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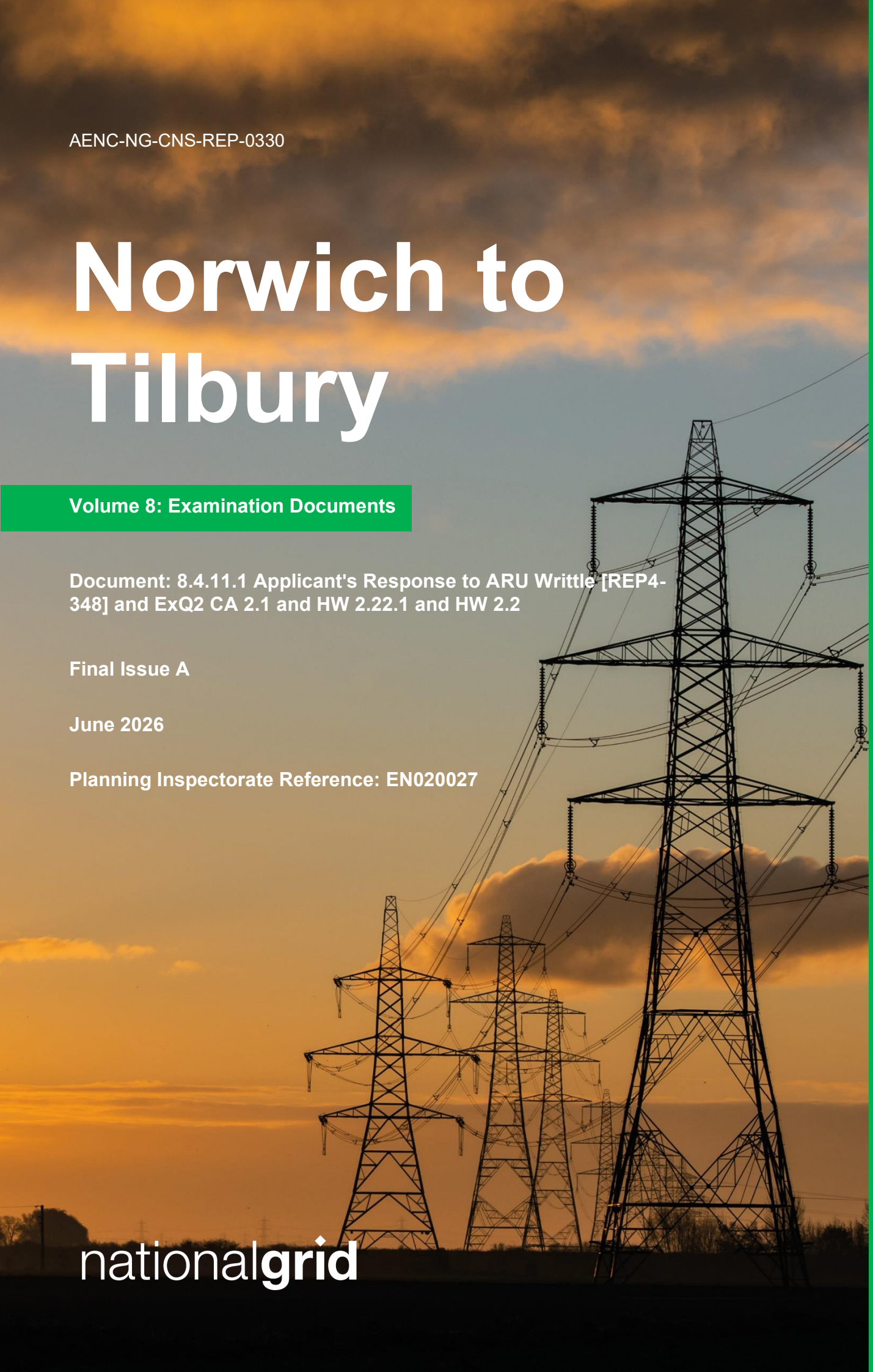

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1. Introduction

1.1 Purpose of This Report

1.1.1 The Applicant has prepared this document to respond to the Deadline 4 submission by ARU Writtle **[REP4-348]** and the related Written Questions CA 2.1 and HW 2.2 as issued by the Examining Authority (ExA) on 22 May 2026.

1.1.2 Given the interaction between the content of the submission by ARU Writtle and the questions posted by the ExA, the Applicant has sought to respond in one single document for the ease of reference of all parties.

1.1.3 In this response the Applicant addresses all material points raised by ARU Writtle in REP4-348. The Applicant has not replicated every strand of that submission but has read and considered it in full; where a point is not expressly addressed it is because it does not, in the Applicant's assessment, raise a matter that requires a separate response.

2. Applicant Response to ARU Writtle [REP4-348] and ExQ2 CA 2.1 and HW 2.2

2.1 Routeing of the Project and Requirement for ARU Writtle Land

2.1.1 The Applicant acknowledges the continued concern by the Affected Party (AP) to the location of the Project in respect of its land and operations.

2.1.2 Alternative routeing has been considered in the vicinity of ARU Writtle. On balance with some potential for micrositing to position the alignment within the Order Limits as far to the north-west as possible there is no feasible alternative within the Order Limits. Alternatives outside the Order Limits have been considered as summarised below but are less preferred due to greater effects (these vary for each alternative but are: closer proximity to homes and listed buildings, greater woodland loss) and are in the context of design avoiding the positioning of pylons and haul road within the ARU site and clearance above it lowering electric fields below guidance thresholds.

2.1.3 Alternatives to the east are constrained by concentrations of residential properties at various hamlets, villages in and around Writtle and the west side of Chelmsford so all alternatives considered within this general corridor are further to the west. In making decisions the Applicant's position (subject to validation within the design process) was that any meaningful effects of microshocks were likely to be capable of being designed out and/or dealt with by embedded mitigation, and therefore a balanced decision on the broader merits could be taken. Paragraph 5.4.193 of **7.21 2024 - Design Development Report for the Project [APP-359]** and its accompanying Figure 5.28 summarises the routes and assessment findings. This concluded that for other alternatives relatively closer to the west there would be a transfer of and increased effects on residential amenity. More extensive deviations to the west were previously considered in the **7.20 2023 - Design Development Report for the Project [APP-358]** but would require much longer routes with greater angle changes and the transfers of effects to a larger number of residential properties. These therefore continue to remain less preferred.

2.1.4 More localised change to avoid oversail of the north-west corner has also been considered as set out in **5.1 Consultation Report [APP-066]**. At 9-7.25 this reports on an alternative to the route that oversails the north-western corner of the college grounds. This was slightly to the west by diverting more directly north from TB166 (noting it was previously TB164) to pass to the west of Cow Watering Lane. This alternative was less preferred as it would increase effects on a Grade II listed building, have increased effects on residential amenity and lead to more woodland loss. At 9-7.26 the Applicant identified that it was seeking to work with ARU Writtle to agree suitable mitigation measures including considering measures to reduce the access requirement.

2.2 Compulsory Acquisition of Plot 8/42 for Access

2.2.1 The ExA's second written questions (ExQ2) **[PD-023]** include Question CA 2.1 which states:

'Anglia Ruskin University (ARU) Writtle

ARU Writtle in its submission at deadline 4 [REP4-348] amongst other matters has raised the issue of compulsory acquisition of its land or interests. Please address the comments raised in particular whether there is a case for the compulsory acquisition of such land and interest in the context of the potential for road closures to address the need for the mitigation works.'

2.2.2 This section provides a response to CA 2.1.

Summary of AP's Position

2.2.3 The AP objects to the proposed temporary possession of Plot 8/42 for construction and maintenance on the basis that it is not considered necessary and there are concerns regarding the health and safety of students and horses using their equine facility. There are concerns regarding the safeguarding of children using the Equine Centre due to the proposed presence of contractors at Plot 8/42.

2.2.4 The AP has stated that they will be pursuing and are justified to be awarded 'wasted costs' of having to make an objection to the proposed acquisition of Plot 8/42.

Applicant's Response

Summary of powers provided within the draft Development Consent Order

2.2.5 The **3.1 Draft Development Consent Order [Revision E]** (draft DCO) seeks to secure power for the Applicant to temporarily close Newney Green (pursuant to Article 16 and Schedule 8, Part 1), and to restrict access by means of a Traffic Regulation Order (TRO) (pursuant to Article 49 and Schedule 13, Part 2). The intended purpose of this closure/restriction of access is to facilitate overhead line netting activities, and the delivery and removal of scaffolding material, as detailed below.

2.2.6 If consented, Article 17(1)(a) would provide powers for the Applicant to undertake physical works on the public highway to form and lay out means of access, or improve existing means of access, in the locations specified in Schedule 9 Access to Works and shown on the **2.5 Access, Rights of Way and Public Rights of Navigation Plans [APP-033 to APP-038, Revision B]**. However, Newney Green is not included within Schedule 9 nor shown on the **2.5 Access, Rights of Way and Public Rights of Navigation Plans [APP-033 to APP-038, Revision B]**.

2.2.7 Therefore, in order to form a new access off the public highway at this location, the Applicant would instead need to rely upon Article 17(1)(b) which enables the Applicant, with the consent of the relevant street authority (in this case, Essex County Council), to form and lay out such other means of access within the Order Limits as are reasonably required for the purposes of the authorised development. The Applicant anticipates that consent would be sought pursuant to the approvals mechanism set out within the Protective Provisions included for the benefit of Essex County Council (and other local highway authorities) at Part 4 of Schedule 16 to the draft DCO.

2.2.8 To the extent that the Applicant is unable to acquire voluntarily such rights over the land in question as are necessary to form the access in question, the Applicant would instead seek to rely upon powers of temporary possession and/or compulsory acquisition, further details of which are set out in **4.1 Statement of Reasons [Revision D]** and as shown on the **2.2 Land Plans [Revision D]**.

2.2.9 The Applicant therefore notes that the road closure/restriction of access powers for Newney Green is not a substitute or alternative to the temporary possession powers of Plot 8/42 required for access to the scaffold site.

Intended use of Plot 8/42

2.2.10 There are several locations on the Project where access is required purely for the erection and dismantling of scaffolding to facilitate overhead line stringing across public highways. Given the nature of the works, and small number of workers and vehicles associated with these works, the proportionate approach taken at these locations is to utilise existing accesses from the public highway, rather than construct new site access points.

2.2.11 The construction activities required within the fields on the ARU Writtle Equine Facility are associated with stringing and pulling of the overheard lines, including construction of scaffolding for the lines to be strung across Newney Green. The stringing and pulling activities can be undertaken with a tractor along the construction swathe from the north with no dedicated haul road or access route required. Providing a dedicated haul road, with its associated disturbance and vegetation loss works is disproportionate given the nature of these works. This route is however unsuitable for scaffolding vehicles. In line with the approach taken elsewhere on the Project, prior to the Section 42 consultation the proposed design incorporated access for scaffold installation via an existing access from Cow Watering Lane, through the ARU Writtle College Equine Facility (Plot 8/42).

2.2.12 The use of Plot 8/42 protects passing highway users, facilitates a safe system of working for scaffold installation and removal, and segregates construction activities from the public highway.

2.2.13 The Applicant also notes that Plot 8/42 is Class 7 – temporary use. No permanent access for maintenance or operational activities is required – access for maintenance and operation activities will be via the permanent easement swathe.

Consideration of alternatives in response to consultation

2.2.14 During the Section 42 consultation in 2024, ARU Writtle College raised concerns regarding the use of this route and requested that construction access through the Equine Facility be avoided. This feedback was formally considered through the Project's change control process.

2.2.15 An alternative access arrangement via a new bellmouth from Newney Green was subsequently considered and assessed. However, delivery of this option to adoptable, safe standards in accordance with Design Manual for Roads and Bridges (DMRB) requirements would necessitate extensive vegetation clearance and tree loss to accommodate the required visibility splays. There is also a gas main in this area that would potentially require additional protection to enable vehicles to cross it. This level of impact was considered disproportionate to the scale and duration of the scaffolding works and was therefore not taken forward.

2.2.16 However, the Applicant did develop an alternative arrangement whereby Newney Green would be closed for a short period of time to allow for the scaffold equipment to be unloaded from Newney Green over the fence and directly into the Equine Facility horse field utilising the proposed road closure/restriction of access TRO in Schedule 13. Under this arrangement, only a telehandler equivalent as required for scaffold erection would need to use the proposed access through Writtle College. This would also avoid the need to provide an access from Newney Green, with its associated impacts on vegetation, existing gas main and the Equine Facility boundary fence. This is the arrangement submitted within the draft DCO.

Current status

2.2.17 ARU Writtle College has expressed through the Examination process that any form of construction traffic passing through the Equine Facility is unacceptable. In response to these concerns and following a site visit with representatives from National Grid and ARU Writtle, alternative access options for erecting and dismantling the scaffolding were discussed. These considered introducing a temporary new access point on Newney Green, and utilising the proposed road closure TRO currently proposed for Newney Green, to remove the need for access through the College via Plot 8/42.

2.2.18 Three access strategies have been presented to Essex County Council as the highway authority for their consideration, with the intention to obtain their agreement in principle to form a new temporary access off Newney Green and utilise the proposed TRO on Newney Green to facilitate this.

2.2.19 The three options considered are:

- Option 1: Direct access from Newney Green into the field
- Option 2: Access from the haul road to the south-west, crossing Newney Green
- Option 3: Overheard line pulling and stringing without scaffolding.

2.2.20 **Option 1:** This option proposes the construction of a new temporary, non-formal access point from Newney Green directly into Writtle College horse paddocks at the scaffold tower location. Due to the temporary nature and intended use of the access, traffic management could be used to reduce the extent of required visibility splays, thereby minimising vegetation clearance and avoiding unnecessary tree loss. This approach removes the need for construction vehicles to access the site through the Equine Facility; however, it introduces a new access point and therefore requires the consent of Essex County Council. It does not change the extent of vegetation clearance or the durations of road closures, and as such it does not require an update to the Environmental Statement or the **7.11 Transport Assessment [APP-333]**.

2.2.21 **Option 2:** This option utilises the proposed construction haul road to the south of Newney Green, with a new temporary crossover point across Newney Green. While the point of access differs, the engineering requirements remain broadly consistent, including the provision of a non-formal crossover access. All construction vehicles would access the site from the south, removing the need for access along Newney Green or through the Equine Facility. This option introduces a new access point and therefore requires the consent of Essex County Council. It does not change the extent of vegetation clearance or the durations of road closures, and as such it does not require an update to the Environmental Statement or the **7.11 Transport Assessment [APP-333]**.

2.2.1 **Option 3:** This option involves removing the scaffold requirement entirely and instead applying for a long closure of Newney Green to facilitate overhead line stringing operations directly from the highway. Not using scaffolding and netting would require the conductors to be laid at ground level directly across Newney Green. This method is expected to take approximately 12 weeks, during which Newney Green would be closed for all public access.

2.2.2 Newney Green is a popular walking and cycling route, and forms part of the National Cycle Route 1. Option 3 would have a significant, extended impact on users of Newney Green and the Equine Facility crossing point on Cow Watering Lane. The duration of this closure is significantly longer than those that have been assessed within **7.11 Transport Assessment [APP-333]**, therefore the impacts of this closure would need to be assessed and the **7.11 Transport Assessment [APP-333]** updated to reflect this.

2.2.3 The Applicant notes that the access arrangements proposed in Options 1 and 2 do not present a robust engineering solution in line with DMRB standards, or one that is consistent with the approach taken elsewhere on the Project. They have only been considered in response to the ongoing concerns raised by ARU Writtle.

2.2.4 The Applicant is working with its construction partners and Essex County Council to confirm the feasibility and acceptability of one of the above options, with a view to removing the need to utilise Plot 8/42. However, until this approach is agreed with Essex County Council, and becomes an option on which the Project may rely with certainty, the Applicant considers that the inclusion of Plot 8/42 for temporary possession must be retained on a precautionary basis and remains justified.

2.2.5 For the reasons set out above, there is nothing in the following statute or cases cited by the AP (or otherwise) which would prevent the Secretary of State from authorising the inclusion of temporary possession powers over Plot 8/42 in the DCO, or render that inclusion unlawful: the Education Act 2002, the Safeguarding Vulnerable Groups Act 2006 and the Health and Safety at Work Act 1974; *Prest v Secretary of State for Wales* (1982) 81 LGR 193, *De Rothschild v Secretary of State for Transport* [1989] 1 All ER 933, *Chilton v Telford Development Corporation* [1987] 1 WLR 872, and *R (Sainsbury's Supermarkets Ltd) v Wolverhampton City Council* [2011] 1 AC 437, *Kent County Council v Secretary of State for the Environment* (1977) 33 P&CR 70, *Kane v New Forest District Council* [2002] 1 WLR 312 or C*G Fry and Son Limited v Secretary of State for Housing, Communities and Local Government* [2025] UKSC 35.

2.2.6 The AP has indicated an intention to seek an award of 'wasted costs' in connection with its objection to the temporary possession of Plot 8/42. There is no proper basis for such an award. Costs in Examinations under the Planning Act 2008 will normally only be awarded where the party against whom the award is sought has acted unreasonably and that unreasonable behaviour has caused the applying party to incur unnecessary or wasted expense. Neither limb is met. The Applicant has complied with all procedural requirements, engaged constructively with the AP, explained clearly the engineering rationale for the inclusion of Plot 8/42 and continues to explore alternative access arrangements on the basis described above (notwithstanding that they do not represent a robust engineering solution). None of the conduct identified in applicable guidance as capable of constituting unreasonable behaviour is therefore present.

2.3 Additional Traffic and Transport Matters

Summary of AP's Position

2.3.1 In addition to the concerns regarding the use of Plot 8/42 for access, as set out in Section 2.2, the AP has concerns that the diversion of traffic along Cow Watering Lane during closures of Newney Green would create an unacceptable risk to horse and student crossings. The AP notes that Cow Watering Lane is a key crossing point for the AP's horses, children, students and staff due to the location of their paddocks. There are concerns for the safeguarding of both people and horses from vehicular traffic and potential harm to their welfare.

Applicant's Response

2.3.2 The Applicant notes the concerns raised regarding the impact of increased vehicle movements on the safety of the crossing point on Cow Watering Lane. Cow Watering Lane is proposed as a diversion route while Newney Green is closed; however, it is not a proposed Primary Access Route (PAR) so general construction traffic will not be using this route.

2.3.3 The origins of the construction traffic associated with Option 1 above are unknown so it cannot be confirmed whether these vehicles will use Cow Watering Lane. However, the Applicant notes that the number of vehicles required associated with these works is low, and they will also be covered by the regulations and controls set out for use of non-PAR routes in the **7.3 Outline Construction Traffic Management Plan [Revision D]**, paragraph 5.4.2 and Table 5.2.

2.3.4 For Option 2, no construction traffic will use the local road network as all access to the site will be via the haul road to the south, and the temporary crossing point proposed on Newney Green.

2.3.5 The following road closures are anticipated to be required to facilitate stringing of the overhead lines for both Options 1 and 2:

- Short (<2hrs), possibly overnight, for installation of netting
- Short (<2hrs), possibly overnight, for removal of netting.

2.3.6 All other activities are expected to be able to be completed under traffic management measures such as speed restrictions, signage and stop/go boards.

2.3.7 Given the short duration and potential overnight timing of the closures, the Applicant does not consider that pedestrian activated TO/15 control measures as proposed by ARU Writtle College's transport consultant to be a reasonable and proportionate traffic management regime for the crossing point on Cow Watering Lane.

2.3.8 However, where road closures are required, the Main Works Contractor will assess the diversion routes and identify any traffic management measures required on these to facilitate their safe operation. This may include measures at the Equine Facility crossing point on Cow Watering Lane, depending on the duration and timing of the closure. All traffic management measures will be discussed and agreed with Essex County Council as part of the Permit Scheme, the use of which is secured within Article 12 of the draft DCO.

2.3.9 None of the statutory provisions or cases cited by the AP in connection with its highway safety and safeguarding concerns would therefore prevent the Secretary of

State from authorising the Project on the terms proposed above, or render that authorisation unlawful (in relation to the Education Act 2002, the Safeguarding Vulnerable Groups Act 2006 and the Health and Safety at Work Act 1974 or under *Kane v New Forest District Council* [2002] 1 WLR 312 and *Secretary of State for Education v Tameside MBC* [1977] AC 1014, or otherwise).

2.4 Other Design Matters

Summary of AP's Position

2.4.1 The AP considers that pylons TB165 and TB166 should be microsited to ensure that the overhead lines between them cannot pass over the educational paddocks land at the western side of ARU Writtle.

2.4.2 The AP is concerned about the safety and operational impacts of UK Power Networks works to four fields.

Applicant's Response

2.4.3 The Applicant will retain micrositing flexibility within the defined Limits of Deviation to allow refinement during detailed design, taking account of environmental and land use constraints. The request to avoid oversailing educational paddocks will be considered as part of ongoing design development, balanced against technical, safety, and network requirements.

2.4.4 The Applicant notes the concerns regarding the potential safety and operational impacts of associated UK Power Networks works. These works are required to facilitate integration with the existing distribution network and will be subject to appropriate design, coordination, and construction controls. The Applicant is aware that UK Power Networks met with the AP on 23 April 2026 to discuss the UK Power Networks proposals and that UK Power Networks are going to arrange a further meeting in the near future; the Applicant would be happy to help facilitate this if required. The Applicant can also confirm that UK Power Networks will not require access through the campus. The Applicant understands that UK Power Networks is aware of the ARU concerns around reinstatement and will be looking to agree mitigation and requirements at the next meeting.

2.5 Electromagnetic Fields and Microshocks

2.5.1 The ExA's second written questions (ExQ2) **[PD-023]** include Question HW 2.2 which states:

'Electric and magnetic fields – microshocks

ARU Writtle in its submission at deadline 4 [REP4-348] amongst other matters has raised the issue of microshocks and the potential for a requirement to protect their land. The report 7.8 Electric and Magnetic Field Compliance Report [REP3-034] contains reference to microshocks at section 2.9. This includes paragraph 2.9.6 refers to embedded measures have been applied to the design in line with the Code of Practice on Microshocks. The applicant should provide a detailed response to the ARU submission on this matter, and also confirm what the embedded measures referred to in 2.9.6 are and how these are secured through the draft DCO.'

2.5.2 This section provides a response to HW 2.2.

Summary of AP's Position

2.5.3 The AP has concerns that the Project proposes an oversail of its western paddocks by electricity lines between pylons TB165 and TB166, which have the potential to cause microshocks. The AP is concerned that horses are particularly vulnerable to microshocks and this could result in operational and welfare issues with the equine educational use of the land. Concerns are also raised regarding the suitability of standard electric and magnetic field (EMF) guidance for this specific land use, and the operational and welfare implications should horses develop aversive responses to microshocks.

Applicant's Response

2.5.4 The AP's submission highlights the government's Code of Practice 'Power Lines: Control of Microshocks and other indirect effects of public exposure to electric fields – A Voluntary Code of Practice', which addresses indirect effects of electric fields, particularly microshocks and provides a framework for managing indirect electric field effects; this Code of Practice is included within Appendix A.

2.5.5 The Code of Practice is a voluntary Code of Practice which states '*There is no requirement that clearances of existing overhead lines, or of new overhead lines except where they unavoidably pass over homes, other dwelling places, their curtilage, and schools, should be increased because of microshock issues, though this could be done voluntarily by electricity companies.'*

And

'*No individual assessments of the risks of microshocks, even quite rudimentary assessments, shall be required for every single span, either of existing lines or for proposed new line*.'

2.5.6 Notwithstanding this, the Applicant has voluntarily considered the potential impact of the Project on sensitive land uses, which includes the ARU Writtle facility, specifically from the electric fields produced by overhead lines and potential microshock risks.

2.5.7 The Code of Practice details the factors which can contribute to a microshock being perceived, the main factor being the size of the electric field. Other factors such as size of object, how well grounded the object is, meteorological conditions and the sensitivity of the skin can also contribute to perception. It also recognises scenarios where microshocks can occur if the charges are sufficient including riding, leading or touching horses. There is no evidence to suggest that horses are more susceptible to microshocks. Their stride length and bridging different voltage potentials are not related to microshock occurrence, and those factors which are relevant are detailed in the Code of Practice. The Applicant recognises, however, that secondary effects such as startle could occur and has therefore taken a precautionary design approach in line with the Code of Practice. As described in the Code of Practice the sensation of a microshock is similar to that caused by static discharges, and there are no known health effects associated with these.

2.5.8 The Project has applied the principles within the Code of Practice as a precautionary measure to mitigate any potential microshock risks at ARU Writtle. This was considered at the design stage of the Project and specifically, the embedded mitigation measures referred to in **7.8 Electric and Magnetic Field Compliance Report [REP3-**

034] paragraph 2.9.6 are reducing the electric field to below 5 kV/m. Span TB165 to TB 166, which crosses the western paddock has been designed with additional conductor clearances achieved by using considerably larger extension pylons, reducing the electric field directly under the overhead line. This was also applied to other land parcels which fall under the land uses defined in the Code of Practice, specifically homes, other land in residential use, their curtilage, and schools. This precautionary measure of additional conductor clearance has reduced the maximum electric fields to below the 5 kV/m reference level recommended by policy to mitigate indirect effects of microshocks. In the case of ARU Writtle's paddock, the overhead line design is such that the minimum conductor clearance to ground is more than the required 12 m and exceeds 16 m over the paddock due to the scaffolding requirements detailed in Section 2.2 above, reducing the maximum electric field to 2.8 kV/m. This is substantially below the voluntary code position. Additionally, the highest electric field would only occur over a small area under the conductors at their closest point to ground and in turn this represents a very small proportion of the western paddock. All other electric fields will be lower across the paddock and reduce quickly with distance from the overhead line. This is demonstrated in Figure 1 below, detailing the electric fields from span TB165 to 166, with the current design clearance which oversails the western paddock. The yellow contours detail where the electric field would be at its maximum of 2.8 kV/m and the green contour indicates where the electric field reduces to between 2.8 and 2.0 kV/m. No areas on ARU Writtle's land would exceed the 5 kV/m electric field level noted in the Code of Practice.

Figure 1 Illustrated maximum calculated electric fields from Spans TB165 to TB166. Yellow contours detail where the electric field would be at its maximum of 2.8 kV/m directly under the conductors and the green contour indicates where the electric field reduces to between 2.8 and 2.0 kV/m.

2.5.9 The voluntary embedded mitigation measure applied to the overhead line at the design stage has reduced the electric fields below the threshold where perception of

microshocks would typically occur, and below the levels required by the Code of Practice agreed by government. The Applicant is committed to helpful dialogue on the subject and operates a public facing helpline[1] and website[2] dedicated to providing information and advice on EMFs, including microshocks and guidance on their prevention via simple techniques, in line with best practices detailed in the Code of Practice.

2.5.10 These measures will be secured through the **7.2 Outline Code of Construction Practice [Revision E]** at Table 6.1 Mitigation measures / environmental commitments, commitment reference GG02, which will be updated at Deadline 6 to state:

'*The Project has been designed in line with the requirements of government's Code of Practice 'Power Lines: Control of Microshocks and other indirect effects of public exposure to electric fields', specifically limiting the electric field to below 5 kV/m in homes, other land in residential use, their curtilage, schools. This will be achieved by maintaining a minimum height of bottom phase conductor to ground of 12 m over these land parcels.*'

2.6 Environmental Statement

Summary of AP's Position

2.6.1 The AP has raised concerns with the Environmental Statement and therefore considers it should not be relied upon in any decision-making for the grant of consent.

2.6.2 The basis for this concern is primarily that the AP considers the Environmental Statement has assessed the ARU Writtle site as a farm and not as an educational facility. This includes in relation to the assessment of EMFs where the AP considers the Applicant has relied upon National Policy Statement (NPS) EN-5 (2024) paragraph 2.9.58 relating to agricultural land use, which in the AP's view is irrelevant to an educational facility.

2.6.3 The AP also raises concern that the ExA does not have sufficient certainty to make a decision due to the use of a Rochdale Envelope approach in the assessment and the fact that the contractor for the Project is not yet appointed. The AP considers that this is not a sufficient basis to secure the level of detail required in mitigation proposals and that there remains uncertainty on its actual delivery.

Applicant's Response

2.6.4 The Applicant can confirm that the ARU Writtle site has not been assessed as a farm, but as an educational facility. Table 15.14 of **6.15 Environmental Statement Chapter 15 - Socio-economics Recreation and Tourism [APP-265]** describes the site at Writtle as an education asset (referred to as Writtle University College) which provides equine related courses such as Equestrian Enterprise Management. The asset is classified as being of high sensitivity, by virtue of the fact that the level of use is very frequent (daily/weekly). The assessment of impacts during construction and operation (and maintenance) has focused on the temporary acquisition of land relating to fields used for equestrian purposes and temporary acquisition of the access road. **6.15 Environmental Statement Chapter 15 - Socio-economics Recreation and**

[1] EMF Helpline Telephone: 0845 7023270, Email: EMFHelpLine@nationalgrid.com

[2] https://www.emfs.info/research/known-effects/microshocks

Tourism [APP-265] concludes that there would be a minor temporary loss of elements of the site, with adequate provision for accessibility, during construction, resulting in a low adverse impact. The residual construction effect would be temporary, short-term, minor adverse and not significant, because access to operational buildings would be retained throughout construction.

2.6.5 Land use information on agricultural landholdings affected by the Project is presented in **6.6.A2 Environmental Statement Appendix 6.2 - Agricultural Landholding Information [APP-140]**, which records the use of parcels of land as pasture, due to being used for horse grazing. This has helped inform the assessment of potential impacts on soils and agricultural land holdings as set out in **6.6 Environmental Statement Chapter 6 – Agriculture and Soils [APP-138]**.

2.6.6 Impacts associated with EMFs on land use were scoped out of the assessment, in line with **6.20 Scoping Opinion [APP-297]**. However, the Applicant has produced an **7.8 Electric and Magnetic Field Compliance Report [REP3-034]** which provides an assessment and conclusions of the compliance of EMFs produced by the Project with the requirements of NPS EN-5 (2024). Compliance with the relevant guidelines and practices in force in the UK ensures that there would be no significant health or environmental effects of EMFs. As such, health effects associated with EMFs themselves have not been included within **6.10 Environmental Statement Chapter 10 – Health and Wellbeing [APP-192]**.

2.6.7 The AP has raised comments relating to the Rochdale Envelope and this has been responded to previously in **8.8.1.1 Addendum to Applicant's Comments on Written Representations [REP3-073]**. Here, the Applicant notes that the Project does not rely on mitigation in a manner that unlawfully defers assessment of likely significant effects. The Environmental Statement assesses the Project as applied for, including embedded mitigation and topic-specific commitments, and includes sensitivity testing of the Limits of Deviation and design scenarios to ensure the assessment captures the reasonably foreseeable worst case (see **6.4 Environmental Statement Chapter 4 – Project Description [APP-130]** and the relevant topic chapter sensitivity testing sections). Where further detail is to be finalised post-consent (including construction management and traffic arrangements), that work is constrained and secured through the **3.1 Draft Development Consent Order [Revision E]** Requirements, including Requirement 4 and the approved management plans (including the **7.2 Outline Code of Construction Practice [Revision E]** and **7.3 Outline Construction Traffic Management Plan [Revision D]**). These controls provide the framework within which the Project will be delivered and ensure that construction is carried out in accordance with the environmental parameters assessed and with ongoing stakeholder liaison where relevant.

2.6.8 In light of the above, the Environmental Statement is adequate and the Rochdale Envelope approach taken is entirely proper – nothing in the statutory provisions or cases cited by the AP in connection with these matters would prevent the Secretary of State from granting development consent or render that grant unlawful, including in Regulations 4(2), 5(2)(e) and 14 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and S*mith v First Secretary of State* [2003] Env. L.R. 32 and *R v MBC ex parte Milne* [2001] Env. L.R. 22 or otherwise.

2.7 Conclusion and the Planning Balance

2.7.1 Since Deadline 4 and the hearings held in the week commencing 28 April 2026, the Applicant has sought to continue to engage with the AP and Essex County Council to progress matters and seek resolution. The Applicant acknowledges the detailed representation made by the AP at Deadline 4 and has provided a thorough response to these outstanding concerns above.

2.7.2 The Applicant situates the outstanding matters as raised by the AP within the context of section 104 of the Planning Act 2008, which states (s104(3)) that the Secretary of State '*must decide the application in accordance with any relevant national policy statement*.' The **5.6 Planning Statement [APP-085]** submitted by the Applicant provides a full appraisal of how the Project is in accordance with the relevant NPSs, which are primarily NPS EN-1 (2024) and NPS EN-5 (2024). Of particular relevance is the definition of the Project as critical national priority (CNP) infrastructure, for which NPS EN-1 paragraph 4.1.3 is clear in setting out a strong presumption in favour of consent:

'Given the level and urgency of need for infrastructure of the types covered by the energy NPSs set out in Part 3 of this NPS, the Secretary of State will start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused.'

2.7.3 Furthermore, NPS EN-1 Paragraph 4.2.15 states that:

'*Where residual non-HRA* [non-Habitats Regulations Assessment] *or non MCZ* [non-Marine Conservation Zone] *impacts remain after the mitigation hierarchy has been applied, these residual impacts are unlikely to outweigh the urgent need for this type of infrastructure.'*

2.7.4 Section 8 of the **5.6 Planning Statement [APP-085]** evidences that the overall planning balance of the Project is compliant with the NPSs and that the strong presumption in favour of granting consent for this CNP infrastructure remains engaged. That is, there are no exceptions to the application of the CNP presumption in favour or consent and there are no non-HRA or non-MCZ impacts that are sufficient to outweigh the urgent need for the Project.

2.7.5 In appraising the Project wholly against the requirements of section 104 of the Planning Act, the **5.6 Planning Statement [APP-085]** has taken account of the impacts to the ARU Writtle site in drawing its conclusions (see paragraphs 7.3.715 to 7.3.716). The Applicant acknowledges that the AP will experience temporary impacts during the construction period and has engaged with the AP on their ongoing concerns. With the mitigation measures as proposed and secured through the draft DCO, the Applicant's position is that the temporary effects to ARU Writtle are proportionate within the context of CNP infrastructure and do not outweigh the urgent need for the Project under NPS policy.

2.7.6 In terms of the overall planning balance, the clear and substantial benefits of the Project clearly outweigh any adverse impacts. The presumption in favour of consent as described at paragraph 4.1.7 of NPS EN-1 (2024) sets out that for CNP infrastructure that '… *the need case will outweigh residual effects in all but the most exceptional circumstances'*.

Appendix A. Department of Energy and Climate Change 'Power Lines: Control of Microshocks and other indirect effects of public exposure to electric fields' Voluntary Code of Practice, 2013

Department of Energy & Climate Change

Power Lines: Control of Microshocks and other indirect effects of public exposure to electric fields

A voluntary Code of Practice

July 2013

About this voluntary Code of Practice

The companion Code of Practice[1] "Power Lines: Demonstrating compliance with EMF public exposure guidelines" issued in March 2012, specified how compliance with guidelines for exposure of the public to electric and magnetic fields (EMFs) in the UK would be assessed. The quantitative limits in those guidelines concern direct effects of the fields, i.e., the induction of currents and fields within the body. The guidelines also cover indirect effects that occur as a result of charges induced on conducting objects in electric fields.

This voluntary Code of Practice relates to situations where it is necessary to apply the public exposure guidelines to these indirect effects.

Current Government policy[2],[3] is that exposures to power-line EMFs should comply with the 1998 International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines[4] in the terms of the 1999 EU Recommendation[5], and this Code of Practice reflects that policy. As and when either ICNIRP issue new Guidelines (as they did in 2010) or the EU revise their Recommendation, it will be for Government to consider those changes and to decide whether to adopt them or not. If Government policy changes, this Code of Practice and its companion Codes will also be amended accordingly.

This Code of Practice has been agreed by the Department of Energy and Climate Change, the Department of Health, the Energy Networks Association, the Welsh Government, the Scottish Government, and the Northern Ireland Executive. It sets out what is regarded as compliance with those aspects of the EMF exposure guidelines that relate to indirect effects as far as the electricity system is concerned.

There are further Government policies relating to EMFs from overhead power lines, specifically that as a precautionary measure they should, where reasonable, have optimum phasing. That is the subject of a companion Code of Practice "Optimum phasing of high voltage double-circuit power lines"[6].

This Code of Practice applies in England, Wales, Scotland, and Northern Ireland.

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[1] Power Lines: Demonstrating compliance with EMF public exposure guidelines: A voluntary Code of Practice. Reissued March 2012.
2 Letter with ten-point annex from Parliamentary Under Secretary of State for Public Health to the Chairman of the National Radiological Protection Board, 22 July 2004
3 "Government response to the Stakeholder Advisory Group on extremely low frequency electric and magnetic fields (ELF EMFs) (SAGE) recommendations.", Written Ministerial Statement 16 October 2009
4 ICNIRP (1998). Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz). Health Phys, 74(4), 494-522.
5 COUNCIL RECOMMENDATION of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (1999/519/EC)
[6] Optimal Phasing of high voltage double-circuit Power Lines: A voluntary Code of Practice. Reissued March 2012.

What are the electricity industry and Government agreeing?

The Electricity Industry[7] agrees that whenever new power lines are being designed and constructed, or whenever issues of the safety or acceptability of indirect effects arise in the context of existing power lines, it will follow the provisions of this Code of Practice. *Government* agrees that compliance with the provisions of this Code of Practice will be regarded as sufficient to demonstrate compliance with the exposure guidelines in as far as they relate to indirect effects, and hence with Government policy.

Indirect Effects

Indirect effects occur when an electric field induces charges on the surface of a conducting object. Those charges can then either interact with the electric field (e.g. when charges induced on human hairs have a force exerted on them by the field, which causes the hair to vibrate), or the charges can be transferred to another object. When that transfer of charges takes place between a person and another object in the form of a small spark across the gap between the two objects, it is known as a microshock. Once the two objects are touching, the continuous transfer of charge is known as the contact current.

Direct effects are protected against by quantitative exposure limits known as basic restrictions. However there are no equivalent limits to protect against indirect effects such as microshocks. The Code of Practice "Power Lines: Demonstrating compliance with EMF public exposure guidelines: A voluntary Code of Practice" states:

> "For indirect effects, while the Guidelines give a cautionary reference level of 5 kV m^{-1} for the general public as a trigger to fuller assessment of compliance with the exposure guidelines, using that as a limit is not the most appropriate way of dealing with indirect effects. Rather, there is a suite of measures that may be called upon in particular situations, including provision of information, earthing, and screening, alongside limiting the field which should be used to reduce the risk to the public of indirect effects. In some situations, there may be no reasonable way of eliminating indirect effects, for instance where erecting screening would obstruct the intended use of the land."

This Code of Practice provides the necessary detail to apply this principle.

The focus of this Code of Practice

Surface charge effects (e.g. vibrating of hairs) are, in practice, adequately protected against by the limits on electric fields covered by the preceding Code of Practice[1]. Contact currents are protected against by specific reference levels in the guidelines. Therefore this Code of Practice is concerned with microshocks.

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[7] This Code of Practice is agreed between Government and the Energy Networks Association (ENA). Formally, therefore, it binds only the member companies of ENA. However, Government and ENA hope that all network operators will follow these provisions.

Microshocks are, in practice, generally an issue only with overhead power lines of voltages of 275 kV and 400 kV. Therefore, although the provisions of this Code of Practice apply to power lines of all voltages, it is of relevance principally to companies with transmission assets comprising overhead lines at these voltages.

Relevant characteristics of microshocks

The electric field produced by high-voltage overhead power lines induces charges on the surfaces of any objects that are exposed to it, or, expressing the same physical concept in a different way, any object that is not grounded acquires an electric potential (a voltage) from the field. When two conducting objects that are at different potentials touch, the potentials equalise by means of a transfer of charge from one to the other.

As the two objects get closer, the difference in potential between them is applied across a smaller and smaller gap. When the gap becomes small enough, and if the potential difference is large enough, the potentials equalise across the gap by means of a small spark. When one of the two objects is a person touching a conducting object, that small spark is concentrated on one very small area of the skin, typically a few tenths of a millimetre across. The total energy in the spark is very low, but because it is so concentrated and localised, it is experienced at that point of the skin as a small shock. The sensation can range from a small tingle through to pain.

Microshocks are not known to have long-term health effects or cause any discernable skin damage, except in rare circumstances where continuous repeated shocks are experienced at the same place on the skin. Normally, any sensation is confined to the momentary spark discharge as contact is made or broken. The electric fields produced by power lines are, however, alternating fields, with a frequency of 50 Hz. This means that if the gap between a person and an object is being closed only relatively slowly, it is possible for several spark discharges to be experienced, on each successive peak of the electric field. If the field is large enough, it is also possible to have more than one discharge on the same half-cycle of the field, when the first discharge duly removes the potential difference between the objects, but the potential is then able to increase again as the field rises. The microshocks will cease as soon as the gap is closed by contact with the object. The only way for them to be a continuous phenomenon is if the gap is preserved at exactly the necessary width, which is extremely unlikely in practice.

The sensation of a microshock is similar to that caused by the static discharges commonly experienced in dry atmospheric conditions after frictional contact with a nylon carpet or car seat. Scientific investigations have shown that the voltages and charges are comparable for the two phenomena, and therefore any effects on the body can be presumed to be similar.

The size of a microshock depends on the size of the electric field, as it is this that determines the extent of charging of the objects concerned. It also depends on the sizes of the objects concerned, how well grounded or insulated they are, meteorological conditions, and the sensitivity of the skin (which varies over the body as well as from person to person).

Microshocks can occur whenever a person and a conducting object almost touch under a power line and are not (by virtue of being connected to each other or both being connected to earth) at the same potential. The conducting object can be anything, and either the person or

the object can be at a floating potential. In practice, experience has identified several common scenarios:

- person touches ungrounded motor vehicle
- person touches ungrounded fence
- ungrounded person touches grass with bare feet or legs
- person touches small objects (e.g. gardening utensils, washing and washing line), either or both ungrounded
- person touches metal parts of umbrella
- person touches golf clubs or golf umbrella
- person riding bicycle
- person riding, leading, or touching horse or other animal
- person touches another person

As well as the actual physical sensation of the microshock, microshocks could in some circumstances give rise to further effects, either if the microshock causes a person to startle with dangerous consequences, or if repeated microshocks cause aversive responses to the situation that produces them.

Possible methods of controlling microshocks

Microshocks depend on the sizes of the objects concerned as well as the size of the field, so there is no threshold for electric field for preventing microshocks. However, in many circumstances the risk of perceiving a microshock and its severity diminish significantly as the field is reduced below 5 kV m^{-1}, the reference level in the ICNIRP guidelines.

Microshocks can be controlled by:

- **Reducing the electric field at its source**. Reducing the field from a power line almost always means in practice raising the height of the line so as to increase the ground clearance. For existing lines, this is extremely complicated and expensive. For new power lines, the cost is lower, but there is still a significant impact in terms of increased visual impact. Re-routing or undergrounding of a line is also an option for reducing the field but again this is complicated and expensive for existing lines.
- **Reducing the electric field by screening**. Screening by extra conductors hung from the existing pylons is rarely possible because of the limited clearances. Freestanding structures (either artificial structures, or trees or vegetation) for screening electric fields, however, are often bulky and extensive, visually intrusive, may interfere with land use, and have their own safety, maintenance and ownership issues.
- **Replacing a conducting object with an insulating one**. This may be possible but is subject to maintaining necessary functionality and not compromising the earthing necessary for safety.
- **Earthing**. This is effective at eliminating microshocks but not always possible. It is often easy for fixed items (e.g. fences) but harder for mobile objects (e.g. people, animals and vehicles).
- **Restricting access to land**. This may be an option but will often have practical difficulties.
- **Protective equipment or clothing**. Suitable insulating footwear or gloves can reduce microshocks in some circumstances.

- **Provision of information**. Some microshocks can be avoided if the person knows, for example, what order to perform certain operations in, or to make firm contact rather than brushing contact. Even where provision of information does not alter the physical circumstances of a microshock, it can still often reduce the extent of concern about a microshock by removing the element of the unknown.

Requirements for controlling microshocks

This Code of Practice recognises that there is no reasonable way to avoid microshocks in all circumstances, even in circumstances when they are at a frequency and severity that is clearly undesirable, and therefore that not all situations producing microshocks are expected to be remedied.

This Code of Practice also recognises that control of microshocks is not based on a simple quantitative limit. Rather, there is a suite of measures that may be called upon in particular situations.

The simpler measures, such as avoiding creating new situations particularly prone to microshocks, provision of information, and earthing, where any of these are applicable, are to be preferred and adopted first. More intrusive and expensive options, such as screening, are to be adopted only where justified by circumstances. It is less likely that specific circumstances exist that would justify particularly extreme measures, such as raising clearances or re-routing of existing lines.

Specifically:

- Electricity companies will, where reasonably practicable, avoid designing new power lines that would create fields of 5 kVm^{-1} or greater in homes, other land in residential use, their curtilage, and schools[8]
    - Note that existing good line-routing practice will normally achieve this anyway by routing lines away from existing homes and schools. If a new line over a home, its curtilage, or a school is unavoidable, a field below 5 kV m^{-1} can be achieved by designing the line with an appropriate clearance. In the converse situation of new homes close to existing power lines, electricity companies will encourage sensitive design that avoids such situations, but no restrictions or controls are created by this Code of Practice.

- Electricity companies will continue to make information available to the public about microshocks. They will seek appropriate ways to communicate to specific communities affected (e.g. cyclists and horse-riders)
- When an electricity company becomes aware that a particular situation is giving rise to microshocks in a persistent and annoying manner:

[8] The definition of the land affected is the same as that given in full in "Power Lines: Demonstrating compliance with EMF public exposure guidelines: A voluntary Code of Practice. Reissued March 2012"

- The company will offer focussed advice and information specific to the situation;
- Where earthing is an easy solution, this is encouraged, and will be explained to the landowner or occupier by the electricity company. The allocation of the cost of any earthing installed is a matter between the electricity company and the landowner depending on existing contractual arrangements;
- Where microshocks occur in someone's garden, or in other circumstances where one individual could be exposed to multiple shocks over a prolonged period, every reasonable effort will be made by the electricity company to develop solutions by earthing, by changing a conducting object to an insulating one, by use of appropriate clothing, or by screening structures or trees and vegetation, with the allocation of the cost being a matter between the electricity company and the landowner or occupier (but note that, to be effective at resolving someone's complaints, screening may have to be so extensive as to be impracticable); and
- Where a site-specific risk analysis indicates a significant risk of injury (assessed using normal health and safety practice) from startle reactions to a microshock, mitigation measures, potentially including screening structures, will be developed by the electricity company, and, to the extent that it lies within the company's control, deployed, if this can be done without becoming unreasonable.

- There is no requirement that clearances of existing overhead lines, or of new overhead lines except where they unavoidably pass over homes, other dwelling places, their curtilage, and schools, should be increased because of microshock issues, though this could be done voluntarily by electricity companies.
- No individual assessments of the risks of microshocks, even quite rudimentary assessments, shall be required for every single span, either of existing lines or for proposed new line.

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