

**Byers Gill Solar
EN010139****8.17 Environmental Statement
Addendum - Construction Noise**

Planning Act 2008

Volume 8

October 2024

Revision C01



Table of Contents

Page

1.	Construction Noise Assessment	1
1.1.	Introduction	1
1.2.	Construction Plant Data	1
1.3.	Construction Noise Over Distance	3
1.4.	Assessment of Construction Noise Effects	3
1.5.	Cable Route Construction	5

Table of Tables

Table 1-1 Construction Activity Plant and Noise Data	2
Table 1-2 Construction Activity Stand-off Distances	3

Figures

Figure 11.9 Area A Cable Route Construction
Figure 11.10 Area A Panel Construction
Figure 11.11 Area B Cable Route Construction
Figure 11.12 Area B Panel Construction
Figure 11.13 Area C Cable Route Construction
Figure 11.14 Area C Panel Construction
Figure 11.15 Area D Cable Route Construction
Figure 11.16 Area D Panel Construction
Figure 11.17 Area E Cable Route Construction
Figure 11.18 Area E Panel Construction
Figure 11.19 Area F Cable Route Construction
Figure 11.20 Area F Panel Construction
Figure 11.21 Main Cable Route Construction

1. Construction Noise Assessment

1.1. Introduction

- 1.1.1. This addendum has been produced to support Environmental Statement (ES) Chapter 11: Noise and Vibration [APP-034] and follows comments raised during the Examination process to date in relation to noise impacts during construction of the Proposed Development. This includes:
- Queries raised by Darlington Borough Council (DBC) in paragraphs 5.12.4-6 of its Local Impact Report (LIR) [REP1-023]. In particular, it was noted by DBC that there was a lack of existing noise sensitive receptors (ESRs) around Panel Area F as shown on ES Figure 11.1 Sensitive Receptor Location Plan [APP-091] and ES Appendix 11.4 BS4142 Assessment Calculations [APP-157].
 - Concerns raised regarding construction noise, particularly in relation to livery businesses and impacts on horses [REP2-059, RR-209, RR-533].
- 1.1.2. ES Chapter 11 Noise and Vibration [APP-034] contains an assessment of likely construction effects using the information available to the Applicant at the time of assessment. It concludes a moderate adverse effect, which is significant, resulting from construction noise. This is however limited to short periods of time and not for longer than one month in any location given the transient nature of the construction.
- 1.1.3. This addendum presents a more granular assessment of the potential construction noise at the various sensitive receptors in response to comments raised during the Examination process.
- 1.1.4. It sets out the information and data used within the assessment of noise effects from construction activities at existing noise sensitive receptors (ESRs) and makes reference to a number of modelling outputs and figures (Figures 11.9 to 11.21) appended to this document, which demonstrate the likely significance of effects. In undertaking this further assessment, the Applicant has also produced revised versions of ES Figure 11.1 Sensitive Receptor Location Plan (Document Reference 3.11.1, Revision 2) and ES Appendix 11.4 BS4142 Assessment Calculations (Document Reference 6.4.11.4, Revision 2) which now correctly depict the total number of 43 ESRs considered.

1.2. Construction Plant Data

- 1.2.1. Indicative construction plant and data associated with each proposed construction activity is provided in Table 1-1. The table provides the average expected sound power level for each activity. For the purposes of the assessment, attenuation from mitigation measures is not included. To present a worst-case assessment, the model considers that all sources will be operating together with an on-time of 100%.
- 1.2.2. As battery and substation compounds have been located as far as possible from ESRs, it has been assumed that the construction of PV modules, which could occur up to the

order limits of the scheme would represent the worst-case scenario in terms of construction noise.

- 1.2.3. Two methods of cable installation have been considered within the assessment: Trenched cabling and Horizontal Directional Drilling (HDD). HDD locations have not been finalised; however, it is likely that the main method of cable installation will be open-cut trenching, with HDD methods only being employed where the cabling is required to pass under a road or watercourse. A third method using a cable plough could also be implemented, which would reduce noise impacts further.

Table 1-1 Construction Activity Plant and Noise Data

Activity	Plant Item	BS 5228-1 Ref	Number of Plant Items	Sound Power Level, dBA	Average Activity Sound Power Level, dBA
PV Module Construction	Art, Dump Truck	C.5 16	1	104	111.6
	Wheeled mobile telescopic crane	C.4 38	1	106	
	Diesel Generator	C.4 85	1	94	
	Continuous flight auger piling	C.3 17	1	104	
	Cement mixer truck	C.4 18	1	103	
	Dumper	C.4 15	1	105	
Cable Installation	Tracked excavator	C.4 63	1	105	108.9
	Wheeled backhoe loader	C.4 66	1	97	
	Dumper	C.4 9	1	105	
	Telescopic handler	C.4.55	1	98	
	Vibratory roller	C.5 27	1	95	
Horizontal Direction drilling	Directional drill (generator)	C.2 44	1	105	112.6
	Water pump	C.2 45	1	93	
	Tracked excavator	C.2 14	1	107	

Activity	Plant Item	BS 5228-1 Ref	Number of Plant Items	Sound Power Level, dBA	Average Activity Sound Power Level, dBA
	Drilling rig	C.3 15	1	110	

1.3. Construction Noise Over Distance

- 1.3.1. Each of the construction activities listed in Table 1-1 have been modelled as point sources in a model absent of ground topography data and with a ground absorption coefficient of zero to represent the worst-case. A stand-off distance has been calculated which would reduce the predicted noise level to below the lower noise threshold cut-off of 65dB (ABC method – Category A) as detailed in Section E.3.2 of BS 5228-1. The Category A construction noise thresholds represent the lowest assessment criteria (typically used to assess the effects in rural areas) and are proposed to be used throughout the assessment unless otherwise stated in Table 11-11.
- 1.3.2. Table 1-2 provides the stand-off distances required for each activity to achieve noise levels below the threshold of the onset of significant adverse impact.

Table 1-2 Construction Activity Stand-off Distances

Activity	Average Activity Sound Power Level, dBA	Distance required to onset of significant adverse impact, 65dB (m)
PV Module Construction	111.6	56
Cable Installation	108.9	44
HDD	112.6	63

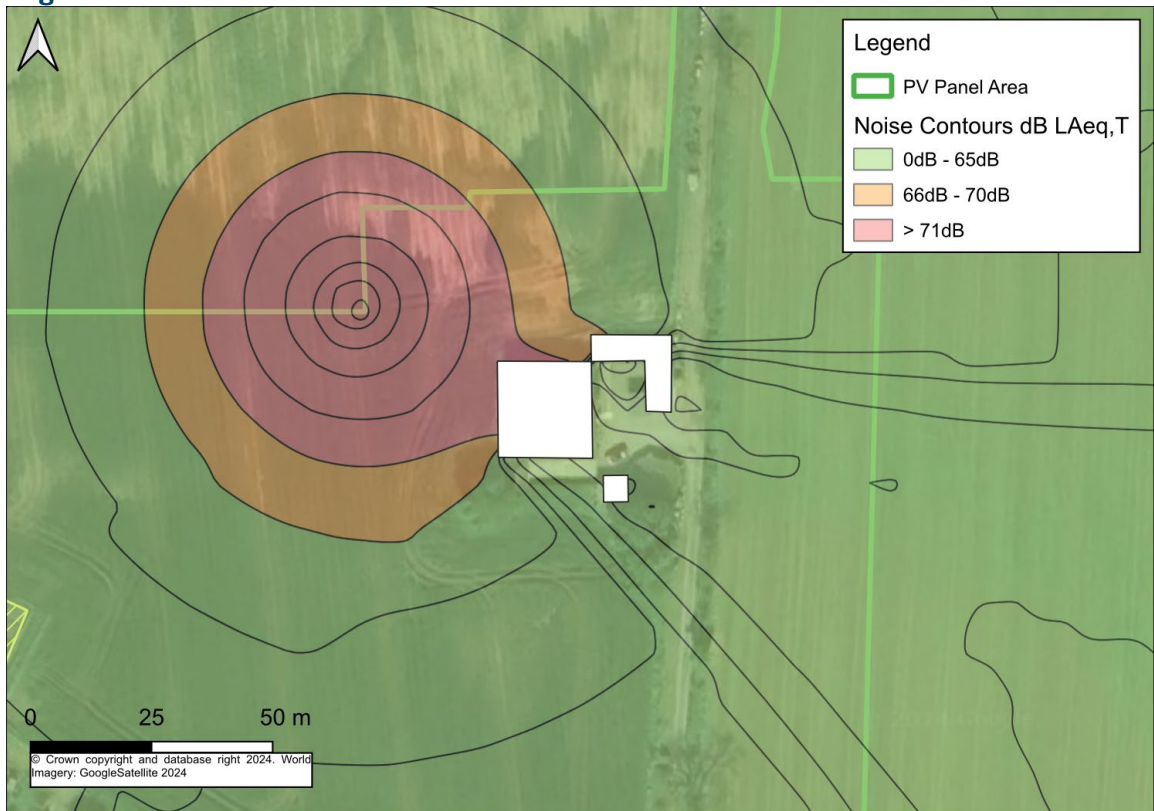
1.4. Assessment of Construction Noise Effects

PV Module Construction

- 1.4.1. Figures 11.10, 11.12, 11.14, 11.16, 11.18, 11.20 identify the ESRs that are likely to experience significant noise levels from the construction of the PV modules. ESRs which fall within the buffer zone are likely to exceed the assessment category threshold level for periods of less than one month resulting in a ‘Low’ magnitude of change.
- 1.4.2. One ESR (ESR40) has been identified which falls within the PV Module construction buffer zones. ESR40 consists of a partially converted stable, which has residential aspects to the southern side of the former stable building. With a conservatory and open veranda located on the southern side of the building.

- 1.4.3. Further noise modelling has been undertaken to identify the construction noise impact at ESR40. PV Module Construction has been modelled at the nearest worst-case position in relation to ESR40, results of the noise calculation are presented in the Figure below.

Figure 1.1: PV Module Construction Noise at ESR40



- 1.4.4. As shown in the figure above, noise emissions from the indicative worst-case construction location are generally screened from the residential aspects of the building. Noise levels are predicted to be below the 65 dB noise level threshold and therefore, the magnitude of change is likely to be 'Negligible'. When combined with a 'Moderate' sensitivity, the significance of effect will be equal to 'Minor', which in EIA terms is Not Significant.

Equestrian related receptors

- 1.4.5. A number of areas which fall within Panel Area F have been identified as locations where horses are likely to be present. These include receptors ESR38 – ESR40 and the areas identified with the yellow hatch.
- 1.4.6. It is likely that ESR40 and a portion of the northern most yellow hatch will experience a significance of effect equal to 'Moderate' for a period of time less than a month. However, through good communication with the nearby equestrian related businesses, it is believed that management of the use of the specific areas identified during the installation of PV panels will minimise the identified noise effects by relocating horses to different fields when construction works are ongoing. These control measures will be secured via the outline CEMP [APP-110] via an update to be made at Deadline 6.

This is recorded in the ES Errata and Management Plans Proposed Updated (Document Reference 8.11, Revision 2)..

1.5. Cable Route Construction

- 1.5.1. Figures 11.9, 11.11, 11.13, 11.15, 11.17, 11.19 and 11.21 identify properties that potentially fall within the cable installation and HDD buffers as defined in Table 1-2.
- 1.5.2. These figures consider the potential for both on-road and off-road cable routes, with the Applicant continuing to engage with landowners to secure the off-road option as a preference, wherever possible.

Area A

- 1.5.3. Residential properties along The Green, High House Lane and ESR11 are likely to experience a magnitude of change during construction of the cable route of 'Low', which combined with 'Moderate' sensitivity will result in a likely 'Moderate' significance of effect, which is considered significant in EIA terms.
- 1.5.4. These properties are all located along the proposed 'on-road' route to connect Panel Area A and B. Should the preferred off-road cable route be deliverable, these impacts would not be felt at the receptors identified.

Area B

- 1.5.5. ESR 13 is likely to experience a magnitude of change during construction of the cable route of 'Low', which combined with 'Moderate' sensitivity will result in a likely 'Moderate' significance of effect, which is considered significant in EIA terms.
- 1.5.6. This receptor is located near to a potential 'off-road' cable connection. The assessment has considered a trenched installation as a worst-case scenario in this location, however, the Applicant's preferred method would be to use a cable plough which would reduce potential effects and speed up the cable installation. The property is also owned by a landowner who is part of the Proposed Development.

Area C

- 1.5.7. No potential affected properties have been identified within Area C.

Area D

- 1.5.8. No potential affected properties have been identified within Area D.

Area E

- 1.5.9. ESRs 30 and 31 are likely to experience a magnitude of change during construction of the cable route of 'Low', which combined with 'Moderate' sensitivity will result in a likely 'Moderate' significance of effect, which is considered significant in EIA terms.

- 1.5.10. Both receptors are located along a proposed 'on-road' route to connect Panel Areas. Should the preferred off-road cable route be deliverable, these impacts would not materialise at the receptors identified.

Area F

- 1.5.11. No potential affected properties have been identified within Area F.

Main Cable Route Area

- 1.5.12. The Property named 'Karamea' and properties adjacent to Redmarshall Road in the village of Redmarshall together with properties adjacent to Kirk Hill, Letch Lane and Cleveland Drive are likely to experience a magnitude of change during construction of the cable route of 'Low', which combined with 'Moderate' sensitivity will result in a likely 'Moderate' significance of effect, which is considered significant in EIA terms.
- 1.5.13. This considers both the 'on-road' and off-road' cable route options presented to connect the Proposed Development with the Norton Sub-station. Some of the potential effects, such as properties through Carlton Village would only be felt should the on-road route be used. Where negotiations allow the delivery of the preferred off-road option, this would take works further away from properties and would likely use a cable plough technique, rather than trenched construction, reducing the potential affect further.

Cable Route Construction Summary

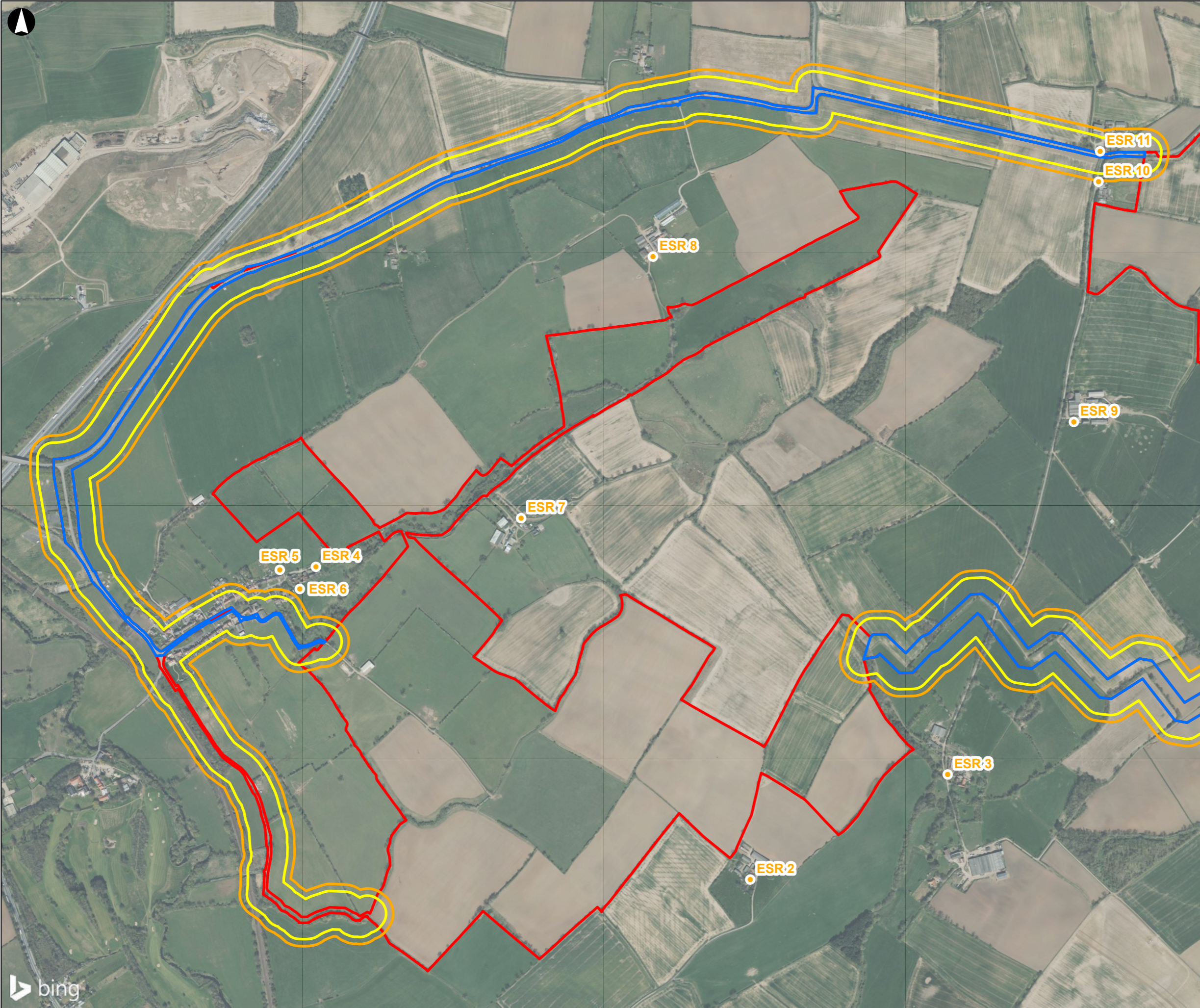
- 1.5.14. As cable route construction works are transient, it is likely that the identified properties will experience a Moderate significant effect for considerably less than a period of one month. Noise buffers are based on worst-case noise levels operating 100% on-time and are therefore, in reality, noise levels are likely to be considerably lower than those predicted.
- 1.5.15. No essential mitigation is available and therefore residual effects remain as reported, although it is noted that these are temporary in nature and will only exist for short periods (not for longer than 1 month).

1.6. Summary

- 1.6.1. This addendum has further considered the potential effect of construction activities at individual noise sensitive receptors in relation to both Panel Area construction and the laying of cables to connect Panel Areas, as well as connect the Proposed Development to the Norton Sub-station.
- 1.6.2. The assessment has used a series of worst-case assumptions such as the construction methods to be employed, and 100% on-time for machinery.
- 1.6.3. In relation to Panel Area construction, the assessment outputs, as illustrated on Figures 11.9 to 11.21, demonstrate that only one ESR falls within the PV Module construction

buffer zones and may experience significant effects during construction, although these would be felt for less than 1 month.

- 1.6.4. All other ESR's fall outside of the buffer zones for panel construction and would not experience significant noise effects.
- 1.6.5. In relation to the laying of cables, the assessment has highlighted a number of ESRs that fall within the cable installation buffers as shown on Figures 11.9 to 11.21. As described in Section 1.5, many of these properties are in close proximity to a proposed 'on-road' cable option and effects identified would not materialise should the preferred, off-road cable options be deliverable.
- 1.6.6. In other situations, the assessment has considered a trenched cable installation method, whereas the Applicant's preference is to utilise a cable plough technique wherever possible. In these instances, cable laying is likely to be quicker and less impactful when compared to the trenched technique.
- 1.6.7. The addendum has therefore demonstrated that the significant construction effects reported within the original ES Chapter [APP-034] would likely be focussed on a small number of ESRs and on cabling works in the majority of cases. The effects would be felt for less than one month and would be temporary in nature.

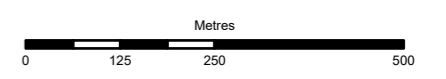


- Legend
- Order Limits
 - Cable Route Corridor
 - Cable Installation Buffer 65db
 - HDD Buffer 65db
 - Existing Sensitive Receptors (ESR)

Site Boundary provided by Client on 25/01/24.

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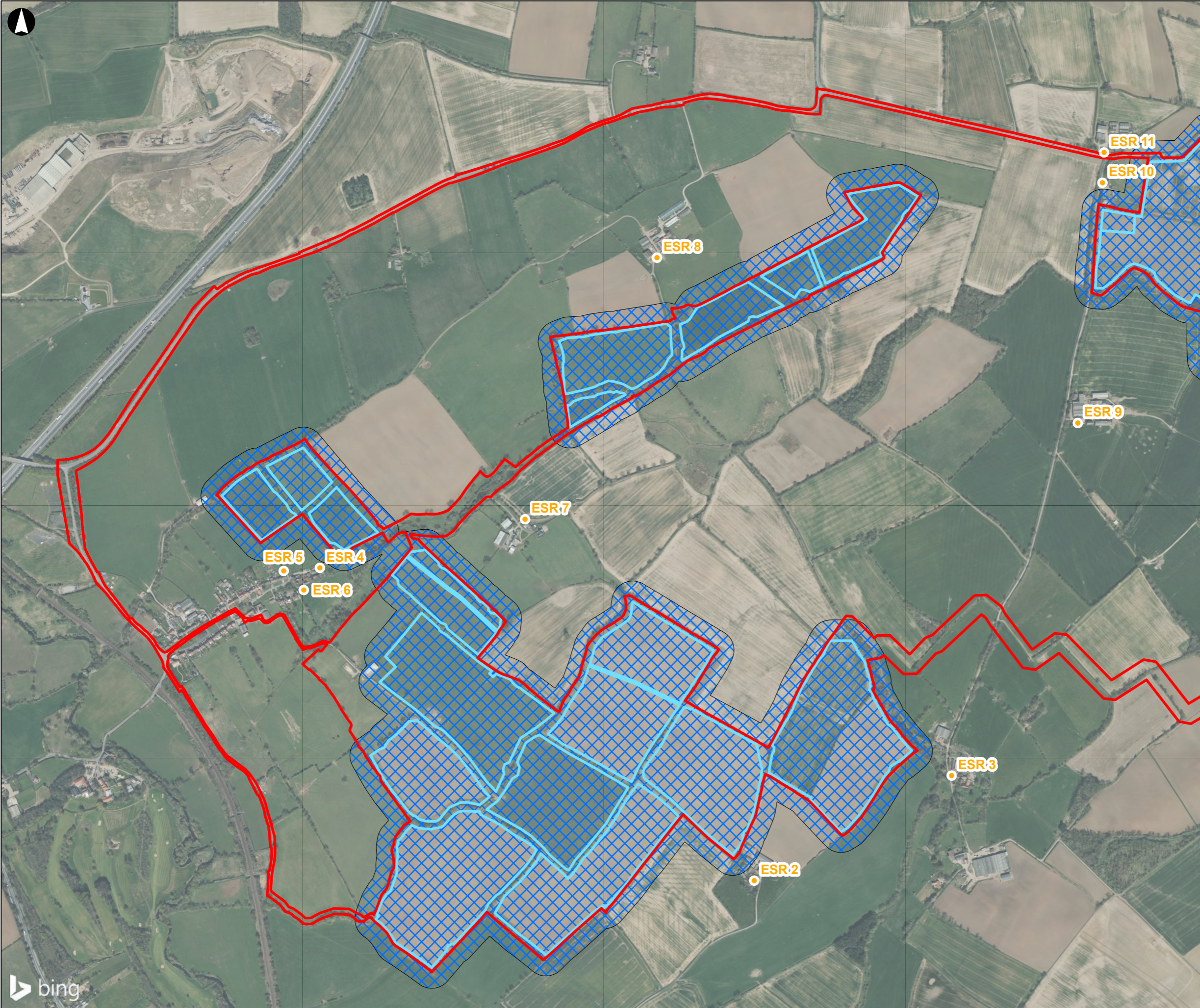
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Drawing Title
Figure 11.9 - Area A Cable Route Construction

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ISSUE
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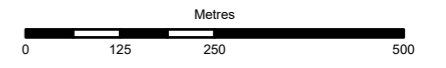


- Legend
- Order Limits
 - Panel Areas
 - PV Module Construction Buffer 65db
 - Existing Sensitive Receptors (ESR)

Site Boundary provided by Client on 22/10/24.

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Figure 11.10 - Area A Panel Construction

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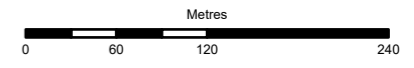


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Existing Sensitive Receptors (ESR)

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Drawing Title
Figure 11.11 - Area B Cable Route Construction

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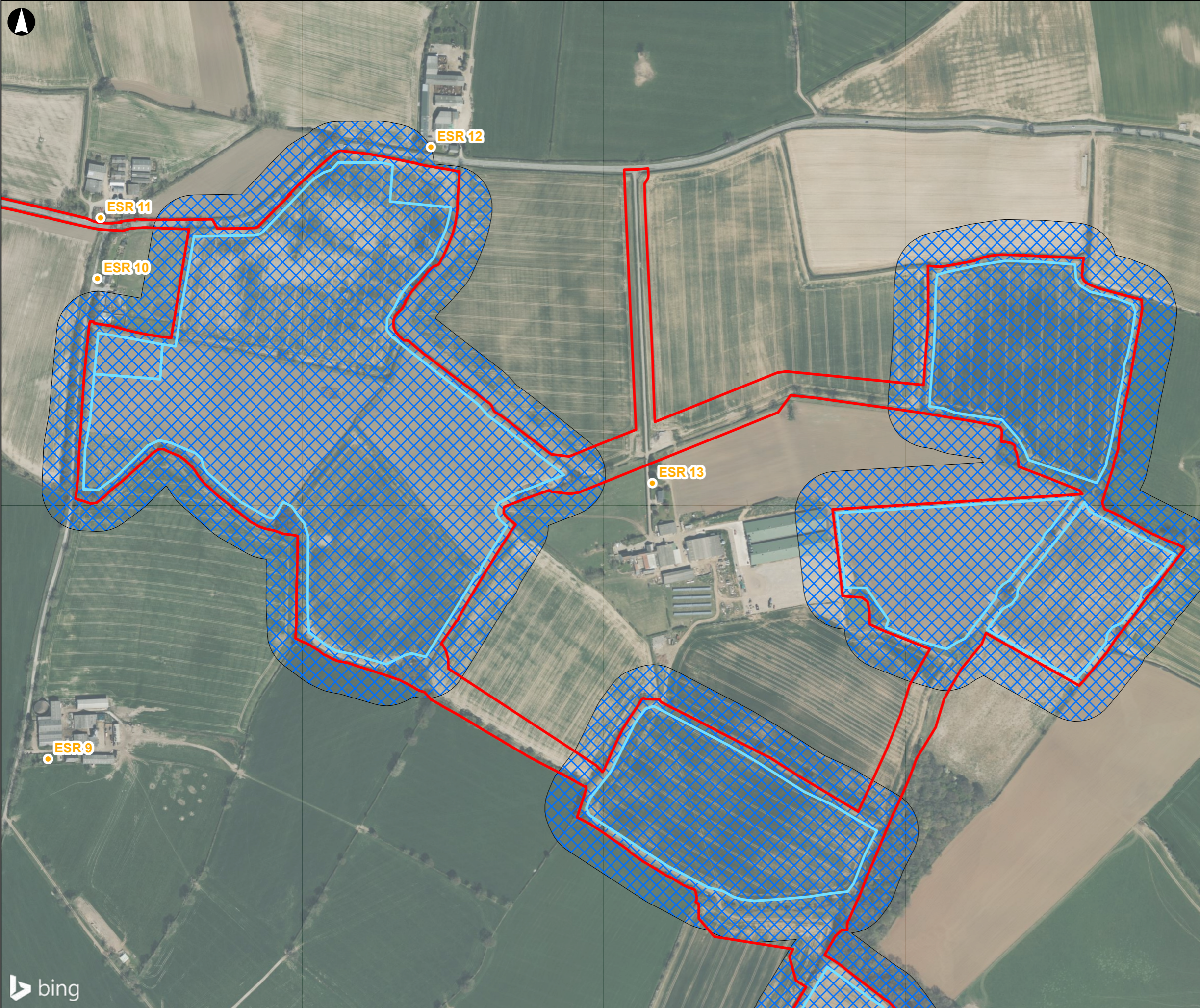
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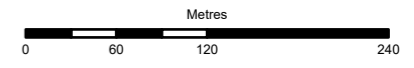


- Legend
- Order Limits
 - Panel Areas
 - PV Module Construction Buffer 65db
 - Existing Sensitive Receptors (ESR)

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Drawing Title
**Figure 11.12 -
Area B Panel Construction**

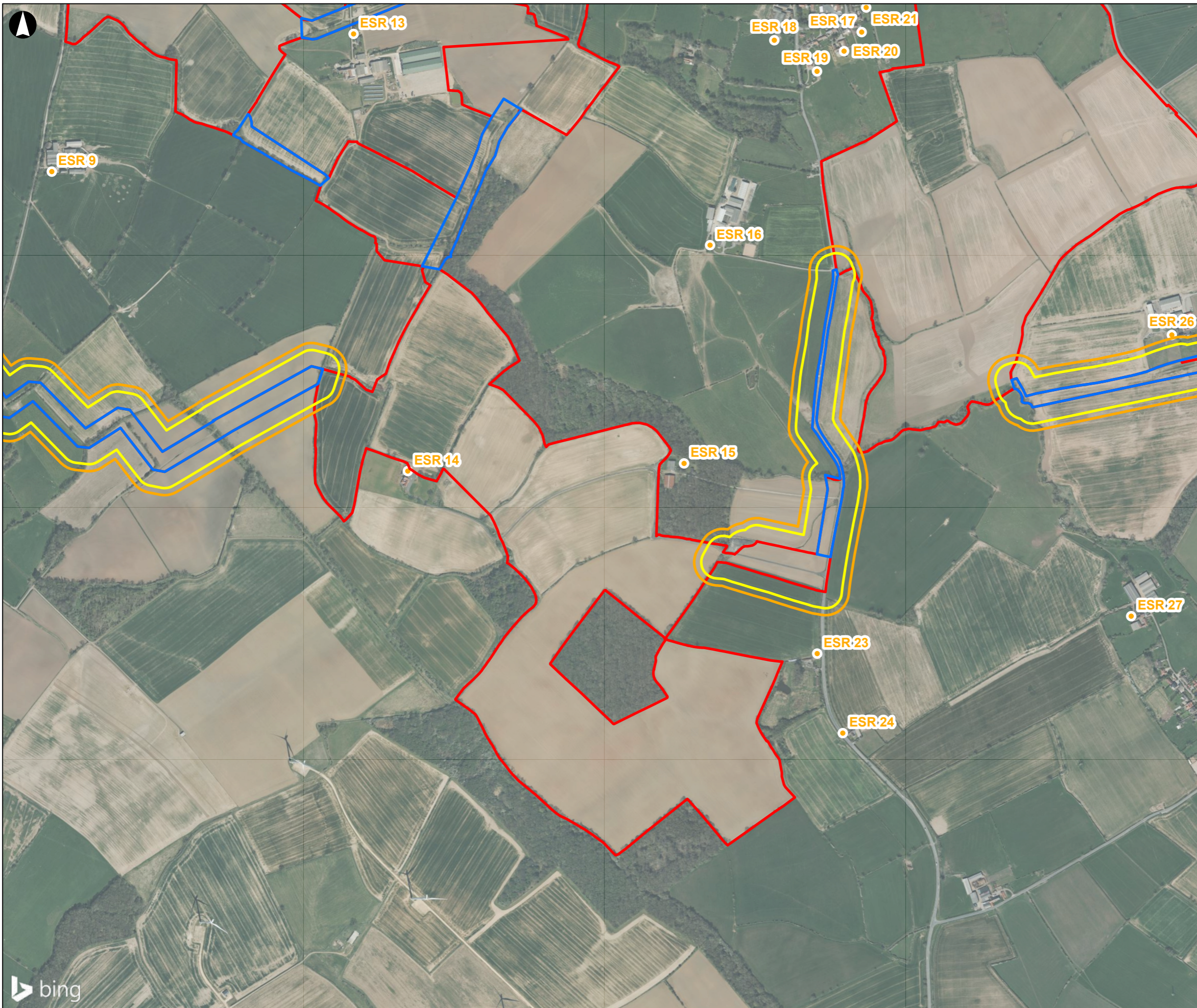
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Role
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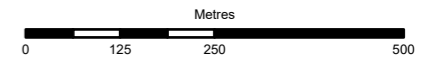


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Existing Sensitive Receptors (ESR)

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Figure 11.13 - Area C Cable Route Construction

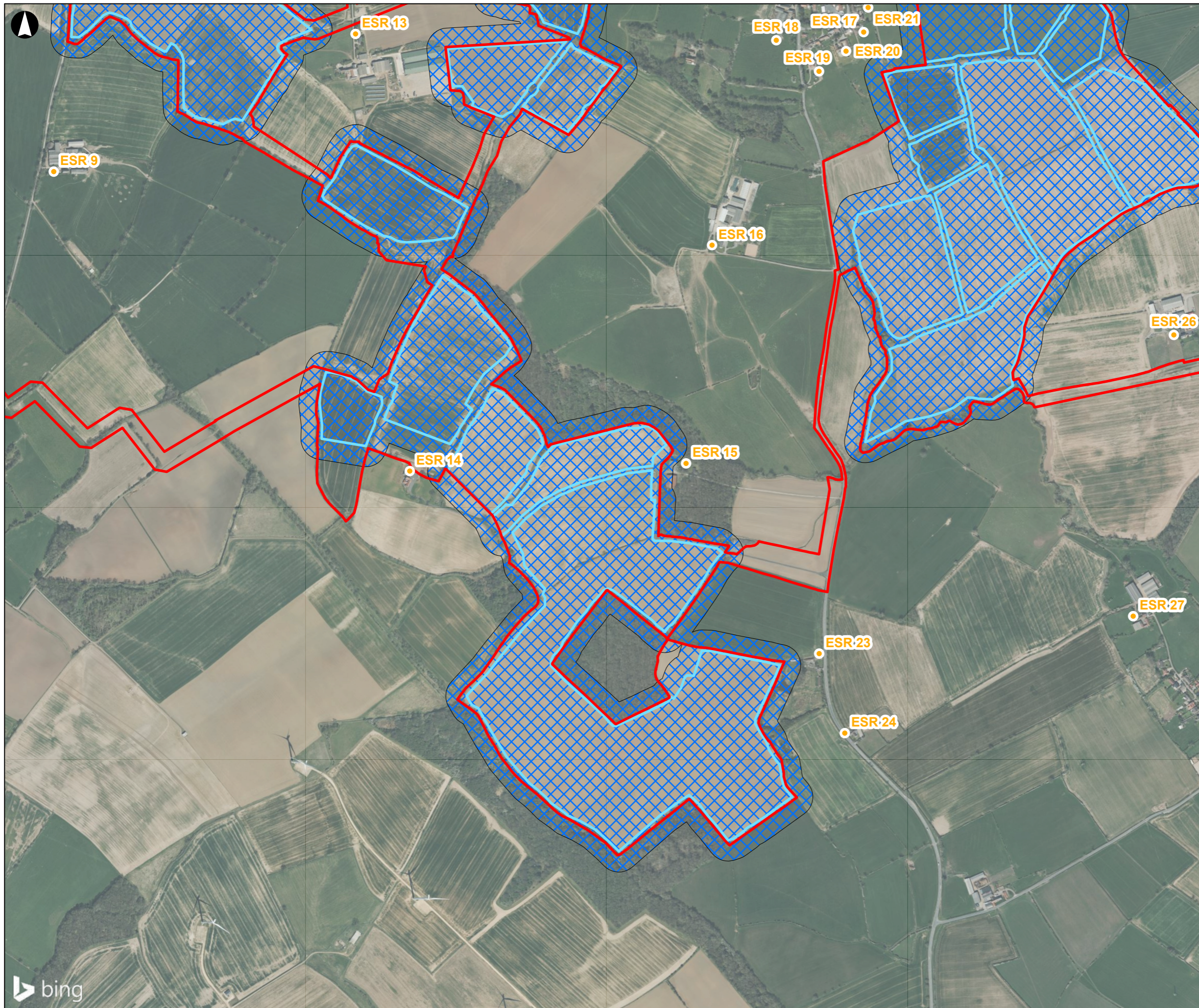
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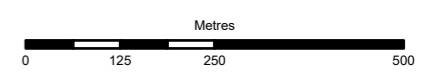


- Legend
- Order Limits
 - Panel Areas
 - PV Module Construction Buffer 65db
 - Existing Sensitive Receptors (ESR)

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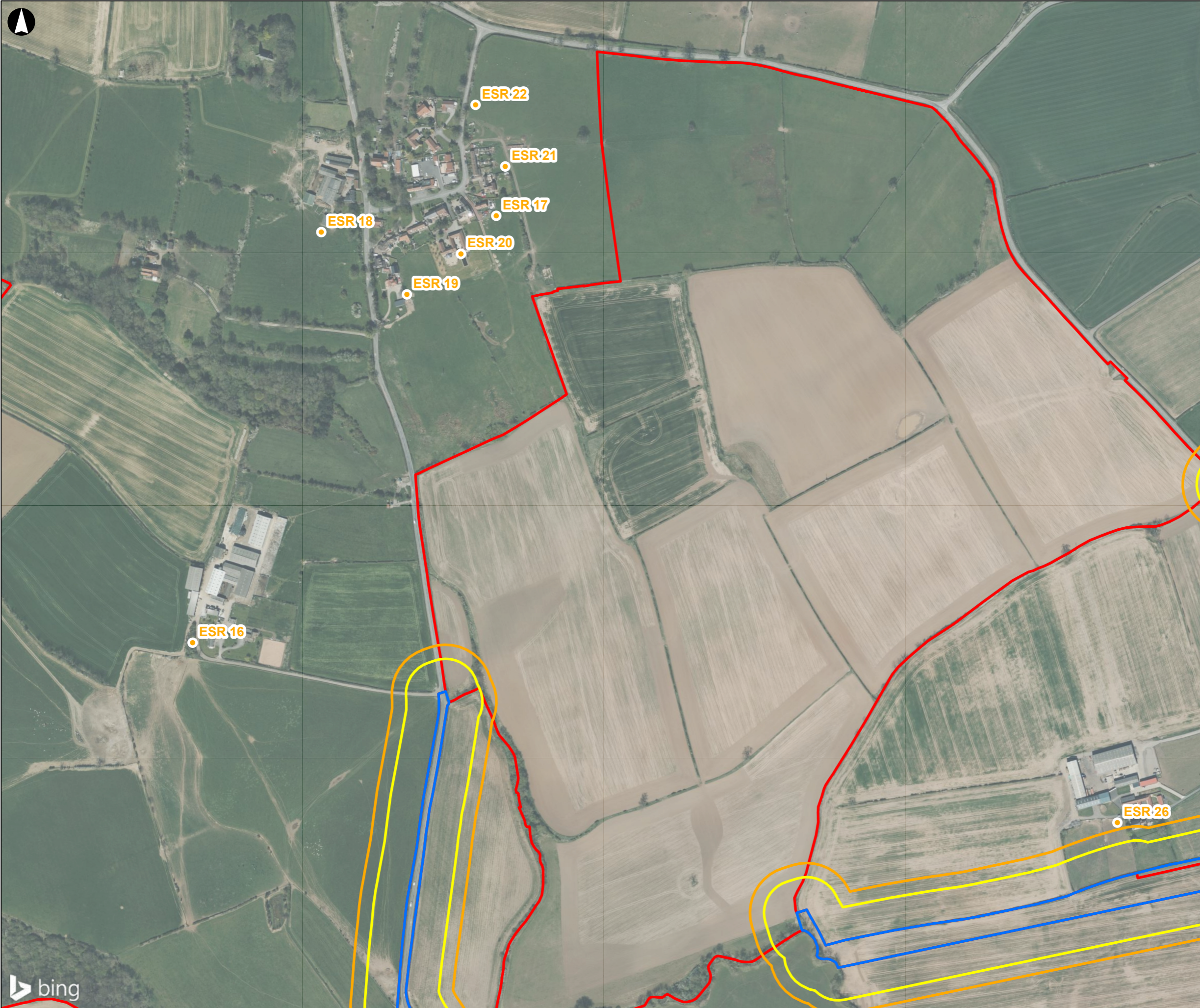
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Figure 11.14 - Area C Panel Construction

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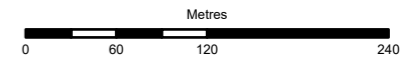


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Existing Sensitive Receptors (ESR)

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Figure 11.15 - Area D Cable Route Construction

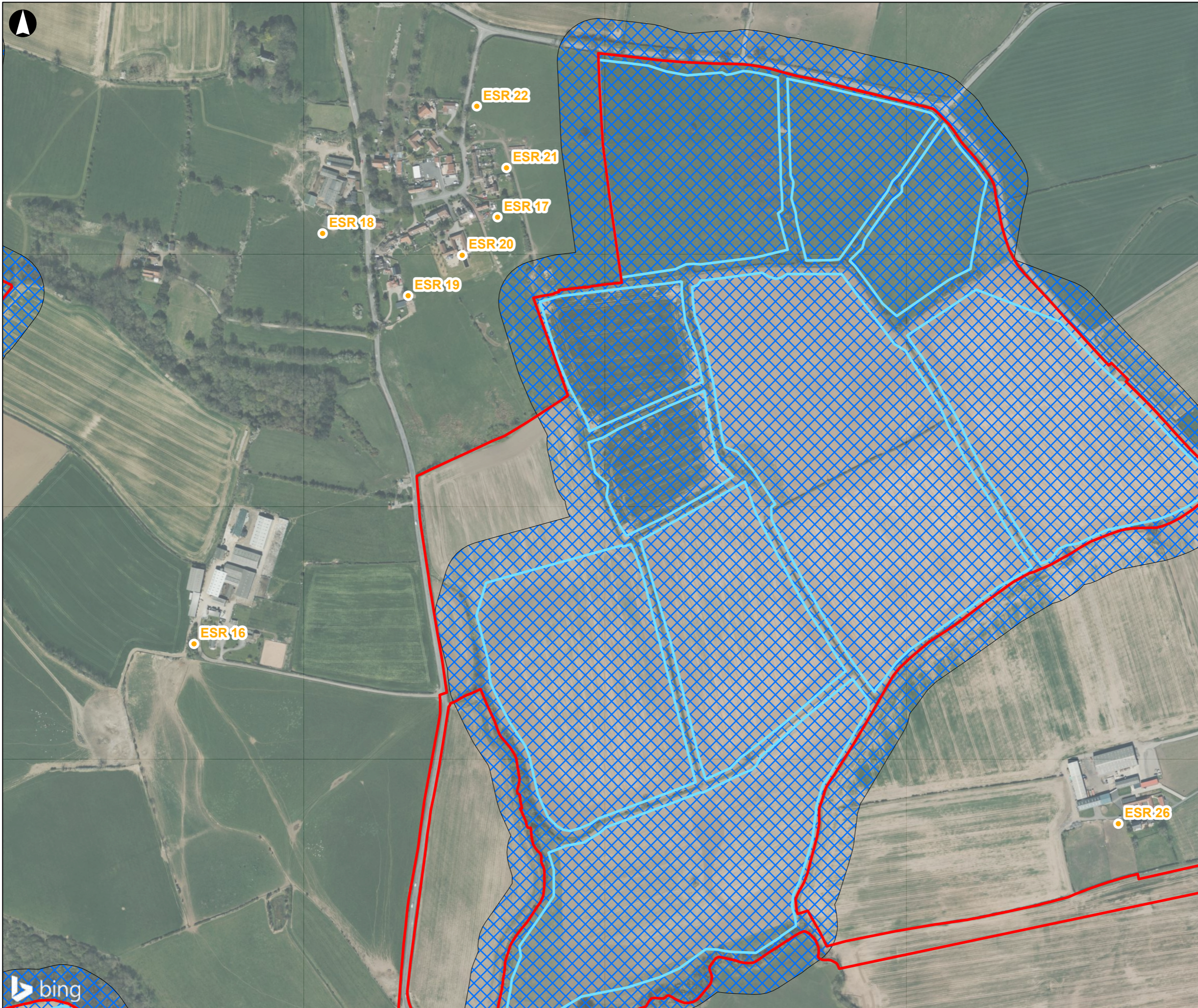
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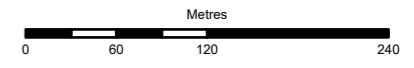


- Legend
- Order Limits
 - Panel Areas
 - PV Module Construction Buffer 65db
 - Existing Sensitive Receptors (ESR)

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Figure 11.16 - Area D Panel Construction

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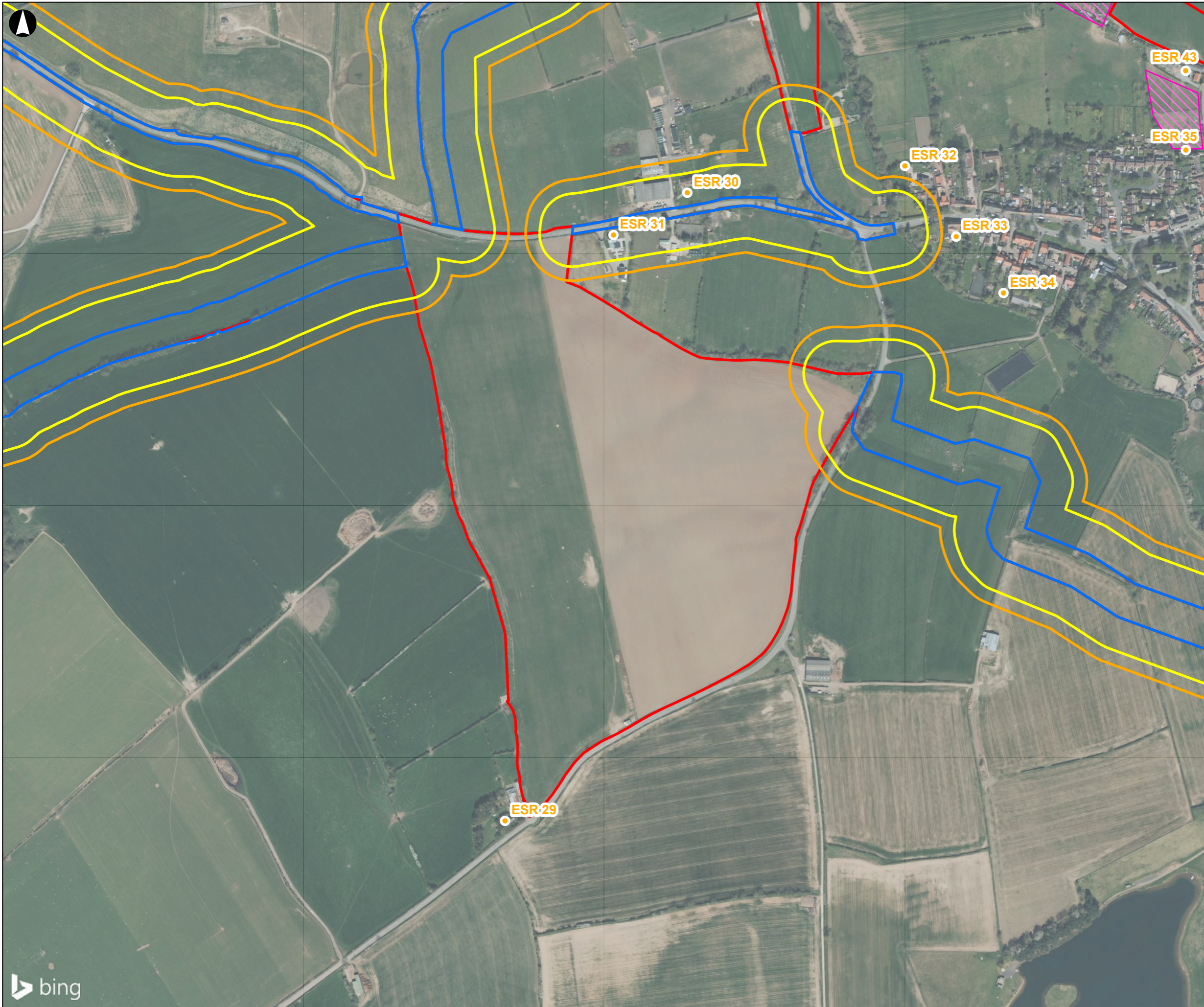
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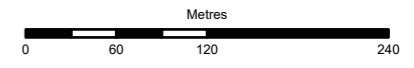


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Equestrian Interest
 - Existing Sensitive Receptors (ESR)

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Figure 11.17 - Area E Cable Route Construction

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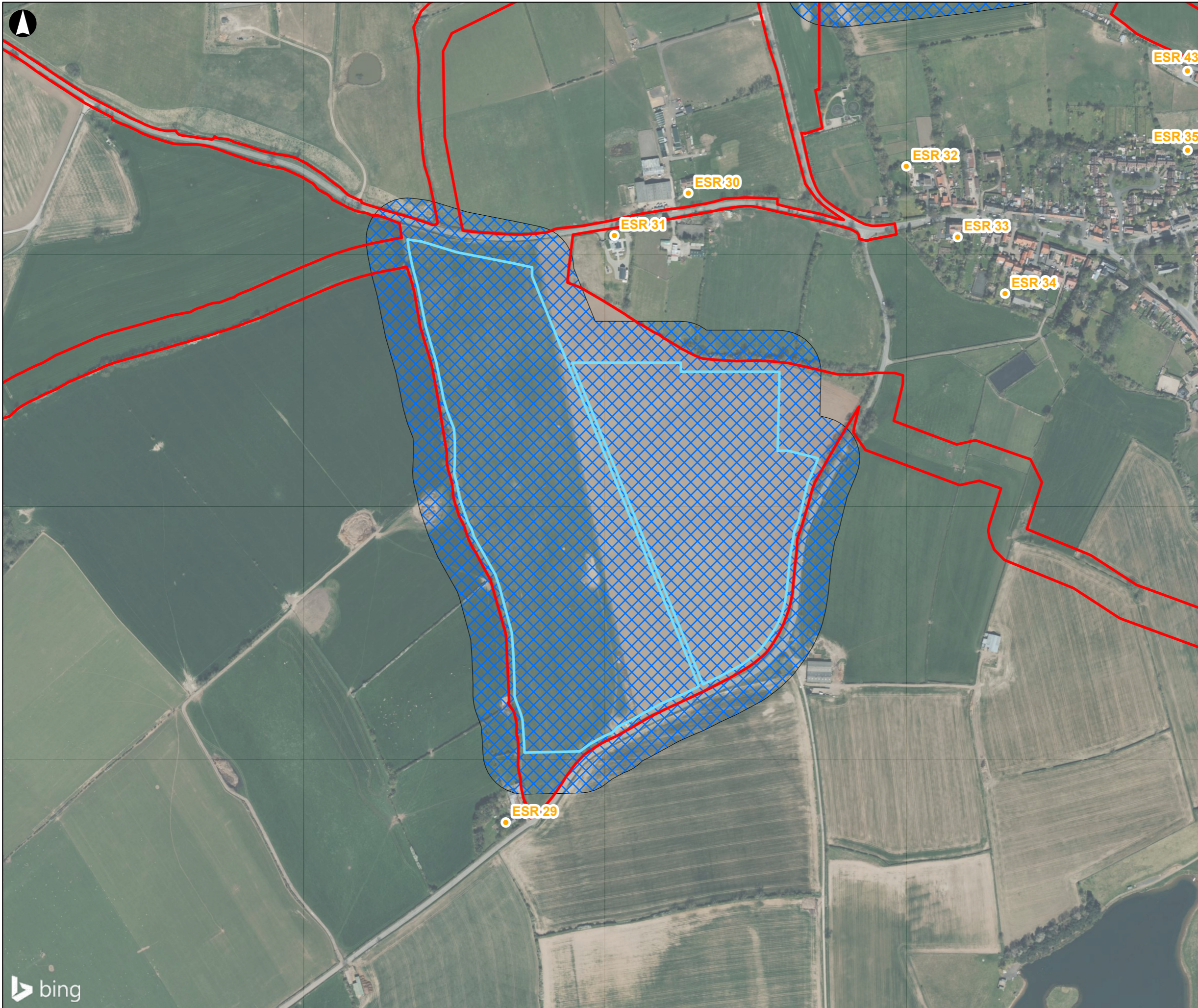
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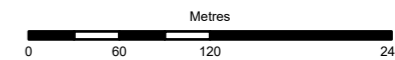
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- Order Limits
- Panel Areas
- PV Module Construction Buffer 65db
- Existing Sensitive Receptors (ESR)

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**Figure 11.18 -
Area E Panel Construction**

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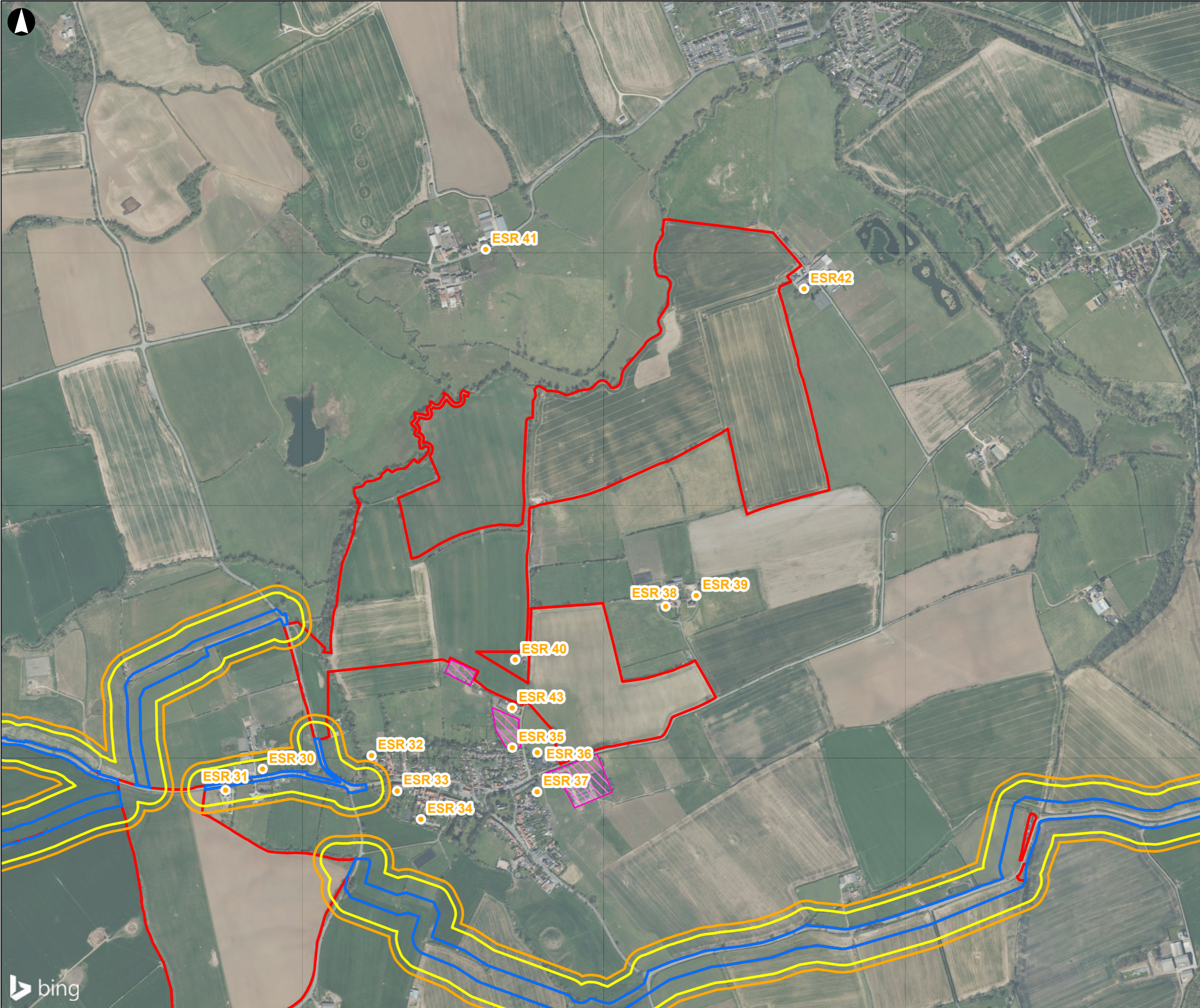
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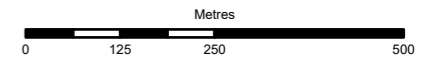


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Equestrian Interest
 - Existing Sensitive Receptors (ESR)

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Figure 11.19 - Area F Cable Route Construction

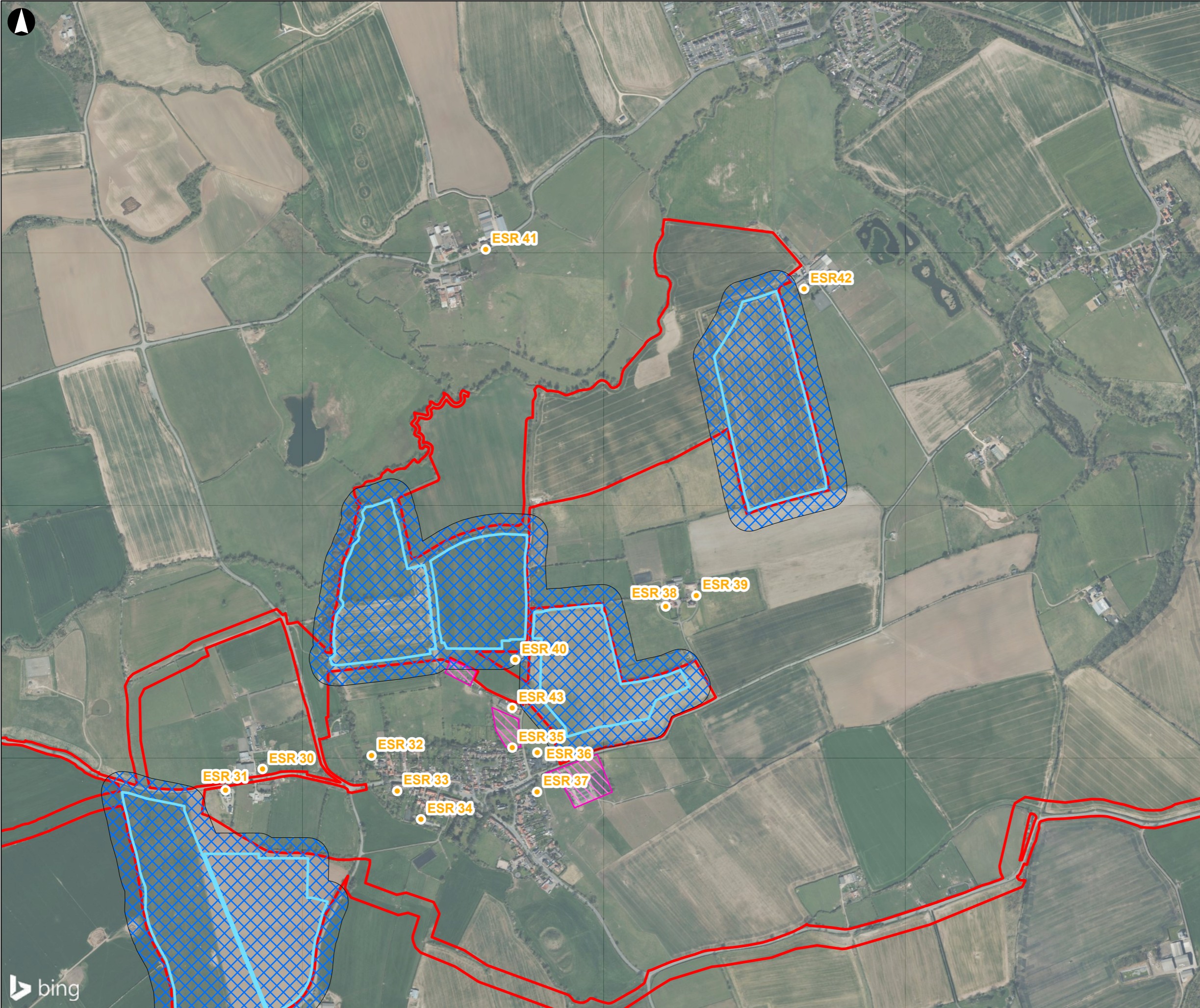
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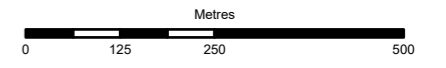


- Legend
- Order Limits
 - Panel Areas
 - PV Module Construction Buffer 65db
 - Equestrian Interest
 - Existing Sensitive Receptors (ESR)

Site Boundary provided by Client on 22/10/24.

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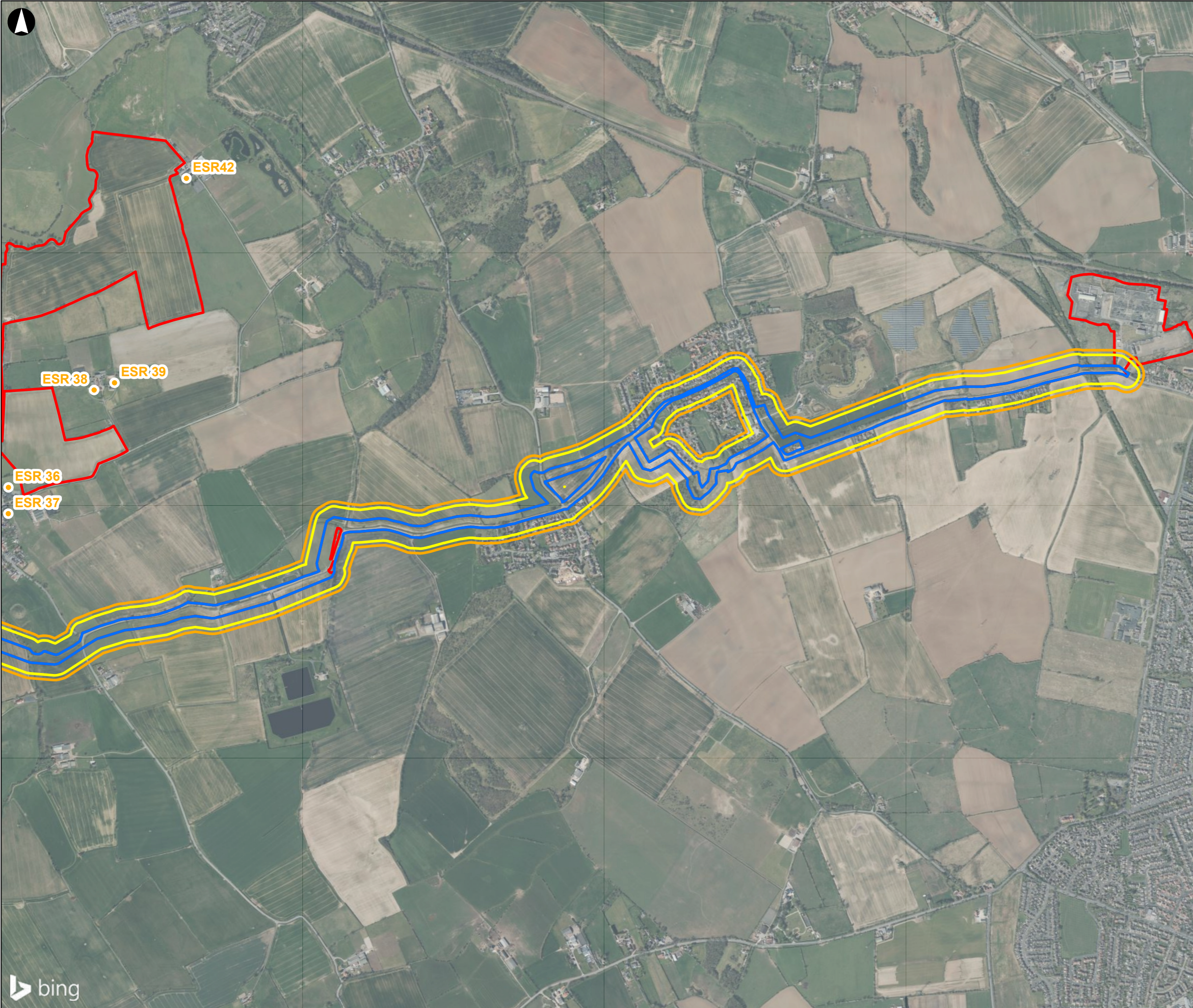
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Figure 11.20 - Area F Panel Construction

Scale at A3
1:10,000

Role
ISSUE
Suitability
Environmental Statement

Project Number 286386-00	Rev A
Drawing Number BGS-ES11-00020	



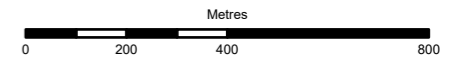


- Legend
- Order Limits
 - Cable Route Corridor
 - HDD Buffer 65db
 - Cable Installation Buffer 65db
 - Existing Sensitive Receptors (ESR)

Site Boundary provided by Client on 22/10/24.

Coordinate System: British National Grid

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A	23/10/24	BL	NF	PB	--
Rev	Date	By	Chkd	Appd	Authd

Client



Project Name
Byers Gill Solar

Drawing Title
**Figure 11.21 -
Main Cable Route Construction**

Scale at A3
1:15,000

Role
ISSUE

Suitability
Environmental Statement

Project Number 286386-00	Rev A
Drawing Number BGS-ES11-00021	

