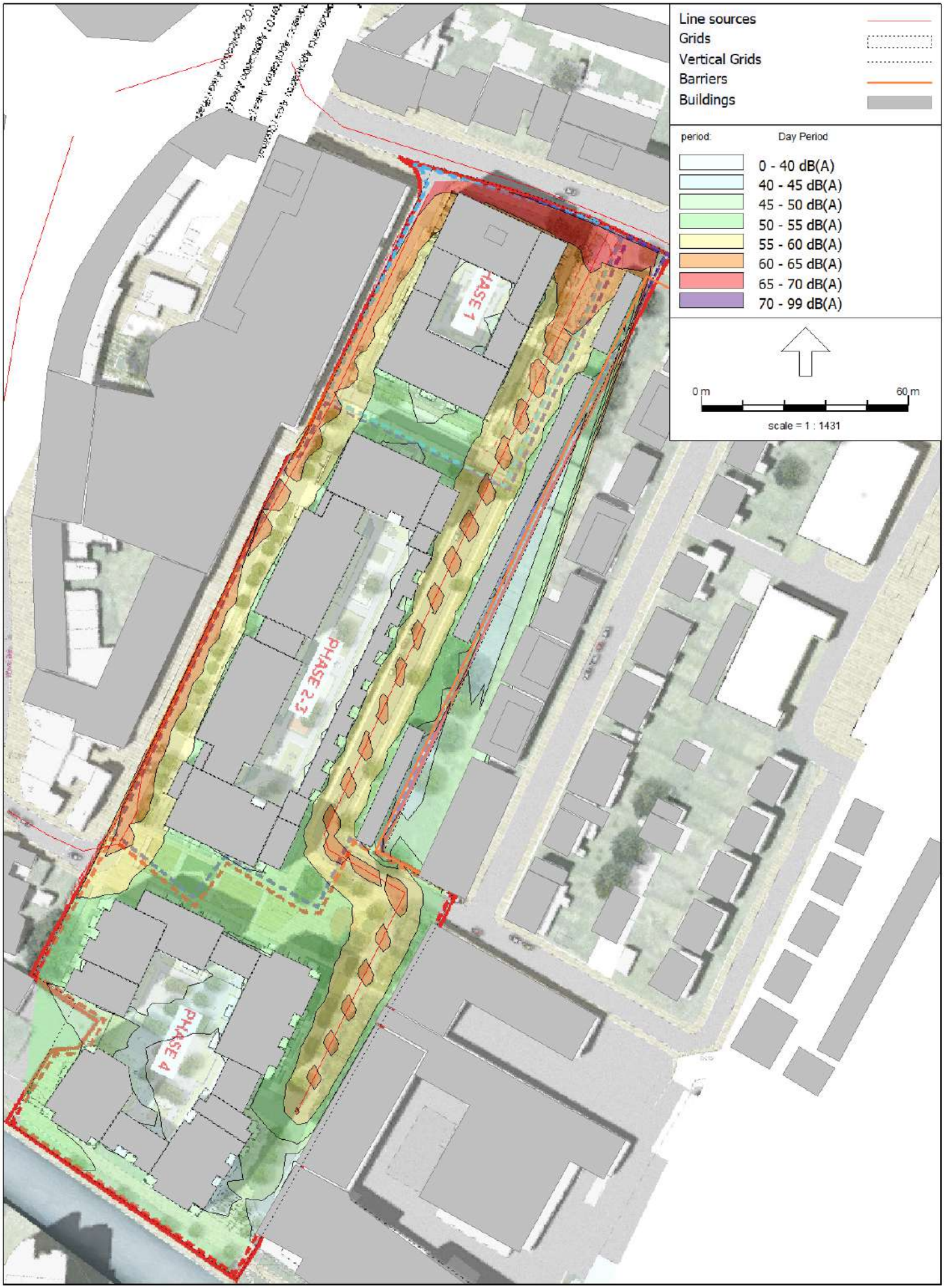
APPENDIX C

Noise model results

Temporary scenario with Austin Road accessed from Crown Close

20 Dec 2022, 16:45




Line sources
Grids
Vertical Grids
Barriers
Buildings
period:
Day Period
0 - 40 dB(A)
40 - 45 dB(A)
45 - 50 dB(A)
50 - 55 dB(A)
55 - 60 dB(A)
60 - 65 dB(A)
65 - 70 dB(A)
70 - 99 dB(A)
0 m
60 m
scale = 1 : 1431
PHASE 1
PHASE 2-3
PHASE 4


Line sources
Grids
Vertical Grids
Barriers
Buildings
period:
Night Period
0 - 40 dB(A)
40 - 45 dB(A)
45 - 50 dB(A)
50 - 55 dB(A)
55 - 60 dB(A)
60 - 65 dB(A)
65 - 70 dB(A)
70 - 99 dB(A)
0 m
60 m
scale = 1 : 1431
PHASE 1
PHASE 2-3
PHASE 4

Report: Table of Results
Model: Night Lmax
LAeq per octave: by Source for receiver Ph1_A - [1/20]
Group: (main group)
Group Reduction: No

Name Source	Description	Height	Night Total	63	125	250	500	1000	2000	4000	8000
Ph1_A	[1/20]	1.50	84.8	60.9	65.1	67.6	74.3	81.9	79.7	71.5	67.6
Road	Pump Lane - Lmax event	0.50	79.9	55.9	60.2	62.6	69.3	76.9	74.8	66.6	63.3
Road	Pump Lane - Lmax event	0.50	78.1	54.1	58.4	60.8	67.6	75.1	73.0	64.8	61.3
Road	Pump Lane - Lmax event	0.50	75.8	51.9	56.1	58.5	65.3	72.8	70.7	62.4	58.7
Road	Pump Lane - Lmax event	0.50	73.6	49.8	54.0	56.3	63.1	70.7	68.5	60.2	56.4
Road	Pump Lane - Lmax event	0.50	72.6	48.8	53.0	55.4	62.1	69.7	67.5	59.1	54.9
Road	Pump Lane - Lmax event	0.50	71.5	46.8	51.0	54.3	61.1	68.6	66.4	58.0	53.5
Road	Pump Lane - Lmax event	0.50	69.6	45.9	50.1	52.5	59.2	66.7	64.5	55.9	51.0
Road	Pump Lane - Lmax event	0.50	69.2	45.5	49.7	52.0	58.8	66.3	64.1	55.5	50.5
Road	Pump Lane - Lmax event	0.50	67.8	44.1	48.3	50.6	57.4	64.9	62.6	53.9	48.5
Road	Pump Lane - Lmax event	0.50	67.1	41.4	47.6	50.0	56.7	64.2	61.9	53.2	47.5
Road	Pump Lane - Lmax event	0.50	66.3	42.7	46.8	49.2	55.9	63.4	61.1	52.3	46.4
Road	Pump Lane - Lmax event	0.50	65.0	39.3	43.5	45.8	52.5	62.4	60.0	51.1	44.8
Road	Pump Lane - Lmax event	0.50	64.9	41.4	45.6	47.9	54.6	62.1	59.7	50.8	44.4
Road	Pump Lane - Lmax event	0.50	64.0	40.5	44.7	47.0	53.7	61.1	58.7	49.7	42.7
Road	Pump Lane - Lmax event	0.50	63.1	39.7	43.9	46.2	52.9	60.3	57.9	48.7	41.2
Road	Pump Lane - Lmax event	0.50	62.3	38.9	43.1	45.4	52.1	59.6	57.1	47.7	39.6
Road	Pump Lane - Lmax event	0.50	61.3	35.8	42.2	44.5	51.2	58.6	56.0	46.5	37.6
Road	Pump Lane - Lmax event	0.50	60.1	34.8	39.0	41.3	47.9	57.7	55.1	45.3	35.7
Road	Crown Close - Lmax event	0.50	54.5	28.5	37.2	45.3	45.6	49.7	49.0	45.6	29.1
Road	Auston Road - Lmax event	0.50	54.1	23.5	32.6	41.8	43.3	48.8	49.4	47.0	30.5
Road	Crown Close - Lmax event	0.50	51.1	25.0	33.2	41.0	41.4	45.9	45.9	43.1	26.3
Road	Crown Close - Lmax event	0.50	48.6	17.5	27.3	36.4	37.9	43.4	44.0	41.3	24.2
Road	Auston Road - Lmax event	0.50	48.5	18.0	27.2	36.3	37.8	43.3	43.9	41.2	24.0
Road	Crown Close - Lmax event	0.50	47.9	16.7	26.7	35.8	37.3	42.8	43.3	40.6	23.1
Road	Crown Close - Lmax event	0.50	47.3	15.9	26.1	35.3	36.8	42.2	42.7	39.9	22.1
Road	Crown Close - Lmax event	0.50	46.7	15.4	25.6	34.8	36.2	41.7	42.2	39.2	21.0
Road	Crown Close - Lmax event	0.50	46.4	17.0	26.3	35.0	36.1	41.4	41.8	38.7	20.2
Road	Auston Road - Lmax event	0.50	46.2	13.9	23.7	33.9	35.8	41.2	41.7	38.7	20.1
Road	Crown Close - Lmax event	0.50	45.7	--	24.7	33.8	35.3	40.7	41.1	38.1	19.1
Road	Crown Close - Lmax event	0.50	45.2	--	24.3	33.4	34.8	40.3	40.6	37.5	18.1
Road	Crown Close - Lmax event	0.50	44.8	--	23.9	33.0	34.4	39.8	40.2	36.9	17.2
Road	Crown Close - Lmax event	0.50	44.3	--	23.4	32.5	34.0	39.4	39.7	36.3	16.2
Road	Crown Close - Lmax event	0.50	43.9	--	23.1	32.2	33.6	39.0	39.3	35.8	15.4
Road	Crown Close - Lmax event	0.50	43.4	--	22.6	31.7	33.2	38.5	38.8	35.2	14.4
Road	Crown Close - Lmax event	0.50	43.1	7.3	22.9	31.7	33.0	38.3	38.5	34.8	13.6
Road	Crown Close - Lmax event	0.50	42.7	6.9	22.5	31.4	32.6	37.9	38.1	34.3	12.8
Road	Crown Close - Lmax event	0.50	42.3	6.4	22.1	31.0	32.2	37.5	37.6	33.7	11.8
Road	Crown Close - Lmax event	0.50	42.0	6.1	21.8	30.7	32.0	37.2	37.3	33.4	11.1
Road	Crown Close - Lmax event	0.50	41.6	5.5	21.5	30.4	31.6	36.8	36.9	32.9	10.2
Road	Crown Close - Lmax event	0.50	41.2	5.1	21.1	30.0	31.3	36.5	36.6	32.4	9.4
Road	Crown Close - Lmax event	0.50	40.9	4.8	20.9	29.8	31.0	36.2	36.2	32.0	8.6
Road	Crown Close - Lmax event	0.50	40.6	4.5	20.6	29.5	30.7	35.9	36.0	31.6	7.9
Road	Crown Close - Lmax event	0.50	40.2	4.1	20.3	29.2	30.4	35.6	35.6	31.1	7.0
Road	Crown Close - Lmax event	0.50	39.9	--	19.5	28.7	30.0	35.2	35.3	30.7	6.3

All shown dB values are A-weighted

APPENDIX D

Noise ingress calculations

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-01-04
Room:	LKD

Daytime ($L_{Aeq,16hr}$)	Unit	Value	Description	Term	Octave band centre frequency 63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Northeast façade	$L_{eq,1}$	69	64	62	60	63	60	53	47	$L_{Aeq,1}$	66 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
External noise level			Northwest façade	$L_{eq,1}$	67	62	60	57	59	56	50	43	$L_{Aeq,1}$	63 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Northeast façade	$L_{eq,ff}$	69	64	62	60	63	60	53	47	$L_{Aeq,ff}$	66 dB
Incident noise level			Northwest façade	$L_{eq,ff}$	67	62	60	57	59	56	50	43	$L_{Aeq,ff}$	63 dB
ROOM DATA														
Room description and reverberation time	Volume	54	Living Room	RT_{60}	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3		s
FAÇADE ELEMENTS (Northeast façade)														
Glazing	Area	3	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB
Wall	Area	9.96	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
FAÇADE ELEMENTS (Northwest façade)														
Glazing	Area	5.6	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB
Wall	Area	7.36	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Contribution from Northeast façade				**$L_{eq,2}$**	**43**	**36**	**33**	**24**	**20**	**17**	**4**	**-**	**$L_{Aeq,2}$**	**29 dB**
Contribution from Northwest façade				**$L_{eq,2}$**	**43**	**37**	**34**	**23**	**20**	**16**	**3**	**-**	**$L_{Aeq,2}$**	**29 dB**
Total calculated indoor noise level				**$L_{eq,2}$**	**46**	**40**	**36**	**27**	**23**	**20**	**6**	**-**	**$L_{Aeq,2}$**	**32 dB**

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-01-04
Room:	Bedroom

Daytime ($L_{Aeq,16hr}$)	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL					Octave band centre frequency									
External noise level			Façade 1	$L_{eq,1}$	69	64	62	60	63	60	53	47	$L_{Aeq,1}$	66 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{eq,ff}$	69	64	62	60	63	60	53	47	$L_{Aeq,ff}$	66 dB
ROOM DATA														
Room description and reverberation time	Volume	29	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	4.5	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB
Wall	Area	4.86	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{eq,2}$	45	40	37	27	23	20	7	-	$L_{Aeq,2}$	32 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-01-04
Room:	Bedroom

Night time ($L_{Aeq,8hr}$)	Unit	Value	Description	Term	Octave band centre frequency 63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1	$L_{eq,1}$	63	59	58	57	59	55	47	40	$L_{Aeq,1}$	62 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{eq,ff}$	63	59	58	57	59	55	47	40	$L_{Aeq,ff}$	62 dB
ROOM DATA														
Room description and reverberation time	Volume	29	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	4.5	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB
Wall	Area	4.86	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{eq,2}$	39	35	33	24	20	16	1	-	$L_{Aeq,2}$	28 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-01-04
Room:	Bedroom

Night time (L_{AMax})	Unit	Value	Description	Term	Octave band centre frequency 63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1	$L_{Max,1}$	82	76	71	73	77	74	66	64	$L_{AMax,1}$	80 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{Max,ff}$	82	76	71	73	77	74	66	64	$L_{AMax,ff}$	80 dB
ROOM DATA														
Room description and reverberation time	Volume	29	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	4.5	Generic 10/6-16/6	Rw	23	24	24	32	37	37	44	47	Rw / Rw+Ctr	35 / 32 dB
Wall	Area	4.86	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{Max,2}$	58	52	46	40	38	34	19	13	$L_{AMax,2}$	44 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-02-06
Room:	LKD

Daytime ($L_{Aeq,16hr}$)	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term	
					Octave band centre frequency									
EXTERNAL NOISE LEVEL														
External noise level			Northwest façade	$L_{eq,1}$	64	60	58	54	56	52	47	39	$L_{Aeq,1}$	**59 dB**
Façade correction factor				C	0	0	0	0	0	0	0	0		
External noise level			Southwest façade	$L_{eq,1}$	57	54	51	45	46	43	38	28	$L_{Aeq,1}$	**50 dB**
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Northwest façade	$L_{eq,ff}$	64	60	58	54	56	52	47	39	$L_{Aeq,ff}$	**59 dB**
Incident noise level			Southwest façade	$L_{eq,ff}$	57	54	51	45	46	43	38	28	$L_{Aeq,ff}$	**50 dB**
ROOM DATA														
Room description and reverberation time	Volume	57	Living Room	RT_{60}	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3		**s**
FAÇADE ELEMENTS (Northwest façade)														
Glazing	Area	5.7	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	**Rw / Rw+Ctr**	**29 / 25 dB**
Wall	Area	2.22	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	**Rw / Rw+Ctr**	**50 / 47 dB**
None			--											
None			--											
FAÇADE ELEMENTS (Southwest façade)														
Glazing	Area	2.7	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	**Rw / Rw+Ctr**	**29 / 25 dB**
Wall	Area	14.58	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	**Rw / Rw+Ctr**	**50 / 47 dB**
None			--											
None			--											
RESULTS														
Contribution from Northwest façade				**$L_{eq,2}$**	**43**	**37**	**39**	**27**	**17**	**12**	**12**	**-**	**$L_{Aeq,2}$**	**32 dB**
Contribution from Southwest façade				**$L_{eq,2}$**	**33**	**28**	**29**	**15**	**5**	**-**	**1**	**-**	**$L_{Aeq,2}$**	**22 dB**
Total calculated indoor noise level				**$L_{eq,2}$**	**43**	**38**	**39**	**27**	**18**	**13**	**13**	**-**	**$L_{Aeq,2}$**	**32 dB**

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-02-06
Room:	Bedroom

Daytime ($L_{Aeq,16hr}$)	Unit	Value	Description	Term	Octave band centre frequency 63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1	$L_{eq,1}$	65	61	59	56	58	55	49	41	$L_{Aeq,1}$	62 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{eq,ff}$	65	61	59	56	58	55	49	41	$L_{Aeq,ff}$	62 dB
ROOM DATA														
Room description and reverberation time	Volume	31	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	3.1	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall	Area	4.58	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{eq,2}$	42	38	39	28	19	14	13	-	$L_{Aeq,2}$	32 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-02-06
Room:	Bedroom

Night time ($L_{Aeq,8hr}$)					Octave band centre frequency									
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1	$L_{eq,1}$	58	55	54	52	54	51	42	36	$L_{Aeq,1}$	**57 dB**
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{eq,ff}$	58	55	54	52	54	51	42	36	$L_{Aeq,ff}$	**57 dB**
ROOM DATA														
Room description and reverberation time	Volume	31	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		**s**
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	3.1	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	**Rw / Rw+Ctr**	**29 / 25 dB**
Wall	Area	4.58	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	**Rw / Rw+Ctr**	**50 / 47 dB**
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{eq,2}$	35	32	33	24	15	9	7	-	$L_{Aeq,2}$	27 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)

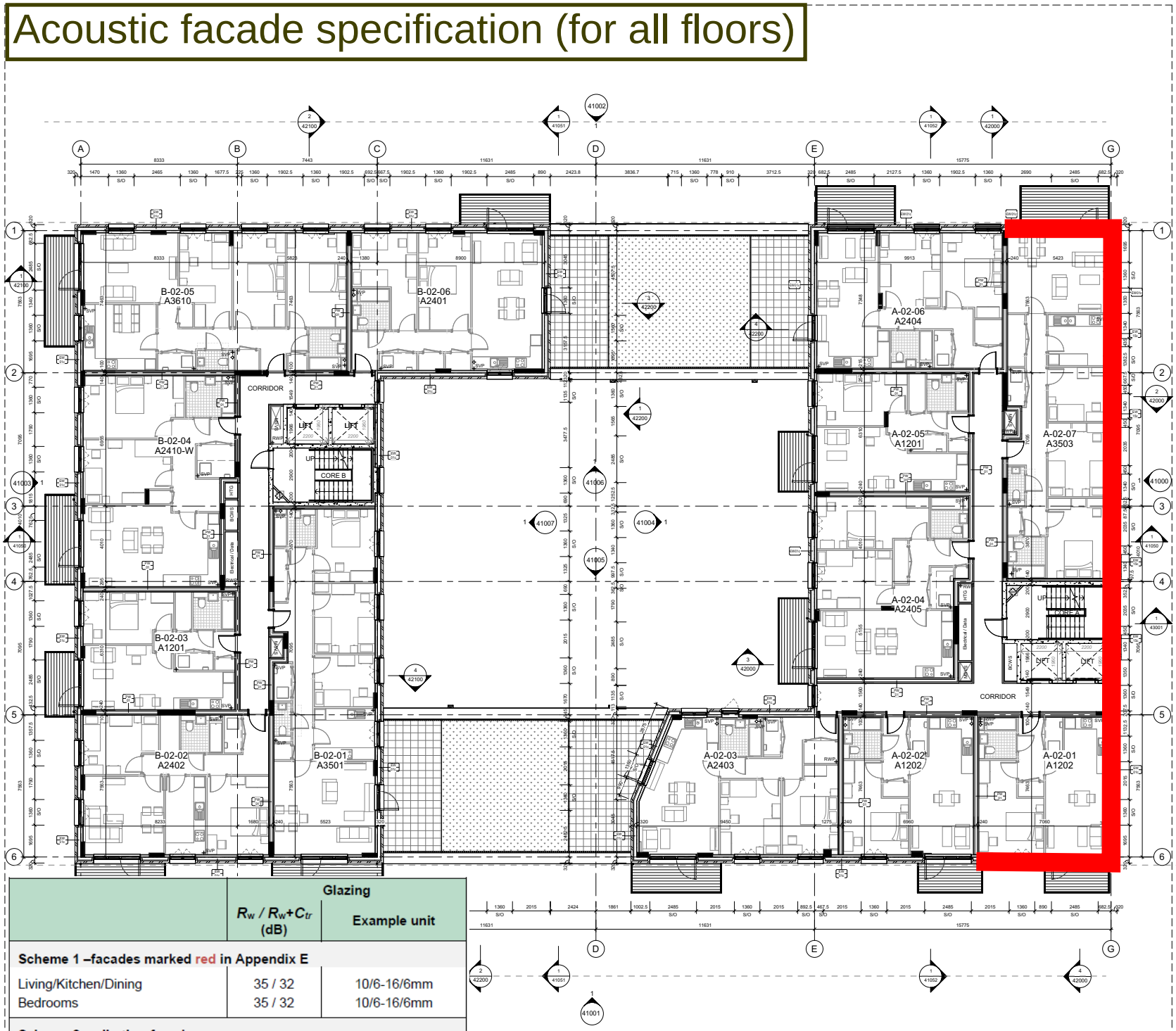
Project:	Hayes Town Centre
Project number:	22286
Date:	20/12/2022
Plot:	Phase 1: A-02-06
Room:	Bedroom

Night time (L_{AMax})	Unit	Value	Description	Term	Octave band centre frequency 63	125	250	500	1k	2k	4k	8k	Broadband term	
EXTERNAL NOISE LEVEL														
External noise level			Façade 1	$L_{Max,1}$	78	72	67	68	72	69	61	59	$L_{AMax,1}$	75 dB
Façade correction factor				C	0	0	0	0	0	0	0	0		
INCIDENT FAÇADE NOISE LEVEL														
Incident noise level			Façade 1	$L_{Max,ff}$	78	72	67	68	72	69	61	59	$L_{AMax,ff}$	75 dB
ROOM DATA														
Room description and reverberation time	Volume	31	Bedroom	RT_{60}	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2		s
FAÇADE ELEMENTS (Façade 1)														
Glazing	Area	3.1	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB
Wall	Area	4.58	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB
None			--											
None			--											
RESULTS														
Total calculated indoor noise level				$L_{Max,2}$	55	49	47	40	33	28	26	17	$L_{AMax,2}$	42 dB

APPENDIX E

Scheme of acoustic façade insulation

Acoustic facade specification (for all floors)



	Glazing	
	R_w / R_w+C_{tr} (dB)	Example unit
Scheme 1 –facades marked red in Appendix E		
Living/Kitchen/Dining	35 / 32	10/6-16/6mm
Bedrooms	35 / 32	10/6-16/6mm
Scheme 2 – all other facades		
Living/Kitchen/Dining	29 / 25	4/6-16/4mm
Bedrooms	29 / 25	4/6-16/4mm

GRID REFERENCE | SECTION REFERENCE | ELEVATION REFERENCE | PLAN CALLOUT / DETAIL REFERENCE

DIMENSIONS:
1430.3* Dimensions are to Structure (face of Light guage steel Frame stud or concrete)
(1430.3*) Dimensions to finishes or face of brickwork.
* Denotes non-standard brick dimension.

SPOT LEVELS: Plan / Elevation — Spot Level Prefixes: SSL indicates structural slab level; FFL indicates top of screed

ADJACENT DRAWING REF'S: X/XXXX Detail no. / last 4 digits of drawing no. — Project/author/level/zone information as this drawing:

KEY TO DOOR & WINDOW REFERENCES:

External Doors & Windows Note:

Acoustics	SBD
XX(-dB R_w+C_{tr})	P, PAS 24
XX(-dB R_w+C_{tr})	L, LPS 1175-SR2

Internal Doors Note: Example above is for an internal door type ID10. Fire rated FD30S. VP denotes additional function i.e vp (Vision Panel)

Function: vp: Vision Panels sc: Self Closing lx: Locked Shut s: Smoke Seal

TAGS: SYMBOLS & ABREVIATIONS:

BC	Balconies Projecting	EW / N1a	Wall type prefixes : EW prefix indicates an external wall type
BA	Bathrooms	F00	Floor type reference
CE	Ceilings	R00	Roof type reference
CW	Curtain Walls	WR -	Water Riser
DE	Doors External	ER -	Electric Riser
*D	Doors Internal		
F	Floors		
LV	Louvres		
PC	Precast Elements		
J	Juliet Railings		
R	Roofs		
EW	Walls (External)		
IW	Walls (Internal)		
PW	Walls (Party)		
WN	Windows		
T	Terraces		

DWELLING NUMBERING: Block (one letter) / Level (two digits) / Dwelling (two digits) — e.g. A-00-01

DWELLING TYPING: e.g. A1201-M — "A" denotes a apartment; Number of beds; Number of people; Last two digits denote unique layout (type); "M" denote Maisonette; "W" denotes Wheelchair adaptable

LEGEND

◆ SVP	Soil vent pipe	FFG	Future Floor Gully
◆ SS	Stub stack	FFO	Future Floor Gully - Connection Above Slab
◆ VP	Vent pipe	FG	Floor Gully
◆ AAV	Air admittance valve	PG	Podium Gully
OF	Roof overflow	MJ	Denotes location of movement joint.
O/F	Rainwater overflow below balcony decking	DRI	Dry Riser inlet
● RWP A	100 RWP - Square	DRo	Dry Riser outlet
◆ RWP B	150 RWP - Circular		Service opening over door.
● RWO	Rainwater outlet	EV	Extract vent duct
RWO	Rainwater outlet below balcony decking	TP	Threshold Drain (Refer to details for spec)
RWOp	Parapet rainwater outlet	IG	Internal Guarding
RWOph	Parapet rainwater outlet into hopper	OG	Obscured Glazing
*	Denotes Non Brick Dimension	AOV	Automatic opening vent to stair
	Brick Special	FRS	Fall Restraint System
BR/SR	Wall integrated Bat/Swift Refuge	TOC	Top of Concrete
BC 0X X	Balcony Number	TOS	Top of Steel
T 0X X	Terrace Number	IG 0X	Internal Guarding

BRICK DATUM: +15 / -15 — Note on Brick Rulers: +15 indicates Projecting Brick/Panel; -15 indicates Recessed Brick/Panel from Brick Datum

Note: Where 20mm Movement Joints are indicated, bed joints below are to be adjusted to suit

GENERAL NOTES

GA Plans, Elevations, Height Rods: Elevations will be referenced from GA plans and only elevation drawings will include detail references, height rod section lines and callouts to bay studies.

Internal partition setting out and door numbering outside communal areas will not be included in GA plans. This will be located only in dwelling sheets, detailed core plans or commercial plans.

NOTE 1:
SVP location - ongoing coordination with M&E

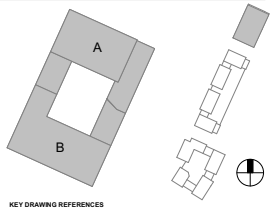
The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

Do not scale drawing. Figured dimensions to be worked to in all cases.

Where products have been specified, PRP have reviewed applicable products available in the UK at the time of writing the specification. For the avoidance of doubt, product manufacturers and suppliers must confirm that each product is fit for its intended use and provide such evidence as may reasonably be requested to confirm performance, including, but not limited to, product test classification and interfaces with adjacent products.

Where the contractor wishes to propose alternative products, representative samples and a full technical appraisal should be submitted by the contractor to the employer demonstrating that their proposed alternative has equal or better performance.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record



KEY DRAWING REFERENCES

Title of Drawing Series	Drawing Series No's
Site Plan	30000
Building Co-Ordinates	31000
GA Plans	40000
GA Elevations	41000
GA Height Rods	42000
GA Cores	43000
Dwelling Plans	44000
Structural Layout	46000
Bay Studies	47000
Materials Palettes	48000
Refuse Strategy	50000
Postal Strategy	51000
Fire Strategy	52000
Cyclo Strategy	53010
Security Strategy	53020
Rainwater Disposal Strategy	53050
Principal Construction	60000
Lead Details	61000
Sub-structure Details	62000
Fenestration Details	63000
Envelope Details	64000
Roof Details	65000
Internal Wall Details	66000
Balconies	67000
Metalwork	68000
Window & Door Schedule	70000
Internal Doors Schedule	71000
Bathroom Types Schedule	72000
Kitchen Schedule	73000

MATERIAL REFERENCES

Brickwork - Supplier TBC

Brick Type 'a' Red multi-stock with light coloured mortar.

Brick Type 'b' Dark red multi-stock with light coloured mortar.

Brick Type 'c' Light brick with light coloured mortar.

Brick Type 'd' Warm grey multi-stock with light coloured mortar.

Brick Type 'e' Glazed green brick with dark mortar.

FABRIC EFFICIENCY **U-VALUES** (Baseline Values)

Ground / Exposed Upper Floor:	**0.11** W/m²K
External Walls:	**0.15** W/m²K
Party Walls:	**0.00** W/m²K (all exposed edges sealed and cavity fully filled to prevent heat loss through cavity
Dwelling / Com Wall:	**0.15** W/m²K (U-Value of walls next to unheated areas)
Roof:	**0.11** W/m²K
Solid Door:	**1.2** W/m²K
Window:	**1.2** W/m²K (G-Value - 0.40 S&W / 0.55 N&E)
Air Permeability:	**3.0** m³/h.m² at 50 Pa

All details to be compliant with Acredited Construction Details for Part L

Rev	Date	Description	Drawn/Checked
P1	18/11/22	First Issue	JC RB

Hayes Town Centre PRP project No.HTC

GA Plan-Blocks A&B-L02

Project - Originator - Zone - Level - Doc - Discipline - Number

HTC-PRP-P1ZZ-02-GA-A-40102

S1-PRELIMINARY **Revision:P1**

Drawn GB Checked SG Date Sep 2022 Scale @ A1 1 : 100

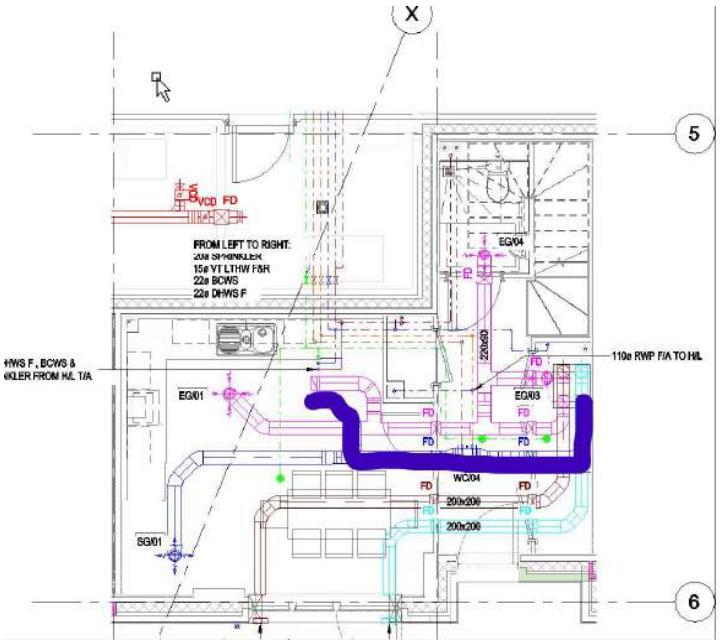
PRP prp-co.uk London 020 7653 1200 Higgins

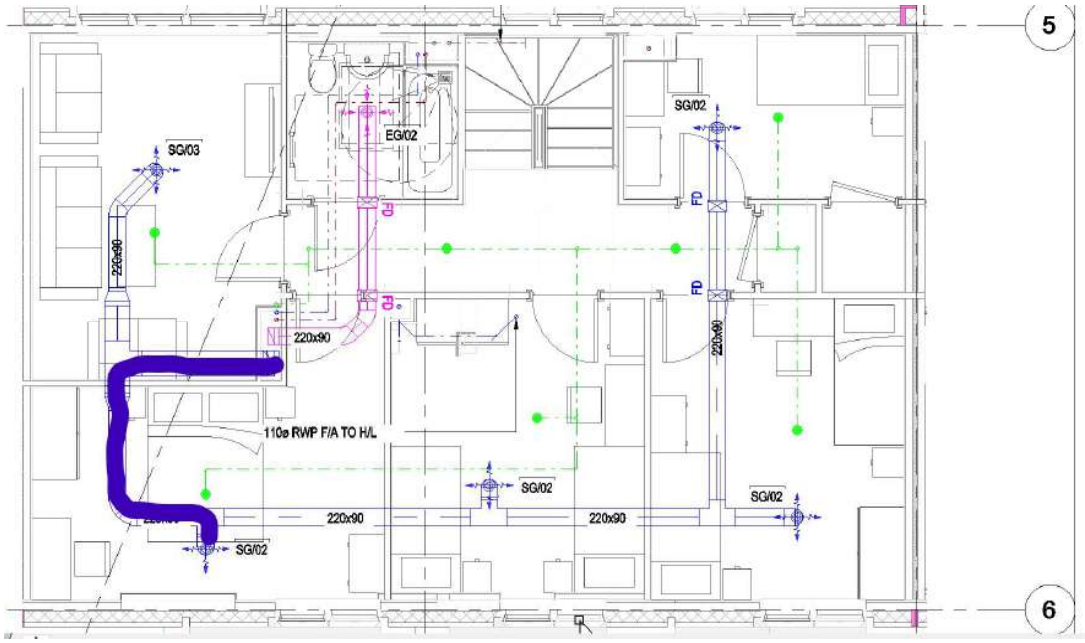
APPENDIX F

Synergy Consulting Engineers Ltd MVHR noise calculations

Apartment A4701 nearest bedroom (Criterion 30dB(A))

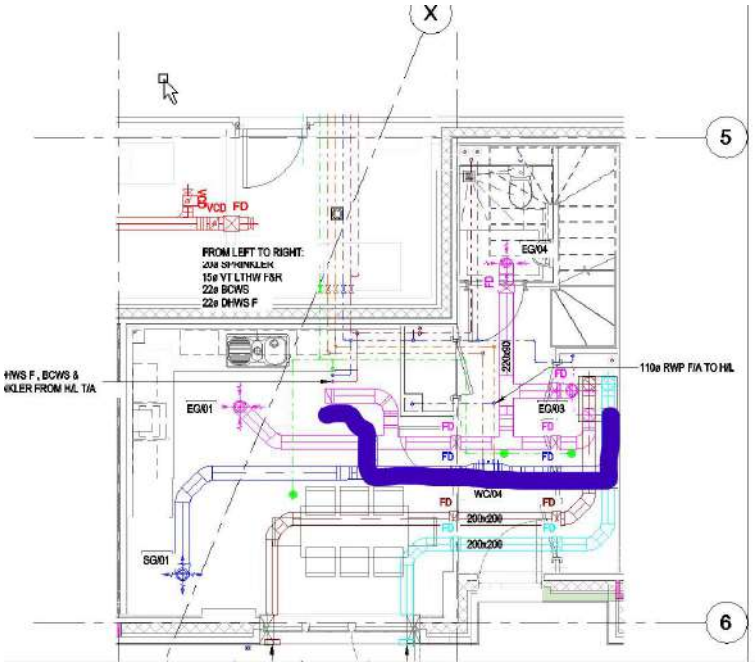
SUPPLY - Q600, 210 m3/h @ 60Pa	*63 Hz*	*125 Hz*	*250 Hz*	*500 Hz*	*1000 Hz*	*2000 Hz*	*4000 Hz*	*8000 Hz*	
1. Fan noise	61.9	56.9	57.3	49.6	45	41.9	34.1	23	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	17,671 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	14.0 m
7. Elbow Attenuation	0	0	0	0	-45	-72	-36	0	9 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. Cooling coil	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
10. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	-2	**4**	**1**	**12**	**-32**	**-69**	**-28**	**-1**	13.1 dB(A)
Supply Grille dB(A)									0.0 dB(A)
ROOM NOISE FROM SUPPLY SYSTEM									**13.3 dB(A)**

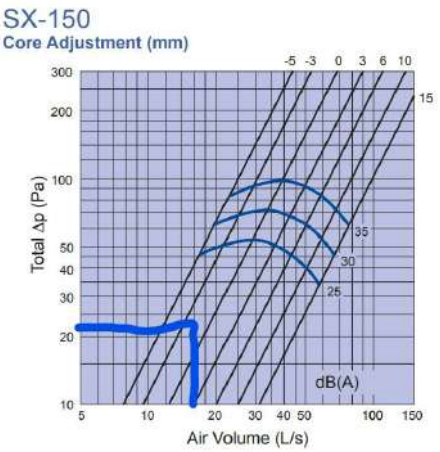


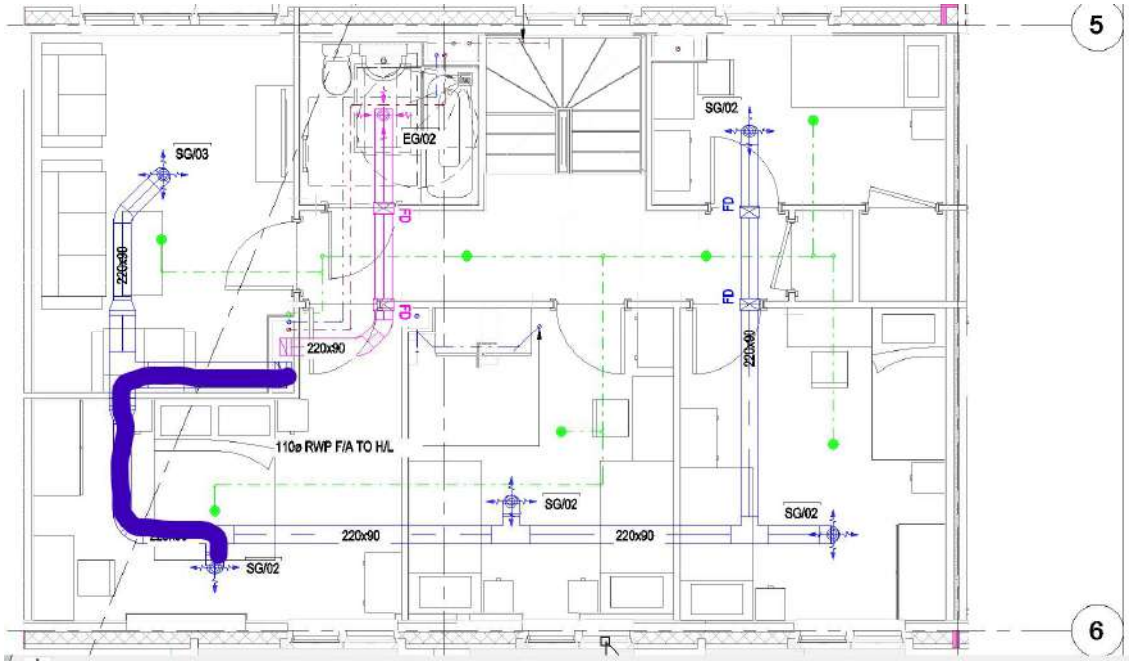


Apartment A4701 nearest bedroom Overheating Boost (Criterion 30dB(A) +/- 5dB

SUPPLY - Q600, 515 m3/h @ 150Pa	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
1. Fan noise	72.9	67.9	71.8	67.5	60.4	59.6	57	50	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	17,671 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	14.0 m
7. Elbow Attenuation	0	0	0	0	-45	-72	-36	0	9 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. Cooling coil	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
10. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	9	**15**	**16**	**30**	**-16**	**-51**	**-6**	**26**	31.4 dB(A)
Supply Grille dB(A)									10.0 dB(A)
ROOM NOISE FROM SUPPLY SYSTEM									**31.4 dB(A)**





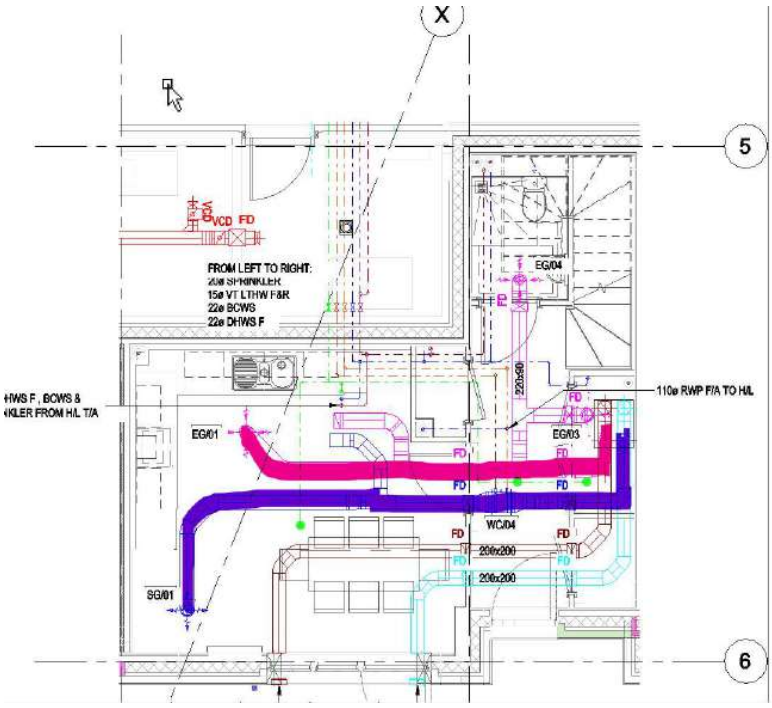


Apartment A4701 kitchen / diner Normal operation (Criterion 30dB(A))

SUPPLY - Q600, 210 m3/h @ 60Pa	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
1. Fan noise	61.9	56.9	57.3	49.6	45	41.9	34.1	23	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	17,671 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	9.5 m
7. Elbow Attenuation	0	0	0	0	-20	-32	-16	0	4 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. Cooling coil	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
10. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	-2	**5**	**2**	**12**	**-6**	**-28**	**-8**	**-1**	13.6 dB(A)
Supply Grille dB(A)									5.0 dB(A)
ROOM NOISE FROM SUPPLY SYSTEM									**14.2 dB(A)**

EXTRACT - Q 600, 210m3/h @ 40Pa	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
1. Fan noise	54.6	49.6	47.4	36.8	30.2	25.8	19.3	18.6	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	14,314 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	8.0 m
7. Elbow Attenuation	0	0	0	0	-20	-32	-16	0	4 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	-8	**-1**	**-7**	**1**	**-20**	**-43**	**-22**	**-4**	4.3 dB(A)
Extract Grille dB(A)									5.0 dB(A)
ROOM NOISE FROM EXTRACT SYSTEM									**7.7 dB(A)**

ROOM NOISE FROM SUPPLY AND EXTRACT BOTH IN SAME ROOM **15.0 dB(A)**

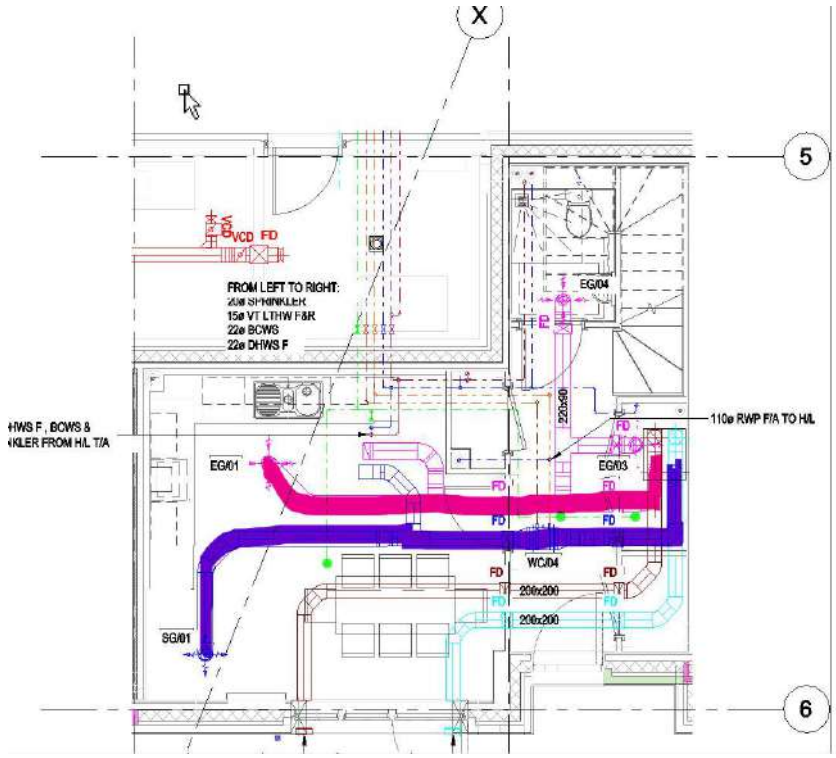


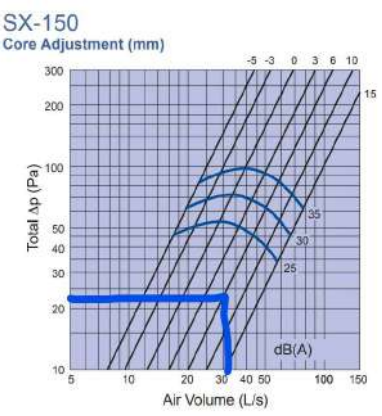
Apartment A4701 kitchen / diner Summer boost(Criterion 35dB(A) +/- 5dB

SUPPLY - Q600, 515 m3/h @ 150Pa	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
1. Fan noise	72.9	67.9	71.8	67.5	60.4	59.6	57	50	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5	17,671 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	9.5 m
7. Elbow Attenuation	0	0	0	0	-20	-32	-16	0	4 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. Cooling coil	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
10. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	9	**16**	**16**	**30**	**9**	**-11**	**15**	**26**	31.9 dB(A)
Supply Grille dB(A)									12.0 dB(A)
ROOM NOISE FROM SUPPLY SYSTEM									**31.9 dB(A)**

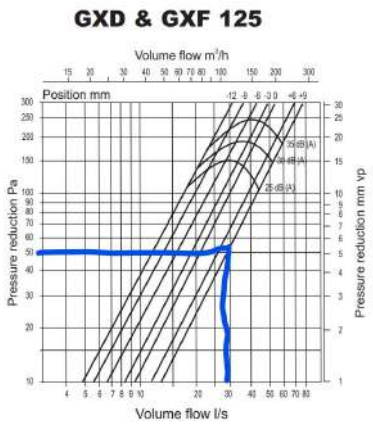
EXTRACT - Q 600, 515 m3/h @ 100Pa	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
1. Fan noise	66	61	58.9	52.7	41.9	38.3	34.3	25.2	**Main CSA**
2. Titon 200 dia x 1000l flexi attenuator	-11.1	-14.6	-29.5	-20.7	-21.0	-30.0	-17.7	-13.2	31,416 mm2
3. Safety Factors	0	0	0	0	0	0	0	0	**Branch CSA**
4. Power level Split main to branch	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	-3.4	14,314 mm2
5. Allowance for End Reflection	-17	-12	-8	-4	-1	0	0	0	**Duct length**
6. Ductwork Attenuation	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	8.0 m
7. Elbow Attenuation	0	0	0	0	-20	-32	-16	0	4 No. Bends
8. Room and terminal effect	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0	
9. dB(A) filter	-26.2	-16.1	-8.6	-3.2	0	1.2	1	-1.1	
	3	**10**	**5**	**17**	**-8**	**-31**	**-7**	**3**	17.9 dB(A)
Extract Grille dB(A)									10.0 dB(A)
ROOM NOISE FROM EXTRACT SYSTEM									**18.6 dB(A)**

ROOM NOISE FROM SUPPLY AND EXTRACT BOTH IN SAME ROOM **32.1 dB(A)**





Supply



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