
Noise Impact Assessment

Proposed Residential Development – Lickers Lane, Whiston

Client: Countryside Partnerships

Reference: 22.054.1.R3

Issue Date: 30 January 2023



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EXECUTIVE SUMMARY

This Assessment has shown that noise levels in garden areas achieve an acceptable noise level without the requirement for any acoustic fences. In context of the wider Halsnead Garden Village development, noise levels at the Site are acceptable and are not unduly high compared to the other adjacent residential development parcels which lie in closer proximity to the M62 motorway.

This Assessment has shown that, with regards to average road traffic noise from Lickers Lane and the M62 motorway, standard thermal double glazing will be adequate in controlling external noise levels however, with a partially open window, various habitable rooms of dwellings will require alternative ventilation. With regards to maximum noise levels generated by road traffic movements on Lickers Lane, this Assessment has shown that any bedroom window within 99m of the road will require alternative ventilation, where the window has full or partial line of sight to the road.

This Assessment has relied upon a background sound survey to has set mechanical and electrical plant noise emission limits for any proposed mechanical ventilation systems as detailed in Appendices 6 and 7 of this Assessment.

The future noise climate at the Development can be controlled through appropriate noise mitigation measures to meet acceptable noise levels in both internal and external amenity areas which will accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

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1 INTRODUCTION

1.1 Appointment

1.1.1 Professional Consult Limited was instructed by Vistry Partnership North West ('the Applicant'), to prepare a Noise Impact Assessment ('the Assessment') for a proposed residential development ('the Development') located off Lickers Lane in Whiston, Knowsley L35 to be referred to hereafter as 'the Site'.

1.1.2 Since the issue of the original Assessment, Countryside Partnerships have received a pre-application consultation response (App Ref. 22/00600/FUL) from the Environmental Health and Consumer Protection Department at Knowsley Council which states the following with regards to noise:

'The scheme shall follow the recommendations of the Professional Consult Limited Noise Impact Assessment for the proposed residential development – Lickers Lane, Whiston. Reference 22.054.1.R2, dated 9 September 2022.

For the avoidance of doubt the measures must include, but not necessarily be limited, to the following:

- *A minimum window glazing specification of 6mm glass / 12mm void / 6mm glass.*
- *The relevant AD-F system following the Acoustics and Overheating assessment (Appendix 6 and 7 of the report)*

The measures installed shall ensure that future residents are not subject to overheating and that the recommended internal noise levels stated in BS 8233: 2014 are achieved.

Any external plant associated with any mechanical ventilation system shall be designed so that the noise level from it is at least 5dB(A) below the existing LA90 background noise level, as measured during the relevant time period, at a position 1 metre from the closest affected window of the nearest noise sensitive property.'

1.2 The Development

1.2.1 The Development will comprise 120 dwellings, the Development forms part of a wider development known as Halsnead Garden Village (North) for up to 1,600 dwellings with earlier parcels currently under construction.

1.3 The Site, Locality & Existing Soundscape

1.3.1 The Site is currently comprised of open land and is bound by a wooded area and Lickers Lane to the north and open land to the east. To the west lies part of the wider Halsnead Garden Village (North) development. To the south lies a proposed residential development also part of the Halsnead Garden Village (North) (known as Fox Wood Garden Village) and beyond, the M62 Motorway. The residential development to the south has also been included within this Assessment as it will afford a degree of noise attenuation from the M62 for the dwellings on the Site.

1.3.2 The soundscape at the Site is comprised predominantly of road traffic noise associated with road traffic movements on Lickers Lane and the distant M62 Motorway.

1.4 Purpose of Assessment

1.4.1 This Assessment has been undertaken to identify any key surrounding noise sources within the vicinity of the Site which have the potential to produce noise impacts upon the noise-sensitive Development. Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated

National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts and these are detailed in Section 2.

- 1.4.2 This Assessment has relied upon a series of noise surveys completed on Site in order to measure off-Site noise sources, particularly road traffic noise.

1.5 Limitations

- 1.5.1 The limitations of this report are presented in Appendix 1.

1.6 Confidentiality

- 1.6.1 Professional Consult has prepared this report solely for the use of the Client. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from Professional Consult; a charge may be levied against such approval.

2 POLICY & GUIDANCE

2.1 National Planning Policy Framework & National Planning Practice Guidance

- 2.1.1 The Government updated the National Planning Policy Framework (NPPF) on 20th July 2021 and its associated National Planning Practice Guidance (NPPG) on 24th June 2021. Together, the NPPF and NPPG set out what the Government expects of local authorities. The overall aim is to ensure the planning system allows land to be used for new homes and jobs, while protecting valuable natural and historic environments.
- 2.1.2 The NPPG adds further context to the NPPF and it is intended that the two documents should be read together.
- 2.1.3 Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.
- 2.1.4 Local planning authorities' plan-making and decision making should take account of the acoustic environment and in doing so consider:
- ② Whether or not a significant adverse effect is occurring or likely to occur;
 - ② Whether or not an adverse effect is occurring or likely to occur; and
 - ② Whether or not a good standard of amenity can be achieved.
- 2.1.5 In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.
- 2.1.6 The Observed Effect Levels are as follows:
- ② Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur;
 - ② Lowest observed adverse effect level: this is the level of noise exposure above which adverse effects on health and quality of life can be detected; and
 - ② No observed effect level: this is the level of noise exposure below which no effect at all on health or quality of life can be detected.
- 2.1.7 Table 1 summarises the noise exposure hierarchy, based on the likely average response.

Table 1. Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
<i>Lowest Observed Adverse Effect Level</i>			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
<i>Significant Observed Adverse Effect Level</i>			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, 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.	Significant Observed Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

2.1.8 The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.

2.1.9 These factors include:

- ② The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day - this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;
- ② For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;
- ② the spectral content of the noise and the general character of the noise. The local topology and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

2.1.10 More specific factors to consider when relevant:

- ② where applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- ② Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on

windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations; and

- ② If external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

2.2 BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'

Noise Criteria Limits

- 2.2.1 The scope of this standard is the provision of recommendations for the control of noise in and around buildings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.
- 2.2.2 The standard suggests suitable internal noise levels within different types of buildings, including dwellings, as shown in Table 2.

Table 2. BS8233:2014 Internal Target Noise Levels

Criterion	Typical Situation	Design $L_{Aeq,T}$ (dB)
Suitable resting / sleeping conditions	Living Room	35
	Bedroom*	30
*For a Reasonable standard in bedrooms at night, individual noise events (measured with fast time weighting) should not exceed 45dB L_{max}		

- 2.2.3 BS8233 goes on to recommend noise levels for gardens as follows:

"It is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised 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 might be warranted".

- 2.2.4 BS8233 goes on to say:

"In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited".

- 2.2.5 With regards to external noise within balcony areas, BS8233: 2014 provides the following advice:

"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, 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"

Ventilation Requirements

- 2.2.6 Where a partially open window cannot be relied upon to provide an adequate level of facade sound insulation performance, it is necessary to consider alternative ventilation for habitable rooms. Section 8.4.5.4 within BS8233 states:

“The Building Regulations’ supporting documents on ventilation [48, 49, 50] recommend that habitable rooms in dwellings have background ventilation. Where openable windows cannot be relied upon for this ventilation, trickle ventilators can be used and sound attenuating types are available. However, windows may remain openable for rapid or purge ventilation, or at the occupant’s choice.

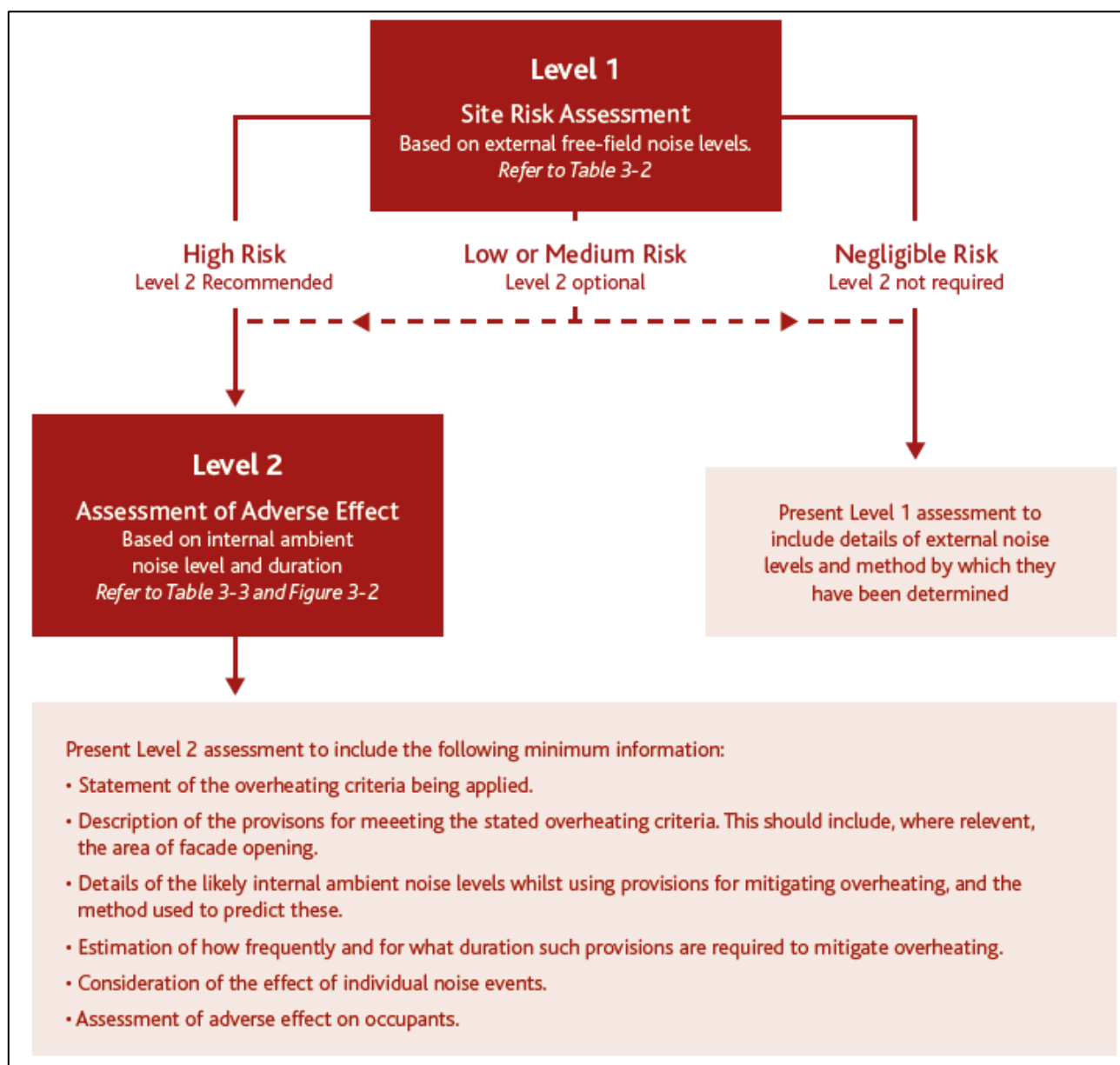
Alternatively, acoustic ventilation units (see 7.7.2 below) are available for insertion in external walls. These can provide sound reduction comparable with double glazed windows. However, ducted systems with intakes on the quiet side of the building might be required in very noisy situations, or where appearance rules out through-the-wall fans.”

Section 7.7.2 states:

“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 façade insulation or the resulting noise level.”

2.3 INSTITUTE OF ACOUSTICS AND ASSOCIATION OF NOISE CONSULTANTS (2020) ACOUSTICS VENTILATION & OVERHEATING: RESIDENTIAL DESIGN GUIDE

2.3.1 The Acoustics Ventilation and Overheating (AVO) Residential Design Guide provides an approach as to how the competing aspects of thermal and acoustic comfort can be managed. The AVO Guide aims to assist designers to adopt an integrated approach to the acoustic design within the context of the ventilation and thermal comfort requirements. The AVO Guide provides a method for assessing the impact of opening windows and providing whole house ventilation due to the impact of noise via a two-level noise assessment procedure, as below:



2.3.2 A level 1 risk assessment is based on external free-field noise levels with the assumption of a partially opened window in use for mitigation of overheating. A level 1 assessment is appropriate for scenarios where the risk to a development is deemed 'Negligible'. 'Low' and 'Medium' risk sites only require a level 2 assessment on an optional basis in order to give further confidence in the suitability of internal noise conditions.

2.3.3 The noise levels suggested in Tables 3 and 4 assume steady road traffic noise source but can be adapted for other transport sources.

Table 3. Guidance for Level 1 Site Risk Assessment for Transportation Noise Sources Relating to Overheating Condition

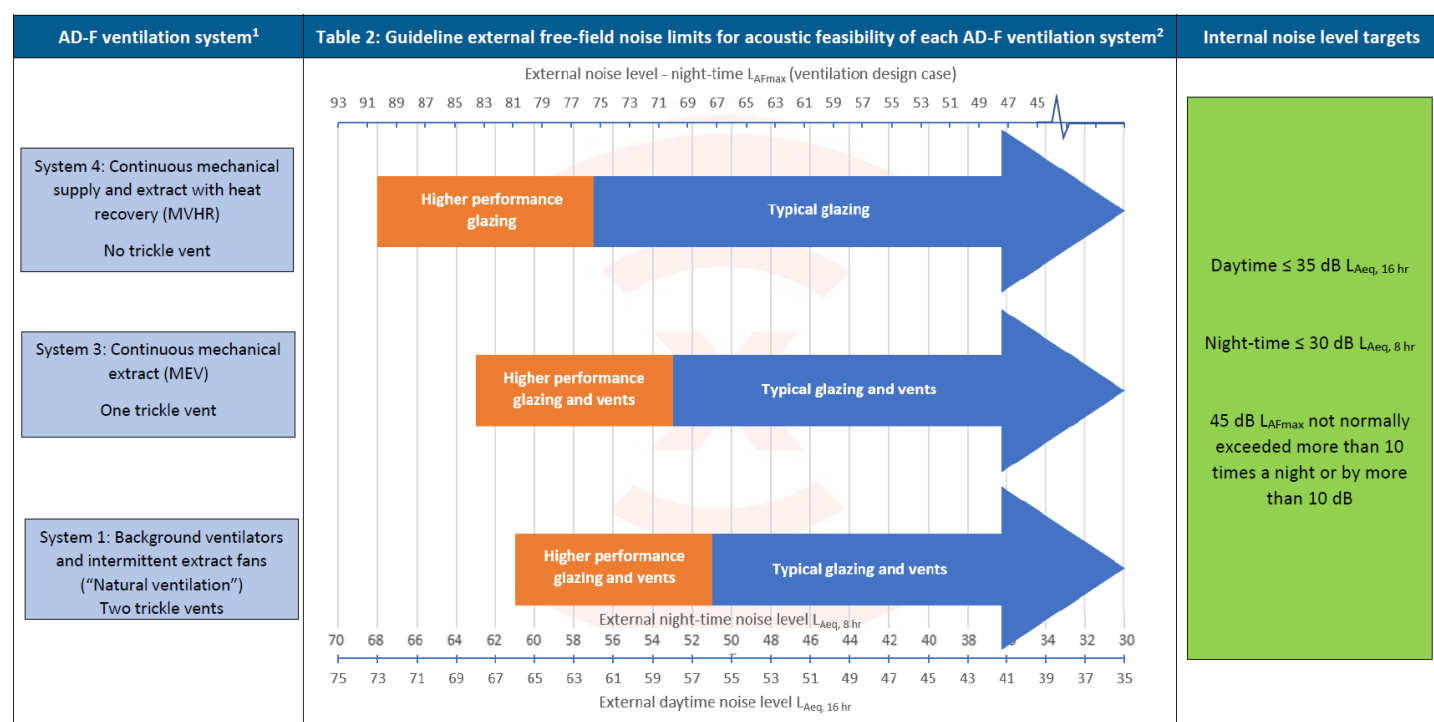
Risk Category for Level 1 Assessment - External		Risk Level	Potential Effect Without Mitigation	Recommendation for Level 2 Assessment
Daytime Noise Level, $L_{Aeq,t}$ (07:00 – 23:00)	Night-time Noise Level, $L_{Aeq,t}$ (23:00 – 07:00)			
$\geq 65\text{dB}$	$\geq 55\text{dB}$	High	Increasing risk of adverse effect	Recommended
$>55\text{dB}$ & $<63\text{dB}$	>45 & $<55\text{dB}$	Medium		Optional
$>50\text{dB}$ & $<55\text{dB}$		Low		
$\leq 50\text{dB}$	$\leq 45\text{dB}$	Negligible	Use of opening windows as means of mitigating overheating is not likely to result in adverse effect	Not required

2.3.4 A level 2 assessment will be carried out when the risk of adverse effect is 'High' or it is deemed appropriate for a 'low' or 'medium' risk site. An increase in internal ambient noise level can cause a change in human behaviour. At high levels this creates situations where occupants can no longer open windows for ventilation due to high external noise levels. A level 2 assessment identifies these situations and allows for appropriate alternative ventilation systems to be recommended.

Table 4. Guidance for Level 2 Assessment of Noise from Transport Noise Sources Relating to Overheating Condition

Internal Ambient Noise Level			Example of Outcome
Daytime $L_{Aeq,t}$ (07:00 – 23:00)	Night-time $L_{Aeq,t}$ (23:00 – 07:00)	Individual Noise Events During 23:00 – 07:00	
$>50\text{dB}$	$>42\text{dB}$	Normally exceeds 65dB $L_{A_{f,max}}$	Noise causes a material change in behaviour eg. having to keep windows closed most of the time
Increasing noise level			Increasing the likelihood of impact on reliable speech communication during the daytime or sleep disturbance at night

2.3.5 The figure below details guideline external free-field noise limits and determines the appropriate AD-F ventilation system (Systems 1 – 4).



2.4 BS4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

2.4.1 This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- ② Sound from industrial and manufacturing processes;
- ② Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- ② Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and,
- ② Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

2.4.2 The procedure detailed in the standard compares the measured or predicted noise level 'the specific noise level' from any of the above detailed noise sources with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is 'typical.'

2.4.3 The specific noise level also acknowledges the following reference time intervals depending upon whether the noise source operates during daytime or night-time periods:

- ② Daytime (07:00 - 23:00): 1 hour; and
- ② Night-time (23:00 - 07:00): 15 minutes.

2.4.4 There are a number of 'penalties' which can be attributed to the specific sound level, either subjectively or objectively, depending upon the 'acoustic features' of the sound level under investigation as follows. These penalties vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subject method):

Tonality

- ② +2dB: where the tonality is just perceptible;
- ② +4dB: where the tonality is clearly perceptible; and
- ② +6dB: where the tonality is highly perceptible.

Impulsivity

- ② +3dB: where the impulsivity is just perceptible;
- ② +6dB: where the impulsivity is clearly perceptible; and
- ② +9dB: where the impulsivity is highly perceptible.

Intermittency

- ② +3dB: where the intermittency is readily distinctive against the acoustic environment.

- 2.4.5 Where the assessment is carried out using the objective method, the tonality penalty is either 0dB or 6dB and the impulsivity penalty can range from 0dB up to 9dB in increments of 1dB, depending on the level of impulsivity identified.
- 2.4.6 In addition to the above acoustic features, there is a penalty for 'other sound characteristics' of +3dB where a sound exhibits characteristics that are neither tonal nor impulsive, though is readily distinctive against the acoustic environment.
- 2.4.7 BS4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.
- 2.4.8 Assessment of the rating level relative to the background noise level can yield the following commentary:
- ② Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact;
 - ② A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
 - ② A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
 - ② The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.
- 2.4.9 Whilst the amended 2019 Standard does make various references to it not being intended to assess noise impacts at indoor locations, section 1.1 does state 'The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident'. Example 6 in the Standard states 'In addition to the rating/background sound level comparison shown in Table A.6, the primary concern is the potential for disturbance of residents who could be sleeping with open bedroom windows. Other guidance, such as BS 8233, might also be applicable in this instance'.

2.5 Local Authority Guidance and Criteria – Knowsley Metropolitan Borough Council's Environmental Health Department

- 2.5.1 Consultation was provided to Knowsley Metropolitan Borough Council which stated:

'We have been appointed by a client to complete a Noise Impact Assessment for a proposed residential development on a parcel of land located off Lickers Lane in Whiston, Knowsley, L35.

We understand that pre-app advice has been issued by Knowsley Council to the client (Reference 21/00043/Preapp – Development of 121 Dwellings on Land Located off Lickers Lane (A parcel of land within Halsnead Garden Village).

The Site is bound by a wooded area and Lickers Lane to the north and the distant M62 Motorway to the south. It is expected that Knowsley Metropolitan Borough Council will require a Noise Impact Assessment to support the scheme planning application.

We will complete a Noise Impact Assessment in line with the guidance presented in BS8233:2014 with regards to road traffic noise. Where exceedances of any criteria are identified we will recommend

appropriate and reasonable mitigation measures to ensure that adopted noise level criteria is not exceeded.'

2.5.2 At the time of issuing this Assessment, no response had been received.

3 NOISE SURVEYS

3.1 Road Traffic Noise Surveys

3.1.1 Professional Consult has completed noise measurements as follows:

- ② **Noise Measurement Position 1:** Located 7.5m from the centre of Lickers Lane, between 10am Wednesday 18th May - 10am Thursday 19th May 2022, in free-field conditions. Noise sources at the measurement position comprised of road traffic movements along Lickers Lane; and
- ② **Noise Measurement Position 2:** Located 21m from the centre of the M62, between 10am Wednesday 18th May - 10am Thursday 19th May 2022, in free-field conditions. Noise sources at the measurement position comprised of road traffic movements on the M62.

3.1.2 Table 5 presents the measured road traffic noise levels at the microphone locations.

Table 5. Summary of Measured Road Traffic Noise Levels

Measurement Position	Period	Measured Sound Pressure Level (dB)	
		L _{Aeq,T}	L _{Amax,fast} *
1	Daytime (07:00 – 23:00)	67.5	-
	Night-time (23:00 – 07:00)	57.8	80.4
2	Daytime (07:00 – 23:00)	81.6	-
	Night-time (23:00 – 07:00)	77.3	88
*10 th highest L _{Amax,fast}			

3.2 Background Sound Survey

3.2.1 Professional Consult has completed noise measurements as follows:

- ② **Noise Measurement Position 3:** Located 70m south of Lickers Lane between 11:30 on Thursday 26th January to 11:30 on Monday 30th January 2023 in free-field conditions. Noise sources at the measurement position comprised of distant road traffic noise from vehicles using the M62 and Lickers Lane.

3.2.2 Table 6 details the measured background sound levels on the Sunday which will afford a worst-case assessment as background sound levels are generally lower on a Sunday than other days of the week.

Table 6. Summary of Measured Background Sound Levels

Period	Measured Background Sound Level, L _{A90,15mins} (dB)	
	Range	Typical (Mode Average)
Daytime (07:00 – 19:00)	42 - 55	50
Night-time (23:00 – 07:00)	41 - 51	43

3.3 Noise Survey Equipment

3.3.1 The following equipment was used for the noise surveys.

Table 7. Noise Measurement Equipment

Measurement Position	Equipment Description	Manufacturer & Type No	Serial No.	Calibration Due Date
NMP1	Sound Level Meter	01dB Fusion	12211	19 January 2024
	Pre-amplifier	01dB PRE22	1915082	
	Microphone	GRAS 40CD	331766	
	Calibrator	01dB CAL-31	89095	30 June 2022
NMP2	Sound Level Meter	01dB Fusion	12038	25 March 2023
	Pre-amplifier	01dB PRE22	2113007	
	Microphone	GRAS 40CE	330801	
	Calibrator	01dB CAL-31	87280	30 June 2022
NMP3	Sound Level Meter	01dB Fusion	12038	25 March 2023
	Pre-amplifier	01dB PRE22	2113007	
	Microphone	GRAS 40CE	330801	
	Calibrator	01dB CAL-31	87280	29 June 2023

3.3.2 The sound level meters were field calibrated prior to and following the noise surveys and there was no drift beyond the allowable limit of 1dB.

3.3.3 Table 8 indicates a summary of the measured weather conditions.

Table 8. Range of Measured Wind Speeds

Period	Range of Measured Wind Speeds (m/s)	Rainfall Recorded?
All periods	0 – 0.8	No

4 NOISE IMPACT ASSESSMENT

4.1.1 With regards to road traffic noise impacts, this Assessment has used the measured road traffic noise survey data for the daytime and night-time average noise levels together with analysis of the measured maximum noise levels for the night-time period to inform an appropriate Assessment.

4.2 Road Traffic Noise

4.2.1 Table 9 displays the measured 16hr daytime and 8hr night-time noise levels for Lickers Lane and the M62 motorway.

Table 9. Calculation of Road Traffic Noise Levels

Measurement Position	Period	Calculated $L_{Aeq,t}$ (dB)	10 th Highest Measured $L_{Amax,fast}$ (dB)	Distance from Centre of Road (m)
NMP1	Daytime (07:00 – 23:00)	67.5	-	7.5
	Night-time (23:00 – 07:00)	57.8	80.4	
NMP2	Daytime (07:00 – 23:00)	81.6	-	21
	Night-time (23:00 – 07:00)	77.3	88.0	

4.2.2 For the purposes of this assessment, Professional Consult has used noise modelling software CadnaA to determine the impact of noise from Lickers Lane and the M62 at the proposed residential dwellings. A noise model has therefore been constructed in order to calculate façade noise levels and external noise levels in amenity areas.

4.2.3 It should be noted that there is a proposed residential development which lies to the south of the Site (Fox Wood Garden Village) which will act as a noise barrier for the Site and so this has been included in the noise model also.

4.2.4 The following inputs have been included in the model:

- ② Proposed Scheme Layout;
- ② Proposed residential development to south of Site;
- ② Site elevations have been taken as existing using 1m contours;
- ② Noise Measurement Positions 1 and 2 have been used in order to calibrate the noise model;
- ② A floor-to-floor height of 2.85m has been adopted for all dwellings;
- ② A reflection order of 2 has been used in all calculations;
- ② All dwellings have been taken to be 7.5m to apex (2-storeys); and
- ② Noise levels generated using ISO 9613-1 and ISO 9613-2 “Acoustics – Attenuation of sound during propagation outdoors” as incorporated into CadnaA software.

External Noise Impact in Garden Areas of Proposed Dwellings

- 4.2.5 In order to assess noise levels in external amenity areas across the Site, a grid noise map was calculated (Figure 1 of Appendix 4) in the noise model. The grid noise map shows that the majority of all garden areas fall below the adopted 55dB $L_{Aeq,16hr}$ criteria noise level however the following gardens have noise levels ranging between 54.4dB – 57.5dB:

106 – 120.

- 4.2.6 In context, an exceedance of the 55dB noise criteria by such a small margin does not warrant the specification of noise mitigation measures for the garden, i.e., a noise barrier. Furthermore, garden areas associated with the plots to the south of the Site will have road traffic noise levels in excess of 56.3dB $L_{Aeq,16hr}$.

Internal Noise Impact for Proposed Dwellings

- 4.2.7 With regards to internal noise levels, BS8233:2014 suggests that standard thermal double glazing will afford 33dB R_w of sound reduction, however this is for the pink noise spectrum and the same configuration will afford 30dB R_w+C_{tr} for average noise levels from road traffic noise and so this value has been used to calculate internal noise levels. With regard to the maximum noise level ($L_{Amax,fast}$), the value of 33dB R_w has been used. BS8233:2014 also goes on to recommend that a partially open window provides approximately 13dB of attenuation.
- 4.2.8 Professional Consult uses a library database of glazing configurations issued by Saint Gobain and the glazing configuration 6mm glass / 12mm air space / 6mm glass affords 30dB $R_w + C_{tr}$ and 33dB R_w respectively.
- 4.2.9 Appendix 6 calculates the average daytime noise levels at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation. Appendix 6 indicates that standard thermal double glazing will be adequate in controlling external noise to meet the internal noise criteria limits and various living rooms of Plots will require alternative ventilation and so this will be specified in the following section.
- 4.2.10 Appendix 7 calculates the average night-time noise levels at the various facades of the plots and determines the requirement for upgraded glazing or alternative ventilation. Appendix 7 indicates that standard thermal double glazing will be adequate in controlling external noise to meet the internal noise criteria limits and various living rooms of Plots will require alternative ventilation and so this will be specified in the following section.
- 4.2.11 It is also necessary to consider maximum noise levels for the night-time period in addition to the average noise levels. The measured 10th highest maximum noise level from road traffic using Lickers Lane was 80.4dB at 7.5m and the closest proposed dwelling lies at 75m which equates to a façade noise level of 60.4dB and allowing 33dB for standard thermal glazing affords an internal noise level of 27.4dB which falls below the internal maximum noise level criteria of 45dB. Allowing 13dB for a partially open windows affords an internal noise level of 47.4dB which exceeds the internal noise criteria of 45dB and so the following section consider noise mitigation.
- 4.2.12 The measured 10th highest maximum noise level from road traffic using the M62 was 88dB at 21m and the closest proposed dwelling lies at 595m which equates to a façade noise level of 59dB and allowing 33dB for standard thermal glazing affords an internal noise level of 26dB which falls below the internal maximum noise level criteria of 45dB. Allowing 13dB for a partially open windows affords an internal noise level of 46dB which exceeds the internal noise criteria of 45dB by 1dB. Nevertheless, it is expected that this worst-case calculated noise level for the closest dwellings will be lower than predicted as calculation has not accounted for any noise attenuation afforded by the intervening dwellings and so it is not considered reasonable to specify any noise mitigation measures.

4.3 Mechanical Ventilation Plant Noise Emission Limits

4.3.1 At the time of issuing this Assessment, there was no specific detail available for any of the proposed mechanical ventilation systems as recommended in this Assessment (Appendices 6 and 7). As such, it is necessary to set plant noise emission limits for any proposed mechanical plant.

Table 10. Calculation of Plant Noise Emission Limits

Period	Lowest Measured Background Sound Level, $L_{A90,15min}$ (dB)	Knowsley Council Criteria (dB)	Highest Permitted Cumulative Rated Level of Noise at Closest Proposed Residential Receptor, $L_{A,r}$ (dB)
Day (07:00 – 23:00)	50	$L_{A,r} = L_{A90,t} - 5dB$	45
Night-time (23:00 – 07:00)	43		38

4.3.2 Table 10 indicates the maximum rated level of noise from any proposed plant which cannot be exceeded at the closest habitable room window of any dwelling. It should be noted that the rated noise levels may contain acoustic character corrections for tonality, impulsivity or intermittency and so the actual (specific) level of noise measurable at the receptor may need to be lower than the above values.

5 MITIGATION

5.1 Road Traffic

- 5.1.1 The previous section has indicated that various living room and bedroom windows will require alternative ventilation as per the schedule set out in Appendices 6 and 7 of this Assessment which accord with the requirements of the AVO Design Guide.
- 5.1.2 The previous section has also indicated that the dwellings closest to Lickers Lane will incur an exceedance of the night-time maximum noise level in bedrooms. Further calculation indicates that any bedroom window within 99m of the centre of Lickers Lane, with either full or partial line of sight to the road, will require the noise mitigation as set out in Appendices 6 and 7 of this Assessment.

6 CONCLUSION

6.1.1 Professional Consult Limited was instructed by Vistry Partnership North West, to prepare a Noise Impact Assessment for a proposed residential development located off Lickers Lane in Whiston, Knowsley L35.

6.1.2 Since the issue of the original Assessment, Countryside Partnerships have received a pre-application consultation response (App Ref. 22/00600/FUL) from the Environmental Health and Consumer Protection Department at Knowsley Council which states the following with regards to noise:

'The scheme shall follow the recommendations of the Professional Consult Limited Noise Impact Assessment for the proposed residential development – Lickers Lane, Whiston. Reference 22.054.1.R2, dated 9 September 2022.

For the avoidance of doubt the measures must include, but not necessarily be limited, to the following:

- *A minimum window glazing specification of 6mm glass / 12mm void / 6mm glass.*
- *The relevant AD-F system following the Acoustics and Overheating assessment (Appendix 6 and 7 of the report)*

The measures installed shall ensure that future residents are not subject to overheating and that the recommended internal noise levels stated in BS 8233: 2014 are achieved.

Any external plant associated with any mechanical ventilation system shall be designed so that the noise level from it is at least 5dB(A) below the existing LA90 background noise level, as measured during the relevant time period, at a position 1 metre from the closest affected window of the nearest noise sensitive property.'

6.1.3 The Development will comprise 120 dwellings and the Development forms part of a wider development known as Halsnead Garden Village (North) for up to 1,600 dwellings with earlier parcels currently under construction.

6.1.4 The Site is currently comprised of open land and is bound by a wooded area and Lickers Lane to the north and open land to the east. To the west lies part of the wider Halsnead Garden Village (North) development. To the south lies a proposed residential development also part of the Halsnead Garden Village (North) (known as Fox Wood Garden Village) and beyond, the M62 Motorway. The residential development to the south has also been included within this Assessment as it will afford a degree of noise attenuation from the M62 for the dwellings on the Site.

6.1.5 The soundscape at the Site is comprised predominantly of road traffic noise associated with road traffic movements on Lickers Lane and the distant M62 Motorway.

6.1.6 This Assessment has been undertaken to identify any key surrounding noise sources within the vicinity of the Site which have the potential to produce noise impacts upon the noise-sensitive Development. Accordingly, this Assessment has been completed with due regard to the National Planning Policy Framework and its associated National Planning Policy Guidance in addition to appropriate British Standards and guidance documents relevant to the assessment of noise impacts and these are detailed in Section 2.

6.1.7 This Assessment has relied upon a series of noise surveys completed on Site in order to measure off-Site noise sources, particularly road traffic noise.

6.1.8 This Assessment has shown that noise levels in garden areas achieve an acceptable noise level without the requirement for any acoustic fences. In context of the wider Halsnead Garden Village development, noise levels

at the Site are acceptable and are not unduly high compared to the other adjacent residential development parcels which lie in closer proximity to the M62 motorway.

- 6.1.9 This Assessment has shown that, with regards to average road traffic noise from Lickers Lane and the M62 motorway, standard thermal double glazing will be adequate in controlling external noise levels however, with a partially open window, various habitable rooms of dwellings will require alternative ventilation. With regards to maximum noise levels generated by road traffic movements on Lickers Lane, this Assessment has shown that any bedroom window within 99m of the road will require alternative ventilation, where the window has full or partial line of sight to the road.
- 6.1.10 This Assessment has relied upon a background sound survey to has set mechanical and electrical plant noise emission limits for any proposed mechanical ventilation systems as detailed in Appendices 6 and 7 of this Assessment.
- 6.1.11 The future noise climate at the Development can be controlled through appropriate noise mitigation measures to meet acceptable noise levels in both internal and external amenity areas which will accord with the 'No Observed Adverse Effect Level' as detailed in the PPG and as such noise should not be deemed to be a determining factor in the granting of planning permission for this Site.

APPENDIX 1: LIMITATIONS

This report and its findings should be considered in relation to the terms of reference and objectives agreed between Professional Consult Limited and the Client.

The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

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APPENDIX 2: GLOSSARY OF ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq} , L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

An indication of the range of sound levels commonly found in the environment is given in the following table.

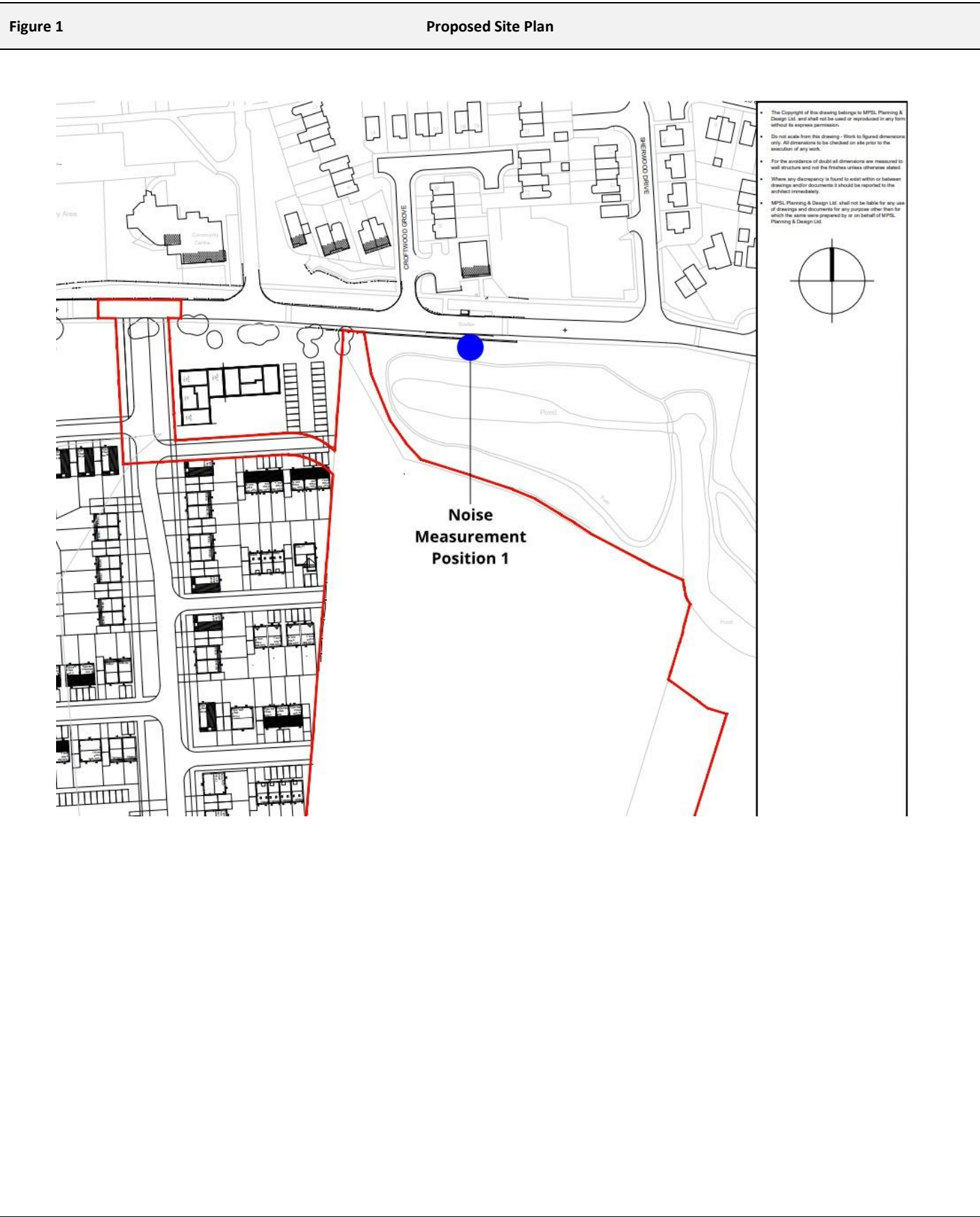
Table 1: Typical Sound Pressure Levels

Sound Pressure Level (dB)	Location/Example
0	Threshold of hearing
20 - 30	Quiet bedroom at night
30 - 40	Living room during the day
40 - 50	Typical office
50 - 60	Inside a car
60 - 70	Typical high street
70 - 90	Inside factory
100 - 110	Burglar alarm at 1m away
110 - 130	Jet aircraft on take off
140	Threshold of pain

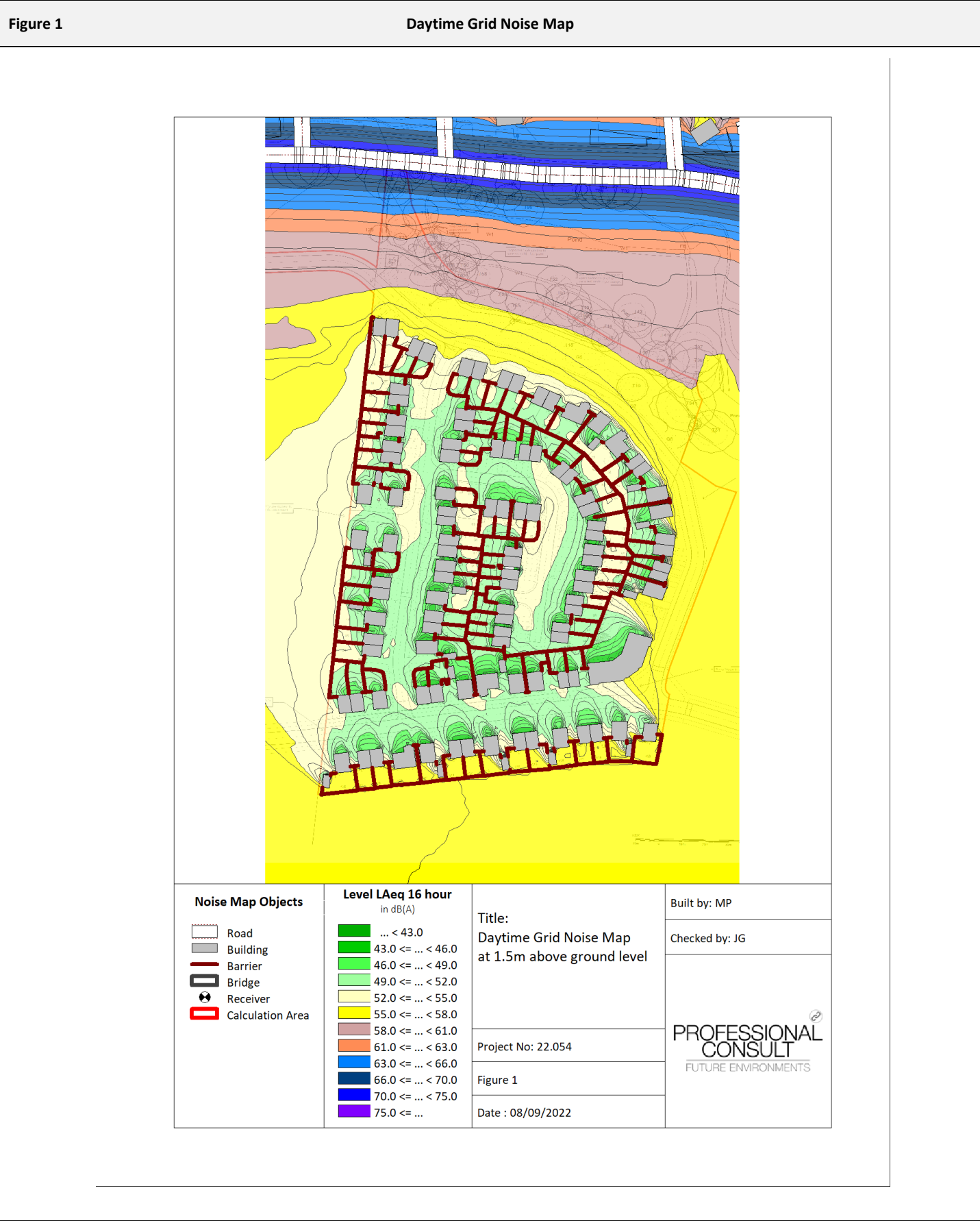
Table 2: Terminology

Descriptor	Explanation
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2x10 ⁻⁵ Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
L _{Aeq, T}	L _{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L _{Amax}	L _{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L _{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L ₁₀ & L ₉₀	If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L ₁₀ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L ₉₀ is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L ₁₀ index to describe traffic noise.
Free-field Level	2A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally as measured outside and away from buildings.
Fast	A time weighting used in the root mean square section of a sound level meter with a 125millisecond time constant.
Slow	A time weighting used in the root mean square section of a sound level meter with a 1000millisecond time constant.

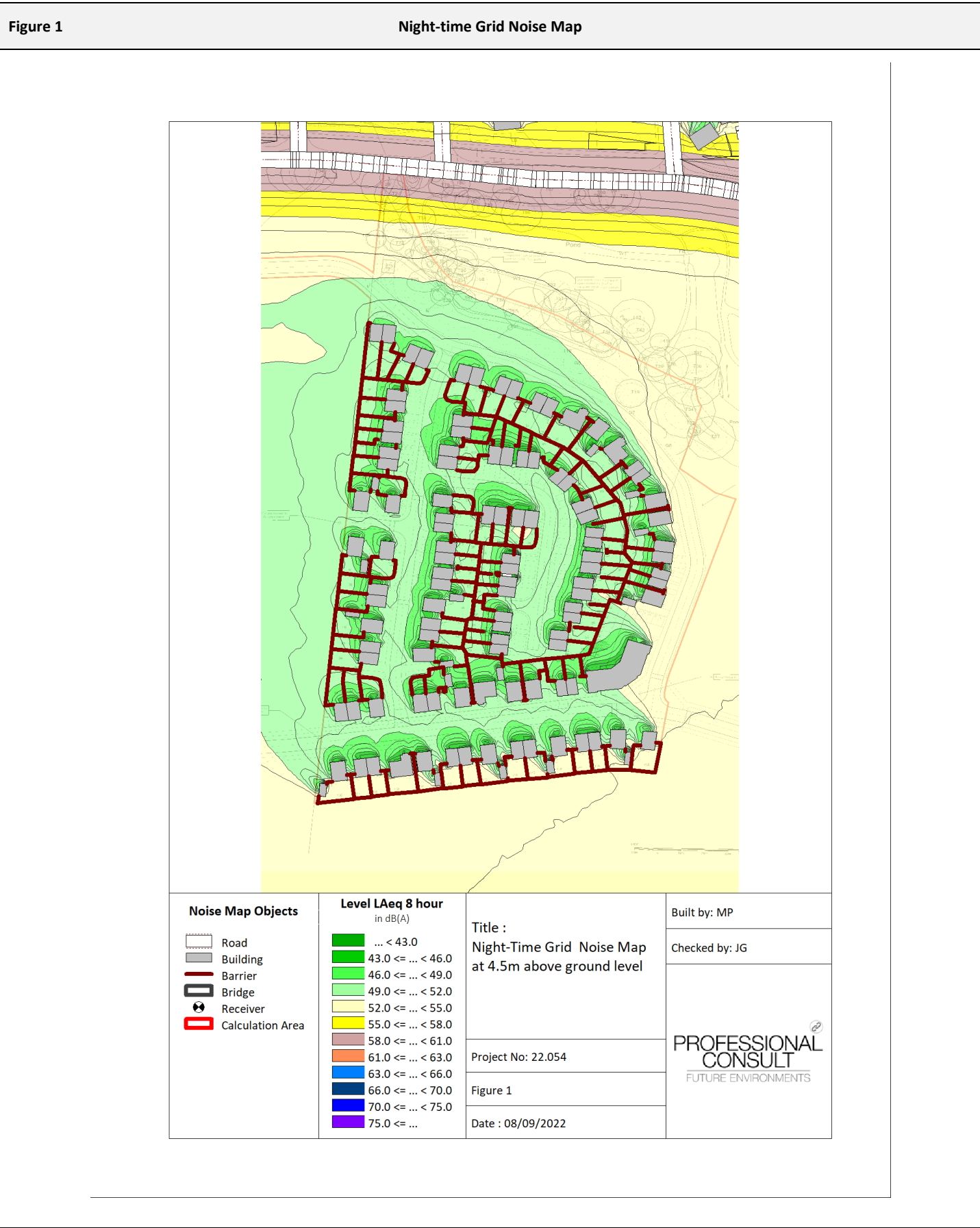
APPENDIX 3: SITE LOCATION PLAN & NOISE MEASUREMENT POSITION



APPENDIX 4: DAYTIME GRID NOISE MAP



APPENDIX 5: NIGHT-TIME GRID NOISE MAP



APPENDIX 6: DAYTIME FAÇADE NOISE LEVELS

Plot	Floor	Façade Direction	Calculated LAeq,16hr at Façade (dB)	Glazing Sound Reduction Index (Rw) (Standard Thermal)	Calculated Noise Level Inside Room (dB)	Criteria (dB)	Difference +/- (dB)	Required Sound Insulation Performance for Glazing (Rw +Ctr) (dB)	Example Glazing Specification (6/12/6 = standard thermal as minimum)	Calculated Internal Noise Level with a Partially Open Window (dB)	Alternative Ventilation Required?	Acoustics Ventilation & Overheating Assessment - Appropriate AD-F System
Plot 1	Ground	N	47.4	30	17.4	35	-17.6	12.4	6/12/6	34.4	No	ADF Systems 1 or 2
Plot 1	Ground	S	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 1	Ground	W	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 2	Ground	N	47.2	30	17.2	35	-17.8	12.2	6/12/6	34.2	No	ADF Systems 1 or 2
Plot 2	Ground	E	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 2	Ground	S	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 3	Ground	N	46.9	30	16.9	35	-18.1	11.9	6/12/6	33.9	No	ADF Systems 1 or 2
Plot 3	Ground	E	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2
Plot 3	Ground	S	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 3	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 4	Ground	W	50	30	20	35	-15	15	6/12/6	37	Yes	ADF Systems 1 or 2
Plot 4	Ground	S	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 4	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 5	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 5	Ground	N	46.1	30	16.1	35	-18.9	11.1	6/12/6	33.1	No	ADF Systems 1 or 2
Plot 5	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 6	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 6	Ground	S	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 6	Ground	E	52.3	30	22.3	35	-12.7	17.3	6/12/6	39.3	Yes	ADF Systems 1 or 2
Plot 6	Ground	N	45.9	30	15.9	35	-19.1	10.9	6/12/6	32.9	No	ADF Systems 1 or 2
Plot 7	Ground	W	48.8	30	18.8	35	-16.2	13.8	6/12/6	35.8	Yes	ADF Systems 1 or 2
Plot 7	Ground	S	51	30	21	35	-14	16	6/12/6	38	Yes	ADF Systems 1 or 2
Plot 7	Ground	E	52.2	30	22.2	35	-12.8	17.2	6/12/6	39.2	Yes	ADF Systems 1 or 2
Plot 8	Ground	W	48.8	30	18.8	35	-16.2	13.8	6/12/6	35.8	Yes	ADF Systems 1 or 2
Plot 8	Ground	N	46.5	30	16.5	35	-18.5	11.5	6/12/6	33.5	No	ADF Systems 1 or 2
Plot 8	Ground	E	52.1	30	22.1	35	-12.9	17.1	6/12/6	39.1	Yes	ADF Systems 1 or 2
Plot 9	Ground	W	48.6	30	18.6	35	-16.4	13.6	6/12/6	35.6	Yes	ADF Systems 1 or 2
Plot 9	Ground	S	53.6	30	23.6	35	-11.4	18.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 9	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 9	Ground	N	47.3	30	17.3	35	-17.7	12.3	6/12/6	34.3	No	ADF Systems 1 or 2
Plot 10	Ground	S	51.5	30	21.5	35	-13.5	16.5	6/12/6	38.5	Yes	ADF Systems 1 or 2
Plot 10	Ground	W	51.3	30	21.3	35	-13.7	16.3	6/12/6	38.3	Yes	ADF Systems 1 or 2
Plot 10	Ground	N	48.3	30	18.3	35	-16.7	13.3	6/12/6	35.3	Yes	ADF Systems 1 or 2
Plot 10	Ground	E	50.6	30	20.6	35	-14.4	15.6	6/12/6	37.6	Yes	ADF Systems 1 or 2
Plot 11	Ground	W	52	30	22	35	-13	17	6/12/6	39	Yes	ADF Systems 1 or 2
Plot 11	Ground	S	53.2	30	23.2	35	-11.8	18.2	6/12/6	40.2	Yes	ADF Systems 3 or 4
Plot 11	Ground	E	52.2	30	22.2	35	-12.8	17.2	6/12/6	39.2	Yes	ADF Systems 1 or 2
Plot 11	Ground	N	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 12	Ground	W	49.3	30	19.3	35	-15.7	14.3	6/12/6	36.3	Yes	ADF Systems 1 or 2
Plot 12	Ground	S	54	30	24	35	-11	19	6/12/6	41	Yes	ADF Systems 3 or 4
Plot 12	Ground	E	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 12	Ground	N	47.3	30	17.3	35	-17.7	12.3	6/12/6	34.3	No	ADF Systems 1 or 2
Plot 13	Ground	W	51.3	30	21.3	35	-13.7	16.3	6/12/6	38.3	Yes	ADF Systems 1 or 2
Plot 13	Ground	S	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 13	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 14	Ground	W	51.8	30	21.8	35	-13.2	16.8	6/12/6	38.8	Yes	ADF Systems 1 or 2
Plot 14	Ground	N	48.1	30	18.1	35	-16.9	13.1	6/12/6	35.1	Yes	ADF Systems 1 or 2
Plot 14	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 15	Ground	S	46.4	30	16.4	35	-18.6	11.4	6/12/6	33.4	No	ADF Systems 1 or 2
Plot 15	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 15	Ground	W	52.4	30	22.4	35	-12.6	17.4	6/12/6	39.4	Yes	ADF Systems 1 or 2
Plot 16	Ground	W	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 16	Ground	N	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 16	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2

Reference: 22.054.1.R3

Date: 30 January 2023

Project: Proposed Residential Development – Lickers Lane, Whiston

Plot 17	Ground	W	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 17	Ground	S	48.1	30	18.1	35	-16.9	13.1	6/12/6	35.1	Yes	ADF Systems 1 or 2
Plot 17	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 18	Ground	W	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 18	Ground	N	51.9	30	21.9	35	-13.1	16.9	6/12/6	38.9	Yes	ADF Systems 1 or 2
Plot 18	Ground	E	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 19	Ground	S	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 19	Ground	SE	54.3	30	24.3	35	-10.7	19.3	6/12/6	41.3	Yes	ADF Systems 3 or 4
Plot 19	Ground	N	55.7	30	25.7	35	-9.3	20.7	6/12/6	42.7	Yes	ADF Systems 3 or 4
Plot 20	Ground	S	52.7	30	22.7	35	-12.3	17.7	6/12/6	39.7	Yes	ADF Systems 1 or 2
Plot 20	Ground	NW	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 20	Ground	N	55.7	30	25.7	35	-9.3	20.7	6/12/6	42.7	Yes	ADF Systems 3 or 4
Plot 21	Ground	N	56.7	30	26.7	35	-8.3	21.7	6/12/6	43.7	Yes	ADF Systems 3 or 4
Plot 21	Ground	E	54.7	30	24.7	35	-10.3	19.7	6/12/6	41.7	Yes	ADF Systems 3 or 4
Plot 21	Ground	S	52.1	30	22.1	35	-12.9	17.1	6/12/6	39.1	Yes	ADF Systems 1 or 2
Plot 22	Ground	N	57	30	27	35	-8	22	6/12/6	44	Yes	ADF Systems 3 or 4
Plot 22	Ground	W	54.8	30	24.8	35	-10.2	19.8	6/12/6	41.8	Yes	ADF Systems 3 or 4
Plot 22	Ground	S	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 23	Ground	W	53.2	30	23.2	35	-11.8	18.2	6/12/6	40.2	Yes	ADF Systems 3 or 4
Plot 23	Ground	N	55.3	30	25.3	35	-9.7	20.3	6/12/6	42.3	Yes	ADF Systems 3 or 4
Plot 23	Ground	S	52.3	30	22.3	35	-12.7	17.3	6/12/6	39.3	Yes	ADF Systems 1 or 2
Plot 24	Ground	S	52.4	30	22.4	35	-12.6	17.4	6/12/6	39.4	Yes	ADF Systems 1 or 2
Plot 24	Ground	E	53.6	30	23.6	35	-11.4	18.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 24	Ground	N	55.3	30	25.3	35	-9.7	20.3	6/12/6	42.3	Yes	ADF Systems 3 or 4
Plot 25	Ground	N	54.9	30	24.9	35	-10.1	19.9	6/12/6	41.9	Yes	ADF Systems 3 or 4
Plot 25	Ground	S	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 25	Ground	W	52.4	30	22.4	35	-12.6	17.4	6/12/6	39.4	Yes	ADF Systems 1 or 2
Plot 26	Ground	N	54.9	30	24.9	35	-10.1	19.9	6/12/6	41.9	Yes	ADF Systems 3 or 4
Plot 26	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 26	Ground	S	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 27	Ground	NW	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 27	Ground	SW	52.7	30	22.7	35	-12.3	17.7	6/12/6	39.7	Yes	ADF Systems 1 or 2
Plot 27	Ground	NE	54.3	30	24.3	35	-10.7	19.3	6/12/6	41.3	Yes	ADF Systems 3 or 4
Plot 28	Ground	NE	54.2	30	24.2	35	-10.8	19.2	6/12/6	41.2	Yes	ADF Systems 3 or 4
Plot 28	Ground	SE	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 28	Ground	SW	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 29	Ground	NW	50.6	30	20.6	35	-14.4	15.6	6/12/6	37.6	Yes	ADF Systems 1 or 2
Plot 29	Ground	SW	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 29	Ground	SE	50.7	30	20.7	35	-14.3	15.7	6/12/6	37.7	Yes	ADF Systems 1 or 2
Plot 29	Ground	N	54	30	24	35	-11	19	6/12/6	41	Yes	ADF Systems 3 or 4
Plot 30	Ground	NE	54.1	30	24.1	35	-10.9	19.1	6/12/6	41.1	Yes	ADF Systems 3 or 4
Plot 30	Ground	SE	49.1	30	19.1	35	-15.9	14.1	6/12/6	36.1	Yes	ADF Systems 1 or 2
Plot 30	Ground	SW	48.5	30	18.5	35	-16.5	13.5	6/12/6	35.5	Yes	ADF Systems 1 or 2
Plot 30	Ground	NW	50.8	30	20.8	35	-14.2	15.8	6/12/6	37.8	Yes	ADF Systems 1 or 2
Plot 31	Ground	NW	50	30	20	35	-15	15	6/12/6	37	Yes	ADF Systems 1 or 2
Plot 31	Ground	SW	52.7	30	22.7	35	-12.3	17.7	6/12/6	39.7	Yes	ADF Systems 1 or 2
Plot 31	Ground	SE	51	30	21	35	-14	16	6/12/6	38	Yes	ADF Systems 1 or 2
Plot 31	Ground	NE	55.1	30	25.1	35	-9.9	20.1	6/12/6	42.1	Yes	ADF Systems 3 or 4
Plot 32	Ground	NW	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 32	Ground	SW	50.1	30	20.1	35	-14.9	15.1	6/12/6	37.1	Yes	ADF Systems 1 or 2
Plot 32	Ground	NE	54.5	30	24.5	35	-10.5	19.5	6/12/6	41.5	Yes	ADF Systems 3 or 4
Plot 33	Ground	NE	54.5	30	24.5	35	-10.5	19.5	6/12/6	41.5	Yes	ADF Systems 3 or 4
Plot 33	Ground	SE	49.7	30	19.7	35	-15.3	14.7	6/12/6	36.7	Yes	ADF Systems 1 or 2
Plot 33	Ground	SW	47.9	30	17.9	35	-17.1	12.9	6/12/6	34.9	No	ADF Systems 1 or 2
Plot 34	Ground	N	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 34	Ground	E	57	30	27	35	-8	22	6/12/6	44	Yes	ADF Systems 3 or 4
Plot 34	Ground	S	46.5	30	16.5	35	-18.5	11.5	6/12/6	33.5	No	ADF Systems 1 or 2
Plot 34	Ground	W	50	30	20	35	-15	15	6/12/6	37	Yes	ADF Systems 1 or 2
Plot 35	Ground	N	44.9	30	14.9	35	-20.1	9.9	6/12/6	31.9	No	ADF Systems 1 or 2
Plot 35	Ground	E	56.9	30	26.9	35	-8.1	21.9	6/12/6	43.9	Yes	ADF Systems 3 or 4
Plot 35	Ground	S	54.6	30	24.6	35	-10.4	19.6	6/12/6	41.6	Yes	ADF Systems 3 or 4
Plot 35	Ground	W	47.7	30	17.7	35	-17.3	12.7	6/12/6	34.7	No	ADF Systems 1 or 2
Plot 36	Ground	N	47.3	30	17.3	35	-17.7	12.3	6/12/6	34.3	No	ADF Systems 1 or 2
Plot 36	Ground	E	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4

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Plot 36	Ground	W	49.1	30	19.1	35	-15.9	14.1	6/12/6	36.1	Yes	ADF Systems 1 or 2
Plot 37	Ground	W	49.2	30	19.2	35	-15.8	14.2	6/12/6	36.2	Yes	ADF Systems 1 or 2
Plot 37	Ground	S	51.8	30	21.8	35	-13.2	16.8	6/12/6	38.8	Yes	ADF Systems 1 or 2
Plot 37	Ground	E	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4
Plot 38	Ground	W	47.9	30	17.9	35	-17.1	12.9	6/12/6	34.9	No	ADF Systems 1 or 2
Plot 38	Ground	E	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4
Plot 38	Ground	N	46.4	30	16.4	35	-18.6	11.4	6/12/6	33.4	No	ADF Systems 1 or 2
Plot 39	Ground	W	47.6	30	17.6	35	-17.4	12.6	6/12/6	34.6	No	ADF Systems 1 or 2
Plot 39	Ground	S	49.7	30	19.7	35	-15.3	14.7	6/12/6	36.7	Yes	ADF Systems 1 or 2
Plot 39	Ground	E	57.4	30	27.4	35	-7.6	22.4	6/12/6	44.4	Yes	ADF Systems 3 or 4
Plot 40	Ground	N	44.9	30	14.9	35	-20.1	9.9	6/12/6	31.9	No	ADF Systems 1 or 2
Plot 40	Ground	E	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4
Plot 40	Ground	S	57.5	30	27.5	35	-7.5	22.5	6/12/6	44.5	Yes	ADF Systems 3 or 4
Plot 40	Ground	W	47.6	30	17.6	35	-17.4	12.6	6/12/6	34.6	No	ADF Systems 1 or 2
Plot 41-52	Ground	N	46.8	30	16.8	35	-18.2	11.8	6/12/6	33.8	No	ADF Systems 1 or 2
Plot 41-52	Ground	E	57.2	30	27.2	35	-7.8	22.2	6/12/6	44.2	Yes	ADF Systems 3 or 4
Plot 41-52	Ground	SE	57.2	30	27.2	35	-7.8	22.2	6/12/6	44.2	Yes	ADF Systems 3 or 4
Plot 41-52	Ground	S	55.2	30	25.2	35	-9.8	20.2	6/12/6	42.2	Yes	ADF Systems 3 or 4
Plot 41-52	Ground	W	50.2	30	20.2	35	-14.8	15.2	6/12/6	37.2	Yes	ADF Systems 1 or 2
Plot 41-52	Ground	N	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 41-52	Ground	NW	45.7	30	15.7	35	-19.3	10.7	6/12/6	32.7	No	ADF Systems 1 or 2
Plot 41-52	Ground	W	46.6	30	16.6	35	-18.4	11.6	6/12/6	33.6	No	ADF Systems 1 or 2
Plot 53	Ground	E	51.3	30	21.3	35	-13.7	16.3	6/12/6	38.3	Yes	ADF Systems 1 or 2
Plot 53	Ground	S	52.9	30	22.9	35	-12.1	17.9	6/12/6	39.9	Yes	ADF Systems 1 or 2
Plot 53	Ground	N	45.9	30	15.9	35	-19.1	10.9	6/12/6	32.9	No	ADF Systems 1 or 2
Plot 54	Ground	N	46.1	30	16.1	35	-18.9	11.1	6/12/6	33.1	No	ADF Systems 1 or 2
Plot 54	Ground	W	50.2	30	20.2	35	-14.8	15.2	6/12/6	37.2	Yes	ADF Systems 1 or 2
Plot 54	Ground	S	53.5	30	23.5	35	-11.5	18.5	6/12/6	40.5	Yes	ADF Systems 3 or 4
Plot 55	Ground	N	45.9	30	15.9	35	-19.1	10.9	6/12/6	32.9	No	ADF Systems 1 or 2
Plot 55	Ground	E	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 55	Ground	S	52.9	30	22.9	35	-12.1	17.9	6/12/6	39.9	Yes	ADF Systems 1 or 2
Plot 55	Ground	W	48	30	18	35	-17	13	6/12/6	35	No	ADF Systems 1 or 2
Plot 56	Ground	E	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 56	Ground	S	52.7	30	22.7	35	-12.3	17.7	6/12/6	39.7	Yes	ADF Systems 1 or 2
Plot 56	Ground	W	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 56	Ground	N	45.5	30	15.5	35	-19.5	10.5	6/12/6	32.5	No	ADF Systems 1 or 2
Plot 57	Ground	E	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 57	Ground	S	53.2	30	23.2	35	-11.8	18.2	6/12/6	40.2	Yes	ADF Systems 3 or 4
Plot 57	Ground	W	48.4	30	18.4	35	-16.6	13.4	6/12/6	35.4	Yes	ADF Systems 1 or 2
Plot 57	Ground	N	45.6	30	15.6	35	-19.4	10.6	6/12/6	32.6	No	ADF Systems 1 or 2
Plot 58	Ground	E	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 58	Ground	S	53.4	30	23.4	35	-11.6	18.4	6/12/6	40.4	Yes	ADF Systems 3 or 4
Plot 58	Ground	W	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 58	Ground	N	45.6	30	15.6	35	-19.4	10.6	6/12/6	32.6	No	ADF Systems 1 or 2
Plot 59	Ground	N	45.6	30	15.6	35	-19.4	10.6	6/12/6	32.6	No	ADF Systems 1 or 2
Plot 59	Ground	S	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 59	Ground	E	51.3	30	21.3	35	-13.7	16.3	6/12/6	38.3	Yes	ADF Systems 1 or 2
Plot 60	Ground	N	45.9	30	15.9	35	-19.1	10.9	6/12/6	32.9	No	ADF Systems 1 or 2
Plot 60	Ground	S	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 60	Ground	W	50	30	20	35	-15	15	6/12/6	37	Yes	ADF Systems 1 or 2
Plot 61	Ground	W	49.7	30	19.7	35	-15.3	14.7	6/12/6	36.7	Yes	ADF Systems 1 or 2
Plot 61	Ground	S	52.2	30	22.2	35	-12.8	17.2	6/12/6	39.2	Yes	ADF Systems 1 or 2
Plot 61	Ground	E	49.4	30	19.4	35	-15.6	14.4	6/12/6	36.4	Yes	ADF Systems 1 or 2
Plot 61	Ground	N	45.2	30	15.2	35	-19.8	10.2	6/12/6	32.2	No	ADF Systems 1 or 2
Plot 62	Ground	W	48.4	30	18.4	35	-16.6	13.4	6/12/6	35.4	Yes	ADF Systems 1 or 2
Plot 62	Ground	S	49	30	19	35	-16	14	6/12/6	36	Yes	ADF Systems 1 or 2
Plot 62	Ground	E	51.5	30	21.5	35	-13.5	16.5	6/12/6	38.5	Yes	ADF Systems 1 or 2
Plot 63	Ground	W	48.7	30	18.7	35	-16.3	13.7	6/12/6	35.7	Yes	ADF Systems 1 or 2
Plot 63	Ground	N	44.9	30	14.9	35	-20.1	9.9	6/12/6	31.9	No	ADF Systems 1 or 2
Plot 63	Ground	E	52.1	30	22.1	35	-12.9	17.1	6/12/6	39.1	Yes	ADF Systems 1 or 2
Plot 64	Ground	W	49.2	30	19.2	35	-15.8	14.2	6/12/6	36.2	Yes	ADF Systems 1 or 2
Plot 64	Ground	S	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 64	Ground	E	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 64	Ground	N	45.3	30	15.3	35	-19.7	10.3	6/12/6	32.3	No	ADF Systems 1 or 2

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Plot 65	Ground	W	48.2	30	18.2	35	-16.8	13.2	6/12/6	35.2	Yes	ADF Systems 1 or 2
Plot 65	Ground	S	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 65	Ground	E	48.3	30	18.3	35	-16.7	13.3	6/12/6	35.3	Yes	ADF Systems 1 or 2
Plot 66	Ground	W	48.8	30	18.8	35	-16.2	13.8	6/12/6	35.8	Yes	ADF Systems 1 or 2
Plot 66	Ground	N	44.7	30	14.7	35	-20.3	9.7	6/12/6	31.7	No	ADF Systems 1 or 2
Plot 66	Ground	E	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 67	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 67	Ground	S	46.4	30	16.4	35	-18.6	11.4	6/12/6	33.4	No	ADF Systems 1 or 2
Plot 67	Ground	E	52.4	30	22.4	35	-12.6	17.4	6/12/6	39.4	Yes	ADF Systems 1 or 2
Plot 68	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 68	Ground	N	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 68	Ground	E	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 69	Ground	W	50	30	20	35	-15	15	6/12/6	37	Yes	ADF Systems 1 or 2
Plot 69	Ground	S	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 69	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 70	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 70	Ground	N	45.1	30	15.1	35	-19.9	10.1	6/12/6	32.1	No	ADF Systems 1 or 2
Plot 70	Ground	E	53.4	30	23.4	35	-11.6	18.4	6/12/6	40.4	Yes	ADF Systems 3 or 4
Plot 71	Ground	W	50.2	30	20.2	35	-14.8	15.2	6/12/6	37.2	Yes	ADF Systems 1 or 2
Plot 71	Ground	S	48.5	30	18.5	35	-16.5	13.5	6/12/6	35.5	Yes	ADF Systems 1 or 2
Plot 71	Ground	E	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 71	Ground	N	47.3	30	17.3	35	-17.7	12.3	6/12/6	34.3	No	ADF Systems 1 or 2
Plot 72	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 72	Ground	S	54.1	30	24.1	35	-10.9	19.1	6/12/6	41.1	Yes	ADF Systems 3 or 4
Plot 72	Ground	N	46.5	30	16.5	35	-18.5	11.5	6/12/6	33.5	No	ADF Systems 1 or 2
Plot 73	Ground	N	46.7	30	16.7	35	-18.3	11.7	6/12/6	33.7	No	ADF Systems 1 or 2
Plot 73	Ground	E	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 73	Ground	S	54.2	30	24.2	35	-10.8	19.2	6/12/6	41.2	Yes	ADF Systems 3 or 4
Plot 74	Ground	W	48.9	30	18.9	35	-16.1	13.9	6/12/6	35.9	Yes	ADF Systems 1 or 2
Plot 74	Ground	S	55.1	30	25.1	35	-9.9	20.1	6/12/6	42.1	Yes	ADF Systems 3 or 4
Plot 74	Ground	N	46.7	30	16.7	35	-18.3	11.7	6/12/6	33.7	No	ADF Systems 1 or 2
Plot 75	Ground	N	46.6	30	16.6	35	-18.4	11.6	6/12/6	33.6	No	ADF Systems 1 or 2
Plot 75	Ground	E	54	30	24	35	-11	19	6/12/6	41	Yes	ADF Systems 3 or 4
Plot 75	Ground	S	54.8	30	24.8	35	-10.2	19.8	6/12/6	41.8	Yes	ADF Systems 3 or 4
Plot 76	Ground	N	45.7	30	15.7	35	-19.3	10.7	6/12/6	32.7	No	ADF Systems 1 or 2
Plot 76	Ground	E	54	30	24	35	-11	19	6/12/6	41	Yes	ADF Systems 3 or 4
Plot 76	Ground	W	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 77	Ground	E	53.7	30	23.7	35	-11.3	18.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 77	Ground	S	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 77	Ground	W	49.7	30	19.7	35	-15.3	14.7	6/12/6	36.7	Yes	ADF Systems 1 or 2
Plot 78	Ground	N	44.7	30	14.7	35	-20.3	9.7	6/12/6	31.7	No	ADF Systems 1 or 2
Plot 78	Ground	E	53.6	30	23.6	35	-11.4	18.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 78	Ground	W	49.6	30	19.6	35	-15.4	14.6	6/12/6	36.6	Yes	ADF Systems 1 or 2
Plot 79	Ground	E	53.6	30	23.6	35	-11.4	18.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 79	Ground	S	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 79	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 80	Ground	N	45.4	30	15.4	35	-19.6	10.4	6/12/6	32.4	No	ADF Systems 1 or 2
Plot 80	Ground	E	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 80	Ground	W	49.1	30	19.1	35	-15.9	14.1	6/12/6	36.1	Yes	ADF Systems 1 or 2
Plot 81	Ground	W	49	30	19	35	-16	14	6/12/6	36	Yes	ADF Systems 1 or 2
Plot 81	Ground	E	52.8	30	22.8	35	-12.2	17.8	6/12/6	39.8	Yes	ADF Systems 1 or 2
Plot 81	Ground	S	46.3	30	16.3	35	-18.7	11.3	6/12/6	33.3	No	ADF Systems 1 or 2
Plot 82	Ground	N	44.8	30	14.8	35	-20.2	9.8	6/12/6	31.8	No	ADF Systems 1 or 2
Plot 82	Ground	E	52.1	30	22.1	35	-12.9	17.1	6/12/6	39.1	Yes	ADF Systems 1 or 2
Plot 82	Ground	W	48.7	30	18.7	35	-16.3	13.7	6/12/6	35.7	Yes	ADF Systems 1 or 2
Plot 83	Ground	E	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 83	Ground	S	51.1	30	21.1	35	-13.9	16.1	6/12/6	38.1	Yes	ADF Systems 1 or 2
Plot 83	Ground	W	48.4	30	18.4	35	-16.6	13.4	6/12/6	35.4	Yes	ADF Systems 1 or 2
Plot 84	Ground	S	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 84	Ground	E	51	30	21	35	-14	16	6/12/6	38	Yes	ADF Systems 1 or 2
Plot 84	Ground	W	48.5	30	18.5	35	-16.5	13.5	6/12/6	35.5	Yes	ADF Systems 1 or 2
Plot 85	Ground	W	48.7	30	18.7	35	-16.3	13.7	6/12/6	35.7	Yes	ADF Systems 1 or 2
Plot 85	Ground	N	45.4	30	15.4	35	-19.6	10.4	6/12/6	32.4	No	ADF Systems 1 or 2
Plot 85	Ground	E	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2

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Plot 86	Ground	S	52.4	30	22.4	35	-12.6	17.4	6/12/6	39.4	Yes	ADF Systems 1 or 2
Plot 86	Ground	E	51.9	30	21.9	35	-13.1	16.9	6/12/6	38.9	Yes	ADF Systems 1 or 2
Plot 86	Ground	W	47.5	30	17.5	35	-17.5	12.5	6/12/6	34.5	No	ADF Systems 1 or 2
Plot 87	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 87	Ground	N	45	30	15	35	-20	10	6/12/6	32	No	ADF Systems 1 or 2
Plot 87	Ground	W	48.6	30	18.6	35	-16.4	13.6	6/12/6	35.6	Yes	ADF Systems 1 or 2
Plot 88	Ground	S	51.6	30	21.6	35	-13.4	16.6	6/12/6	38.6	Yes	ADF Systems 1 or 2
Plot 88	Ground	E	53.9	30	23.9	35	-11.1	18.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 88	Ground	W	47.2	30	17.2	35	-17.8	12.2	6/12/6	34.2	No	ADF Systems 1 or 2
Plot 89	Ground	E	54.3	30	24.3	35	-10.7	19.3	6/12/6	41.3	Yes	ADF Systems 3 or 4
Plot 89	Ground	N	44.9	30	14.9	35	-20.1	9.9	6/12/6	31.9	No	ADF Systems 1 or 2
Plot 89	Ground	W	48.6	30	18.6	35	-16.4	13.6	6/12/6	35.6	Yes	ADF Systems 1 or 2
Plot 90	Ground	S	51.5	30	21.5	35	-13.5	16.5	6/12/6	38.5	Yes	ADF Systems 1 or 2
Plot 90	Ground	E	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 90	Ground	W	47.8	30	17.8	35	-17.2	12.8	6/12/6	34.8	No	ADF Systems 1 or 2
Plot 91	Ground	E	53.4	30	23.4	35	-11.6	18.4	6/12/6	40.4	Yes	ADF Systems 3 or 4
Plot 91	Ground	N	44.7	30	14.7	35	-20.3	9.7	6/12/6	31.7	No	ADF Systems 1 or 2
Plot 91	Ground	W	49	30	19	35	-16	14	6/12/6	36	Yes	ADF Systems 1 or 2
Plot 92	Ground	S	46.4	30	16.4	35	-18.6	11.4	6/12/6	33.4	No	ADF Systems 1 or 2
Plot 92	Ground	E	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 92	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 93	Ground	E	53.6	30	23.6	35	-11.4	18.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 93	Ground	N	45.2	30	15.2	35	-19.8	10.2	6/12/6	32.2	No	ADF Systems 1 or 2
Plot 93	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 94	Ground	S	48	30	18	35	-17	13	6/12/6	35	No	ADF Systems 1 or 2
Plot 94	Ground	NE	51.5	30	21.5	35	-13.5	16.5	6/12/6	38.5	Yes	ADF Systems 1 or 2
Plot 94	Ground	SW	51.2	30	21.2	35	-13.8	16.2	6/12/6	38.2	Yes	ADF Systems 1 or 2
Plot 95	Ground	NE	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2
Plot 95	Ground	N	45.9	30	15.9	35	-19.1	10.9	6/12/6	32.9	No	ADF Systems 1 or 2
Plot 95	Ground	SW	51.7	30	21.7	35	-13.3	16.7	6/12/6	38.7	Yes	ADF Systems 1 or 2
Plot 96	Ground	SE	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2
Plot 96	Ground	NE	48.3	30	18.3	35	-16.7	13.3	6/12/6	35.3	Yes	ADF Systems 1 or 2
Plot 96	Ground	SW	52.7	30	22.7	35	-12.3	17.7	6/12/6	39.7	Yes	ADF Systems 1 or 2
Plot 97	Ground	NE	48.4	30	18.4	35	-16.6	13.4	6/12/6	35.4	Yes	ADF Systems 1 or 2
Plot 97	Ground	NW	46.8	30	16.8	35	-18.2	11.8	6/12/6	33.8	No	ADF Systems 1 or 2
Plot 97	Ground	SW	53.1	30	23.1	35	-11.9	18.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 98	Ground	S	53.2	30	23.2	35	-11.8	18.2	6/12/6	40.2	Yes	ADF Systems 3 or 4
Plot 98	Ground	W	44.6	30	14.6	35	-20.4	9.6	6/12/6	31.6	No	ADF Systems 1 or 2
Plot 98	Ground	N	47.7	30	17.7	35	-17.3	12.7	6/12/6	34.7	No	ADF Systems 1 or 2
Plot 98	Ground	E	52.2	30	22.2	35	-12.8	17.2	6/12/6	39.2	Yes	ADF Systems 1 or 2
Plot 99	Ground	E	44.6	30	14.6	35	-20.4	9.6	6/12/6	31.6	No	ADF Systems 1 or 2
Plot 99	Ground	N	47.6	30	17.6	35	-17.4	12.6	6/12/6	34.6	No	ADF Systems 1 or 2
Plot 99	Ground	W	47.7	30	17.7	35	-17.3	12.7	6/12/6	34.7	No	ADF Systems 1 or 2
Plot 99	Ground	S	52.9	30	22.9	35	-12.1	17.9	6/12/6	39.9	Yes	ADF Systems 1 or 2
Plot 100	Ground	N	48	30	18	35	-17	13	6/12/6	35	No	ADF Systems 1 or 2
Plot 100	Ground	E	48.9	30	18.9	35	-16.1	13.9	6/12/6	35.9	Yes	ADF Systems 1 or 2
Plot 100	Ground	S	52.5	30	22.5	35	-12.5	17.5	6/12/6	39.5	Yes	ADF Systems 1 or 2
Plot 101	Ground	N	48.2	30	18.2	35	-16.8	13.2	6/12/6	35.2	Yes	ADF Systems 1 or 2
Plot 101	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 101	Ground	S	52.3	30	22.3	35	-12.7	17.3	6/12/6	39.3	Yes	ADF Systems 1 or 2
Plot 102	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 102	Ground	W	49.8	30	19.8	35	-15.2	14.8	6/12/6	36.8	Yes	ADF Systems 1 or 2
Plot 102	Ground	S	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 103	Ground	W	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 103	Ground	N	47.5	30	17.5	35	-17.5	12.5	6/12/6	34.5	No	ADF Systems 1 or 2
Plot 103	Ground	E	52.6	30	22.6	35	-12.4	17.6	6/12/6	39.6	Yes	ADF Systems 1 or 2
Plot 104	Ground	W	49.2	30	19.2	35	-15.8	14.2	6/12/6	36.2	Yes	ADF Systems 1 or 2
Plot 104	Ground	S	51.8	30	21.8	35	-13.2	16.8	6/12/6	38.8	Yes	ADF Systems 1 or 2
Plot 104	Ground	E	51.6	30	21.6	35	-13.4	16.6	6/12/6	38.6	Yes	ADF Systems 1 or 2
Plot 105	Ground	W	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 105	Ground	N	49.4	30	19.4	35	-15.6	14.4	6/12/6	36.4	Yes	ADF Systems 1 or 2
Plot 105	Ground	E	51.6	30	21.6	35	-13.4	16.6	6/12/6	38.6	Yes	ADF Systems 1 or 2
Plot 106	Ground	W	50.3	30	20.3	35	-14.7	15.3	6/12/6	37.3	Yes	ADF Systems 1 or 2
Plot 106	Ground	S	57.2	30	27.2	35	-7.8	22.2	6/12/6	44.2	Yes	ADF Systems 3 or 4

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Plot 106	Ground	E	55.4	30	25.4	35	-9.6	20.4	6/12/6	42.4	Yes	ADF Systems 3 or 4
Plot 106	Ground	N	47.2	30	17.2	35	-17.8	12.2	6/12/6	34.2	No	ADF Systems 1 or 2
Plot 107	Ground	W	50.6	30	20.6	35	-14.4	15.6	6/12/6	37.6	Yes	ADF Systems 1 or 2
Plot 107	Ground	S	57.3	30	27.3	35	-7.7	22.3	6/12/6	44.3	Yes	ADF Systems 3 or 4
Plot 107	Ground	N	46.7	30	16.7	35	-18.3	11.7	6/12/6	33.7	No	ADF Systems 1 or 2
Plot 108	Ground	N	46.6	30	16.6	35	-18.4	11.6	6/12/6	33.6	No	ADF Systems 1 or 2
Plot 108	Ground	E	53.8	30	23.8	35	-11.2	18.8	6/12/6	40.8	Yes	ADF Systems 3 or 4
Plot 108	Ground	S	57.3	30	27.3	35	-7.7	22.3	6/12/6	44.3	Yes	ADF Systems 3 or 4
Plot 109	Ground	W	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2
Plot 109	Ground	S	57.4	30	27.4	35	-7.6	22.4	6/12/6	44.4	Yes	ADF Systems 3 or 4
Plot 109	Ground	E	53	30	23	35	-12	18	6/12/6	40	Yes	ADF Systems 1 or 2
Plot 109	Ground	N	46.3	30	16.3	35	-18.7	11.3	6/12/6	33.3	No	ADF Systems 1 or 2
Plot 110	Ground	N	46	30	16	35	-19	11	6/12/6	33	No	ADF Systems 1 or 2
Plot 110	Ground	E	55	30	25	35	-10	20	6/12/6	42	Yes	ADF Systems 3 or 4
Plot 110	Ground	S	54.1	30	24.1	35	-10.9	19.1	6/12/6	41.1	Yes	ADF Systems 3 or 4
Plot 110	Ground	W	49.2	30	19.2	35	-15.8	14.2	6/12/6	36.2	Yes	ADF Systems 1 or 2
Plot 111	Ground	N	46	30	16	35	-19	11	6/12/6	33	No	ADF Systems 1 or 2
Plot 111	Ground	S	57.3	30	27.3	35	-7.7	22.3	6/12/6	44.3	Yes	ADF Systems 3 or 4
Plot 111	Ground	W	49.5	30	19.5	35	-15.5	14.5	6/12/6	36.5	Yes	ADF Systems 1 or 2
Plot 112	Ground	N	46	30	16	35	-19	11	6/12/6	33	No	ADF Systems 1 or 2
Plot 112	Ground	E	55.4	30	25.4	35	-9.6	20.4	6/12/6	42.4	Yes	ADF Systems 3 or 4
Plot 112	Ground	S	57.4	30	27.4	35	-7.6	22.4	6/12/6	44.4	Yes	ADF Systems 3 or 4
Plot 113	Ground	N	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 113	Ground	E	54.9	30	24.9	35	-10.1	19.9	6/12/6	41.9	Yes	ADF Systems 3 or 4
Plot 113	Ground	S	54.5	30	24.5	35	-10.5	19.5	6/12/6	41.5	Yes	ADF Systems 3 or 4
Plot 113	Ground	W	50.9	30	20.9	35	-14.1	15.9	6/12/6	37.9	Yes	ADF Systems 1 or 2
Plot 114	Ground	N	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 114	Ground	S	57.2	30	27.2	35	-7.8	22.2	6/12/6	44.2	Yes	ADF Systems 3 or 4
Plot 114	Ground	W	49.9	30	19.9	35	-15.1	14.9	6/12/6	36.9	Yes	ADF Systems 1 or 2
Plot 115	Ground	N	45.8	30	15.8	35	-19.2	10.8	6/12/6	32.8	No	ADF Systems 1 or 2
Plot 115	Ground	E	52.3	30	22.3	35	-12.7	17.3	6/12/6	39.3	Yes	ADF Systems 1 or 2
Plot 115	Ground	S	56.2	30	26.2	35	-8.8	21.2	6/12/6	43.2	Yes	ADF Systems 3 or 4
Plot 116	Ground	N	46.2	30	16.2	35	-18.8	11.2	6/12/6	33.2	No	ADF Systems 1 or 2
Plot 116	Ground	E	56.3	30	26.3	35	-8.7	21.3	6/12/6	43.3	Yes	ADF Systems 3 or 4
Plot 116	Ground	S	57.3	30	27.3	35	-7.7	22.3	6/12/6	44.3	Yes	ADF Systems 3 or 4
Plot 116	Ground	W	49.7	30	19.7	35	-15.3	14.7	6/12/6	36.7	Yes	ADF Systems 1 or 2
Plot 117	Ground	N	46.5	30	16.5	35	-18.5	11.5	6/12/6	33.5	No	ADF Systems 1 or 2
Plot 117	Ground	S	57.7	30	27.7	35	-7.3	22.7	6/12/6	44.7	Yes	ADF Systems 3 or 4
Plot 117	Ground	W	51.4	30	21.4	35	-13.6	16.4	6/12/6	38.4	Yes	ADF Systems 1 or 2
Plot 118	Ground	N	46.5	30	16.5	35	-18.5	11.5	6/12/6	33.5	No	ADF Systems 1 or 2
Plot 118	Ground	E	55.1	30	25.1	35	-9.9	20.1	6/12/6	42.1	Yes	ADF Systems 3 or 4
Plot 118	Ground	S	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4
Plot 119	Ground	N	46.7	30	16.7	35	-18.3	11.7	6/12/6	33.7	No	ADF Systems 1 or 2
Plot 119	Ground	E	55.6	30	25.6	35	-9.4	20.6	6/12/6	42.6	Yes	ADF Systems 3 or 4
Plot 119	Ground	S	53.9	30	23.9	35	-11.1	18.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 119	Ground	W	50.4	30	20.4	35	-14.6	15.4	6/12/6	37.4	Yes	ADF Systems 1 or 2
Plot 120	Ground	N	47.1	30	17.1	35	-17.9	12.1	6/12/6	34.1	No	ADF Systems 1 or 2
Plot 120	Ground	E	57.6	30	27.6	35	-7.4	22.6	6/12/6	44.6	Yes	ADF Systems 3 or 4
Plot 120	Ground	S	58	30	28	35	-7	23	6/12/6	45	Yes	ADF Systems 3 or 4
Plot 120	Ground	W	48.5	30	18.5	35	-16.5	13.5	6/12/6	35.5	Yes	ADF Systems 1 or 2

APPENDIX 7: NIGHT-TIME FAÇADE NOISE LEVELS

Plot	Floor	Façade Direction	Calculated LAeq,8hr at Façade (dB)	Glazing Sound Reduction Index (Rw) (Standard Thermal)	Calculated Noise Level Inside Room (dB)	Criteria (dB)	Difference +/- (dB)	Required Sound Insulation Performance for Glazing (Rw +Ctr) (dB)	Example Glazing Specification (6/12/6 = standard thermal as minimum)	Calculated Internal Noise Level with a Partially Open Window (dB)	Alternative Ventilation Required?	Acoustics Ventilation & Overheating Assessment - Appropriate AD-F System
Plot 1	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 1	1st	S	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 1	1st	W	47.9	30	17.9	30	-12.1	17.9	6/12/6	34.9	Yes	ADF Systems 1 or 2
Plot 2	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 2	1st	E	50	30	20	30	-10	20	6/12/6	37	Yes	ADF Systems 3 or 4
Plot 2	1st	S	51.3	30	21.3	30	-8.7	21.3	6/12/6	38.3	Yes	ADF Systems 3 or 4
Plot 3	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 3	1st	E	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 3	1st	S	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 3	1st	W	47.3	30	17.3	30	-12.7	17.3	6/12/6	34.3	Yes	ADF Systems 1 or 2
Plot 4	1st	W	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 4	1st	S	51.7	30	21.7	30	-8.3	21.7	6/12/6	38.7	Yes	ADF Systems 3 or 4
Plot 4	1st	E	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 5	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 5	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 5	1st	E	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 6	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 6	1st	S	49.8	30	19.8	30	-10.2	19.8	6/12/6	36.8	Yes	ADF Systems 3 or 4
Plot 6	1st	E	50.9	30	20.9	30	-9.1	20.9	6/12/6	37.9	Yes	ADF Systems 3 or 4
Plot 6	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 7	1st	W	46.4	30	16.4	30	-13.6	16.4	6/12/6	33.4	Yes	ADF Systems 1 or 2
Plot 7	1st	S	51	30	21	30	-9	21	6/12/6	38	Yes	ADF Systems 3 or 4
Plot 7	1st	E	50.9	30	20.9	30	-9.1	20.9	6/12/6	37.9	Yes	ADF Systems 3 or 4
Plot 8	1st	W	46.5	30	16.5	30	-13.5	16.5	6/12/6	33.5	Yes	ADF Systems 1 or 2
Plot 8	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 8	1st	E	50.7	30	20.7	30	-9.3	20.7	6/12/6	37.7	Yes	ADF Systems 3 or 4
Plot 9	1st	W	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 9	1st	S	52.3	30	22.3	30	-7.7	22.3	6/12/6	39.3	Yes	ADF Systems 3 or 4
Plot 9	1st	E	51.3	30	21.3	30	-8.7	21.3	6/12/6	38.3	Yes	ADF Systems 3 or 4
Plot 9	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 10	1st	S	49.4	30	19.4	30	-10.6	19.4	6/12/6	36.4	Yes	ADF Systems 3 or 4
Plot 10	1st	W	47.2	30	17.2	30	-12.8	17.2	6/12/6	34.2	Yes	ADF Systems 1 or 2
Plot 10	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 10	1st	E	50.2	30	20.2	30	-9.8	20.2	6/12/6	37.2	Yes	ADF Systems 3 or 4
Plot 11	1st	W	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 11	1st	S	52	30	22	30	-8	22	6/12/6	39	Yes	ADF Systems 3 or 4
Plot 11	1st	E	51.3	30	21.3	30	-8.7	21.3	6/12/6	38.3	Yes	ADF Systems 3 or 4
Plot 11	1st	N	44.9	30	14.9	30	-15.1	14.9	6/12/6	31.9	Yes	ADF Systems 1 or 2
Plot 12	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 12	1st	S	52.9	30	22.9	30	-7.1	22.9	6/12/6	39.9	Yes	ADF Systems 3 or 4
Plot 12	1st	E	51.7	30	21.7	30	-8.3	21.7	6/12/6	38.7	Yes	ADF Systems 3 or 4
Plot 12	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 13	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 13	1st	S	50.8	30	20.8	30	-9.2	20.8	6/12/6	37.8	Yes	ADF Systems 3 or 4
Plot 13	1st	E	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 14	1st	W	47.2	30	17.2	30	-12.8	17.2	6/12/6	34.2	Yes	ADF Systems 1 or 2
Plot 14	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 14	1st	E	50.5	30	20.5	30	-9.5	20.5	6/12/6	37.5	Yes	ADF Systems 3 or 4
Plot 15	1st	S	46.4	30	16.4	30	-13.6	16.4	6/12/6	33.4	Yes	ADF Systems 1 or 2
Plot 15	1st	E	50.2	30	20.2	30	-9.8	20.2	6/12/6	37.2	Yes	ADF Systems 3 or 4
Plot 15	1st	W	47.3	30	17.3	30	-12.7	17.3	6/12/6	34.3	Yes	ADF Systems 1 or 2

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Plot 16	1st	W	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 16	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 16	1st	E	50.1	30	20.1	30	-9.9	20.1	6/12/6	37.1	Yes	ADF Systems 3 or 4
Plot 17	1st	W	47.5	30	17.5	30	-12.5	17.5	6/12/6	34.5	Yes	ADF Systems 1 or 2
Plot 17	1st	S	48	30	18	30	-12	18	6/12/6	35	Yes	ADF Systems 1 or 2
Plot 17	1st	E	49.9	30	19.9	30	-10.1	19.9	6/12/6	36.9	Yes	ADF Systems 3 or 4
Plot 18	1st	W	47.5	30	17.5	30	-12.5	17.5	6/12/6	34.5	Yes	ADF Systems 1 or 2
Plot 18	1st	N	45.7	30	15.7	30	-14.3	15.7	6/12/6	32.7	Yes	ADF Systems 1 or 2
Plot 18	1st	E	49.8	30	19.8	30	-10.2	19.8	6/12/6	36.8	Yes	ADF Systems 3 or 4
Plot 19	1st	S	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 19	1st	SE	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 19	1st	N	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2
Plot 20	1st	S	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 20	1st	NW	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 20	1st	N	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2
Plot 21	1st	N	48.4	30	18.4	30	-11.6	18.4	6/12/6	35.4	Yes	ADF Systems 3 or 4
Plot 21	1st	E	48.9	30	18.9	30	-11.1	18.9	6/12/6	35.9	Yes	ADF Systems 3 or 4
Plot 21	1st	S	49.6	30	19.6	30	-10.4	19.6	6/12/6	36.6	Yes	ADF Systems 3 or 4
Plot 22	1st	N	48.6	30	18.6	30	-11.4	18.6	6/12/6	35.6	Yes	ADF Systems 3 or 4
Plot 22	1st	W	48.3	30	18.3	30	-11.7	18.3	6/12/6	35.3	Yes	ADF Systems 3 or 4
Plot 22	1st	S	50.1	30	20.1	30	-9.9	20.1	6/12/6	37.1	Yes	ADF Systems 3 or 4
Plot 23	1st	W	47	30	17	30	-13	17	6/12/6	34	Yes	ADF Systems 1 or 2
Plot 23	1st	N	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 23	1st	S	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 24	1st	S	50.5	30	20.5	30	-9.5	20.5	6/12/6	37.5	Yes	ADF Systems 3 or 4
Plot 24	1st	E	49.6	30	19.6	30	-10.4	19.6	6/12/6	36.6	Yes	ADF Systems 3 or 4
Plot 24	1st	N	47.3	30	17.3	30	-12.7	17.3	6/12/6	34.3	Yes	ADF Systems 1 or 2
Plot 25	1st	N	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 25	1st	S	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 25	1st	W	46.4	30	16.4	30	-13.6	16.4	6/12/6	33.4	Yes	ADF Systems 1 or 2
Plot 26	1st	N	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 26	1st	E	49.1	30	19.1	30	-10.9	19.1	6/12/6	36.1	Yes	ADF Systems 3 or 4
Plot 26	1st	S	50.7	30	20.7	30	-9.3	20.7	6/12/6	37.7	Yes	ADF Systems 3 or 4
Plot 27	1st	NW	46.2	30	16.2	30	-13.8	16.2	6/12/6	33.2	Yes	ADF Systems 1 or 2
Plot 27	1st	SW	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 27	1st	NE	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 28	1st	NE	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 28	1st	SE	48.8	30	18.8	30	-11.2	18.8	6/12/6	35.8	Yes	ADF Systems 3 or 4
Plot 28	1st	SW	51.2	30	21.2	30	-8.8	21.2	6/12/6	38.2	Yes	ADF Systems 3 or 4
Plot 29	1st	NW	45.8	30	15.8	30	-14.2	15.8	6/12/6	32.8	Yes	ADF Systems 1 or 2
Plot 29	1st	SW	51	30	21	30	-9	21	6/12/6	38	Yes	ADF Systems 3 or 4
Plot 29	1st	SE	47.9	30	17.9	30	-12.1	17.9	6/12/6	34.9	Yes	ADF Systems 1 or 2
Plot 29	1st	N	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 30	1st	NE	47.7	30	17.7	30	-12.3	17.7	6/12/6	34.7	Yes	ADF Systems 1 or 2
Plot 30	1st	SE	48	30	18	30	-12	18	6/12/6	35	Yes	ADF Systems 1 or 2
Plot 30	1st	SW	47.9	30	17.9	30	-12.1	17.9	6/12/6	34.9	Yes	ADF Systems 1 or 2
Plot 30	1st	NW	45.5	30	15.5	30	-14.5	15.5	6/12/6	32.5	Yes	ADF Systems 1 or 2
Plot 31	1st	NW	44.9	30	14.9	30	-15.1	14.9	6/12/6	31.9	Yes	ADF Systems 1 or 2
Plot 31	1st	SW	50.5	30	20.5	30	-9.5	20.5	6/12/6	37.5	Yes	ADF Systems 3 or 4
Plot 31	1st	SE	49	30	19	30	-11	19	6/12/6	36	Yes	ADF Systems 3 or 4
Plot 31	1st	NE	49.9	30	19.9	30	-10.1	19.9	6/12/6	36.9	Yes	ADF Systems 3 or 4
Plot 32	1st	NW	44.9	30	14.9	30	-15.1	14.9	6/12/6	31.9	Yes	ADF Systems 1 or 2
Plot 32	1st	SW	48.8	30	18.8	30	-11.2	18.8	6/12/6	35.8	Yes	ADF Systems 3 or 4
Plot 32	1st	NE	49.7	30	19.7	30	-10.3	19.7	6/12/6	36.7	Yes	ADF Systems 3 or 4
Plot 33	1st	NE	49.7	30	19.7	30	-10.3	19.7	6/12/6	36.7	Yes	ADF Systems 3 or 4
Plot 33	1st	SE	49.2	30	19.2	30	-10.8	19.2	6/12/6	36.2	Yes	ADF Systems 3 or 4
Plot 33	1st	SW	47.5	30	17.5	30	-12.5	17.5	6/12/6	34.5	Yes	ADF Systems 1 or 2
Plot 34	1st	N	44.9	30	14.9	30	-15.1	14.9	6/12/6	31.9	Yes	ADF Systems 1 or 2
Plot 34	1st	E	52.8	30	22.8	30	-7.2	22.8	6/12/6	39.8	Yes	ADF Systems 3 or 4
Plot 34	1st	S	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 34	1st	W	48.5	30	18.5	30	-11.5	18.5	6/12/6	35.5	Yes	ADF Systems 3 or 4

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Plot 35	1st	N	43.9	30	13.9	30	-16.1	13.9	6/12/6	30.9	Yes	ADF Systems 1 or 2
Plot 35	1st	E	52.8	30	22.8	30	-7.2	22.8	6/12/6	39.8	Yes	ADF Systems 3 or 4
Plot 35	1st	S	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 35	1st	W	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 36	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 36	1st	E	53.6	30	23.6	30	-6.4	23.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 36	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 37	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 37	1st	S	50	30	20	30	-10	20	6/12/6	37	Yes	ADF Systems 3 or 4
Plot 37	1st	E	53.6	30	23.6	30	-6.4	23.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 38	1st	W	46.2	30	16.2	30	-13.8	16.2	6/12/6	33.2	Yes	ADF Systems 1 or 2
Plot 38	1st	E	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 38	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 39	1st	W	46	30	16	30	-14	16	6/12/6	33	Yes	ADF Systems 1 or 2
Plot 39	1st	S	48.8	30	18.8	30	-11.2	18.8	6/12/6	35.8	Yes	ADF Systems 3 or 4
Plot 39	1st	E	53.6	30	23.6	30	-6.4	23.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 40	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 40	1st	E	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 40	1st	S	53.9	30	23.9	30	-6.1	23.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 40	1st	W	45.8	30	15.8	30	-14.2	15.8	6/12/6	32.8	Yes	ADF Systems 1 or 2
Plot 41-52	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 41-52	1st	E	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 41-52	1st	SE	53.9	30	23.9	30	-6.1	23.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 41-52	1st	S	53.1	30	23.1	30	-6.9	23.1	6/12/6	40.1	Yes	ADF Systems 3 or 4
Plot 41-52	1st	W	48.3	30	18.3	30	-11.7	18.3	6/12/6	35.3	Yes	ADF Systems 3 or 4
Plot 41-52	1st	N	44.5	30	14.5	30	-15.5	14.5	6/12/6	31.5	Yes	ADF Systems 1 or 2
Plot 41-52	1st	NW	44.5	30	14.5	30	-15.5	14.5	6/12/6	31.5	Yes	ADF Systems 1 or 2
Plot 41-52	1st	W	45.7	30	15.7	30	-14.3	15.7	6/12/6	32.7	Yes	ADF Systems 1 or 2
Plot 53	1st	E	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 53	1st	S	51.7	30	21.7	30	-8.3	21.7	6/12/6	38.7	Yes	ADF Systems 3 or 4
Plot 53	1st	N	44.5	30	14.5	30	-15.5	14.5	6/12/6	31.5	Yes	ADF Systems 1 or 2
Plot 54	1st	N	44.5	30	14.5	30	-15.5	14.5	6/12/6	31.5	Yes	ADF Systems 1 or 2
Plot 54	1st	W	48.1	30	18.1	30	-11.9	18.1	6/12/6	35.1	Yes	ADF Systems 3 or 4
Plot 54	1st	S	51.9	30	21.9	30	-8.1	21.9	6/12/6	38.9	Yes	ADF Systems 3 or 4
Plot 55	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 55	1st	E	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 55	1st	S	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 55	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 56	1st	E	48.4	30	18.4	30	-11.6	18.4	6/12/6	35.4	Yes	ADF Systems 3 or 4
Plot 56	1st	S	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 56	1st	W	47.8	30	17.8	30	-12.2	17.8	6/12/6	34.8	Yes	ADF Systems 1 or 2
Plot 56	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 57	1st	E	49.8	30	19.8	30	-10.2	19.8	6/12/6	36.8	Yes	ADF Systems 3 or 4
Plot 57	1st	S	51.7	30	21.7	30	-8.3	21.7	6/12/6	38.7	Yes	ADF Systems 3 or 4
Plot 57	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 57	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 58	1st	E	49.4	30	19.4	30	-10.6	19.4	6/12/6	36.4	Yes	ADF Systems 3 or 4
Plot 58	1st	S	51.7	30	21.7	30	-8.3	21.7	6/12/6	38.7	Yes	ADF Systems 3 or 4
Plot 58	1st	W	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2
Plot 58	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 59	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 59	1st	S	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 59	1st	E	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 60	1st	N	44.5	30	14.5	30	-15.5	14.5	6/12/6	31.5	Yes	ADF Systems 1 or 2
Plot 60	1st	S	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 60	1st	W	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2
Plot 61	1st	W	47.3	30	17.3	30	-12.7	17.3	6/12/6	34.3	Yes	ADF Systems 1 or 2
Plot 61	1st	S	51.3	30	21.3	30	-8.7	21.3	6/12/6	38.3	Yes	ADF Systems 3 or 4
Plot 61	1st	E	48.7	30	18.7	30	-11.3	18.7	6/12/6	35.7	Yes	ADF Systems 3 or 4
Plot 61	1st	N	44.2	30	14.2	30	-15.8	14.2	6/12/6	31.2	Yes	ADF Systems 1 or 2
Plot 62	1st	W	46.5	30	16.5	30	-13.5	16.5	6/12/6	33.5	Yes	ADF Systems 1 or 2

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Plot 62	1st	S	49.5	30	19.5	30	-10.5	19.5	6/12/6	36.5	Yes	ADF Systems 3 or 4
Plot 62	1st	E	51.2	30	21.2	30	-8.8	21.2	6/12/6	38.2	Yes	ADF Systems 3 or 4
Plot 63	1st	W	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 63	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 63	1st	E	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 64	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 64	1st	S	50.3	30	20.3	30	-9.7	20.3	6/12/6	37.3	Yes	ADF Systems 3 or 4
Plot 64	1st	E	52	30	22	30	-8	22	6/12/6	39	Yes	ADF Systems 3 or 4
Plot 64	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 65	1st	W	46.5	30	16.5	30	-13.5	16.5	6/12/6	33.5	Yes	ADF Systems 1 or 2
Plot 65	1st	S	50.2	30	20.2	30	-9.8	20.2	6/12/6	37.2	Yes	ADF Systems 3 or 4
Plot 65	1st	E	48.7	30	18.7	30	-11.3	18.7	6/12/6	35.7	Yes	ADF Systems 3 or 4
Plot 66	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 66	1st	N	44	30	14	30	-16	14	6/12/6	31	Yes	ADF Systems 1 or 2
Plot 66	1st	E	50.8	30	20.8	30	-9.2	20.8	6/12/6	37.8	Yes	ADF Systems 3 or 4
Plot 67	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 67	1st	S	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 67	1st	E	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 68	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 68	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 68	1st	E	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 69	1st	W	47	30	17	30	-13	17	6/12/6	34	Yes	ADF Systems 1 or 2
Plot 69	1st	S	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 69	1st	E	51.9	30	21.9	30	-8.1	21.9	6/12/6	38.9	Yes	ADF Systems 3 or 4
Plot 70	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 70	1st	N	43.9	30	13.9	30	-16.1	13.9	6/12/6	30.9	Yes	ADF Systems 1 or 2
Plot 70	1st	E	52	30	22	30	-8	22	6/12/6	39	Yes	ADF Systems 3 or 4
Plot 71	1st	W	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 71	1st	S	49.1	30	19.1	30	-10.9	19.1	6/12/6	36.1	Yes	ADF Systems 3 or 4
Plot 71	1st	E	51.8	30	21.8	30	-8.2	21.8	6/12/6	38.8	Yes	ADF Systems 3 or 4
Plot 71	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 72	1st	W	47	30	17	30	-13	17	6/12/6	34	Yes	ADF Systems 1 or 2
Plot 72	1st	S	52.9	30	22.9	30	-7.1	22.9	6/12/6	39.9	Yes	ADF Systems 3 or 4
Plot 72	1st	N	44.2	30	14.2	30	-15.8	14.2	6/12/6	31.2	Yes	ADF Systems 1 or 2
Plot 73	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 73	1st	E	48.6	30	18.6	30	-11.4	18.6	6/12/6	35.6	Yes	ADF Systems 3 or 4
Plot 73	1st	S	53.2	30	23.2	30	-6.8	23.2	6/12/6	40.2	Yes	ADF Systems 3 or 4
Plot 74	1st	W	46.4	30	16.4	30	-13.6	16.4	6/12/6	33.4	Yes	ADF Systems 1 or 2
Plot 74	1st	S	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 74	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 75	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 75	1st	E	53	30	23	30	-7	23	6/12/6	40	Yes	ADF Systems 3 or 4
Plot 75	1st	S	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 76	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 76	1st	E	52.8	30	22.8	30	-7.2	22.8	6/12/6	39.8	Yes	ADF Systems 3 or 4
Plot 76	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 77	1st	E	52.5	30	22.5	30	-7.5	22.5	6/12/6	39.5	Yes	ADF Systems 3 or 4
Plot 77	1st	S	46.2	30	16.2	30	-13.8	16.2	6/12/6	33.2	Yes	ADF Systems 1 or 2
Plot 77	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 78	1st	N	44	30	14	30	-16	14	6/12/6	31	Yes	ADF Systems 1 or 2
Plot 78	1st	E	52.5	30	22.5	30	-7.5	22.5	6/12/6	39.5	Yes	ADF Systems 3 or 4
Plot 78	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 79	1st	E	52.3	30	22.3	30	-7.7	22.3	6/12/6	39.3	Yes	ADF Systems 3 or 4
Plot 79	1st	S	52.6	30	22.6	30	-7.4	22.6	6/12/6	39.6	Yes	ADF Systems 3 or 4
Plot 79	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 80	1st	N	44.2	30	14.2	30	-15.8	14.2	6/12/6	31.2	Yes	ADF Systems 1 or 2
Plot 80	1st	E	52	30	22	30	-8	22	6/12/6	39	Yes	ADF Systems 3 or 4
Plot 80	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 81	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 81	1st	E	51.8	30	21.8	30	-8.2	21.8	6/12/6	38.8	Yes	ADF Systems 3 or 4
Plot 81	1st	S	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2

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Plot 82	1st	N	44.2	30	14.2	30	-15.8	14.2	6/12/6	31.2	Yes	ADF Systems 1 or 2
Plot 82	1st	E	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 82	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 83	1st	E	50.8	30	20.8	30	-9.2	20.8	6/12/6	37.8	Yes	ADF Systems 3 or 4
Plot 83	1st	S	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 83	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 84	1st	S	50.8	30	20.8	30	-9.2	20.8	6/12/6	37.8	Yes	ADF Systems 3 or 4
Plot 84	1st	E	50	30	20	30	-10	20	6/12/6	37	Yes	ADF Systems 3 or 4
Plot 84	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 85	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 85	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 85	1st	E	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 86	1st	S	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 86	1st	E	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 86	1st	W	46.4	30	16.4	30	-13.6	16.4	6/12/6	33.4	Yes	ADF Systems 1 or 2
Plot 87	1st	E	51.6	30	21.6	30	-8.4	21.6	6/12/6	38.6	Yes	ADF Systems 3 or 4
Plot 87	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 87	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 88	1st	S	50.8	30	20.8	30	-9.2	20.8	6/12/6	37.8	Yes	ADF Systems 3 or 4
Plot 88	1st	E	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 88	1st	W	46	30	16	30	-14	16	6/12/6	33	Yes	ADF Systems 1 or 2
Plot 89	1st	E	52.4	30	22.4	30	-7.6	22.4	6/12/6	39.4	Yes	ADF Systems 3 or 4
Plot 89	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 89	1st	W	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 90	1st	S	50.4	30	20.4	30	-9.6	20.4	6/12/6	37.4	Yes	ADF Systems 3 or 4
Plot 90	1st	E	51.9	30	21.9	30	-8.1	21.9	6/12/6	38.9	Yes	ADF Systems 3 or 4
Plot 90	1st	W	46.2	30	16.2	30	-13.8	16.2	6/12/6	33.2	Yes	ADF Systems 1 or 2
Plot 91	1st	E	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 91	1st	N	44	30	14	30	-16	14	6/12/6	31	Yes	ADF Systems 1 or 2
Plot 91	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 92	1st	S	47.1	30	17.1	30	-12.9	17.1	6/12/6	34.1	Yes	ADF Systems 1 or 2
Plot 92	1st	E	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 92	1st	W	46.9	30	16.9	30	-13.1	16.9	6/12/6	33.9	Yes	ADF Systems 1 or 2
Plot 93	1st	E	52.4	30	22.4	30	-7.6	22.4	6/12/6	39.4	Yes	ADF Systems 3 or 4
Plot 93	1st	N	44	30	14	30	-16	14	6/12/6	31	Yes	ADF Systems 1 or 2
Plot 93	1st	W	46.8	30	16.8	30	-13.2	16.8	6/12/6	33.8	Yes	ADF Systems 1 or 2
Plot 94	1st	S	48.1	30	18.1	30	-11.9	18.1	6/12/6	35.1	Yes	ADF Systems 3 or 4
Plot 94	1st	NE	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 94	1st	SW	49	30	19	30	-11	19	6/12/6	36	Yes	ADF Systems 3 or 4
Plot 95	1st	NE	50.5	30	20.5	30	-9.5	20.5	6/12/6	37.5	Yes	ADF Systems 3 or 4
Plot 95	1st	N	44.1	30	14.1	30	-15.9	14.1	6/12/6	31.1	Yes	ADF Systems 1 or 2
Plot 95	1st	SW	49.5	30	19.5	30	-10.5	19.5	6/12/6	36.5	Yes	ADF Systems 3 or 4
Plot 96	1st	SE	50.1	30	20.1	30	-9.9	20.1	6/12/6	37.1	Yes	ADF Systems 3 or 4
Plot 96	1st	NE	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 96	1st	SW	51	30	21	30	-9	21	6/12/6	38	Yes	ADF Systems 3 or 4
Plot 97	1st	NE	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 97	1st	NW	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 97	1st	SW	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 98	1st	S	51.8	30	21.8	30	-8.2	21.8	6/12/6	38.8	Yes	ADF Systems 3 or 4
Plot 98	1st	W	43.9	30	13.9	30	-16.1	13.9	6/12/6	30.9	Yes	ADF Systems 1 or 2
Plot 98	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 98	1st	E	50.1	30	20.1	30	-9.9	20.1	6/12/6	37.1	Yes	ADF Systems 3 or 4
Plot 99	1st	E	43.9	30	13.9	30	-16.1	13.9	6/12/6	30.9	Yes	ADF Systems 1 or 2
Plot 99	1st	N	44.3	30	14.3	30	-15.7	14.3	6/12/6	31.3	Yes	ADF Systems 1 or 2
Plot 99	1st	W	45.8	30	15.8	30	-14.2	15.8	6/12/6	32.8	Yes	ADF Systems 1 or 2
Plot 99	1st	S	51.9	30	21.9	30	-8.1	21.9	6/12/6	38.9	Yes	ADF Systems 3 or 4
Plot 100	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 100	1st	E	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 100	1st	S	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 101	1st	N	44.4	30	14.4	30	-15.6	14.4	6/12/6	31.4	Yes	ADF Systems 1 or 2
Plot 101	1st	W	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2

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Plot 101	1st	S	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 102	1st	E	50.5	30	20.5	30	-9.5	20.5	6/12/6	37.5	Yes	ADF Systems 3 or 4
Plot 102	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2
Plot 102	1st	S	51	30	21	30	-9	21	6/12/6	38	Yes	ADF Systems 3 or 4
Plot 103	1st	W	46.6	30	16.6	30	-13.4	16.6	6/12/6	33.6	Yes	ADF Systems 1 or 2
Plot 103	1st	N	44.2	30	14.2	30	-15.8	14.2	6/12/6	31.2	Yes	ADF Systems 1 or 2
Plot 103	1st	E	50.6	30	20.6	30	-9.4	20.6	6/12/6	37.6	Yes	ADF Systems 3 or 4
Plot 104	1st	W	46	30	16	30	-14	16	6/12/6	33	Yes	ADF Systems 1 or 2
Plot 104	1st	S	50.2	30	20.2	30	-9.8	20.2	6/12/6	37.2	Yes	ADF Systems 3 or 4
Plot 104	1st	E	49.4	30	19.4	30	-10.6	19.4	6/12/6	36.4	Yes	ADF Systems 3 or 4
Plot 105	1st	W	46.5	30	16.5	30	-13.5	16.5	6/12/6	33.5	Yes	ADF Systems 1 or 2
Plot 105	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 105	1st	E	49.4	30	19.4	30	-10.6	19.4	6/12/6	36.4	Yes	ADF Systems 3 or 4
Plot 106	1st	W	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2
Plot 106	1st	S	53.6	30	23.6	30	-6.4	23.6	6/12/6	40.6	Yes	ADF Systems 3 or 4
Plot 106	1st	E	52	30	22	30	-8	22	6/12/6	39	Yes	ADF Systems 3 or 4
Plot 106	1st	N	44.8	30	14.8	30	-15.2	14.8	6/12/6	31.8	Yes	ADF Systems 1 or 2
Plot 107	1st	W	47.7	30	17.7	30	-12.3	17.7	6/12/6	34.7	Yes	ADF Systems 1 or 2
Plot 107	1st	S	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 107	1st	N	44.8	30	14.8	30	-15.2	14.8	6/12/6	31.8	Yes	ADF Systems 1 or 2
Plot 108	1st	N	44.8	30	14.8	30	-15.2	14.8	6/12/6	31.8	Yes	ADF Systems 1 or 2
Plot 108	1st	E	50.9	30	20.9	30	-9.1	20.9	6/12/6	37.9	Yes	ADF Systems 3 or 4
Plot 108	1st	S	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 109	1st	W	48.2	30	18.2	30	-11.8	18.2	6/12/6	35.2	Yes	ADF Systems 3 or 4
Plot 109	1st	S	53.8	30	23.8	30	-6.2	23.8	6/12/6	40.8	Yes	ADF Systems 3 or 4
Plot 109	1st	E	50.1	30	20.1	30	-9.9	20.1	6/12/6	37.1	Yes	ADF Systems 3 or 4
Plot 109	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 110	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 110	1st	E	52.2	30	22.2	30	-7.8	22.2	6/12/6	39.2	Yes	ADF Systems 3 or 4
Plot 110	1st	S	51.1	30	21.1	30	-8.9	21.1	6/12/6	38.1	Yes	ADF Systems 3 or 4
Plot 110	1st	W	47	30	17	30	-13	17	6/12/6	34	Yes	ADF Systems 1 or 2
Plot 111	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 111	1st	S	53.8	30	23.8	30	-6.2	23.8	6/12/6	40.8	Yes	ADF Systems 3 or 4
Plot 111	1st	W	47.4	30	17.4	30	-12.6	17.4	6/12/6	34.4	Yes	ADF Systems 1 or 2
Plot 112	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 112	1st	E	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 112	1st	S	53.8	30	23.8	30	-6.2	23.8	6/12/6	40.8	Yes	ADF Systems 3 or 4
Plot 113	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 113	1st	E	52.1	30	22.1	30	-7.9	22.1	6/12/6	39.1	Yes	ADF Systems 3 or 4
Plot 113	1st	S	51.4	30	21.4	30	-8.6	21.4	6/12/6	38.4	Yes	ADF Systems 3 or 4
Plot 113	1st	W	47.9	30	17.9	30	-12.1	17.9	6/12/6	34.9	Yes	ADF Systems 1 or 2
Plot 114	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 114	1st	S	53.7	30	23.7	30	-6.3	23.7	6/12/6	40.7	Yes	ADF Systems 3 or 4
Plot 114	1st	W	47.7	30	17.7	30	-12.3	17.7	6/12/6	34.7	Yes	ADF Systems 1 or 2
Plot 115	1st	N	44.6	30	14.6	30	-15.4	14.6	6/12/6	31.6	Yes	ADF Systems 1 or 2
Plot 115	1st	E	50.2	30	20.2	30	-9.8	20.2	6/12/6	37.2	Yes	ADF Systems 3 or 4
Plot 115	1st	S	52.8	30	22.8	30	-7.2	22.8	6/12/6	39.8	Yes	ADF Systems 3 or 4
Plot 116	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 116	1st	E	52.9	30	22.9	30	-7.1	22.9	6/12/6	39.9	Yes	ADF Systems 3 or 4
Plot 116	1st	S	53.9	30	23.9	30	-6.1	23.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 116	1st	W	47.7	30	17.7	30	-12.3	17.7	6/12/6	34.7	Yes	ADF Systems 1 or 2
Plot 117	1st	N	44.7	30	14.7	30	-15.3	14.7	6/12/6	31.7	Yes	ADF Systems 1 or 2
Plot 117	1st	S	54.1	30	24.1	30	-5.9	24.1	6/12/6	41.1	Yes	ADF Systems 3 or 4
Plot 117	1st	W	48.4	30	18.4	30	-11.6	18.4	6/12/6	35.4	Yes	ADF Systems 3 or 4
Plot 118	1st	N	44.8	30	14.8	30	-15.2	14.8	6/12/6	31.8	Yes	ADF Systems 1 or 2
Plot 118	1st	E	51.8	30	21.8	30	-8.2	21.8	6/12/6	38.8	Yes	ADF Systems 3 or 4
Plot 118	1st	S	54	30	24	30	-6	24	6/12/6	41	Yes	ADF Systems 3 or 4
Plot 119	1st	N	44.8	30	14.8	30	-15.2	14.8	6/12/6	31.8	Yes	ADF Systems 1 or 2
Plot 119	1st	E	52.4	30	22.4	30	-7.6	22.4	6/12/6	39.4	Yes	ADF Systems 3 or 4
Plot 119	1st	S	50.9	30	20.9	30	-9.1	20.9	6/12/6	37.9	Yes	ADF Systems 3 or 4
Plot 119	1st	W	47.6	30	17.6	30	-12.4	17.6	6/12/6	34.6	Yes	ADF Systems 1 or 2

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Plot 120	1st	N	44.9	30	14.9	30	-15.1	14.9	6/12/6	31.9	Yes	ADF Systems 1 or 2
Plot 120	1st	E	53.9	30	23.9	30	-6.1	23.9	6/12/6	40.9	Yes	ADF Systems 3 or 4
Plot 120	1st	S	54.3	30	24.3	30	-5.7	24.3	6/12/6	41.3	Yes	ADF Systems 3 or 4
Plot 120	1st	W	46.7	30	16.7	30	-13.3	16.7	6/12/6	33.7	Yes	ADF Systems 1 or 2