



Thames Materials Limited

Central Park Dagenham

Noise Management Plan

Document Ref: 183185/NMP

April 2020



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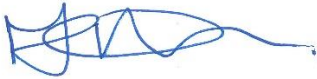
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*Issue Date***Document Reference***April 2020*183185/NMP

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Issue	Description of status
1	Final

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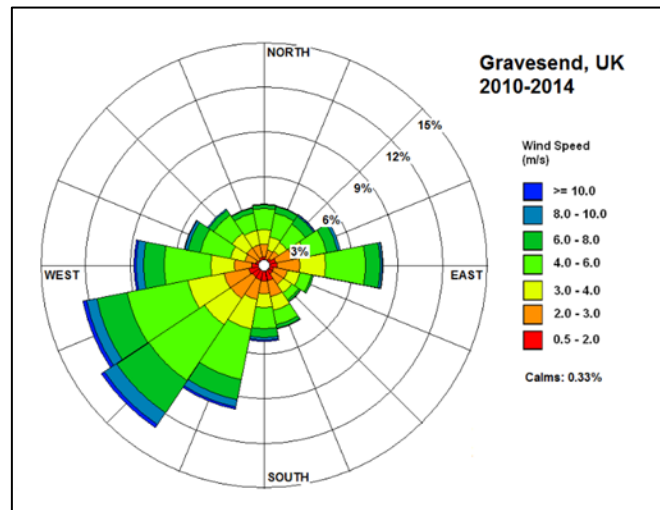
1.0 INTRODUCTION

Overview

- 1.1 This Noise Management Plan (NMP) has been produced to accompany the Bespoke Waste Recovery Permit application by Thames Materials Limited (the Operator).
- 1.2 The site is located at the north east corner of the London Borough of Barking and Dagenham, off Rainham road (A1112) - East London. The site will be accessed from the A124 (Wood Lane). The site location is presented in 183185/D/001.
- 1.3 The proposal involves the importation of waste material for the required earthworks to alter the existing topography and contours of the park to improve the park's condition and to allow effective drainage and site wide runoff. The activity is deemed a recovery operation.
- 1.4 As part of the application for an Environmental Permit, the Operator has provided a noise management plan to outline management and control measures for the activities on site.
- 1.5 Management and control measures will be in accordance with H3 Horizontal Guidance for Noise – Part 2 Noise Assessment and Control. A BS5228 noise assessment has been undertaken as part of Planning Permission application for the site. Furthermore, this noise management plan has been provided irrespective of any assessment outcome. The control measures within the plan have been devised based on the assessment recommendations.
- 1.6 Vibration has been assessed however considered low given the low frequency and type of plant (no vibratory elements) and duration of the project.
- 1.7 This report establishes the sensitive receptors surrounding the site, identifies any potential risks associated with the proposed activities and outlines required controls.

2.0 SENSITIVE RECEPTORS

- 2.1 The noise levels generated by the site operations are expected to have the potential to cause a notable impact, due to the nature of the works and the distance of the site from nearby residential properties. The site operations therefore require the Operator to implement control measures to minimize noise emissions.
- 2.2 The ambient noise levels are expected to be variable during the day, due to the presence of two central roads on the west (A1112) and north (A124) of the site. Information from Extrium website (England Noise Map Viewer) indicate that the noise level near those two roads may range between 55-70 dB for the 16-hour period between 07:00-23:00. The north west corner of the site is therefore more sensitive to noise, being closer to the two main roads.
- 2.3 The BS5228 assessment concludes baseline noise values at the nearby receptors between 50–61 dB. The noise level predictions for each phase are below, equal or minor exceedance against the noise level criteria of 65 dB (this threshold has been agreed with the Local Authority). The assessment is shown in Appendix B.
- 2.4 The site and surrounding sensitive receptors are shown on drawing 183185/D/002. Considering that the works will occur in phases and that parts of the park will be accessible to residents, while the works are ongoing, the most sensitive receptors will be the residents and the park's visitors.
- 2.5 Other sensitive receptors susceptible to noise emissions will be the residents in the properties neighbouring the north east, south and west boundaries of the site, as well as the visitors to the Eastbrookend park, which is adjacent to the south east of the site.
- 2.6 Meteorological wind data, for five years, have been acquired from the Met Office for the Gravesend station. The data show that the prevailing wind direction is from the south-west quadrant.



3.0 MANAGEMENT AND MITIGATION

3.1 The works will involve movement and tipping of Heavy Goods Vehicles (HGVs) and placement and compaction of waste by mechanical operations. The anticipated plant in each phase will be includes a bulldozer, two dumpers and two excavators.

3.2 Suitable waste will be imported, placed and compacted in the park and access will be from Wood lane (A124). The site layout is presented in 183185/D/003.

3.3 The site will operate between the hours set out below:

Days	Hours
Monday to Friday	07:00 – 17:00 hrs
Saturday, Sunday and Public Holidays	No vehicle movements or operation

3.4 Site design and management controls include:

- Adherence to the working hours;
- All works will be behind site hoardings;
- Only plant conforming with relevant national or international standards, directives or recommendations on noise emissions will be used;
- Position of main access gate facing least sensitive direction (towards the east);
- Ensuring regular and effective maintenance of plant;
- The location of the any operations will endeavour to be as far from most sensitive receptors as possible;
- The Operator will attend local community group meetings, where possible, to notify the local community of upcoming works;
- Receptors assessed as impacted by noise will be notified prior to the commencement of a new working phase;
- Residents will be notified of key phases of work; and
- Induction briefing to all employees regarding the need to keep noise to a minimum and the health hazards associated with exposure to excessive noise. This will include training on the proper use and maintenance of plan and equipment, positioning of machinery to reduce noise emissions to surrounding receptors and site personnel, avoidance of unnecessary noise and the protection of persons against noise.

3.5 Site operational controls include:

- Reducing drop heights to the waste storage area;
- Bulldozer in operation will be limited to 08:00-17:00hrs,
- During the filling activity, when the activity is near the most sensitive receptors (the eastern portion of the site), the main noise source plant will adopt a 'quiet hours' working scenario. This will involve two hours on, two hours off, or working within an area away from the nearest receptors to provide additional respite to local receptors;
- All vehicles will obey the internal speed limit of 10 mph; and
- All machines in intermittent use shall be shut down in the intervening period between work and throttled down to a minimum.

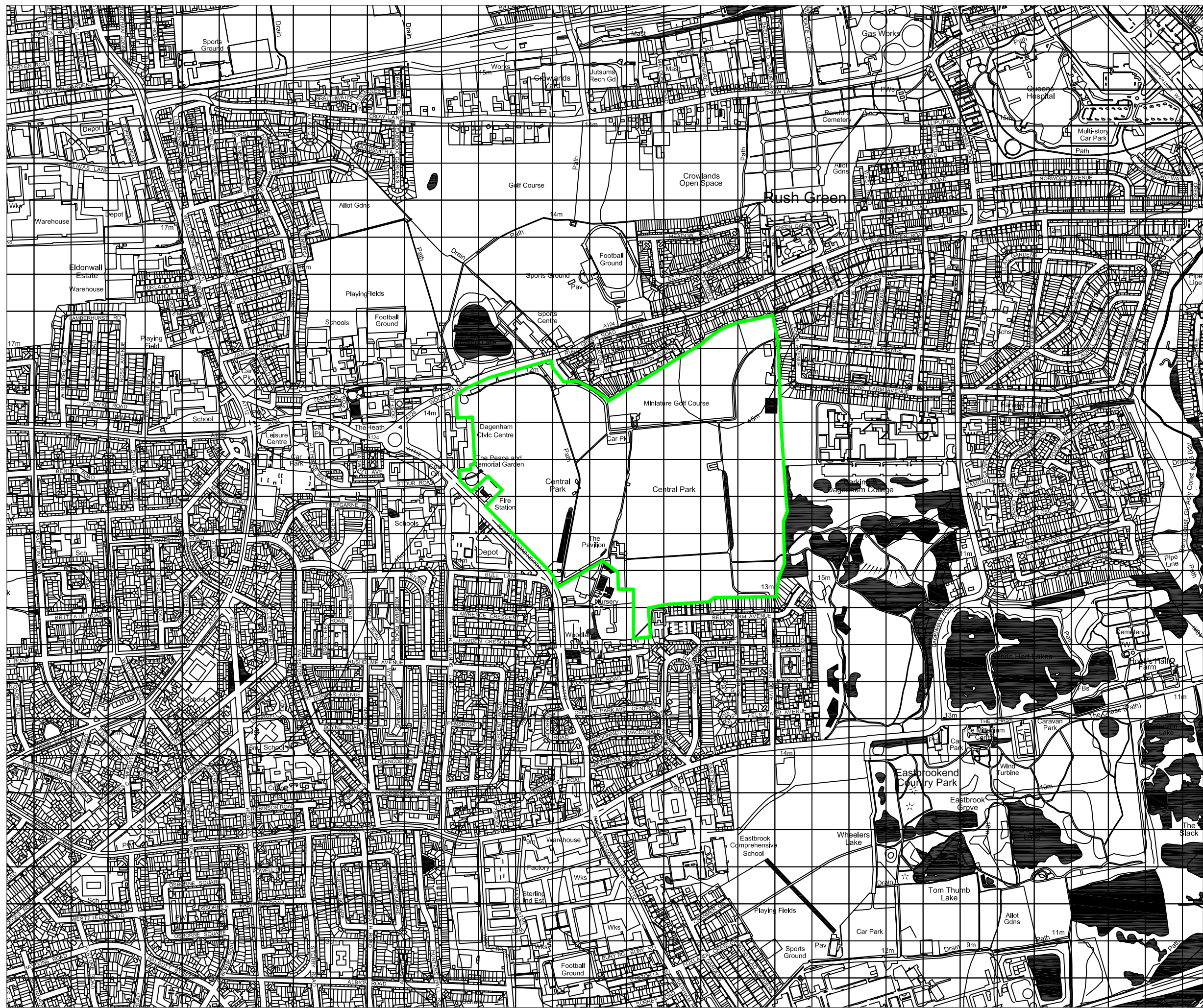
4.0 MONITORING AND RECORDS

- 4.1 Quantitative noise monitoring will be undertaken at the commencement of each new working phase, and further measurements will be undertaken at a time approximately representative of the mid-way period of each phase.
- 4.2 The noise monitoring be undertaken periodically during the works including the worst-case activities (i.e those that produce the highest noise level) during times when they are positioned at closest position to the receptors.
- 4.3 The following general procedure will apply for the monitoring exercise:
- The noise survey will be carried out during standard construction working hours for a minimum of 15 minutes to measure representative noise levels of worst case construction operations;
 - Measurements will be undertaken in accordance with British Standard BS 7445-1:2003 '*Description and measurement of environmental noise. Guide to quantities and procedures*', with instrumentation meeting the standards set out in BS EN 61672-1: 2013 '*Electroacoustics – Sound level meters. Specifications*';
 - Measurements will comprise of broadband indices L_{Aeq} , L_{A10} , L_{Amax} and L_{A90} . The equipment chosen will be a Class 1 noise level meter with a suitable traceable calibration certificate. Field calibration will also be undertaken and documented prior to and after measurements; and
 - When possible, the measurement position should be chosen to best represent the noise levels at the most exposed façade of the sensitive building to the works. Alternatively, a free field location with direct line of sight to the works should be sought in order to facilitate the calculation of noise levels at the receptor assuming a reasonable distance correction factor.
- 4.4 In addition to this, the inspection of noise levels generated by the operation will be on a continuous basis by the site staff and it will be their responsibility to identify and control any excessive noise that occurs. Furthermore, quantitative monitoring will be undertaken if it is identified that problems are being caused or substantiated complaint.
- 4.5 A conservative action trigger threshold will be 65 dB L_{Aeq} (1-hour) (free-field) taken from agreement with the local Authority. The noise monitoring locations are shown in drawing 183185/D/004. The monitoring proforma is shown in Appendix A. A record of any complaints arising regarding noise emissions and the actions taken will be kept in the Site Diary.

Ref.	Monitoring Locations	Noise Compliance Threshold L_{Aeq} (1 hour)
1	Bell Farm Avenue	65
2	Legon Avenue	65
3	Barton Avenue	65
4	Barking and Dagenham Civic Centre	65
5	Bull Lane	65
6	Woodshire Road	65

- 4.6 If there are exceedances of 65 dB L_{Aeq} , the Operator shall be informed immediately, and appropriate measures taken as soon as practicable to minimise the noise contribution from the site. Measures will include the use of alternative plant, plant relocation, time limitations and temporary screening using soil bunds may need to be considered. In such cases, repeat noise measurements will be undertaken at the affected receptor(s) immediately after implementation of the control measures in order to confirm that the noise limit is being met. The resulting noise report along with details of the actions implemented by the restoration works manager shall be issued to the Local Planning Authority and the Environment Agency within 1 week.
- 4.7 In the event of sustained noise issues or substantiated complaints, this NMP will be reviewed and updated. The NMP will be issued to the Environment Agency for approval and operations will cease within 100 m of the impacted receptor(s).

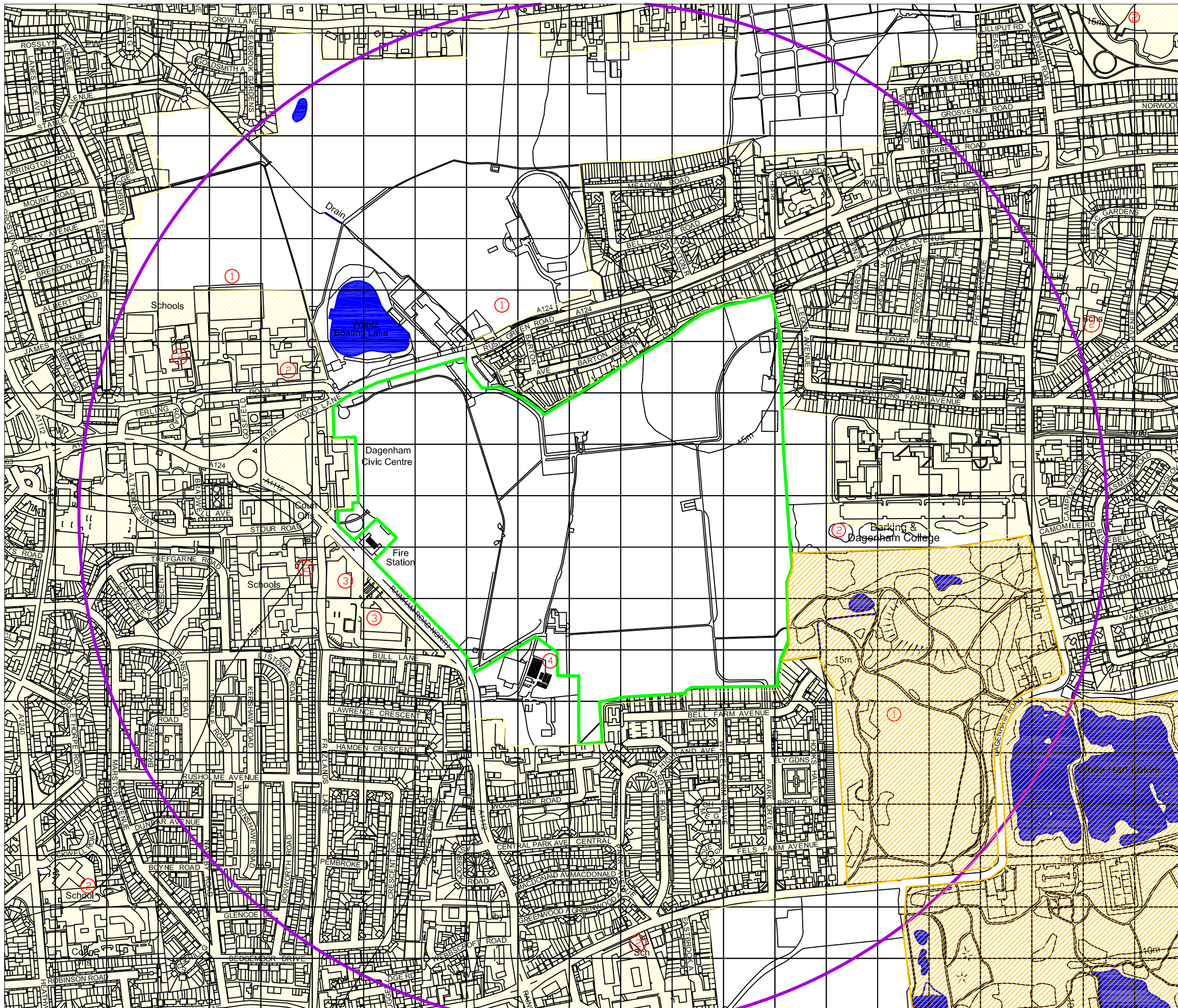
DRAWINGS



Key:

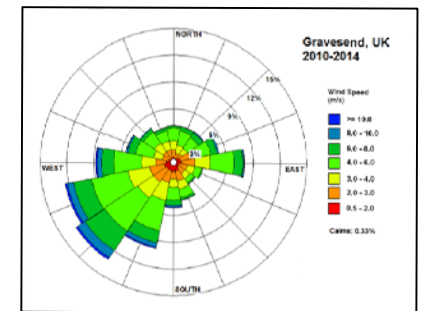
█ Site Boundary

Rev.	Details	Drawn	Date
		Chkd.	
Project			
183185 Central Park Dagenham			
Title			
Site Location Plan			
			
AA Environmental Ltd Units 4-8 Cholswell Court Shippon Abingdon Oxon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-lp.com www.aae-lp.com			
Scale	Date	Dec'18	Drg. No.
1:10,000@A3	Drawn	IM	Chkd.
			EB
			183185/D/001
			Rev.

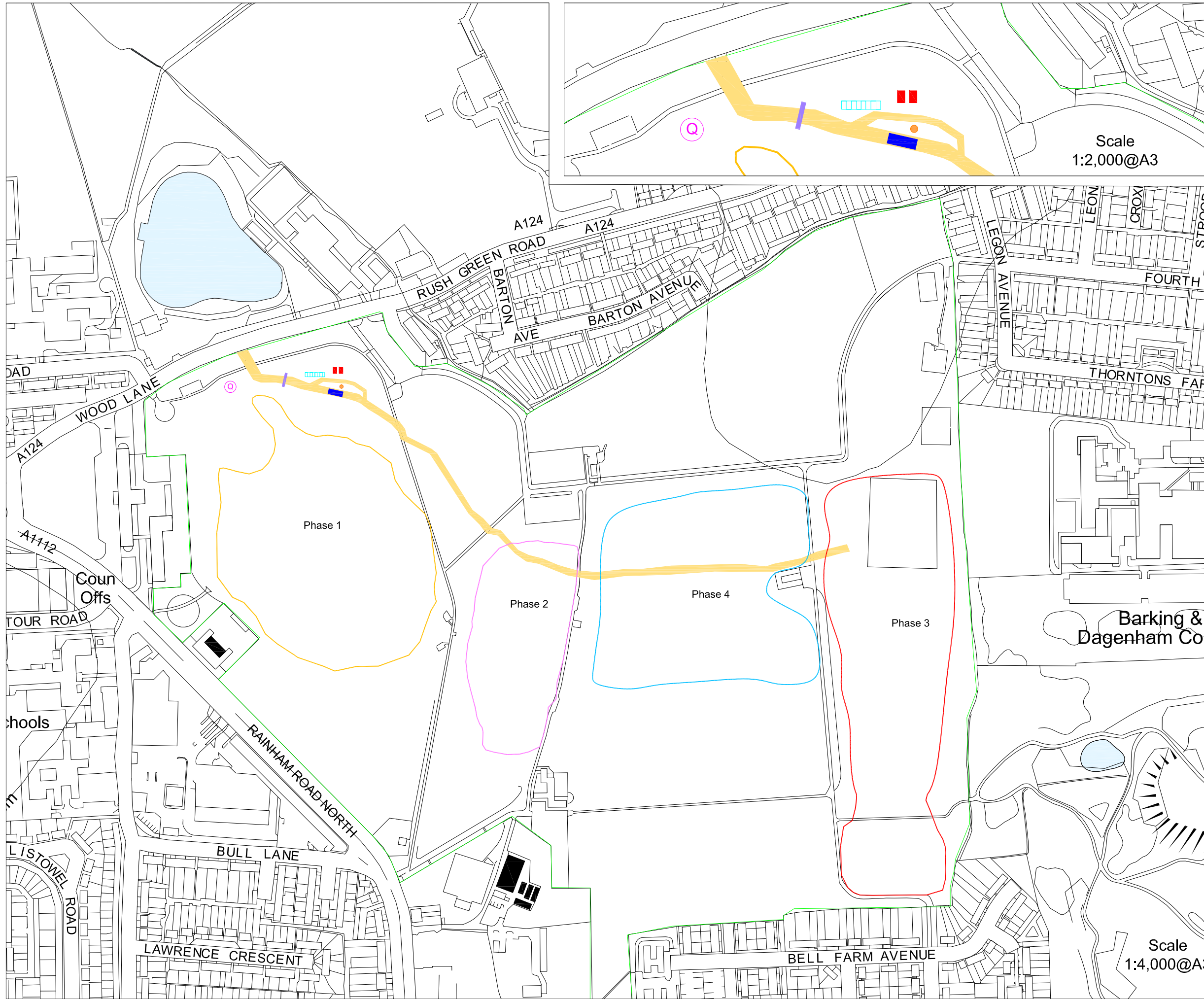


- Key:**
- Site Boundary
 - 1 km Radius
 - Water Bodies
 - Residential
 - Local Nature Reserve
 - 1 Recreational
 - 2 Education & Health
 - 3 Industrial & Commercial
 - 4 Dagenham Farm (Greenhouses)

Notes:
Gravesend Windrose: 2010-2014



Rev.	Details	Drawn Chkd.	Date
Project 183185 Central Park Dagenham			
Title Site Receptor Plan			
		AA Environmental Ltd Units 4-8 Cholswell Court Shiplon Abingdon Oxon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-lp.com www.aae-lp.com	
Scale 1:7,500@A3	Date Dec'18	Drg. No. 183185/D/002	Rev.
Drawn IM	Chkd. EB		



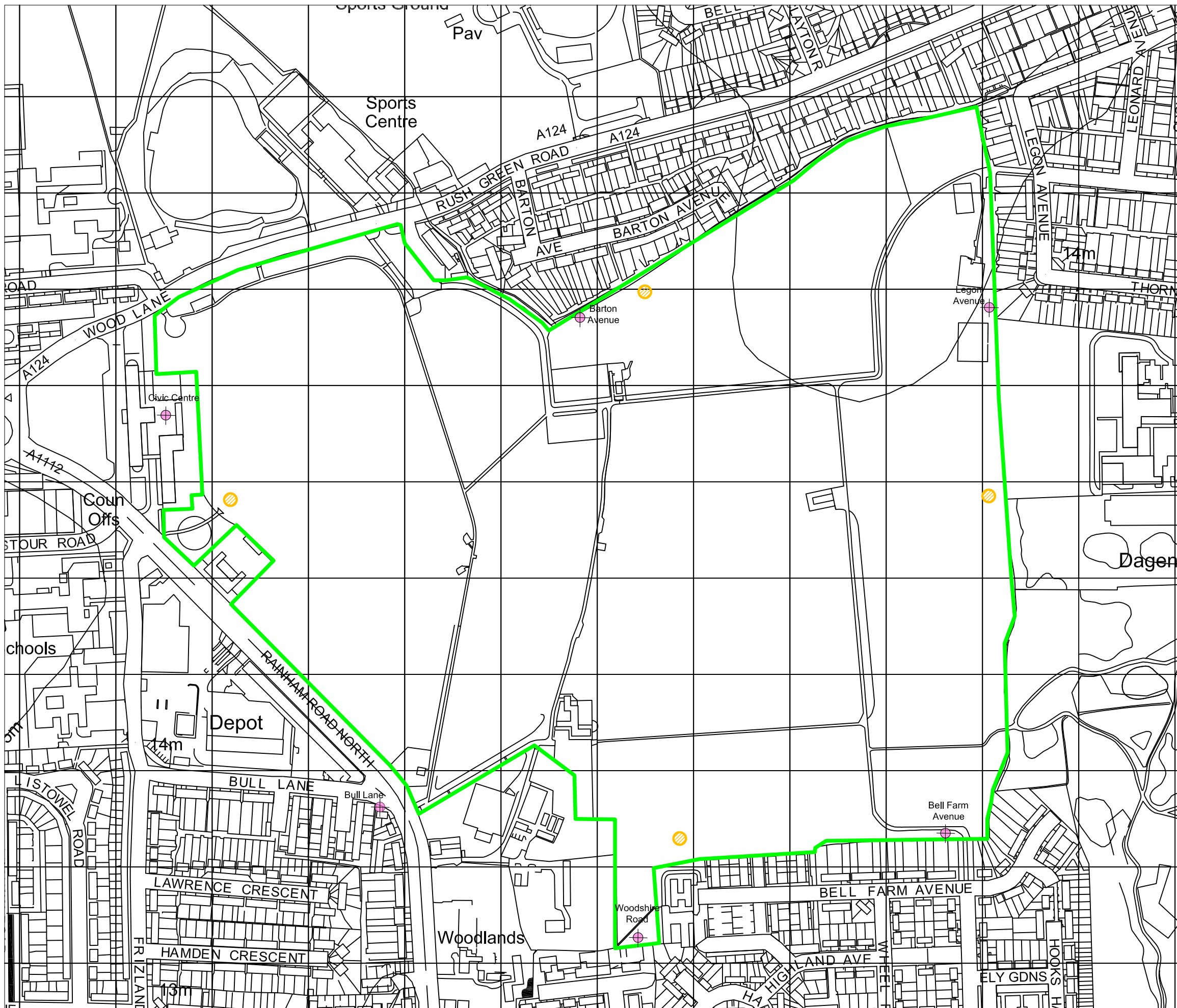
Key:

- Site Boundary
- Access Gate
- ⊙ Quarantine Area
- Staff Parking
- Staff Facilities
- Ticket Office & Inspection Point
- Wheel Wash
- Haulage Route




Notes:

1. For the final design, contours and fill depths refer to drawings WD808 and WD809.
2. The permanent drainage works will commence as soon as practicably possible during infilling to use for construction surface water collection and control.
3. There is no fixed plant on site. Type and frequency of mobile plant will be changed based on operational requirement.
4. The maximum stockpile height will be set at 3 m above ground level.
5. Mobile plant and loading and unloading activities will operate in areas of waste deposit.
6. All suppression is mobile. All spray heads/cannons can be easily positioned. All stockpile heights will be lower than the spray arc coverage.
7. Any internal haul routes will be surfaced by compacted hardcore. Locations of routes may change dependant on working area/ programme.
8. Each phase and haul route will be temporarily secured using heras panels during operations.

Rev.	Details	Drawn Chkd.	Date
Project 183185 Central Park Dagenham			
Title Site Layout Plan			
AA Environmental Ltd Units 4-8 Cholswell Court Shippon Abingdon Oxon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com			
Scale As shown	Date June'19	Drng. No. 183185/003	Rev.



Key:

-  Site Boundary
-  Noise Monitoring Locations
-  Dust Visual Inspection Locations

Notes:

1. Surface water monitoring locations, frequency and sampling in accordance with HRA.
2. Noise monitoring locations, frequency and method in accordance with Noise Management Plan.

Rev.	Details	Drawn	Date
		Chkd.	
Project			
183185 Central Park Dagenham			
Title			
Monitoring Plan			
		AA Environmental Ltd Units 4-8 Cholswell Court Shippon Abingdon Oxon OX13 6HX T: (01235) 536042 F: (01235) 523849 info@aae-llp.com www.aae-llp.com	
		Scale	Date
1:4,000@A3	Dec'18	183185/D/004	
Drawn	Chkd.		
IM	EB		

APPENDIX A



Attended Noise Survey			Job No. 183185 Central Park Dagenham					
Monitoring Date								
Dynamic Range:								
Station	Start Time (hr:min)	Construction Activity/Equipment used	Measurement Duration (T, mins)	L _{Aeq,T} (dB)	L _{AMax,T} (dB)	L _{A10,T} (dB)	L _{A90,T} (dB)	Monitoring Comments
Signed (Surveyor):								

APPENDIX B

CENTRAL PARK DAGENHAM

CONSTRUCTION NOISE ASSESSMENT

VC-102897-EA-RP-0001

R00

26TH MARCH 2019



VANGUARDIA
| | | | | | | |

DOCUMENT CONTROL

DOCUMENT TITLE	CONSTRUCTION NOISE ASSESSMENT	REVISION	R01
DOCUMENT NUMBER	VC-102897-EA-RP-0001	ISSUE DATE	26TH MARCH 2019
PROJECT NUMBER	102897	AUTHOR	RD, PW
STATUS	ISSUE	CHECKED	JS
ISSUED TO	B. WELLER (WELLER DESIGNS LTD)	PASSED	JS

REVISION HISTORY

REVISION	NOTES	DATE ISSUED
00	FIRST ISSUE	21 ST MARCH 2019
01	AMMENDMENT TO FIGURE 2	26 TH MARCH 2019

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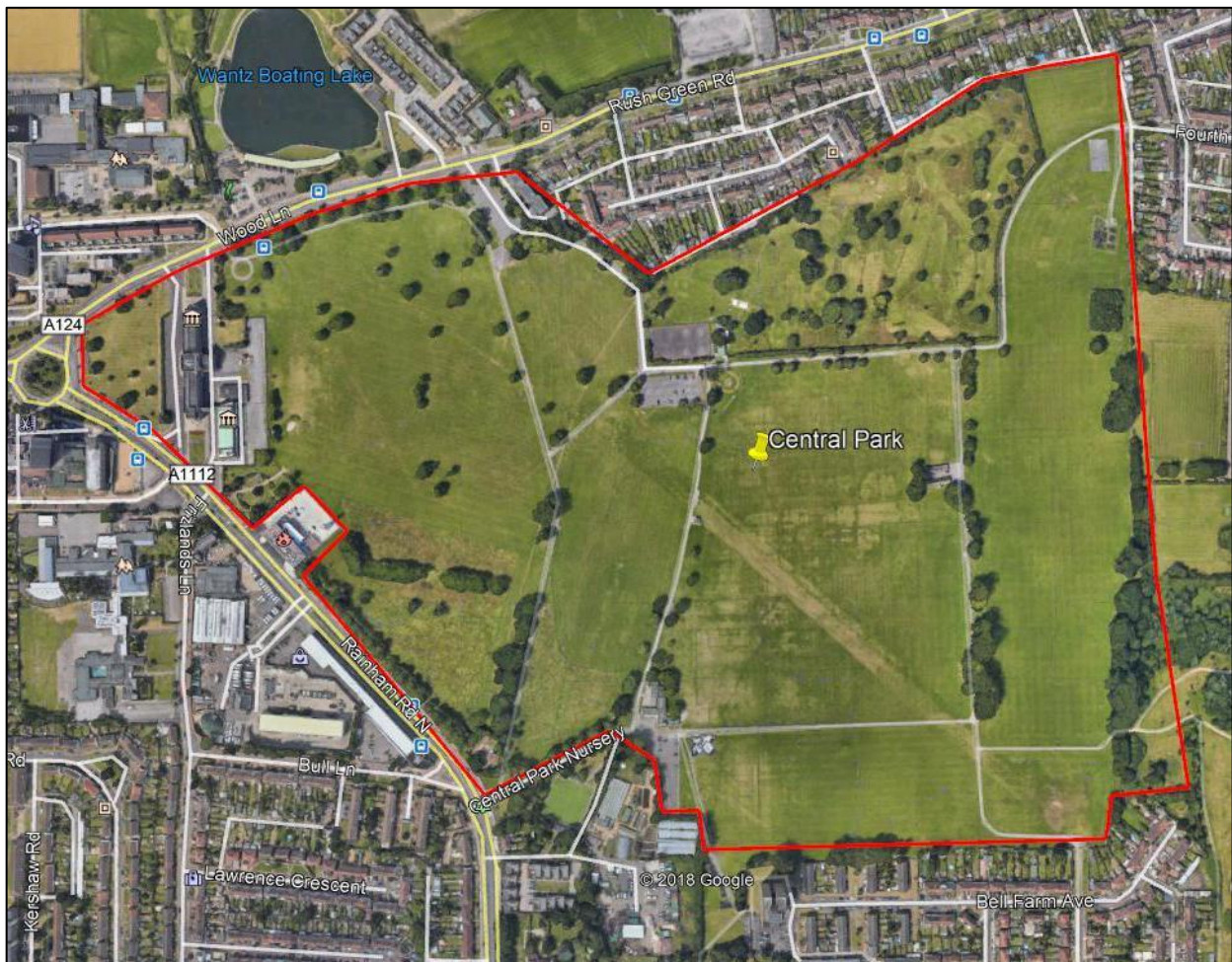
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1. INTRODUCTION

- 1.1. Vanguardia Ltd. has been appointed by Golf and Leisure Experiences to carry out a construction noise assessment for the proposed redevelopment of Central Park, Dagenham. It is anticipated that the works, primarily consisting of earthworks, will be staggered over a 2-year period and begin in 2019, subject to planning approval.
- 1.2. Located adjacent to Eastbrookend Country Park in the London Borough of Barking and Dagenham, Central Park is bounded to the west by Rainham Road North and to the north by Wood Lane and Barton Avenue. The extents of Central Park are outlined in red in Figure 1 below.

Figure 1 Overview of Site Boundary (© Google 2018)



- 1.3. The redevelopment of the park will give rise to construction noise during the associated works. The assessment and management of construction noise is typically based on the principles of

the British Standard BS 5228-1¹, the scope of which contains the following guidance on its application:

This part of BS 5228 gives recommendations for basic methods of noise control relating to construction sites, including sites where demolition, remediation, ground treatment or related civil engineering works are being carried out, and open sites, where work activities/operations generate significant noise levels, including industry-specific guidance. The legislative background to noise control is described and recommendations are given regarding procedures for the establishment of effective liaison between developers, site operators and local authorities.

This part of BS 5228 provides guidance concerning methods of predicting and measuring noise and assessing its impact on those exposed to it.

1.4. Another standard commonly used in the assessment of noise is BS 4142². However, this guidance specifically excludes construction noise from its scope, stating at Section 1.3 that:

*“The standard is not intended to be applied to the rating and assessment of sound from:
...
d) construction and demolition;”*

1.5. This report includes the results and findings from a two-day baseline noise monitoring survey conducted at and around the site, and a subsequent construction noise assessment based on the principles of BS 5228-1.

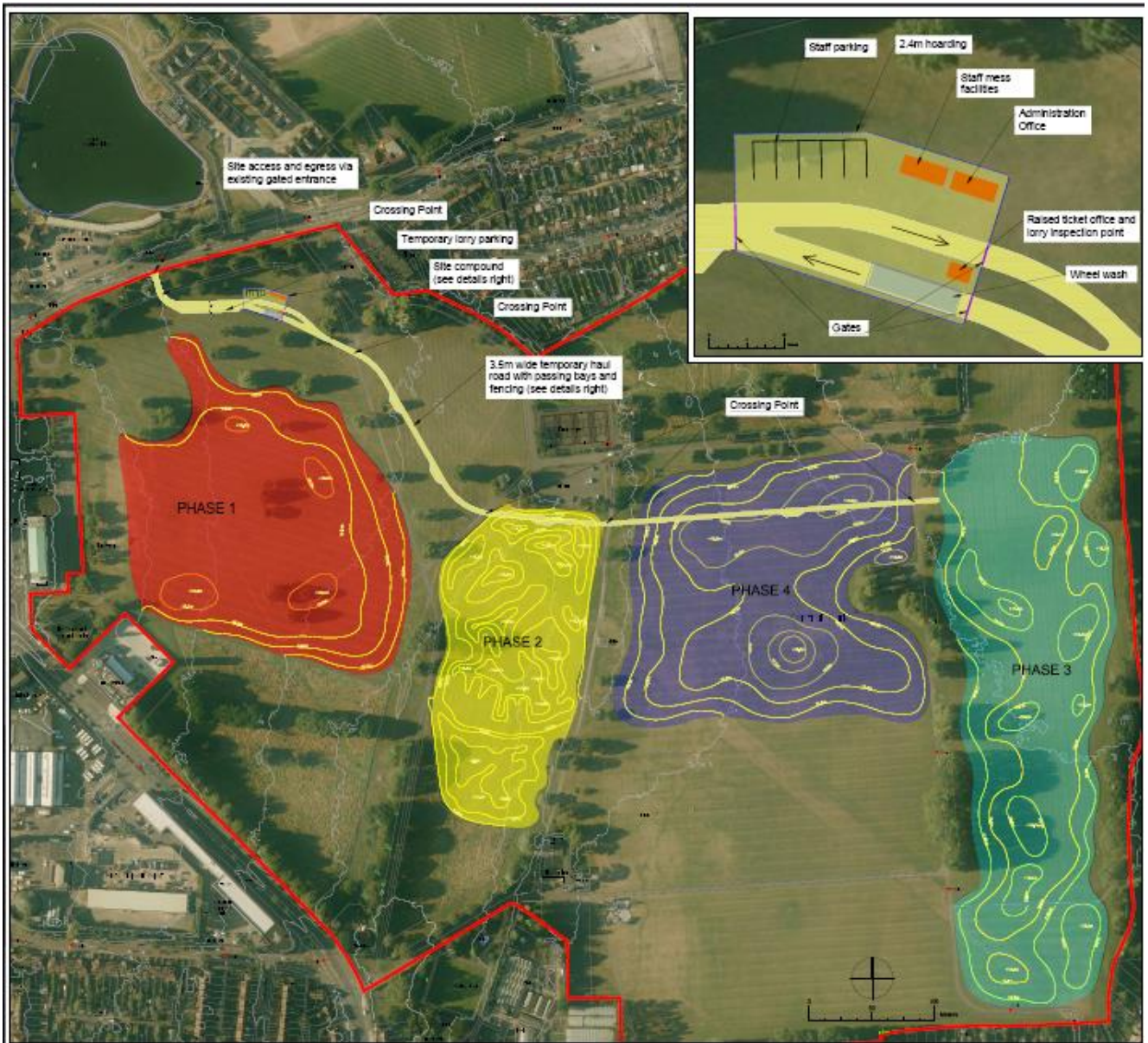
1.6. While best practicable means (BPM) will be utilised during the construction works to minimise the associated noise where possible, the assessment will identify any specific mitigation requirements.

1.7. As mentioned above, the construction works will largely consist of earthworks, and these will be phased over a 2 year period so that, predominantly, they take place in one of the four coloured areas shown in 0 below at a time.

¹ BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise

² BS 4142:2014 Methods for rating and assessing industrial and commercial sound

Figure 2 Primary Areas of Construction Activity (earthworks)



2. NOISE SURVEY

2.1. The closest areas potentially affected by noise from the site have been identified and are listed below and indicated in Figure 3.

- Location 1 - Bell Farm Avenue and environs to the south-east;
- Location 2 - Legon Avenue and environs to the north-east;
- Location 3 - Barton Avenue and environs to the north;
- Location 4 - Barking and Dagenham Civic centre to the west;
- Location 5 - Bull Lane and environs to the south-west; and
- Location 6 - Woodshire Road to the south.

Figure 3 Indicative monitoring locations (© Google 2018)



2.2. An attended baseline noise survey was undertaken at these locations on Thursday 17th and Friday 18th January 2019.

2.3. During the attended survey, six 15-minute sample measurements were made at each of the monitoring locations, over the two-day period, between the hours of 08:00 and 18:00 to reflect the expected 10-hour period when construction works will be undertaken.

- 2.4. Measurement metrics of $L_{Aeq,15min}$, $L_{AF90,15min}$ and $L_{Amax,15min}$ values were recorded during suitable weather conditions using Class 1 equipment.
- 2.5. During the survey, the primary source of existing ambient noise was observed to be road traffic, as well as some contributions from aircraft overhead.
- 2.6. The measurement results have been used to inform the selection of appropriate construction noise criteria in accordance with the guidance contained in Annex E of BS 5228-1.
- 2.7. The full 10-hour $L_{Aeq,10hr}$ value has been estimated from the average of the six 15-minute measurement intervals taken at each location; this is based on the assumption that the measured short-term noise levels are representative of the typical variation in noise levels over the full 10-hour daytime period at each location.
- 2.8. A summary of the survey results is presented in Table 1 below.

Table 1 Noise Survey Results (Weekdays, 08:00 hours to 18:00 hours)

Survey Location	Address	Average Ambient Noise Level, dB $L_{Aeq,10hrs}$ *
1	Bell Farm Avenue and environs to the south-east;	52
2	Legon Avenue and environs to the north-east;	50
3	Barton Avenue and environs to the north;	52
4	Coventry University buildings to the west;	61
5	Bull Lane and environs to the south-west;	58
6	Woodshire Road to the south.	52

* Based on short-term attended measurements

- 2.9. In summary, the average ambient noise levels presented in Table 1 are considered typical of the levels that the majority of receptors in those areas are currently exposed to during the period when construction works are expected.

3. CONSTRUCTION NOISE CRITERIA

- 3.1. The redevelopment site is located within the London Borough of Barking and Dagenham.
- 3.2. The Local Authority, London Borough of Barking and Dagenham, have been contacted to agree a suitable construction noise criterion for the scheme. The adopted noise criterion is based on example method 2 from Paragraph E.3.3, Annex E of BS 5228-1, which states:

“Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB $L_{Aeq,T}$ from site noise alone, for daytime, evening and night-time periods, respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in significant effect.”

- 3.3. The proposed noise criteria, for the pre-construction ambient plus construction noise, at each receptor position are presented in Table 2 below.

Table 2 Construction Noise Criteria at Receptors

Receptor Location	Description	Average Ambient Noise Level, $dB L_{Aeq,10hrs}$	Noise Criterion, $dB L_{Aeq,T}$
1	Bell Farm Avenue and environs to the south-east;	52	65
2	Legon Avenue and environs to the north-east;	50	65
3	Barton Avenue and environs to the north;	52	65
4	Coventry University to the west;	61	66
5	Bull Lane and environs to the south-west;	58	65
6	Woodshire Road to the south.	52	65

- 3.4. It can be seen that at five of the six receptors, the noise criterion is set at the lower cut-off value of 65 dB(A). At the remaining receptor, number 4, it is just 1 dB higher at 66 dB(A).

4. CONSTRUCTION NOISE ASSESSMENT

HGVs ACCESSING SITE

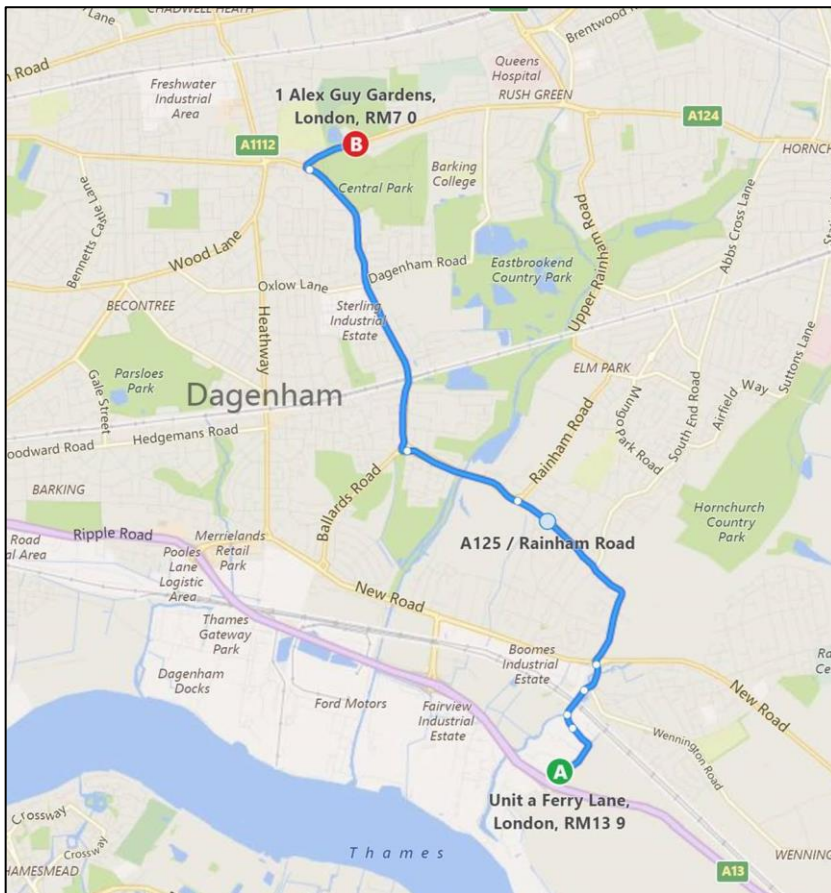
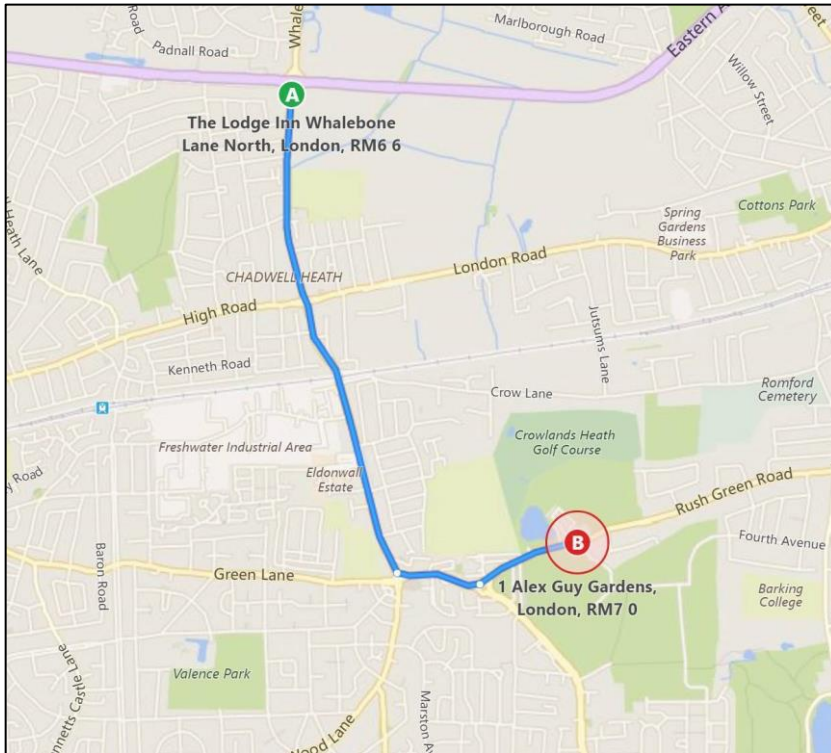
- 4.1. Cora IHT, who are the Infrastructure, Highways and Transport consultants for the project, have confirmed that the expected average number of heavy goods vehicles (HGVs) that will enter and leave site over the expected 24-month construction period will be typically 55 per day.
- 4.2. Planned HGV arrivals and departures have been confirmed by Cora IHT as being relatively evenly distributed throughout the working day between 07:00hrs and 17:00hrs. Our assessment assumes working hours between 08:00hrs and 18:00hrs, so the total assessment period is the same, i.e. 10 hours.
- 4.3. Table 3 below shows the planned daily arrivals of HGVs to and from the construction site for the 24-month construction duration.

Table 3 Planned daily arrivals of HGVs to and from the construction site

Time Beginning	HGVs	
	Arrival	Departure
06:00	0	0
07:00	5	0
08:00	5	5
09:00	6	5
10:00	6	6
11:00	6	6
12:00	6	6
13:00	6	6
14:00	6	6
15:00	5	6
16:00	5	5
17:00	5	5
18:00	0	0
19:00	0	0
Total	55	55

- 4.4. Up to fifty-five heavy goods vehicles are planned to enter and leave site per day.
- 4.5. The main routes to minimise potential residential impact are shown in Figure 4 below, with the arrivals and departures likely to be split 50/50:

Figure 4 HGV access routes (north and south of site respectively)



- 4.6. The source noise levels of the HGVs have been taken from Annex C of BS 5228-1, as presented in Table 4 below.

Table 4 HGV Source Levels

Plant & Machinery Type	BS 5228-1 Annex C ref.	dB L _{Aeq,T} at 10 m	dB L _{wA}
Lorry, 313 kW - 32t	C11.9	82	110
Lorry (empty)* 313 kW - 39t	C6.20	76	104

*BS 5228-1 does not contain data for an empty 32 tonne vehicle, so worst-case has been assumed by adopting the values for a similarly-specified 39 tonne vehicle.

CALCULATION METHODOLOGY

- 4.7. The predicted noise levels from HGV movements at each of the six receptor positions have been calculated using the methods set out in Annex F.2.5 of BS 5228-1.

ASSUMPTIONS AND LIMITATIONS

- 4.8. Where manufacturer's noise data is not available, noise values have been taken from Annex C of BS 5228-1 for the appropriate power rating and size/capacity.
- 4.9. The distance adjustment for the calculation uses the shortest distance between each receptor position and the nearest point on the haul road.
- 4.10. For the haul road calculations, a worst-case angle of view of 180° has been assumed from each receptor position to all HGV routes.
- 4.11. For all calculations, the screening correction is assumed to be 0 dB and the correction for façade reflection at the receptor positions is taken to be +3 dB.
- 4.12. The maximum number of 55 lorry deliveries per 10-hour day has been used to determine the maximum number of vehicles per hour for each day during the 24-month duration construction phase. It is expected that the peak number of lorry movements would be no more than 12 per hour (i.e. 6 arrivals and 6 departures from the site). For all construction HGVs, a vehicle speed of 30 km/h has been assumed.

RESULTS

- 4.13. The results of the noise predictions from construction HGVs at the receptors are presented in Table 5, together with the total noise level (pre-construction ambient plus HGV movement generated noise), the noise level criteria for each receptor, and the difference between these two values which may indicate potentially significant effects.

- 4.14. The Noise Level from Haul Roads represents the flow of HGVs accessing the site via location 'B' as shown in Figure 4 above.

Table 5 Predicted HGV Construction Noise Levels for a typical day

Location	Noise Level from Haul Roads, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	52	54	65 dB	-11
2 – Legon Avenue	46	50	52	65 dB	-13
3 – Barton Avenue	57	52	58	65 dB	-7
4 – Coventry University	59	61	63	66 dB	-3
5 – Bull Lane	58	58	61	65 dB	-4
6 – Woodshire Road	54	52	56	65 dB	-9

* Total noise level is the pre-construction ambient noise level plus the predicted HGV construction noise level.

- 4.15. It can be seen from Table 5 that the predicted total noise level, including noise from HGVs on haul roads and pre-existing ambient noise, is at least 3 dB below the noise level criteria at all receptors.

ON-SITE ACTIVITIES

- 4.16. The predictions of noise from on-site construction activities (i.e. earthworks) have been based on preliminary estimates of plant types and quantities provided by the project team, and their usage during a typical working day. Further details are provided in Appendix B. Our assessment assumes working hours between 08:00hrs and 18:00hrs, i.e. a 10-hour working day.
- 4.17. As discussed in Paragraph 1.6, the on-site works will be phased over a 2 year period so that, predominantly, they take place in one of the four coloured areas shown in Figure 2 above at a time. On this basis, the results for each phase have been assessed separately.
- 4.18. The noise levels experienced at the receptors will vary based on where the activities are taking place within each of the four areas. The predictions assume that all of the associated plant is located around the closest part of each area to the receptor as a worst-case.

CALCULATION METHODOLOGY

- 4.19. The predicted noise levels from on-site activities at each of the six receptor positions have been calculated using the methods set out in Annex F.2.2 of BS 5228-1.

ASSUMPTIONS

- 4.20. Where manufacturer's noise data is not available, noise values have been taken from Annex C of BS 5228-1 for the appropriate power rating and size/capacity.
- 4.21. The predictions assume that all of the associated plant is located around the closest part of each area to the receptor as a worst-case.
- 4.22. The calculations have assumed soft ground between the on-site activities and the receptors to reflect the surface of the park. For all calculations, the screening correction is assumed to be 0 dB and the correction for façade reflection at the receptor positions is taken to be +3 dB.
- 4.23. Details of the preliminary estimates of plant types and quantities, and their usage during a typical 10-hour working day, used for the predictions are provided in Appendix B.

RESULTS

- 4.24. The results of the noise predictions from on-site construction activities at the receptors are presented in Tables 6 to 9, together with the
- 4.25. The predicted construction noise exposure at each receptor likely to be affected by the construction phase are presented for each scenario in Tables 6 to 9 below, together with the total noise level (pre-construction ambient plus on-site activities generated noise), the noise level criteria for each receptor, and the difference between these two values which may indicate potentially significant effects.

Table 6 Predicted On-site Construction Noise Levels for Phase 1

Location	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	40	52	52	65 dB	-13
2 – Legon Avenue	39	50	50	65 dB	-15
3 – Barton Avenue	49	52	54	65 dB	-11
4 – Coventry University	65	61	66	66 dB	0
5 – Bull Lane	50	58	59	65 dB	-6
6 – Woodshire Road	43	52	53	65 dB	-12

* Total noise level is the pre-construction ambient noise level plus the predicted on-site construction noise level.

Table 7 Predicted On-site Construction Noise Levels for Phase 2

Location	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	45	52	53	65 dB	-12
2 – Legon Avenue	42	50	51	65 dB	-14
3 – Barton Avenue	51	52	55	65 dB	-10
4 – Coventry University	48	61	61	66 dB	-5
5 – Bull Lane	53	58	59	65 dB	-6
6 – Woodshire Road	48	52	53	65 dB	-12

* Total noise level is the pre-construction ambient noise level plus the predicted on-site construction noise level.

Table 8 Predicted On-site Construction Noise Levels for Phase 3

Location	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	65	52	65	65 dB	0
2 – Legon Avenue	54	50	55	65 dB	-10
3 – Barton Avenue	47	52	53	65 dB	-12
4 – Coventry University	41	61	61	66 dB	-5
5 – Bull Lane	42	58	58	65 dB	-7
6 – Woodshire Road	47	52	53	65 dB	-12

* Total noise level is the pre-construction ambient noise level plus the predicted on-site construction noise level.

Table 9 Predicted On-site Construction Noise Levels for Phase 4

Location	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	52	54	65 dB	-11
2 – Legon Avenue	49	50	53	65 dB	-12
3 – Barton Avenue	53	52	56	65 dB	-9
4 – Coventry University	44	61	61	66 dB	-5
5 – Bull Lane	47	58	58	65 dB	-7
6 – Woodshire Road	45	52	53	65 dB	-12

* Total noise level is the pre-construction ambient noise level plus the predicted on-site construction noise level.

- 4.26. It can be seen from Tables 6 to 9 that the predicted total noise level, including noise from on-site activities and pre-existing ambient noise, is typically well below the noise level criteria at the receptors.
- 4.27. At two receptors during two different phases (receptor 4 during phase 1, and receptor 1 during phase 3), the predicted total noise level is equal to the noise level criteria but does not exceed it.

TOTAL NOISE FROM CONSTRUCTION ACTIVITIES

4.28. The predicted construction noise from both HGV movements and on-site activities at the receptors, as presented above, has been combined to produce a total predicted noise level from construction activities. This assumes the same level of HGV activity during each of the four on-site phases.

4.29. The results are presented in Tables 10 to 13, together with the noise level criteria for each receptor, and the difference between these two values which may indicate potentially significant effects.

Table 10 Predicted Total Construction Noise Levels for Phase 1

Location	Noise Level from Haul Roads, $L_{Aeq,10hr}$	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	40	52	54	65 dB	-11
2 – Legon Avenue	46	39	50	52	65 dB	-13
3 – Barton Avenue	57	49	52	59	65 dB	-6
4 – Coventry University	59	65	61	67	66 dB	1
5 – Bull Lane	58	50	58	61	65 dB	-4
6 – Woodshire Road	54	43	52	56	65 dB	-9

* Total noise level is the pre-construction ambient noise level plus the predicted haul road and on-site construction noise levels.

Table 11 Predicted Total Construction Noise Levels for Phase 2

Location	Noise Level from Haul Roads, $L_{Aeq,10hr}$	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	45	52	54	65 dB	-11
2 – Legon Avenue	46	42	50	52	65 dB	-13
3 – Barton Avenue	57	51	52	59	65 dB	-6
4 – Coventry University	59	48	61	63	66 dB	-3
5 – Bull Lane	58	53	58	62	65 dB	-3
6 – Woodshire Road	54	48	52	57	65 dB	-8

* Total noise level is the pre-construction ambient noise level plus the predicted haul road and on-site construction noise levels.

Table 12 Predicted Total Construction Noise Levels for Phase 3

Location	Noise Level from Haul Roads, $L_{Aeq,10hr}$	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	65	52	65	65 dB	0
2 – Legon Avenue	46	54	50	56	65 dB	-9
3 – Barton Avenue	57	47	52	59	65 dB	-6
4 – Coventry University	59	41	61	63	66 dB	-3
5 – Bull Lane	58	42	58	61	65 dB	-4
6 – Woodshire Road	54	47	52	57	65 dB	-8

* Total noise level is the pre-construction ambient noise level plus the predicted haul road and on-site construction noise levels.

Table 13 Predicted Total Construction Noise Levels for Phase 4

Location	Noise level from haul roads	Noise Level from Site Activities, $L_{Aeq,10hr}$	Pre-construction ambient noise level $L_{Aeq,10hr}$	Total Noise Level* $L_{Aeq,10hr}$	Noise Level Criteria, $L_{Aeq,T}$	Excess of Total Noise Level over Criteria
1 – Bell Farm Avenue	49	49	52	55	65 dB	-10
2 – Legon Avenue	46	49	50	53	65 dB	-12
3 – Barton Avenue	57	53	52	59	65 dB	-6
4 – Coventry University	59	44	61	63	66 dB	-3
5 – Bull Lane	58	47	58	61	65 dB	-4
6 – Woodshire Road	54	45	52	56	65 dB	-9

* Total noise level is the pre-construction ambient noise level plus the predicted haul road and on-site construction noise levels.

- 4.30. It can be seen from Tables 10 to 13 that the predicted total noise level at the receptors, including the contributions from both HGV movements and on-site activities as well as the pre-existing ambient noise, is typically well below the noise level criteria at the receptors.
- 4.31. At one receptor during one phase (receptor 1 during phase 3), the predicted total noise level is equal to the noise level criteria but does not exceed it. At one receptor during a different phase (receptor 4 during phase 1), the predicted total noise level exceeds the noise level criteria by just 1 dB.
- 4.32. For an average person, it is very unlikely that a change of 1 dB would be perceptible and, as described above, the location of the on-site construction plant used for the predictions is in the area closest to each receptor. Therefore, if this level were to occur, it would likely be for a relatively short duration. The method used to identify a potentially significant effect (as described in Section 3 above) states that, for this to occur, the threshold would need to be exceeded for “a duration of one month or more”; this is considered unlikely in this situation. Based on this information and the slight nature of the exceedance, it is not considered significant, and no specific mitigation has been identified as necessary.

5 . C O N C L U S I O N

- 5.1. Vanguardia Ltd. has been appointed by Golf and Leisure Experiences to carry out a construction noise assessment for the proposed redevelopment of Central Park, Dagenham.
- 5.2. An attended noise survey was undertaken in January 2019 to quantify the existing levels of ambient noise at locations representative of the closest potentially affected receptors.
- 5.3. Following discussion with the Local Authority, appropriate criteria for the identification of potentially significant effects from construction noise have been proposed, based on the results of the noise survey.
- 5.4. Noise levels from HGVs accessing the site and from the on-site activities have been predicted at the relevant receptors based on worst-case assumptions, and combined to arrive at a total predicted construction noise level.
- 5.5. Comparing the total predicted construction noise level to the proposed criteria, the results show that no significant noise effects are expected to arise from the construction works taking place at the site at any of the closest receptors, and therefore no specific mitigation measures have been identified as necessary.
- 5.6. However, best practicable means (BPM) will be utilised during the construction works to minimise the associated noise where possible.

APPENDIX A – NOISE SURVEY DETAILS

5.7. Instrumentation used:

- Class 1 Sound Level Meter: Larson Davis LxT, serial number 0003316;
- Class 1 Acoustic Calibrator: Larson Davis CAL200, serial number 5014.

The sound level meter was calibrated before and after the survey. No significant drift was recorded.

5.8. Measurement Period: The attended surveys were conducted between 09:00 hours and 18:00 hours on Thursday 17th January, and between 08:00 hours and 16:00hrs on Friday 18th January 2019 13:45 hours.

5.9. Weather Conditions: The weather conditions during the survey period were dry (no precipitation) with light winds generally below 5 m/s. This has been verified using weather observations taken from website ref.

Thursday 17th January 2019

Data ref. https://www.wunderground.com/history/daily/EGLL/date/2019-1-17?req_city=Heathrow&req_state=GLA&req_statename=United%20Kingdom&reqdb.zip=00000&reqdb.magic=104&reqdb.wmo=03772

Time	Temperature °C	Humidity	Wind Speed (m/s)	Wind Direction	Accumulated Precipitation (mm)	Condition
7:50 AM	2	87 %	4	WNW	0	Light Rain
8:20 AM	0	81 %	4	N	0	Light Rain
8:50 AM	0	87 %	4	NNW	0	Partly Cloudy
9:20 AM	0	87 %	4	NNW	0	Fair
9:50 AM	-1	81 %	4	NW	0	Fair
10:20 AM	-1	75 %	4	NW	0	Fair
10:50 AM	-1	75 %	4	NW	0	Fair
11:20 AM	-1	75 %	5	WNW	0	Fair
11:50 AM	-2	65 %	5	NW	0	Fair
12:20 PM	-3	61 %	4	NW	0	Fair
12:50 PM	-3	61 %	5	NW	0	Fair
1:20 PM	-3	57 %	6	NNW	0	Fair
1:50 PM	-3	57 %	5	NW	0	Fair
2:20 PM	-3	57 %	4	NW	0	Fair

Time	Temperature °C	Humidity	Wind Speed (m/s)	Wind Direction	Accumulated Precipitation (mm)	Condition
2:50 PM	-4	53 %	4	NW	0	Fair
3:20 PM	-4	53 %	5	NW	0	Fair
3:50 PM	-4	53 %	4	NW	0	Fair
4:20 PM	-3	61 %	4	WNW	0	Fair
4:50 PM	-3	61 %	3	WNW	0	Fair
5:20 PM	-3	61 %	3	WNW	0	Fair
5:50 PM	-3	65 %	3	WNW	0	Fair
6:20 PM	-3	65 %	2	WNW	0	Fair

Friday 18th January 2019

Data ref. https://www.wunderground.com/history/daily/EGLL/date/2019-1-18?req_city=Heathrow&req_state=GLA&req_statename=United%20Kingdom&reqdb.zip=00000&reqdb.magic=104&reqdb.wmo=03772

Time	Temperature °C	Humidity	Wind Speed (m/s)	Wind Direction	Accumulated Precipitation (mm)	Condition
7:50 AM	-1	93 %	2	S	0	Fair
8:20 AM	-1	86 %	1	VAR	0	Fair
8:50 AM	-1	93 %	3	SE	0	Fair
9:20 AM	0	87 %	3	SE	0	Fair
9:50 AM	1	87 %	3	SE	0	Fair
10:20 AM	3	75 %	3	SE	0	Fair
10:50 AM	3	75 %	3	SSE	0	Fair
11:20 AM	4	75 %	3	SSE	0	Fair
11:50 AM	5	70 %	4	S	0	Fair
12:20 PM	6	66 %	4	SSE	0	Partly Cloudy
12:50 PM	6	70 %	4	S	0	Fair
1:20 PM	6	66 %	6	S	0	Fair
1:50 PM	6	61 %	7	S	0	Partly Cloudy
2:20 PM	6	61 %	5	S	0	Fair
2:50 PM	7	61 %	6	S	0	Partly Cloudy
3:20 PM	6	61 %	7	S	0	Fair
3:50 PM	6	61 %	5	S	0	Fair
4:20 PM	5	65 %	5	S	0	Fair

APPENDIX B – ON-SITE CONSTRUCTION PLANT SCHEDULES

PHASE 1

Activity	Reference	Equipment Description	LAeq, 10 m	Quantity	Working Hours
Earthworks	C8.6	Dozer, 138 kW - 24t	78	1	9
	C4.4	Dumper*, 75 kW - 9t	76	2	9
	C2.3	Tracked Excavator, 102 kW - 22t	78	2	9
	C6.37	Wheel Wash	81	1	1

PHASE 2

Activity	Reference	Equipment Description	LAeq, 10 m	Quantity	Working Hours
Earthworks	C8.6	Dozer, 138 kW - 24t	78	1	9
	C4.4	Dumper*, 75 kW - 9t	76	2	9
	C2.3	Tracked Excavator, 102 kW - 22t	78	2	9
	C6.37	Wheel Wash	81	1	1

PHASE 3

Activity	Reference	Equipment Description	LAeq, 10 m	Quantity	Working Hours
Earthworks	C8.6	Dozer, 138 kW - 24t	78	1	9
	C4.4	Dumper*, 75 kW - 9t	76	2	9
	C2.3	Tracked Excavator, 102 kW - 22t	78	2	9
	C6.37	Wheel Wash	81	1	1

PHASE 4

Activity	Reference	Equipment Description	LAeq, 10 m	Quantity	Working Hours
Earthworks	C8.6	Dozer, 138 kW - 24t	78	1	9
	C4.4	Dumper*, 75 kW - 9t	76	2	9
	C2.3	Tracked Excavator, 102 kW - 22t	78	2	9
	C6.37	Wheel Wash	81	1	1



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