



Pear tree Hill Solar Farm

Environmental Statement

Volume 4

Appendix 12.3: Construction Noise Assessment Details

Revision 2

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Planning Act 2008
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(Applications: Prescribed Forms
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1 Construction Noise Details

1.1 Construction Phases

1.1.1 It is anticipated the following phases of construction works will be required, broadly categorised into preparatory works, construction of Proposed Development infrastructure and cable installation works. More detail on the works involved in each stage below is set out in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

- Preparatory Works:
 - 1. Installation of culverts in watercourses
 - 2. Stripping of topsoil, trenching, storage and capping
 - 3. Site establishment; mobilisation areas, running tracks, construction compounds and fencing
 - 4. Construction of access tracks and laydown areas
 - 5. Delivery of plant and materials to site
- Construction of Proposed Development infrastructure:
 - 6. Installation of solar PV modules, support structures and mounting
 - 7. Installation of supporting infrastructure including inverters, transformers, DC-DC converters, switchgear and BESS.
 - 8. Construction of on-site substations
 - 9. Installation of storage containers
 - 10. Installation of construction drainage with pumping (if required)
- Cable installation:
 - 11. Set-up of temporary construction compounds
 - 12. Stripping of topsoil
 - 13. Trenching and installation of cabling
 - 14. Horizontal directional drilling - crossing methodology

1.2 Noise Model Settings

1.2.1 The predicted noise emissions generated by the construction phases outlined above have been calculated at the surrounding noise sensitive receptors using the computational noise modelling software SoundPLAN (v9.0). The modelling software calculates noise in accordance with the methodology set out in BS 5228-1:2009+A1:2014.

1.2.2 A full list of the sensitive receptors considered in this assessment is shown in **Volume 4, Appendix 12.1: Full list of sensitive receptors [EN010157/APP/6.4]**.



1.2.3 The modelling parameters used are detailed in Table 1.

Item	Setting
Algorithms	BS 5228-1:2009+A1:2014
Façade Corrections	Predictions are at 1m from a given façade, in free-field conditions. No façade corrections have been applied.
Ground Absorption	An absorption coefficient of 0.9 due to the high proportion of soft ground.
Terrain	Surrounding terrain has been derived from https://environment.data.gov.uk/survey as 2m contours
Site Layout	Digitised based on site layout provided.
Maximum number of reflections	3
Receiver heights	1.5m from ground for 1st storey, 4m from ground for 2nd storey

Table 1 Modelling Parameters

1.3 Plant List and Sound Power Levels

- 1.3.1 Table 2 details the plant used in the construction assessment for each phase of works and the sound power levels for each item of plant in octave bands where the information was available.



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
1. Prep works: Installation of temporary culverts under watercourses							
Tracked excavator	C2.24	73	2	70	0	1	74
Dumper	C4.4	76	1	80	0	-1	75
Lorry with lifting boom	C4.53	77	1	10	0	-10	67
Total							78
2. Prep works: Stripping of topsoil, trenching, storage and capping							
Tracked excavator	C2.24	73	1	80	0	-1	72
Dumper	C4.4	76	1	70	0	-2	74
Articulated dump truck	C8.15	79	1	80	0	-1	78
Tipper lorry	C8.20	79	1	50	0	-3	76
Total							82
3. Prep works: Site establishment; mobilisation areas, running tracks, construction compounds and fencing							
Tracked excavator	C5.18	80	1	50	0	-3	77
Dumper	C4.4	76	1	50	0	-3	73
Lorry with lifting boom	C4.53	77	1	10	0	-10	67
Bulldozer	C5.15	83	1	40	0	-4	79
Vibratory roller	C5.20	75	1	20	0	-7	68
Tractor with Auger	D9.50	71	1	50	0	-3	68
Total							82



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
4. Prep works: Construction of access tracks and laydown areas							
Tracked excavator	C5.18	80	1	60	0	-2	78
Tipper lorry	C8.20	79	1	30	0	-5	74
Bulldozer	C5.15	83	1	60	0	-2	81
Vibratory roller	C5.20	75	1	20	0	-7	68
Total							83
5. Prep works: Delivery of plant and materials to site							
Lorry with lifting boom	C4.53	77	1	10	0	-10	67
Telescopic handler	C4.55	70	1	30	0	-5	65
Road lorry (full)	C6.21	80	1	10	0	-10	70
Total							73
6. Construction of Proposed Development infrastructure: Installation of solar PV modules, support structures and mounting							
Tracked excavator	C5.18	80	1	30	0	-5	75
Mini piling rig	C3.17	76	2	60	0	1	77
Compressor for mini piling	C3.19	75	2	60	0	1	76
Lorry	C2.34	80	1	10	0	-10	70
1.5kg Impact Wrench	M2.1	73	1	10	0	-10	63
Telescopic handler	C2.35	71	1	20	0	-7	64
Total							81



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
7. Construction of Proposed Development infrastructure: Installation of supporting infrastructure including inverters, transformers, DC-DC converters, switchgear and BESS							
Tracked excavator	C5.18	80	1	30	0	-5	75
Lorry with lifting boom	C4.53	77	1	60	0	-2	75
Vibratory roller	C5.20	75	1	40	0	-4	71
Lorry	C2.34	80	1	70	0	-2	78
Telescopic handler	C2.35	71	1	10	0	-10	61
Wheeled mobile crane	C4.43	70	1	10	0	-10	60
Total							82
8. Construction of Proposed Development infrastructure: Construction of on-site substations							
Tracked excavator	C5.18	80	1	20	0	-7	73
Lorry with lifting boom	C4.53	77	1	30	0	-5	72
Telescopic handler	C2.35	71	1	30	0	-5	66
Wheeled mobile crane	C4.43	70	1	30	0	-5	65
1.5kg Impact Wrench	M2.1	73	1	80	0	-1	72
Hand Tools	-	-	-	-	-	-	-
Total							78



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
9. Construction of Proposed Development infrastructure: Installation of storage containers							
Lorry	C2.34	80	1	20	0	-7	73
Telescopic handler	C2.35	71	1	30	0	-5	66
Wheeled mobile crane	C4.43	70	1	50	0	-3	67
Total							75
10. Construction of Proposed Development infrastructure: Installation of construction drainage with pumping (if required)							
Telescopic handler	C2.35	71	1	20	0	-7	64
Wheeled backhoe loader	C4.66	69	1	40	0	-4	65
Water pump	C4.88	68	1	40	-5	-9	59
Diesel generator	C4.86	65	1	40	0	-4	61
Tracked excavator	C5.18	80	1	60	0	-2	78
Total							78
11. Cable installation: set-up of temporary construction compounds							
Tracked excavator	C5.18	80	1	50	0	-3	77
Dumper	C4.4	76	1	50	0	-3	73
Lorry with lifting boom	C4.53	77	1	10	0	-10	67
Bulldozer	C5.15	83	1	40	0	-4	79
Vibratory roller	C5.20	75	1	20	0	-7	68
Total							82



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
12. Cable installation: stripping of topsoil							
Tracked excavator	C2.24	73	1	80	0	-1	72
Dumper	C4.4	76	1	70	0	-2	74
Articulated dump truck	C8.15	79	1	80	0	-1	78
Tipper lorry	C8.20	79	1	50	0	-3	76
Total							82
13. Cable installation: trenching and installation of cabling							
Tracked excavator	C5.18	80	2	70	0	1	81
Lorry with lifting boom	C4.53	77	1	20	0	-7	70
Vibratory roller	C5.20	75	1	10	0	-10	65
Lorry	C9.25	82	1	10	0	-10	72
Cable Powered Reeler (rope)	M3.1	76	1	80	0	-1	75
Cable Drum Mounted Trailer and Tractor Unit	M4.1	79	1	80	0	-1	78
Cable percussion drilling rig	C2.43	74	1	80	0	-1	73
Total							85



Plant	Plant Ref	L _p (at 10 m) dB(A)	No. of Plant Items	On-Time %	Screening (dB)	Total Correction (dB)	Total L _p (at 10 m) dB(A)
14. Cable installation: horizontal directional drilling - crossing methodology							
Tracked excavator	C5.18	80	1	60	0	-2	78
Lorry	C9.25	82	1	10	0	-10	72
Tracked drilling rig with hydraulic drifter	C3.15	82	1	40	0	-4	78
Diesel surface water pump	C8.22	71	1	30	-5	-10	61
Diesel generator for submersible pump	C8.23	62	1	20	-10	-17	45
Diesel generator	C8.24	59	1	50	-10	-13	46
Tractor (towing water bowser)	C6.38	83	1	40	0	-4	79
Angle grinder (grinding steel)	C4.93	80	1	20	0	-7	73
Petrol generator for hand-held grinder	C4.94	75	1	20	0	-7	68
Air Compressor	M5.1	78	1	30	0	-5	73
Total							84

Table 2 *Plant List Sound Power Levels*



2 Unmitigated Predicted Noise Levels

- 2.1.1 Table 3 details the unmitigated predicted noise levels at each of the receptors for each construction activity, with the corresponding magnitude of impact (in the absence of additional mitigation) shown in Table 4.



Receptor	Activity Reference in Section 1													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
R9 - White Cross Roundabout	36	50	50	41	35	48	44	27	37	50	53	49	52	40
R11 - Long Riston	35	56	56	62	47	55	51	34	35	52	53	47	50	49
R12 - Carr House Farm, Long Riston	49	64	64	53	55	60	56	33	56	60	45	35	39	42
R13 - Routh	44	53	53	80	36	52	49	32	38	49	53	37	40	48
R14 - Meaux Decoy Farm, Routh	46	71	71	50	62	67	56	56	64	67	54	57	60	48
R15 - Meaux (North)	45	71	71	75	52	59	53	39	52	76	53	46	49	43
R17 - Meaux (South)	55	62	62	65	60	60	56	34	50	70	42	37	56	53
R18 - Meaux (East)	49	58	58	46	49	56	52	31	34	54	55	57	60	49
R19 - Crown Farm, Meaux	41	57	57	44	37	55	51	42	42	53	43	39	42	48
R20 - Arnold Carr Farm, Arnold	40	63	63	45	37	60	54	39	41	59	54	46	49	46
R21 - Weel	40	73	73	55	46	69	56	33	29	74	54	55	58	46
R22 - Springdale Farm, Carr Lane, Weel	57	64	64	44	44	56	50	29	27	72	39	37	40	39
R24 - Wawne (North)	40	49	49	43	36	48	46	29	35	50	54	75	78	67
R29 - Woodmansey	51	38	38	35	27	37	36	27	24	77	52	57	60	51
R30 - Cottingham	44	25	25	25	16	24	24	0	0	61	39	38	41	37
R31 - Arnold	34	39	39	83	30	38	39	35	32	35	43	56	59	53
R32 - Beverley	31	36	35	32	25	35	34	24	22	54	44	41	44	42

Table 3 *Unmitigated predicted noise levels*



Receptor	Activity Reference in Section 1													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
R9 - White Cross Roundabout	N	L	L	L	N	N	N	N	N	N	N	N	N	N
R11 - Long Riston	N	L	L	N	L	L	L	N	L	L	N	N	N	N
R12 - Carr House Farm, Long Riston	N	N	N	H	N	N	N	N	N	N	N	N	N	N
R13 - Routh	N	M	M	N	L	M	L	L	L	M	N	N	N	N
R14 - Meaux Decoy Farm, Routh	N	M	M	M	N	L	N	N	N	H	N	L	L	N
R15 - Meaux (North)	N	L	L	M	L	L	L	N	N	M	N	N	N	N
R17 - Meaux (South)	N	L	L	N	N	L	N	N	N	N	N	N	L	N
R18 - Meaux (East)	N	L	L	N	N	L	N	N	N	N	N	L	L	N
R19 - Crown Farm, Meaux	N	L	L	N	N	L	N	N	N	L	N	N	N	N
R20 - Arnold Carr Farm, Arnold	N	M	M	L	N	M	L	N	N	M	N	N	N	N
R21 - Weel	L	L	L	N	N	L	N	N	N	M	N	N	L	N
R22 - Springdale Farm, Carr Lane, Weel	N	N	N	N	N	N	N	N	N	N	N	N	N	N
R24 - Wawne (North)	N	N	N	N	N	N	N	N	N	H	N	H	H	M
R29 - Woodmansey	N	N	N	N	N	N	N	N	N	L	N	L	L	N
R30 - Cottingham	N	N	N	H	N	N	N	N	N	N	N	N	N	N
R31 - Arnold	N	N	N	N	N	N	N	N	N	N	N	L	L	N
R32 - Beverley	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Notes N – Negligible; L – Low; M – Medium; H – High														

Table 4 *Unmitigated predicted magnitude of impact*



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