

# West Burton Solar Project

## Environmental Statement Appendix 15.3: Assessment of Key Effects

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## APPENDIX 15.3 – ASSESSMENT OF KEY EFFECTS

### 15.3.1 Construction Noise Assessment

#### 15.3.1.1 West Burton 1

Noise levels from potential construction activities associated with the development of the site have been assessed in accordance with BS 5228 criteria which indicates if a significant effect is likely to occur at noise sensitive receptors.

This assessment has been undertaken in order to establish the maximum external noise levels at neighbouring properties for the proposed construction activity of the site and whether typical plant and activities will be within these levels.

The table below shows predicted levels of construction noise at existing noise sensitive properties for comparison with the BS 5228-1 noise limit criteria of 65 dBA.

**Table 15.3.1 Construction Noise Assessment Results (ABC Method) – West Burton 1**

Ref	Construction Noise Level (dBA)	Criteria (dBA)	Within Recommended Noise Limit
R01	51.2	65.0	Yes
R02	41.5	65.0	Yes
R03	46.9	65.0	Yes
R04	55.1	65.0	Yes
R05	50.6	65.0	Yes
R06	40.0	65.0	Yes
R07	31.7	65.0	Yes
R08	31.7	65.0	Yes
R09	34.9	65.0	Yes
R10	31.4	65.0	Yes

The results show that the predicted construction noise levels at all receptors are within the 65 dB(A) noise level limit. None of the assessed receptors will therefore exceed the NOEL. The magnitude of impact is assessed as **negligible**, and the sensitivity of the receptors have been assessed as **high**. Therefore, the magnitude of change is **moderate/minor**.

#### 15.3.1.2 West Burton 2

Noise levels from potential construction activities associated with the development of the site have been assessed in accordance with BS 5228 criteria which indicates if a significant effect is likely to occur at noise sensitive receptors.

This assessment has been undertaken in order to establish the maximum external noise levels at neighbouring properties for the proposed construction activity of the site and whether typical plant and activities will be within these levels.

The table below shows predicted levels of construction noise at existing noise sensitive properties for comparison with the BS 5228-1 noise limit criteria of 65 dBA.

**Table 15.3.2 Construction Noise Assessment Results (ABC Method) – West Burton 2**

Ref	Construction Noise Level (dBA)	Criteria (dBA)	Within Recommended Noise Limit
R01	57.3	65.0	Yes
R02	33.9	65.0	Yes
R03	50.3	65.0	Yes
R04	34.8	65.0	Yes
R05	48.2	65.0	Yes
R06	52.7	65.0	Yes
R07	63.2	65.0	Yes
R08	40.8	65.0	Yes
R09	39.7	65.0	Yes
R10	45.1	65.0	Yes
R11	39.1	65.0	Yes
R12	24.2	65.0	Yes
R13	28.4	65.0	Yes
R14	24.2	65.0	Yes
R15	28.8	65.0	Yes
R16	57.3	65.0	Yes
R17	43.5	65.0	Yes
R18	57.5	65.0	Yes
R19	32.4	65.0	Yes
R20	34.1	65.0	Yes
R21	32.6	65.0	Yes

The results show that the predicted construction noise levels at all receptors are within the 65 dB(A) noise level limit. None of the assessed receptors will therefore exceed the NOEL. The magnitude of impact is assessed as **negligible**, and the sensitivity of the receptors have been assessed as **high**. Therefore, the magnitude of change is **moderate/minor**.

### 15.3.1.3 West Burton 3

Noise levels from potential construction activities associated with the development of the site have been assessed in accordance with BS 5228 criteria which indicates if a significant effect is likely to occur at noise sensitive receptors.

This assessment has been undertaken in order to establish the maximum external noise levels at neighbouring properties for the proposed construction activity of the site and whether typical plant and activities will be within these levels.

The table below shows predicted levels of construction noise at existing noise sensitive properties for comparison with the BS 5228-1 noise limit criteria of 65 dBA.

**Table 15.3.3 Construction Noise Assessment Results (ABC Method) – West Burton 3**

Ref	Construction Noise Level (dBA)	Criteria (dBA)	Within Recommended Noise Limit
R01	56.7	65.0	Yes
R02	48.0	65.0	Yes
R03	57.5	65.0	Yes
R04	58.9	65.0	Yes
R05	43.8	65.0	Yes
R06	49.7	65.0	Yes
R07	46.9	65.0	Yes
R08	32.2	65.0	Yes
R09	51.7	65.0	Yes
R10	44.4	65.0	Yes
R11	60.5	65.0	Yes
R12	43.1	65.0	Yes
R13	24.3	65.0	Yes
R14	23.4	65.0	Yes
R15	24.8	65.0	Yes
R16	26.2	65.0	Yes
R17	44.1	65.0	Yes
R18	43.2	65.0	Yes
R19	45.3	65.0	Yes
R20	40.9	65.0	Yes
R21	47.8	65.0	Yes
R22	46.3	65.0	Yes
R23	54.6	65.0	Yes
R24	43.4	65.0	Yes

The results show that the predicted construction noise levels at all receptors are within the 65 dB(A) noise level limit. None of the assessed receptors will therefore exceed the NOEL. The magnitude of impact is assessed as **negligible**, and the sensitivity of the receptors have been assessed as **high**. Therefore, the magnitude of change is **moderate/minor**.

#### 15.3.1.4 West Burton Cable Route

Noise levels from potential construction activities associated with the development of the cable route have been assessed in accordance with BS 5228 criteria which indicates if a significant effect is likely to occur at noise sensitive receptors.

This assessment has been undertaken in order to establish the maximum external noise levels at neighbouring properties for the proposed construction activity and whether typical plant and activities will be within these levels.

The table below shows predicted levels of construction noise at existing noise sensitive properties for comparison with the BS 5228-1 noise limit criteria of 65 dBA.

**Table 15.3.4 Construction Noise Assessment Results (ABC Method) – West Burton Cable Route**

Ref	Construction Noise Level (dBA)	Criteria (dBA)	Within Recommended Noise Limit
CR01	40.2	65.0	Yes
CR02	49.9	65.0	Yes
CR03	36.4	65.0	Yes
CR04	35.4	65.0	Yes
CR05	58.5	65.0	Yes
CR06	38.9	65.0	Yes
CR07	69.9	65.0	No
CR08	72.4	65.0	No
CR09	71.2	65.0	No
CR10	41.1	65.0	Yes
CR11	60.6	65.0	Yes

The results show that the predicted construction noise levels at all receptors are within the 65 dB(A) noise level limit, with the exception of receptors CR07, CR08 and CR09. The magnitude of effect at CR07, CR08 and CR09 is assessed as **major**, however when determining the magnitude of impact from the magnitude of effect for construction noise it is necessary to consider the duration of the construction activities.

Given that construction activities for the cable route are transient, it is considered unlikely that a major impact would be experienced for any prolonged duration due to the temporary nature of construction operations, therefore, Best Practicable Means (BPM) will be implemented as described in Paragraph 15.6.3 of Chapter 15.

## 15.3.2 Construction Vibration Assessment

### 15.3.2.1 West Burton 1

As explained in ES chapter 15, potential levels of vibration from vibratory piling have been estimated using the formulae presented in BS 5228 and the distances to nearest sections of piling activities.

Table 15.3.5 presents the predicted Peak Particle Velocity (PPV) levels for the piling activities, at the nearest assessed receptor.

**Table 15.3.5 Predicted Vibration Levels**

Ref	Construction Activity, Closest Distance to Receptor. (m)	Peak Particle Velocity, mm/s
R04	55	0.33

Vibration due to piling operations during the construction of the PV panel framework is likely to be above the level of perception at the nearest assessed receptor (0.3mm/s as set out in Table 15.6 of ES Chapter 15) but below the level likely to cause complaint (1.0 mm/s). Therefore, the magnitude of effect is anticipated to be **minor** at all residential receptors and therefore the magnitude of change is **moderate**.

### 15.3.2.2 West Burton 2

As explained in ES chapter 15, potential levels of vibration from vibratory piling have been estimated using the formulae presented in BS 5228 and the distances to nearest sections of piling activities.

Table 15.3.6 presents the predicted Peak Particle Velocity (PPV) levels for the piling activities, at the nearest assessed receptor.

**Table 15.3.6 Predicted Vibration Levels**

Ref	Construction Activity, Closest Distance to Receptor. (m)	Peak Particle Velocity, mm/s
R07	40	0.50

Vibration due to piling operations during the construction of the PV panel framework is likely to be above the level of perception at the nearest assessed receptor (0.3mm/s as set out in Table 15.6 of ES Chapter 15). Therefore, the magnitude of effect is anticipated to be **minor** at all residential receptors and therefore the magnitude of change is **moderate**.

### 15.3.2.3 West Burton 3

As explained in ES chapter 15, potential levels of vibration from vibratory piling have been estimated using the formulae presented in BS 5228 and the distances to nearest sections of piling activities.

Table 15.3.7 presents the predicted Peak Particle Velocity (PPV) levels for the piling activities, at the nearest assessed receptor.

**Table 15.3.7 Predicted Vibration Levels**

Ref	Construction Activity, Closest Distance to Receptor. (m)	Peak Particle Velocity, mm/s
R11	50	0.37

Vibration due to piling operations during the construction of the PV panel framework is likely to be above the level of perception at the nearest assessed receptor (0.3mm/s as set out in Table 15.6 of ES Chapter 15). Therefore, the magnitude of effect is anticipated to be **minor** at all residential receptors and therefore the magnitude of change is **moderate**.

#### 15.3.2.4 West Burton Cable Route

As explained in ES chapter 15, potential levels of vibration from vibratory compaction have been estimated using the formulae presented in BS 5228 and the distances to nearest sections of compaction activities.

Using the Vibratory compaction (steady state) formula from Table E.1 of BS 5228-2, the minimum distance from receptor to compaction activity that will result in a greater than negligible effect is equal to 38m. The only assessed receptors that fall within this category are receptors CR07, CR08 and CR09 which are approximately 20m from the Cable Route Corridor. The estimated PPV value for a receptor at a distance of 20m from a compaction activity is 0.75mm/s which, as set out in Table 15.6 of the ES, corresponds to an effect level of **minor**. The receptor sensitivity is high therefore, the magnitude of change is **moderate** and not significant.

### 15.3.4 Construction Traffic Assessment

#### 15.3.4.1 West Burton 1

A quantitative assessment has been undertaken to establish the change in road traffic noise level due to increased vehicle movements as a result of the Scheme. The table below shows the results of the construction traffic noise assessment comparing  $L_{A10}$  noise levels from the 'with' and 'without' proposed construction traffic flows. The anticipated traffic flows have been obtained from Chapter 14 -Transport and Access. Traffic flows along the A15 and Till Bridge Lane have been considered in the table below.

**Table 15.3.8 Construction Traffic Assessment – West Burton 1**

Ref	Baseline dB $L_{A10,18hr}$	Proposed dB $L_{A10,18hr}$	Level Difference dB
TR01	65.7	66.0	0.3
TR02	61.1	61.4	0.3
TR03	67.9	68.2	0.3

When compared with the criteria in Table 15.7 of the ES Chapter, the change in road traffic noise level as a result of the increased vehicle movements associated with the construction phase of the Scheme is predicted to have a **Negligible** effect at all sensitive receptors and therefore the magnitude of change is **moderate/minor**.

#### 15.3.4.2 West Burton 2

A quantitative assessment has been undertaken to establish the change in road traffic noise level due to increased vehicle movements as a result of the Scheme. The table below shows the results of the construction traffic noise assessment comparing L<sub>A10</sub> noise levels from the 'with' and 'without' anticipated construction traffic flows. The anticipated traffic flows have been obtained from Chapter 14 -Transport and Access. Traffic flows along the A57 and Mill Lane have been considered in the table below.

**Table 15.3.9 Construction Traffic Assessment – West Burton 2**

Ref	Baseline dB L <sub>A10,18hr</sub>	Proposed dB L <sub>A10,18hr</sub>	Level Difference dB
TR01	64.2	64.3	0.1
TR02	67.4	67.4	0.0
TR03	64.6	64.7	0.1
TR04	66.6	66.6	0.0
TR05	68.6	68.7	0.1
TR06	66.7	66.7	0.0
TR07	33.3	33.4	0.1
TR08	33.4	33.5	0.1
TR09	58.9	59.0	0.1
TR10	65.7	65.8	0.1
TR11	64.2	64.3	0.1
TR12	68.3	68.4	0.1
TR13	66.9	67.0	0.1
TR14	65.3	65.4	0.1
TR15	64.1	64.2	0.1
TR16	61.5	61.6	0.1

When compared with the criteria in Table 15.7 of the ES Chapter, the change in road traffic noise level as a result of the increased vehicle movements associated with the construction phase of the Scheme is predicted to have a **Negligible** effect at all sensitive receptors and therefore the magnitude of change is **moderate/minor**.

#### 15.3.4.3 West Burton 3

A quantitative assessment has been undertaken to establish the change in road traffic noise level due to increased vehicle movements as a result of the Scheme. The table below shows the results of the construction traffic noise assessment comparing L<sub>A10</sub> noise levels from the 'with' and 'without' anticipated



construction traffic flows. The anticipated traffic flows have been obtained from Chapter 14 -Transport and Access. Traffic flows along the A15 and Till Bridge Lane have been considered in the table below.

**Table 15.3.10 Construction Traffic Assessment – West Burton 3**

Ref	Baseline dB L <sub>A10,18hr</sub>	Proposed dB L <sub>A10,18hr</sub>	Level Difference dB
TR01	65.7	65.9	0.2
TR02	61.3	61.5	0.2
TR03	67.5	67.7	0.2
TR04	64.7	65.0	0.3
TR05	66.9	67.1	0.2
TR06	68.1	68.3	0.2
TR07	72.8	73.0	0.2
TR08	73.4	73.7	0.3
TR09	72.4	72.6	0.2
TR10	67.5	67.7	0.2
TR11	67.9	68.1	0.2
TR12	69.7	69.9	0.2
TR13	41.7	41.9	0.2

When compared with the criteria in Table 15.7 of the ES Chapter, the change in road traffic noise level as a result of the increased vehicle movements associated with the construction phase of the Scheme is predicted to have a **Negligible** effect at all sensitive receptors and therefore the magnitude of change is **moderate/minor**.

### 15.3.5 Operational Noise Assessment

#### 15.3.5.1 West Burton 1

**Table 15.3.11 BS 4142 Proposed Operational Noise Assessment – West Burton 1**

Location	Existing Measured Background L <sub>A90</sub>		Rating level from plant (L <sub>A,Tr</sub> )		BS 4142 Score	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R01	26	21	33	33	7	12
R02	26	21	26	29	0	8
R03	26	21	31	33	5	12
R04	26	21	34	35	8	14
R05	26	21	34	34	8	13
R06	46	25	27	26	-19	1
R07	46	25	20	24	-26	-2
R08	46	25	20	23	-26	-2
R09	31	20	23	26	-8	6
R10	31	20	18	22	-13	2

The assessment above shows that noise levels from the solar farm are predicted to be up to +8 dB above the existing background noise levels at the closest sensitive receptors during the daytime and up to +14 dB during the night-time, which as set out in Table 15.8 of the ES, is an indication of a **major** effect and therefore **major** significance.

### Noise Intrusion Assessment – West Burton 1

Internal noise levels, at nearby sensitive receptors from all sources of potential noise associated with the Scheme have been assessed both with windows open, where a reduction from a partially open window of 10 dB has been used, and with windows closed where an assumption of single glazing with a sound reduction of 30 dB has been used.

**Table 15.3.12 Daytime Noise Intrusion Levels  $L_{Aeq}$  1 hour – West Burton 1**

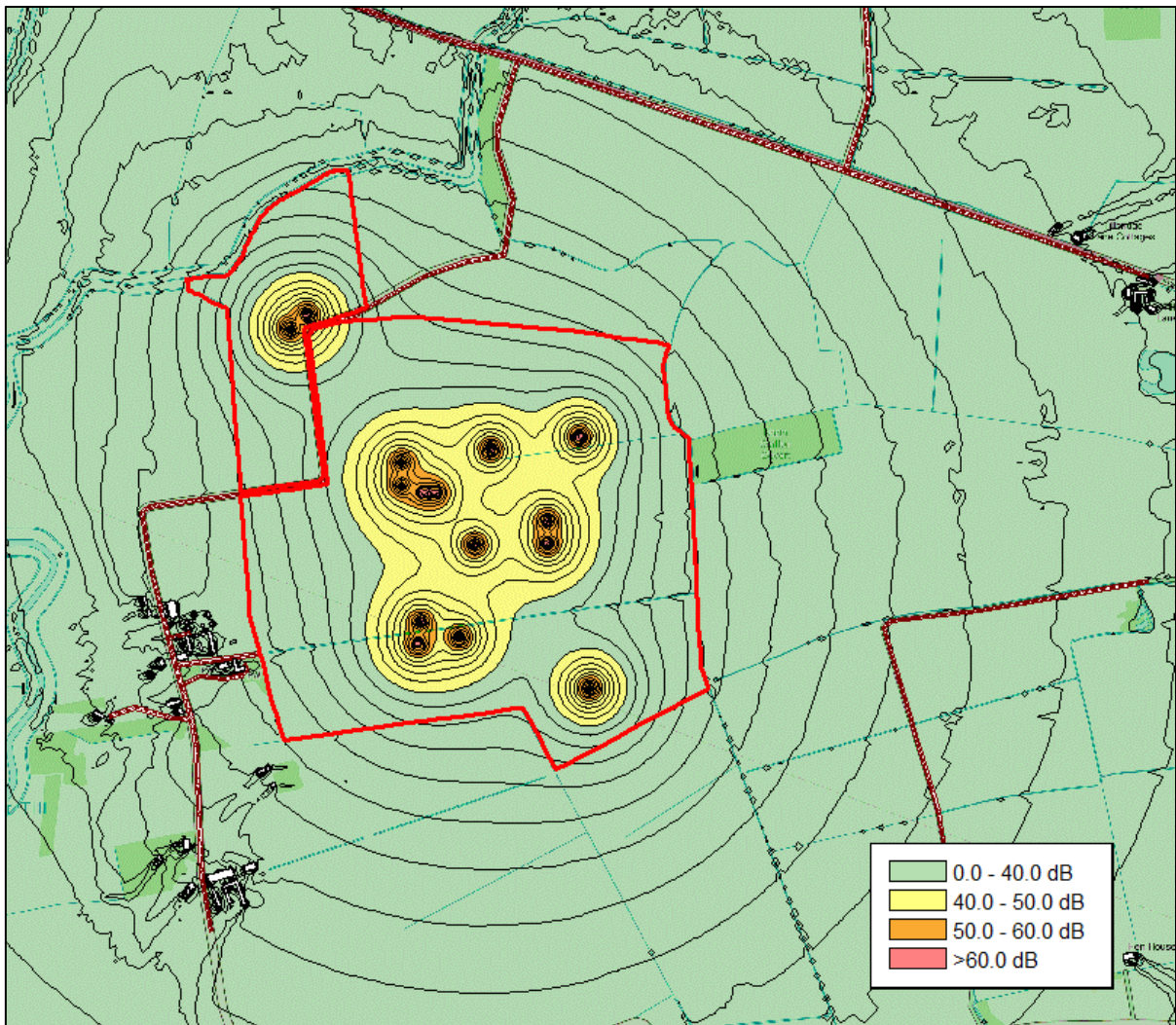
Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R01	30.7	20.7	0.7	35
R02	24.1	14.1	0.0	35
R03	28.9	18.9	0.0	35
R04	32.0	22.0	2.0	35
R05	31.9	21.9	1.9	35
R06	24.7	14.7	0.0	35
R07	17.9	7.9	0.0	35
R08	17.7	7.7	0.0	35
R09	21.0	11.0	0.0	35
R10	16.4	6.4	0.0	35

**Table 15.3.13 Night-time Noise Intrusion Levels  $L_{Aeq}$  15mins – West Burton 1**

Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R01	31.0	21.0	1.0	30
R02	27.4	17.4	0.0	30
R03	31.4	21.4	1.4	30
R04	33.4	23.4	3.4	30
R05	32.4	22.4	2.4	30
R06	24.4	14.4	0.0	30
R07	21.5	11.5	0.0	30
R08	21.2	11.2	0.0	30
R09	24.3	14.3	0.0	30
R10	20.0	10.0	0.0	30

The assessment shown in the tables above indicates that internal  $L_{Aeq}$  noise levels from all potential noise sources, during both the daytime and night-time periods are predicted to be below the WHO noise intrusion guidance at all sensitive receptors. As set out in Table 15.9 of the ES, this is an indication of a **negligible** effect and therefore a **moderate/minor** significance.

Figure 15.3.1 West Burton 1 Noise Contour Plot



Not to scale  
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### Combined Noise Level Assessment (Change In Noise Levels) – West Burton 1

This assessment compares the noise from the existing ambient noise climate (based on existing measured  $L_{Aeq}$ ), with the predicted noise level from the proposed scenario from all noise sources associated with the Scheme. The difference between the 'existing' ambient noise level and the predicted 'worst-case proposed' noise level is presented in the tables below.

**Table 15.3.14 Difference between Baseline and Proposed Scenarios (Daytime) – West Burton 1**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq 16 hour}$
R01	55.3	55.3	0.0
R02	55.3	55.3	0.0
R03	55.3	55.3	0.0
R04	55.3	55.3	0.0
R05	55.3	55.3	0.0
R06	69.1	69.1	0.0
R07	69.1	69.1	0.0
R08	69.1	69.1	0.0
R09	44.5	44.5	0.0
R10	44.5	44.5	0.0

**Table 15.3.15 Difference between Baseline and Proposed Scenarios (Night-time) – West Burton 1**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq 16 hour}$
R01	45.6	45.7	0.1
R02	45.6	45.7	0.1
R03	45.6	45.8	0.2
R04	45.6	45.9	0.3
R05	45.6	45.8	0.2
R06	61.0	61.0	0.0
R07	61.0	61.0	0.0
R08	61.0	61.0	0.0
R09	35.7	36.0	0.3
R10	35.7	35.8	0.1

The results presented in the table above show the change in noise levels between the existing measured  $L_{Aeq}$  noise levels and the contribution from the Scheme. When the differences between the 'existing' and 'proposed' scenario are compared with the noise change criteria given in Table 15.10 of Chapter 15, the contribution from the Scheme is considered a **negligible** effect and therefore a **moderate/minor** significance.

**15.3.5.2 West Burton 2**
**BS 4142 Assessment – West Burton 2**
**Table 15.3.16 BS 4142 Proposed Operational Noise Assessment – West Burton 2**

Location	Existing Measured Background $L_{A90}$		Rating level from plant ( $L_{A,Tr}$ )		BS 4142 Score	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R01	29	18	35	35	6	17
R02	29	18	25	26	-4	8
R03	37	18	37	38	0	20
R04	37	18	27	28	-10	10
R05	37	18	32	33	-5	15
R06	37	18	32	33	-5	15
R07	37	18	37	39	0	21
R08	37	18	32	32	-6	14
R09	37	18	32	34	-5	16
R10	37	18	37	38	0	20
R11	37	18	26	27	-11	9
R12	26	21	13	16	-13	-5
R13	26	21	14	18	-12	-3
R14	26	21	10	12	-17	-9
R15	26	21	15	18	-11	-3
R16	36	23	32	35	-4	12
R17	36	23	30	32	-7	9
R18	36	23	32	35	-4	12
R19	36	23	25	28	-11	5
R20	31	19	28	30	-3	11
R21	31	19	26	28	-5	9

The assessment above shows that noise levels from the solar farm are predicted to be up to +6 dB above the existing background noise levels at the closest sensitive receptors during the daytime and up to +21 dB during the night-time, which, as set out in Table 15.8 of the ES, is an indication of a **major** effect and therefore **major** significance.

**Noise Intrusion Assessment – West Burton 2**

Internal noise levels, at nearby sensitive receptors from all sources of potential noise associated with the Scheme have been assessed both with windows open, where a reduction from a partially open window of 10 dB has been used, and with windows closed where an assumption of single glazing with a sound reduction of 30 dB has been used.

**Table 15.3.17 Daytime Noise Intrusion Levels  $L_{Aeq}$  1 hour – West Burton 2**

Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R01	32.5	22.5	2.5	35

Location	External L <sub>Aeq</sub> Noise Level at 1 metre from façade	Internal L <sub>Aeq</sub> with windows-open	Internal L <sub>Aeq</sub> with windows-closed	Criteria L <sub>Aeq</sub>
R02	22.7	12.7	0.0	35
R03	34.8	24.8	4.8	35
R04	25.0	15.0	0.0	35
R05	30.0	20.0	0.0	35
R06	29.8	19.8	0.0	35
R07	35.2	25.2	5.2	35
R08	29.5	19.5	0.0	35
R09	29.9	19.9	0.0	35
R10	35.1	25.1	5.1	35
R11	23.9	13.9	0.0	35
R12	10.7	0.7	0.0	35
R13	12.0	2.0	0.0	35
R14	7.5	0.0	0.0	35
R15	12.8	2.8	0.0	35
R16	30.1	20.1	0.1	35
R17	27.5	17.5	0.0	35
R18	30.1	20.1	0.1	35
R19	23.1	13.1	0.0	35
R20	25.8	15.8	0.0	35
R21	24.3	14.3	0.0	35

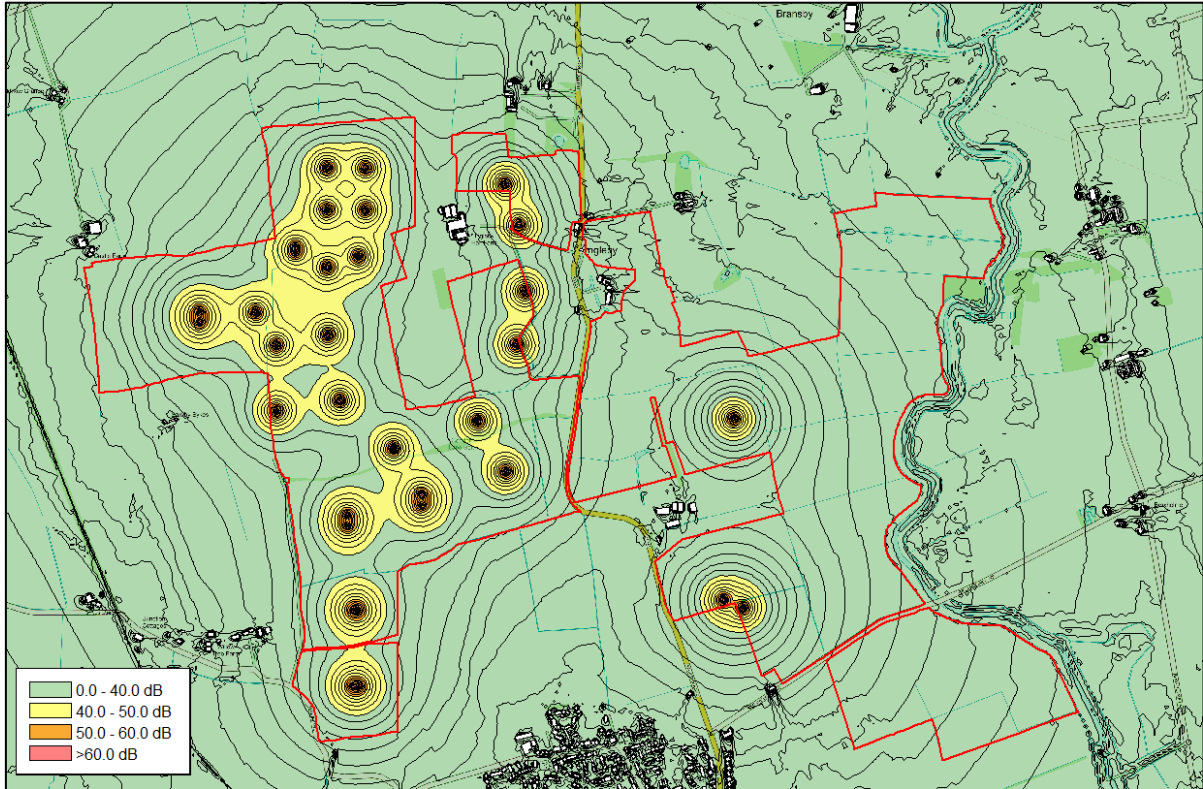
**Table 15.3.18 Night-time Noise Intrusion Levels L<sub>Aeq</sub> 15mins – West Burton 2**

Location	External L <sub>Aeq</sub> Noise Level at 1 metre from façade	Internal L <sub>Aeq</sub> with windows-open	Internal L <sub>Aeq</sub> with windows-closed	Criteria L <sub>Aeq</sub>
R01	33.0	23.0	3.0	30
R02	23.7	13.7	0.0	30
R03	35.8	25.8	5.8	30
R04	25.9	15.9	0.0	30
R05	30.5	20.5	0.5	30
R06	31.0	21.0	1.0	30
R07	36.9	26.9	6.9	30
R08	29.7	19.7	0.0	30
R09	31.8	21.8	1.8	30
R10	36.2	26.2	6.2	30
R11	25.2	15.2	0.0	30
R12	13.7	3.7	0.0	30
R13	16.3	6.3	0.0	30
R14	10.1	0.1	0.0	30
R15	16.3	6.3	0.0	30
R16	32.7	22.7	2.7	30
R17	29.6	19.6	0.0	30
R18	32.6	22.6	2.6	30
R19	25.5	15.5	0.0	30
R20	27.8	17.8	0.0	30
R21	25.5	15.5	0.0	30



The assessment shown in the tables above indicates that internal  $L_{Aeq}$  noise levels from all potential noise sources, during both the daytime and night-time periods are predicted to be below the WHO noise intrusion guidance at all sensitive receptors. As set out in Table 15.9 of the ES this is an indication of a **negligible** effect and therefore a **moderate/minor** significance.

**Figure 15.3.4 West Burton 2 Noise Contour Plot**



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### Combined Noise Level Assessment (Change In Noise Levels) – West Burton 2

This assessment compares the noise from the existing ambient noise climate (based on existing measured  $L_{Aeq}$ ), with the predicted noise level from the proposed scenario from all noise sources associated with the Scheme. The difference between the ‘existing’ ambient noise level and the predicted ‘worst-case proposed’ noise level is presented in the tables below.

**Table 15.3.19 Difference between Baseline and Proposed Scenarios (Daytime) – West Burton 2**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq,16\ hour}$
R01	38.9	39.8	0.9
R02	38.9	39.0	0.1
R03	48.2	48.4	0.2
R04	48.2	48.2	0.0
R05	48.2	48.3	0.1
R06	48.2	48.3	0.1
R07	48.2	48.4	0.2

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq 16 hour}$
R08	48.2	48.3	0.1
R09	48.2	48.3	0.1
R10	48.2	48.4	0.2
R11	48.2	48.2	0.0
R12	55.3	55.3	0.0
R13	55.3	55.3	0.0
R14	55.3	55.3	0.0
R15	55.3	55.3	0.0
R16	47.2	47.3	0.1
R17	47.2	47.2	0.0
R18	47.2	47.3	0.1
R19	47.2	47.2	0.0
R20	38.3	38.5	0.2
R21	38.3	38.5	0.2

**Table 15.3.20 Difference between Baseline and Proposed Scenarios (Night-time) – West Burton 2**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq 16 hour}$
R01	37.3	38.7	1.4
R02	37.3	37.5	0.2
R03	39.6	41.1	1.5
R04	39.6	39.8	0.2
R05	39.6	40.1	0.5
R06	39.6	40.2	0.6
R07	39.6	41.5	1.9
R08	39.6	40.0	0.4
R09	39.6	40.3	0.7
R10	39.6	41.2	1.6
R11	39.6	39.8	0.2
R12	45.6	45.6	0.0
R13	45.6	45.6	0.0
R14	45.6	45.6	0.0
R15	45.6	45.6	0.0
R16	42.7	43.1	0.4
R17	42.7	42.9	0.2
R18	42.7	43.1	0.4
R19	42.7	42.8	0.1
R20	38.0	38.4	0.4
R21	38.0	38.2	0.2

The results presented in the table above show the change in noise levels between the existing measured  $L_{Aeq}$  noise levels and the contribution from the Scheme. When the differences between the 'existing' and 'proposed' scenario are compared with the noise change criteria given in Table 15.10 of



Chapter 15, the contribution from the Scheme is considered a **negligible** effect and therefore a **moderate/minor** significance.

### 15.3.5.3 West Burton 3

#### BS 4142 Assessment – West Burton 3

**Table 15.3.21 BS 4142 Proposed Operational Noise Assessment – West Burton 3**

Location	Existing Measured Background L <sub>A90</sub>		Rating level from plant (L <sub>A,Tr</sub> )		BS 4142 Score	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R01	29	21	31	34	2	13
R02	29	21	27	30	-2	9
R03	29	21	33	36	4	15
R04	29	21	34	36	5	15
R05	29	21	33	34	4	13
R06	33	19	32	35	-1	16
R07	29	21	37	38	8	17
R08	29	21	33	35	4	14
R09	33	19	30	33	-3	14
R10	33	19	37	38	4	19
R11	33	19	36	38	3	19
R12	33	19	32	32	-1	13
R13	29	21	18	19	-11	-2
R14	29	21	15	18	-14	-3
R15	29	21	18	18	-11	-3
R16	29	21	18	18	-12	-3
R17	29	21	27	30	-2	9
R18	39	20	26	26	-13	6
R19	39	20	28	29	-11	9
R20	39	20	29	29	-10	9
R21	39	20	30	30	-9	10
R22	39	20	29	30	-10	10
R23	29	21	29	30	0	9
R24	29	21	34	36	5	15

The assessment above shows that noise levels from the solar farm are predicted to be up to +8 dB above the existing background noise levels at the closest sensitive receptors during the daytime and up to +19 dB above the existing background noise levels during the night-time which, as set out in to Table 15.8 of the ES, is an indication of a **major** effect and therefore **major** significance.

#### Noise Intrusion Assessment – West Burton 3

Internal noise levels, at nearby sensitive receptors from all sources of potential noise associated with the Scheme have been assessed both with windows open, where a reduction from a partially open

window of 10 dB has been used, and with windows closed where an assumption of single glazing with a sound reduction of 30 dB has been used.

**Table 15.3.22 Daytime Noise Intrusion Levels  $L_{Aeq}$  1 hour – West Burton 3**

Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R01	28.8	18.8	0.0	35
R02	25.0	15.0	0.0	35
R03	31.0	21.0	1.0	35
R04	31.8	21.8	1.8	35
R05	31.2	21.2	1.2	35
R06	29.8	19.8	0.0	35
R07	35.3	25.3	5.3	35
R08	31.2	21.2	1.2	35
R09	28.4	18.4	0.0	35
R10	34.9	24.9	4.9	35
R11	34.4	24.4	4.4	35
R12	29.6	19.6	0.0	35
R13	15.6	5.6	0.0	35
R14	13.4	3.4	0.0	35
R15	15.9	5.9	0.0	35
R16	15.5	5.5	0.0	35
R17	25.1	15.1	0.0	35
R18	24.3	14.3	0.0	35
R19	25.6	15.6	0.0	35
R20	26.8	16.8	0.0	35
R21	27.8	17.8	0.0	35
R22	27.3	17.3	0.0	35
R23	27.2	17.2	0.0	35
R24	32.0	22.0	2.0	35

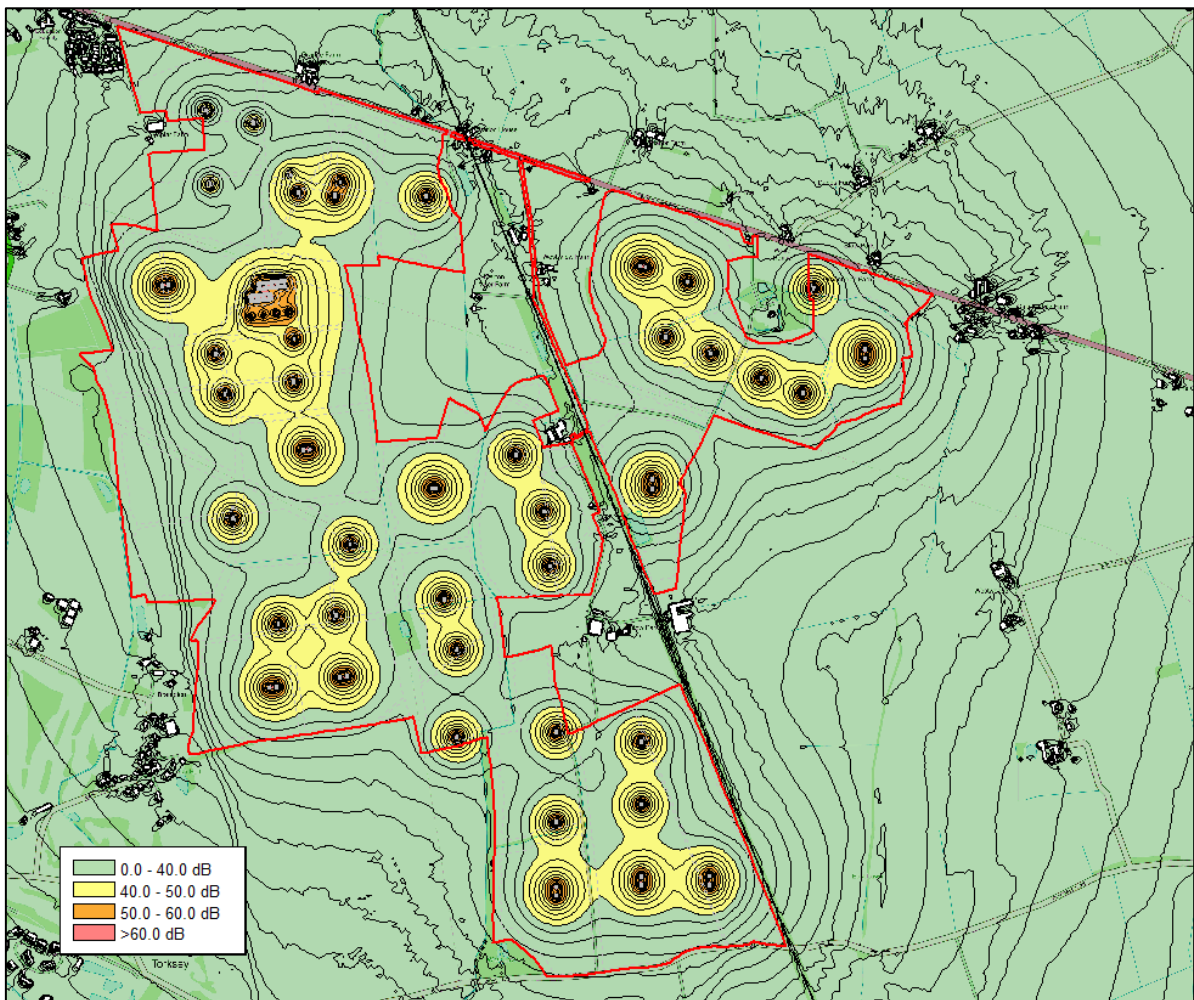
**Table 15.3.23 Night-time Noise Intrusion Levels  $L_{Aeq}$  15mins – West Burton 3**

Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R01	33.4	23.4	3.4	30
R02	30.3	20.3	0.3	30
R03	35.6	25.6	5.6	30
R04	34.8	24.8	4.8	30
R05	31.9	21.9	1.9	30
R06	32.7	22.7	2.7	30
R07	36.3	26.3	6.3	30
R08	32.5	22.5	2.5	30
R09	30.9	20.9	0.9	30
R10	35.7	25.7	5.7	30
R11	35.8	25.8	5.8	30
R12	30.3	20.3	0.3	30
R13	17.2	7.2	0.0	30
R14	15.6	5.6	0.0	30

Location	External $L_{Aeq}$ Noise Level at 1 metre from façade	Internal $L_{Aeq}$ with windows-open	Internal $L_{Aeq}$ with windows-closed	Criteria $L_{Aeq}$
R15	16.3	6.3	0.0	30
R16	16.1	6.1	0.0	30
R17	27.8	17.8	0.0	30
R18	24.4	14.4	0.0	30
R19	27.3	17.3	0.0	30
R20	26.9	16.9	0.0	30
R21	28.1	18.1	0.0	30
R22	28.2	18.2	0.0	30
R23	28.8	18.8	0.0	30
R24	38.4	28.4	8.4	30

The assessment shown in the tables above indicates that internal  $L_{Aeq}$  noise levels from all potential noise sources, during both the daytime and night-time periods are predicted to be below the WHO noise intrusion guidance at all sensitive receptors. As set out in to Table 15.9 of the ES this is an indication of a **negligible effect** and therefore a **moderate/minor** significance.

**Figure 15.3.5 West Burton 3 Noise Contour Plot**



Not to scale  
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**Combined Noise Level Assessment (Change In Noise Levels) – West Burton 3**

This assessment compares the noise from the existing ambient noise climate (based on existing measured  $L_{Aeq}$ ), with the predicted noise level from the proposed scenario from all noise sources associated with the Scheme. The difference between the 'existing' ambient noise level and the predicted 'worst-case proposed' noise level is presented in the tables below.

**Table 15.3.24 Difference between Baseline and Proposed Scenarios (Daytime) – West Burton 3**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq}$ 16 hour
R01	43.2	43.4	0.2
R02	43.2	43.3	0.1
R03	43.2	43.5	0.3
R04	43.2	43.5	0.3
R05	43.2	43.5	0.3
R06	61.4	61.4	0.0
R07	51.3	51.4	0.1
R08	51.3	51.3	0.0
R09	61.4	61.4	0.0
*R10	61.4	61.4	0.0
*R11	61.4	61.4	0.0
*R12	61.4	61.4	0.0
R13	51.3	51.3	0.0
R14	51.3	51.3	0.0
R15	51.3	51.3	0.0
R16	51.3	51.3	0.0
R17	51.3	51.3	0.0
R18	58.2	58.2	0.0
R19	58.2	58.2	0.0
R20	58.2	58.2	0.0
R21	58.2	58.2	0.0
R22	58.2	58.2	0.0
R23	43.2	43.2	0.0
R24	43.2	43.2	0.0

**Table 15.3.25 Difference between Baseline and Proposed Scenarios (Night-time) – West Burton 3**

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq}$ 16 hour
R01	34.5	36.3	1.8
R02	34.5	35.4	0.9
R03	34.5	37.1	2.6
R04	34.5	37.4	2.9
R05	34.5	36.4	1.9
R06	54.0	54.0	0.0
R07	39.6	41.3	1.7
R08	39.6	40.4	0.8

Location	Measured Baseline $L_{Aeq,15mins}$	Measured Baseline Combined with Contribution from the Proposed Scenario	Contribution from Solar Scheme $L_{Aeq 16 hour}$
R09	54.0	54.0	0.0
*R10	54.0	54.1	0.1
*R11	54.0	54.1	0.1
*R12	54.0	54.0	0.0
R13	39.6	39.6	0.0
R14	39.6	39.6	0.0
R15	39.6	39.6	0.0
R16	39.6	39.6	0.0
R17	39.6	39.9	0.3
R18	51.1	51.1	0.0
R19	51.1	51.1	0.0
R20	51.1	51.1	0.0
R21	51.1	51.1	0.0
R22	51.1	51.1	0.0
R23	34.5	35.4	0.9
R24	34.5	37.3	2.8

The results presented in the table above show the change in noise levels between the existing measured  $L_{Aeq}$  noise levels and the contribution from the Scheme. When the differences between the 'existing' and 'proposed' scenario are compared with the noise change criteria given in Table 15.10 of Chapter 15, the contribution from the Scheme is considered a **negligible** effect and therefore a **moderate/minor** significance.