

Case Manager
Planning Inspectorate
Temple Quay House 2
The Square
Bristol, BS1 6PN

[REDACTED]
[REDACTED]@richardbuxton.co.uk

[REDACTED]@richardbuxton.co.uk

Our ref: TCS1/2

Attn: Rebecca Luxton
By email: rosefieldsolar@planninginspectorate.gov.uk

Your ref: EN010158

22 June 2026

Dear Examining Authority

Rosefield Solar DCO application

1. We act for Preston Farms Ltd ("PFL") and TCS Biosciences Ltd ("TCS").
2. For Deadline 4, PFL/TCS attach to the email accompanying this letter an indexed bundle of documents, including responses to Action Points from ISHs 1 and 2, responses to ExQ2s where applicable, and an appendix of supporting details and evidence referred to in those responses. The bundle also includes a document titled "Voluntary Response", addressing tenancy matters to which PFL anticipates it will need to respond. It is not intended to be exhaustive, but is provided now to assist the ExA in identifying issues early ahead of ISH 3.
3. PFL/TCS request permission to be heard at Issue Specific Hearing 3 on 7 and 8 July. PFL requests permission to attend Compulsory Acquisition Hearing 2 on 9 July. We intend to participate as before and intend to be represented by specialist counsel
4. We trust the above and attachments are clear, but if you have any queries, please let us know.

Yours faithfully

[REDACTED]

RICHARD BUXTON SOLICITORS

Index

	Page(s)
Deadline 4 Responses- Preston Farms and TCS Biosciences Ref: EN010158	
1	Responses to Action Points ISHs 1 & 2 1 - 12
2	Responses to ExQ2s 13 - 23
3	PFL Voluntary response 24 - 25
Appendix to Deadline 4 Responses	
1	UKHSA Letter 9 June 2026 26
2	RCP Letter 15 June 2026 27 - 28
3	TCS Supporting Note on Stress, Environmental Disturbance and Blood Physiology 29 - 36
4	NVS Letter 22 June 2026 37 - 39
5	Sharp Acoustics technical note 22 June 2026 40 - 49

Responses to Action points from Issue Specific Hearing 1.

ISH1 Action Point 35

To evidence and quantify the impact on the National Health Service (NHS) and any risk of supply, including identification of any pathways that the applicant would threaten that supply.

PFL/TCS response:

1. Donor animal blood matters because it is used in the production of blood agar plates, which are an essential component of clinical diagnostics. These products support bacterial culture, pathogen identification, antimicrobial susceptibility testing, antimicrobial resistance surveillance and outbreak response. The issue is therefore that the proposed development creates risk to a specialist source level diagnostic supply chain.
2. Because of commercial sensitivity, TCS cannot disclose detailed customer information. However, we supply essential healthcare organisations directly and indirectly, including through media manufacturers and OEM arrangements serving laboratories that prepare their own media.
3. It is important to distinguish between suppliers of blood agar plates and producers of donor animal blood (please also read this response in conjunction with our response to Q2.14.5). The NHS, UKHSA, APHA and academic institutions may have more than one supplier of blood-containing-media. That is not the same as source level donor animal blood production, necessary to create the blood-containing-media. We are one of only two producers of donor animal blood for microbiology in the United Kingdom and the only producer operating in England and Wales.
4. BIVDA estimates that the NHS uses approximately 60 million blood-containing plates annually. Based on our market knowledge and customer data, we supplied sufficient donor blood in 2025 to support 60 – 70% of that estimated demand.
5. The public interest risk is not limited to the NHS. We also support, directly or indirectly, other public and quasi-public institutions, including public health, animal health, reference laboratory, academic and research settings. The relevant issue is therefore diagnostic and microbiological supply chain resilience, not only NHS procurement.
6. We do not suggest that the proposed development would necessarily cause a complete failure of NHS or UKHSA diagnostics. The concern is that the Applicant proposes to introduce multiple avoidable risks into one of the UK's very limited donor animal blood production systems without adequately assessing those risks, or proposing mitigation measures which would be secured in advance and which it can be certain would work.

7. The relevant pathways include construction traffic, altered access, workforce movement, soil disturbance, dust, mud, noise, vibration, visual disturbance, biosecurity and contamination risk, disruption to donor animal movements and collection sessions, loss of grazing land and loss of operational flexibility, across both construction and operational phases. Those pathways arise principally from interference with Field E23, use of Granborough Road, the noise and visual interface with Parcel 3, and the proposed BESS interface. Individually and cumulatively, they risk affecting animal welfare, stress, behavior, donor suitability, collection reliability, blood consistency, product quality and continuity of supply.
8. These pathways were not first raised during this Examination. As early as December 2023, we gave the Applicant a developed presentation explaining the clinical significance of donor animal blood, the scale of TCS's supply, the role of Preston Farms in controlling animal husbandry and welfare and the risks posed by Rosefield. That presentation expressly identified concerns around donor animal health and wellbeing, contamination from uncontrolled vehicles and personnel, disruption to supply, loss of land and animal numbers and the clinical significance of any reduction in supply to customers whose blood agar plates ultimately go to NHS hospitals and health authorities.
9. Our own operational experience shows that disturbance within the donor system can affect blood quality. Increased stress has been associated with increased clotting and wastage. As we have previously explained, production data show that even carefully managed sheep shearing activity can result in significant increases in clot related losses. Shearing is short term and controlled; it nevertheless demonstrates that disturbance within the donor animal system can directly affect product quality. The proposed development would introduce a wide range of new, external and far less predictable disturbances into a system that depends on control, consistency and stability.
10. We also periodically experience premature haemolysis. As with many biological products, root-cause analysis after the event can be difficult. That reinforces the importance of maintaining stable operating conditions and avoiding unnecessary additional sources of stress, contamination or disruption.
11. Biosecurity is a further critical pathway. Increased third party access, construction activity, vehicle movements, dust, mud, trespass or failures to follow site controls could introduce contaminants or pathogens. The consequences are not limited to actual disease outbreaks. They include precautionary isolation, investigation, suspension of donor sessions, rejected material, additional testing and loss of customer confidence.
12. The supply chain is also time sensitive. Donor animal blood and derivative products cannot simply be stockpiled indefinitely. Limited shelf life means resilience depends on continuity of production, animal availability, donor suitability and reliable collection. Disruption at source cannot necessarily be absorbed by stored product.

13. There is also a direct land and tenancy pathway. The Applicant seems to now be suggesting that the effects could be reduced because our landlord has served notice to quit. We maintain that this position has arisen because of the Applicant's scheme. The Applicant cannot rely on tenancy uncertainty to downplay/minimise harm while promoting the project that created that uncertainty. We have highlighted the importance of these land and operational relationships since the early stages of engagement.
14. Loss of the affected FBT land would have consequences beyond the specific fields shown on the Rosefield plan. It would remove approximately one-third of our donor horse blood capacity. Donor horse blood is the preferred blood type for blood agar plates in the United Kingdom and accounts for over 60% of our total donor horse blood output. Loss of that capacity would represent a catastrophic source level risk within one of only two UK donor animal blood producer operations.
15. We again highlight the supporting materials already submitted, including correspondence from AMR Action UK, the UK Sepsis Trust and BIVDA. We also submit at Deadline 4 additional letters from UKHSA (see Appendix pp.26) and the Royal College of Pathologists (see Appendix pp.27-28).
16. Those organisations would naturally be cautious about commenting on the merits of a specific DCO application. The significance of their evidence is that, notwithstanding that caution, they go beyond general statements about microbiological diagnostics. They recognise that donor animal blood supply is clinically and diagnostically important, that resilience in that supply chain matters, and that loss or impairment of facilities would have serious consequences.
17. In its Deadline 4 correspondence, UKHSA has confirmed that donor blood products are essential reagents for the culture and identification of important pathogens, including *Staphylococcus aureus*, *Streptococcus* species and *Bordetella pertussis*, and highlighted the importance of maintaining a resilient and diverse supply chain with domestic production capability. The Royal College of Pathologists have similarly recognised the importance of protecting donor animal blood supply and the consequences of losing or impairing such facilities.
18. We therefore submit that the evidence identifies a clear pathway risk to operations that are manifestly in the public interest, and in fact of critical importance. The proposed development creates significant and avoidable operational risks to a specialist donor animal blood producer, and those risks would affect diagnostic and microbiological supply resilience for NHS-linked users and other public health, animal health, reference laboratory, academic and research users.

ISH1 Action Point 37

Biosecurity - To submit detail around its biosecurity measures and further concerns.

PFL/TCS response:

19. We provided an initial draft set of requirements at Deadline 3, and in the second part of this answer, we elaborate / expand on that list.
20. However firstly we wish to reiterate the most effective and simplest way to ensure biosecurity, as highlighted by Animal and Plant Health Agency biosecurity guidance, is to design working practices to minimise how often people, equipment and vehicles are entering places where animals are kept.
21. This is also emphasised further under the Animals (Scientific Procedures) Act (ASPA) and Home Office Code of Practice (CoP) for the care and accommodation of animals bred, supplied or used for scientific purposes under ASPA.
22. The Code of Practice reiterates that key importance for us, as licence holders, to ensure that the CoP outcomes are met. This is why we cannot accept that mitigation is an acceptable risk to take in relation to our controlled operating environment.
23. The purpose and key intended outcomes of the CoP are clearly stated as:
 - a. To ensure that the design, construction and function of the installations and equipment of licensed establishments allow procedures to be carried out as effectively as possible whilst ensuring protection for the animals they house;
 - b. To promote good animal welfare through the provision of consistent, high-quality care and accommodation;
 - c. To support the generation of high quality, reliable scientific results through the reduction of environmental variables;
 - d. To implement the principles of the 3Rs (Replacement, Reduction, Refinement) through using the minimum number of animals and causing the minimum degree of pain, suffering, distress, or lasting harm.
24. These are all things which we must comply with and which we are trying to protect. That supports our position that ordinary construction management, generic visitor controls, toolbox talks or complaint led mitigation are not sufficient. The relevant question is not merely whether construction can occur on neighbouring agricultural land. It is whether construction access, a changing workforce, unescorted access, vehicle movements, dust, noise, vibration, lighting, contamination risk and emergency incidents can be introduced into the operating environment of a licensed donor animal supply operation without compromising animal welfare, biosecurity, health status, donor suitability, product reliability or supply continuity.
25. In light of that regulatory context, the mitigation proposed by us at Deadline 3 and expanded later in this section, is a minimum, as any mitigation proposed by the Applicant must be capable of maintaining the controlled conditions upon which we

depend. If it is not guaranteed to maintain these controlled conditions, the correct mitigation is avoidance.

Expanded Project Specific Points for Consideration

26. The current visitor SOP (which we have previously set out) is based on pre-arranged, escorted visits as that is the only access that we currently permit to the holding. The SOP was suitable for the limited site inspection / visitor access at the ASI because visitors remained under Preston Farms control and escorted at all time. However it would not be a sufficient basis for large scale construction access, cross-parcel movement, or unescorted access. If any such access is sought, additional controls would be required to replicate, so far as possible, the control achieved by escorting.
27. As such, and further to ISH1&2, Preston Farms and TCS Biosciences Ltd have been asked to update its list of biosecurity measures to enhance details of the measures provided at Deadline 3. In our 60 years of operation (and multi-generational ownership / farm management), we have not had to plan for a project of this magnitude. The scale and duration of the construction phase materially changes the biosecurity risk.
28. We also have practical experience of major infrastructure works in the area, including HS2 and East West Rail. That experience is that large projects involve a transient workforce and multiple subcontractors who may have limited understanding of local land uses beyond the immediate task they are performing.
29. For PFL / TCS, that reality matters. Biosecurity controls cannot depend on informal local knowledge, goodwill, or one-off induction messages. They must be deeply embedded in access control, route control, supervision, monitoring, enforcement, stop / review powers and clear accountability throughout the construction period.
30. Biosecurity risk is also not limited to a confirmed disease outbreak. For PFL/TCS, a biosecurity concern may itself have operational consequences, including precautionary isolation, veterinary investigation, temporary suspension of donor sessions, additional testing, rejected material, delay to product release, customer notification, loss of product confidence and disruption to TCS's diagnostic supply chain.
31. Accordingly, the controls below should be treated as minimum fallback controls if the Applicant insists on retaining construction interfaces with PFL/TCS. They are not PFL/TCS's preferred mitigation. The preferred mitigation remains avoidance: removal of E23 from solar and construction use, avoidance of Granborough Road / Parcel 3

construction access, and reduction of BESS-related risk at the PFL/TCS interface.

32. The Royal College of Pathologists' Deadline 4 letter (see Appendix 27-28) reinforces why these controls must be more stringent than ordinary agricultural biosecurity measures. It identifies that collection of blood from donor animals for diagnostic or scientific purposes is regulated under ASPA, requiring a Home Office licensed establishment, oversight by a Named Veterinary Surgeon, an Animal Welfare and Ethical Review Body, and compliance with the 3Rs. These are standards associated with recognised biomedical establishments. Any Rosefield access or construction interface must therefore be designed around a controlled donor animal operating environment, essentially a farm-as-laboratory, not treated as ordinary access across agricultural land.
33. The following measures expand the initial draft list provided at Deadline 3. They are supplied without prejudice and may need to be refined further as more detailed construction methodologies become available. They are not our preferred mitigation. They illustrate the level of control that would be required if the Applicant insists on retaining a layout and access strategy that introduces construction activity into our operating environment. We reiterate there is an alternative point of access from Winslow Road which would go a long way to supporting our biosecurity concerns. The expanded list of measures are:
 - a. Escorted access baseline, as required by the Preston Farms visitor SOP.
 - b. Enhanced controls for any unescorted, repeated or construction phase access.
 - c. PFL/TCS specific induction and training for all Rosefield personnel seeking access to, or working adjacent to, PFL land. This must include specific training on the Home Office licensed / ASPA context, the role of the Named Veterinary Surgeon, animal welfare oversight, the Animal Welfare and Ethical Review Body context, the sensitivity of donor animals, biosecurity risks, prohibited conduct, reporting obligations and the consequences of non-compliance.
 - d. No reliance on generic site induction alone. PFL / TCS specific induction must be separately recorded, refreshed at appropriate intervals, and repeated for replacement personnel, subcontractors, delivery drivers, plant operators and any other relevant workers.
 - e. Named person access only. Access must be limited to individuals who have completed PFL/TCS specific induction and have been authorised in advance, including, where appropriate, signing individual NDAs.

- f. Pre-arranged, logged and authorised access with photo ID checks, visible passes, defined permitted areas and time limited permissions.
- g. A live access register recording name, employer, role, induction status, arrival / departure time, vehicle registration, route used and purpose of access.
- h. Controlled access point, gatehouse or security presence at any interface with PFL land.
- i. Background screening, including basic DBS or equivalent contractor vetting where appropriate.
- j. No casual, opportunistic or convenience access from other Rosefield parcels into or across PFL land.
- k. No access by any person, vehicle, plant or equipment that has not complied with the relevant clean / dirty route, hygiene and disinfection requirements.
- l. Mandatory pre-access declarations for personnel and vehicles, including recent attendance at other livestock premises, contact with livestock, known disease restrictions, contamination events or any other matter that may affect biosecurity.
- m. Clean / dirty route separation, with clearly marked and physically controlled routes to prevent cross-contamination between construction areas, livestock areas, feed areas, water points, tracks, yards and handling areas.
- n. Fixed agreed routes for any approved access routes. Deviation from those routes must be treated as a reportable incident.
- o. Vehicle, plant, equipment, clothing and footwear controls, including cleaning and disinfection before access, spot checks, records of compliance and refusal of access where standards are not met.
- p. Strictly no photography, filming, drones or mobile phone recording on or overlooking PFL / TCS operational areas without prior written approval.
- q. Strict no contact rules for animals, gates, fencing, troughs, feed, bedding, equipment, buildings, yards, stables, handling areas and any other farm infrastructure unless expressly authorised by PFL / TCS.
- r. Escort requirements for access within defined sensitive areas and for any activity that may bring personnel, plant or vehicles close to donor animals, livestock handling areas, water, feed, movement routes or product-transfer routes.

- s. Works blackout periods during:
 - o donor sessions;
 - o animal movements;
 - o veterinary activity;
 - o Named Veterinary Surgeon visits;
 - o Animal Welfare and Ethical Review Body-related activities;
 - o silage/feed operations;
 - o extreme weather;
 - o disease-control periods; and
 - o any period identified by PFL / TCS or the Named Veterinary Surgeon as sensitive.
- t. PFL specific noise, vibration, lighting, glare, dust and biosecurity controls, including:
 - o baseline monitoring at relevant receptor locations;
 - o agreed trigger/action levels; and
 - o behavioural-response triggers.
- u. Immediate stop, review or modify powers where PFL, the Named Veterinary Surgeon or an independent compliance officer reasonably considers that works may compromise:
 - o animal welfare;
 - o donor suitability;
 - o biosecurity;
 - o access safety;
 - o product quality;
 - o product continuity; or
 - o continuity of supply.
- v. An independent PFL / TCS protection and compliance officer, funded by the Applicant, with authority to inspect, audit, require records, investigate incidents and escalate non-compliance.
- w. Mandatory immediate reporting to PFL / TCS of any breach or suspected breach, including unauthorised access, failure to follow agreed routes, contact with animals or infrastructure, hygiene failure, vehicle contamination, dust / mud transfer, gate or fence interference, drone use, photography, near miss or worker non-compliance.
- x. Incident and product impact protocol covering:
 - o startle events;

- o abnormal animal behaviour;
 - o animal injury;
 - o escape;
 - o unauthorised access;
 - o route deviation;
 - o gate or fence interference;
 - o veterinary intervention;
 - o donor-session cancellation;
 - o deterioration in product quality;
 - o additional testing;
 - o rejected material;
 - o contamination concerns;
 - o customer notification; and
 - o business interruption.
- y. Audit trail and record retention for all access, induction, cleaning, disinfection, incidents, investigations, corrective actions and stop / review decisions, with records available to PFL / TCS on request.

34. In addition to the above:

The Applicant should fund PFL's / TCS's compliance burden required to administer any access, monitoring, biosecurity or incident-response regime including, but not limited to:

- o Reasonable staff time
- o Veterinary time
- o Compliance time
- o Training time
- o Professional costs
- o Infrastructure costs
- o Any other specific biosecurity mitigation costs.

The Applicant must also provide indemnity and compensation mechanisms (including secured insurance arrangements) for losses arising from the project, including but not limited to:

- o Animal injury
- o Medication
- o Donor-session cancellation
- o Product failure / rejection
- o Additional testing

- o Replacement feed
 - o Additional labour
 - o Veterinary costs
 - o Biosecurity incidents
 - o Business interruption (Preston Farms and TCS Biosciences)
 - o Customer / End user related compensation (TCS Biosciences)
 - o Penalties due to failure to meet contractual supply obligations (TCS Biosciences)
 - o Any incoming / outgoing supply-chain disruption caused by the works
35. Preston Farms and TCS Biosciences Ltd must be consulted and should have the final approval for any method statement or management plan affecting their land, animals, donor operations, access, feed, biosecurity or product transfer routes.
36. In the event that approval is not granted, an arbitration mechanism should be agreed to resolve issues before works commence, and all costs associated with arbitration should be borne by the Applicant.

ISH1 Action Point 43

To provide evidence of how noise and vibration effects impact the quality of donor livestock blood and consequentially, the product of its business.

PFL/TCS response:

37. We are sending with these submissions a letter from Jennifer Harbison, the Home Office Named Veterinary Surgeon (NVS) responsible for Preston Farms (see Appendix pp.37-39). The NVS points are well known: noise and vibration effects, if they startle the donor livestock, affect the donor livestock's blood. The effects of stress on blood are well documented in the literature (see Appendix pp.29-36), and the evidence from the veterinarian shows that noise-generating events from the development would have such effects. Avoidable stress, alarm and environmental disturbance are relevant not only to welfare, but also to handling, blood collection and physiological stability.
38. Given that our animals are kept for a specific and highly specialised / niche purpose, direct published research addressing the precise question of construction noise and vibration effects on donor animal blood products is limited. There is, however, a substantial body of scientific literature on animal stress, noise, disturbance, welfare, physiological response and blood parameters more generally.
39. Our position is also grounded in the way the operation is regulated and run: under the Home Office licence, ASPA, the ASPA Code of Practice, industry best practice and

approximately 60 years of operational experience.

40. We are also sending a further report from Sharp Acoustics LLP (see Appendix pp.40-49), acoustic experts. This speaks for itself though it may be that points made there, or by the NVS, could usefully be elaborated in due course in written submissions or at a further hearing.
41. The ASPA Code of Practice expressly recognises that noise is a relevant environmental factor for animals. It states that high noise levels and sudden noises can cause stress, with consequences not only for animal welfare but also for scientific data. It also emphasises the need to control noise within animals' hearing ranges, including noise arising from human working practices and equipment, and recognises that layout can materially influence the acoustic environment.
42. It is also important to highlight that horses are treated as a specially protected species under ASPA.
43. The focus on a low stress environment has been central to our operation for over 60 years. TCS Biosciences was established because its founder could not reliably procure robust, contamination free donor animal blood suitable for clinical diagnostic use. The system has therefore always been built around donor animal welfare, controlled collection, low stress handling, biosecurity and blood quality.
44. That approach is also consistent with wider industry practice. Both TCS and E&O Laboratories, the other UK-based donor animal blood producer, both refer in publicly available materials to the importance of stress-free animals and robust red cells.
45. E&O Laboratories states that donor animal blood products are collected from stress free animals with guaranteed packed cell volumes, and that its processing methods are designed to minimise red blood cell degradation, fragility and haemolysis.
46. Discussions with other specialist producers are consistent with the same principle. Colorado Serum Company in the United States, which maintains donor horse herds for antitoxin production, has indicated that although it has not specifically investigated the effects of stress on donor blood products, the physiological impact of stress on animals is well established and operationally important.
47. South Pacific Sera in New Zealand, a producer of donor animal blood for blood agar plates, also places similar emphasis on low-stress donor animal management.
48. In conclusion, the acoustic, veterinary and scientific evidence should be read together. The Applicant has not assessed the credible pathway from disturbance to animal stress, donor suitability, blood quality, collection reliability and continuity of supply. Generic mitigation and complaint led controls are not enough. The correct response is preventative assessment, avoidance of unnecessary disturbance and, if harmful interfaces are retained, specific controls that can operate and be enforced with

certainty.

49. A general point with regard to assessment of environmental impact is that the 2017 EIA Regulations anticipate in Schedule 4 full reporting. Inter alia they require effects on human beings, flora and fauna, material assets and on human health to be assessed. They require direct and indirect effects to be assessed – the latter relevant here in the context of the need to assess effects on blood quality and in turn on human health. Of course, we appreciate that such effects may be difficult to assess with precision and/or quantify, but here there has been no real attempt at that assessment and/or attempt to set out the gaps in scientific knowledge and other information if the Applicant has encountered difficulties in so doing. Simply because an assessment would be novel, does not mean an assessment should not be made, and made on the basis of the correct information and inputs.
50. Overall (if effects cannot be avoided, which we believe with adjustments to the scheme they could be) such assessment as there is at present is such that the ExA cannot know what the effects could be, and – most importantly – in turn what mitigation measures it can be confident can be required at the stage of grant of any DCO, which it can be sure will be secured and implemented in advance of any problems occurring.

Responses to Action points from Issue Specific Hearing 2.

ISH2 Action Point 9

PFL/TCS response:

51. PFL/TCS have considered Article 23(2) and understand that it is standard in the draft DCO wording. Our concern was driven by comments raised in the hearing in relation to changes to the process of legal challenge to the DCO. However, we have now reviewed the current position under the Planning and Infrastructure Act 2025 and have no further questions. We will closely monitor any further changes which we understand are currently under discussion.

Answers to the relevant Examining Authority's second written questions and requests for information (ExQ2):

Relevant ExQ2 questions

Q2.2.3

BESS: Please provide comments on the applicant's response to action point 7 from ISH1 [REP3-052] that sets out its position on why fields E10 and E11 are an unsuitable location for the BESS. Has the applicant provided sufficient justification for not proposing the BESS in fields E10 and E11? If not, what further information should the applicant provide?

PFL/TCS response

1. We do not accept that the Applicant's response to ISH1 Action Point 7 demonstrates that fields E10 and E11 are not suitable for BESS location.
2. The Applicant says Fields E10 and E11 are unsuitable for BESS because of flood risk, overhead line constraints, Sion Hill Farm noise / visual effects, and the allocation of E11 for the Rosefield Substation. However, those same fields remain within the Proposed Development for other large infrastructure, such as the Rosefield Substation.
3. The document just raises the question as to whether E10 / 11 is suitable for any large solar infrastructure. If it cannot accommodate BESS, it is not clear how it is fine for it to accommodate a substation?
4. PFL / TCS recognise that BESS, solar PV and substation infrastructure have different footprints, noise profiles and safety characteristics. But that is precisely why a proper comparative assessment is required. The Applicant has not provided a receptor specific comparison which weighs the asserted constraints of E10 / E11 against the harm and risk created by the selected BESS location for us.
5. The response also shows that the only alternatives are the current BESS location or a full BESS compound in E10 / E11. It does not demonstrate whether the BESS could be reduced, reconfigured, split, relocated to other areas of the site altogether, or subject to additional controls. We suggest that a more suitable location for the BESS is considered altogether, or that it is removed in its entirety given the option of other BESS projects already approved.

Q2.3.1

BESS plume, 50m setback: Following discussions at issue specific hearing 1 (ISH1) on your critical review of the BESS Plume Assessment by a battery safety expert [REP2-107] the applicant has updated its BESS Plume Assessment Summary [REP3-042] and included commitment D25 in its Design Commitments [REP3-010] “BESS containers and transformer units will be offset at least 50m from the southern boundaries of fields D8 and D9 and the eastern boundary of field D9 Has this addressed all your concerns? If not, what further action should the applicant take?

PFL/TCS response

1. We do not accept that the updated BESS Plume Assessment Summary or Design Commitment D25 properly address our concerns.
2. The 50m setback is welcome only in the limited sense that it acknowledges that the BESS / PFL interface matters. It does not resolve the issue, nor does it address our concerns raised in the last submission in relation to the lack of assessment for our operation and its livestock as a specific receptor. It provides no evidence that a 50m setback is sufficient to protect the specific receptors who would be affected. It merely moves the same unresolved assessment 50m from the relevant field boundaries. In the event of a catastrophic battery fire, an additional 50m will not protect the relevant receptors as they will still be within the hazard zone.
3. Further action is required. The Applicant should either relocate or further reconfigure the BESS so that it avoids the PFL/TCS interface, or secure enforceable PFL/TCS-specific controls addressing emergency response times and mitigation, livestock management, contaminated firewater, feed/grazing loss, donor suitability, product interruption, regulatory consequences, insurance and indemnity.
4. If the Applicant's position is that such controls are unnecessary because human-health plume thresholds are not exceeded, we do not accept that answer as there has been no credible assessment of the risks to our regulated donor-animal diagnostic supply operation.

Q2.6.2

Compelling case in the public interest test

Section 122 of The Planning Act 2008 requires the Secretary of State to be satisfied that there is a compelling case in the public interest for land to be acquired compulsorily. Paragraph 14 of The Planning Act 2008 guidance related to procedures for the CA of land states that “In determining where the balance of public interest lies, the Secretary of State will weigh up the public benefits that a scheme will bring against any private loss to those affected by compulsory acquisition.”

If it is demonstrated that the proposed development may impact medical supplies to the National Health Service (NHS), should the Secretary of State also take account of any related public disbenefit as well as private loss when weighing against public benefits in determining if there is a compelling case in the public interest for the CA of Preston Farms Limited’s interests?

PFL /TCS response:

1. Yes. The Secretary of State should treat potential disruption to diagnostic supply as a public disbenefit in the compulsory acquisition balance.
2. We strongly believe that the Proposed Development, in its current form, will interfere with donor animal welfare, biosecurity, donor suitability, blood collection, product reliability and / or continuity of supply. For the reasons set out in response to Action Point 35, the consequential impact on NHS linked diagnostic supply and other public or quasi-public bodies is a public interest matter, not merely a private compensation issue.
3. Compensation is not mitigation. Money paid after the event does not preserve the integrity or continuity of our operation.
4. Replacement land is also not interchangeable acreage. It must be legally secured, prepared, fenced, watered, accessible, biosecure and operationally integrated before any interference occurs. Even then, it would not replicate the role that E23 plays in our system.
5. The tenancy position does not reduce the weight to be given to the harm. We would not be in this position but for Rosefield. The Applicant cannot rely on the fragility of a tenancy as a reason to discount harm, while promoting a DCO scheme which has caused that fragility.
6. The Applicant has therefore not shown a compelling case in the public interest for broad compulsory acquisition or temporary possession powers which create these avoidable risks. The powers should be narrowed, and the scheme should be amended to remove E23 from solar and construction use, avoid Granborough Road / Parcel 3

construction access, secure replacement land before interference, and impose enforceable PFL / TCS specific protections. There are clear, less harmful alternatives. The Applicant has not adequately justified its refusal to adopt them.

Q2.6.3 The applicant

Affected persons

Update on negotiations

Affected persons are also invited to provide an update to negotiations regarding the compulsory acquisition of land and/or rights from their perspective and to outline any outstanding concerns.

1. We confirm that no voluntary agreement has been reached with the Applicant in respect of the compulsory acquisition or temporary possession powers sought over PFL land and rights.
2. Discussions remain ongoing, but agreement is not close at present.
3. As to replacement land and tenancies, high level Heads of Terms were agreed with the Claydon Estate in September 2025. Those Heads of Terms were agreed in good faith and with the best intentions but they could not capture all matters that arise in negotiating long term, detailed tenancy arrangements for a specialist farming operation. They were a framework for further negotiation, not a completed legal or operational agreement.
4. The detailed tenancy documentation remains under negotiation. We received an initial draft for the AHA tenant area in October 2025, but that draft raised substantial issues and remains in negotiation. The remaining draft tenancy documents, including those relating to the FBT land now subject to the notice to quit, were only provided in May 2026. These are long term and complex agreements on which the future stability of our business, employees and supply operation depends. It is therefore reasonable and necessary that they are carefully negotiated.
5. We do not accept that the existence of Heads of Terms should be presented as meaning that replacement land is agreed in any substantive or operational sense. Replacement land is not simply interchangeable acreage and does not replicate the functionality being lost or affected. Representatives from Claydon Estate and PFL met on 19th June to review works required to the replacement land to make it potentially viable.

6. Discussions/negotiations are continuing, and we anticipate have a considerable way to run.

Q 2.13.5

Noise and vibration effects on livestock and related mitigation - In the absence of the consideration of horses, sheep and cattle as receptors in the noise assessment detailed in Environmental Statement Chapter 13 [REP1-040] how can the Secretary of State have confidence that the full range of likely significant effects have been identified and that outline mitigation measures identified by the applicant would be effective?

PFL / TCS response:

1. We do not believe that the Secretary of State can have confidence that the full range of likely significant effects have been identified and that outline mitigation measures identified by the applicant would be effective.
2. The effects on this specific group of receptors has not been assessed as part of the process - no-one is disputing this. The mitigation measures cannot be known to be effective due to this lack of assessment, and in any event, as previously stated, the proposed mitigation measures are too reactive rather than avoiding proximity to these unknown receptors which should have been the starting point.

Q.2.14.5

Provide comments on the Applicant's post-hearing note [REP3-049] which refers to the Parliamentary Under-Secretary for Health and Social Care, Dr Zubir Ahmed's, comments in Parliament concerning NHS Supply Chain framework suppliers and resilience of donor animal blood supply for diagnostic use.

1. We welcome the Applicant's belated engagement with the diagnostic supply-chain issue. We have been raising the importance of our donor animal diagnostic supply operation, and the need to understand its role in the wider supply chain, since at least 2023. Had the Applicant engaged with that issue properly at an earlier stage, it may have been possible to design a scheme which avoided or materially reduced interference with our operation.
2. Instead, the Applicant now seeks to rely on a Parliamentary answer as a reason to minimise or dismiss our concerns. That is consistent with the wider difficulty in the Applicant's approach: it has sought to answer our concerns defensively, rather than to understand the operation and design around it.
3. We do not accept that the Parliamentary answer relied upon by the Applicant demonstrates adequate supply chain resilience. Properly read, it does not support the Applicant's conclusion. Dr Ahmed confirms that animal blood-enriched agar is a critical component in microbiological diagnostics and that sustainable and secure supply is important. The comment goes on to state that "There are a number of suppliers on NHS Supply Chain's current framework which offer donor animal blood supply for diagnostic use which support a level of resilience across England. To date there has been no issues with supply." It also confirms that the Department does not routinely centrally collect detailed information on the source of the licensed donor animal blood used in the manufacture of blood-enriched agar.
4. That final point is important. The Applicant's reliance on the answer appears to confuse a "supplier" with a "producer". A supplier on an NHS Supply Chain framework may be a distributor, downstream diagnostic manufacturer, importer or procurement intermediary. That is materially different from the actual source of the product which is required to be a licensed donor-animal blood producer. The source producer is a key part of the supply chain where resilience is even more important given the specialist nature of the product. To have a number of downstream suppliers to the NHS is not a guarantee of supply resilience.
5. We have previously highlighted that there are only two producers of donor animal blood in the United Kingdom, the other being in Scotland. We operate within the wider diagnostic supply chain, supplying not only direct end users but many key suppliers, manufacturers and distributors who in turn supply NHS and NHS-linked diagnostic markets. The fact that other framework suppliers exist does not show that those suppliers have separate donor-animal sources or suitable spare production

capacity. Whilst we cannot divulge names for confidentiality reasons, we know that we provide the majority of our blood to companies who in turn have contracts with the NHS for provision of blood agar plate providers. These include some of the top suppliers to the NHS diagnostic market. The impact of disruption to us is therefore not captured by looking only at direct NHS procurement relationships.

6. We would also point the ExA to the separate Parliamentary answer to UIN 127530¹. That answer confirms that animal blood-enriched agar is used in bacterial culture, antimicrobial susceptibility testing, antimicrobial resistance surveillance and meningitis outbreak response. That confirms the clinical and public health importance of the supply chain. It is not merely a commercial issue between PFL / TCS and our customers. We also draw attention to the letter of support from the Royal College of Pathologists (Appendix at pp.27-28), which supports the importance of protecting donor animal blood supply and the consequences of loss or impairment of such a facility.
7. The Parliamentary answer also references the Department's National Supply Disruption Response as an answer to the planning issue. However that is a reactive mechanism for dealing with disruption once it has arisen. It is not mitigation for avoidable interference and it does not excuse the Applicant's failure to assess that operation properly.
8. The resilience question is not whether multiple entities appear on a procurement framework. The question is whether there is equivalent, scalable and timely production alternative capable of replacing us if we were disrupted at the source level.

¹ <https://questions-statements.parliament.uk/written-questions/detail/2026-04-15/127530>

Q2.14.6

Minimum corridor width

The ExA notes concerns regarding the corridor width for livestock with 90m stated as being the minimum [REP3-067]. Provide comments on how Preston Farms Limited and TCS Biosciences Limited manage associated risks in more confined spaces. For example, the ExA noted on the accompanied site inspection (ASI) that whilst barns and linked farmyards facilitated the free movement of animals, there were instances where a 90m corridor width was not in place.

1. We accept that there are a limited number of areas within the holding where animals pass through spaces narrower than ~90m, including gateways, yards, handling areas and winter housing areas. Those are short, familiar, staff controlled movements into purpose specific areas associated with the donor operation.
2. Where animals enter yards or housing areas, they are moving into a familiar environment and are closely managed by experienced PFL staff. These movements are recognised as carrying higher risk than ordinary field movements and are managed accordingly.
3. That is not comparable to a long corridor through or beside solar infrastructure. Some relevant movements across E23, assuming a diagonal corridor of the type PFL understands the Applicant to have proposed, would involve distances of approximately 500m. That is an order of magnitude different from a short yard entrance, gateway or handling area.
4. It would also be impractical for PFL staff to manage such a movement closely along its full length. A short pinch-point can be managed by experienced staff positioned appropriately. A 500m constrained route cannot be managed in the same way. Staff cannot realistically supervise every point along that distance, respond immediately to any issue, and maintain the same level of control throughout.
5. This is consistent with our existing operational judgement, independent of this Examination. We have previously highlighted that an area of around 65m width linked to a National Grid line upgrade was unsuitable for horses.

Q2.14.7

E23 generating benefit.

Do the potential benefits including of field E23 in Work No. 1 and Work No. 2 [REP3-005] such as the estimated 12.25 megawatt peak (MWp) generating capacity as cited by the applicant in response to ISH1 action point 32 [REP3-049] outweigh potential adverse effects? Provide reasoning having regard to relevant policy.

PFL/TCS response

1. No, we are clear that they do not.
2. E23 is a small part of Rosefield, but a central part of our operation, as previously explained. The Applicant's case for retaining E23 is an optimisation and generation benefit argument, not a necessity argument.
3. The Applicant's cited 12.25 MWp figure does not show that the scheme depends on E23. It shows only that E23 would add capacity to the Applicant's preferred layout. That is not sufficient to justify avoidable harm to a specialist donor animal diagnostic supply operation.
4. Policy support for renewable energy does not negate the mitigation hierarchy. The Applicant must avoid and reduce adverse effects where it can. Removing E23 from solar and construction use would be targeted mitigation which materially reduces harm while leaving the wider scheme capable of making a substantial contribution to net zero.
5. The benefits of including E23 therefore do not outweigh the adverse effects. E23 should be removed.

INTENTIONALLY BLANK

**Applicant Deadline 4 matters on which PFL/TCS reserve or pre-empt response
Applicant D4 item**

Tenancy position and relevance to the Secretary of State's decision-making

We reserve our position in respect of the FBT, any notice to quit, continuing occupation, AHA land, compensation, replacement land and related claims.

We have seen that a question has been asked of the Applicant concerning the tenancy position and its relevance to the Secretary of State's decision making and await the response.

We have also seen a letter from Claydon Estate, to be submitted at Deadline 4, that was shared with us today (22nd June). That letter raises important factual, legal and practical issues concerning the tenancy position, replacement land and the relationship between those matters and the proposed development. On an initial review, we do not agree with all of the depictions in that letter and reserve the right to respond fully at the appropriate future juncture.

We have always had a strong relationship with the Claydon Estate and have been responsible, long-standing tenants of the FBT land for over 40 years. The wider Preston farming operation has been associated with the Claydon Estate for generations. We have invested significantly in maintaining and improving the holding and in the wider farming operation that supports our business. We are clear that without the proposed development, we would not be facing the present project-driven uncertainty over the FBT land.

We will respond to the Applicant's position and the Claydon Estate letter in more detail at the appropriate future juncture, once both have been properly considered. For present purposes, we do not accept that tenancy uncertainty, the service of a notice to quit, replacement land discussions, or compensation arguments reduce the need for the Applicant to assess its impacts on our operation and put in place strategies that can reliably avoid such impacts or mitigate them such that there can be no possible risk to quality or quantity of diagnostic supplies.

The point remains that the impacts on us are not confined to the private legal status of one tenancy. We remain affected through AHA land, PFL owned land, access, Granborough Road, animal movements, biosecurity, noise and vibration, BESS risk, potential replacement land, donor sessions and TCS's diagnostic supply operation.

Accordingly, the Secretary of State should not treat the FBT position as diminishing the weight to be given to our concerns. The planning and compulsory acquisition question remains whether the Applicant has justified the powers sought and designed the scheme to avoid unnecessary interference with our business.

Future discharge of requirements / later management plans

We do not accept that key protections can be deferred to future discharge of requirements or later management plans.

The Applicant repeatedly relies on future CEMP, CTMP, OEMP, DEMP, RoWAS, LEMP, BSMP and other plans to manage impacts on us. That is simply not adequate where the relevant impacts have not first been properly assessed.

The issue is whether the DCO itself secures the outcomes needed to protect our regulated supply operation. Future liaison is no substitute for mitigation that can be relied on with certainty, and its enforcement secured.

Nor is ordinary requirement discharge by the local planning authority an adequate substitute for our specific controls. The matters at issue include donor animal welfare, biosecurity, donor suitability, product continuity, emergency response and diagnostic supply resilience. These are not ordinary planning management matters. They concern a specialist operation within the Home Office licensing framework and nationally significant diagnostic supply consequences.

We also understand from comments made by Buckinghamshire Council that there may be limits to what it could confidently and competently monitor or enforce in relation to some of the specialist matters we have identified.

If harmful interfaces are retained, the DCO must secure enforceable controls now. The Applicant should not be granted broad powers on the basis that the real protections will be worked out after consent. That approach reverses the mitigation hierarchy - avoidance (and in appropriate cases, reduction) should occur at the design stage, not be left to post-consent management.



UK Health
Security
Agency

Chief Scientific Officer
5th Floor 10 South Colonnade
London E14 4PU

www.gov.uk/ukhsa

██████████
Chief Executive, BIVDA
299 Oxford St
London
W1C 2DZ

By email

09 June 2026

Dear ██████████

Re: Importance of blood agar as a health product

Thanks for taking the time to meet on 12th May and for our email correspondence since then. It has been very helpful to hear more about the work of BIVDA and the diverse suppliers that you represent.

At our meeting, I promised to write to clarify the UKHSA's use of blood products for clinical diagnosis and public health surveillance. These products represent an essential reagent for the identification and/or culture of several critical human pathogens, including *Staphylococcus aureus*, *Streptococcus* species and *Bordetella pertussis*.

As with all of our critical laboratory reagents, we recognise the importance of maintaining a diverse and resilient supply chain, including domestic production capability to mitigate against any potential disruption to global trade. We are grateful for the work that BIVDA does in helping to support the UK diagnostics industry and bolstering UK resilience in the diagnostics sector.

Yours sincerely

██████████
Chief Scientific Officer, UKHSA
██████████ [@ukhsa.gov.uk](mailto:██████████@ukhsa.gov.uk)

██████████
Chief Executive
BIVDA
299 Oxford Street (5th floor)
London
W1C 2DZ

15 June 2026

Dear Helen,

Many thanks for sending us your document “BIVDA: Protecting the Lifeblood of UK Diagnostic Microbiology: The Strategic Importance of Donor Animal Blood in Culture Media”. Having consulted with both our microbiology and Veterinary Pathology Committees, we would agree that your document outlines pretty well the current state of practice for this important service, and the need to protect and ensure it is not undermined. Any decision that results in the loss or impairment of this facility will have direct, measurable consequences for the diagnosis of infectious disease in humans and animals, for AMR surveillance capability, and of course for One Health objectives.

Donor blood is integral to diagnostic microbiology. Without it, we would lose essential capabilities across selective and differential media, culture enrichment, and identification and typing, including antimicrobial susceptibility testing. The available alternatives are not equivalent; they are slower, more costly, and less reliable, representing a significant step backwards in patient (human or animal) care.

From a Veterinary and One Health aspect the same sheep and horse blood that underpins human diagnostic microbiology is equally essential in veterinary medicine. Veterinary laboratories use blood containing media to identify bacterial infections in companion animals, livestock, and wildlife. Many of the pathogens detected are zoonotic, making veterinary diagnostics a direct component of human health protection. The loss of a donor animal blood facility would simultaneously undermine human diagnostic capacity, veterinary diagnostic capacity, and the UK’s ability to detect and respond to zoonotic disease. Precisely the kind of systemic risk the One Health framework, that the UK Government endorses, exists to identify and prevent.

We would draw attention to the regulatory classification of these facilities, although it does not specifically fall within our remit. The collection of blood from donor animals for diagnostic or scientific purposes is a regulated procedure under the UK’s Animals (Scientific Procedures) Act 1986 (ASPAs). Facilities conducting such procedures on protected animals are required to hold an establishment (home office) license, operate under the oversight of a Named Veterinary Surgeon, maintain an Animal Welfare and Ethical Review Body (AWERB), and demonstrate compliance with the principles of Replacement, Refinement, and Reduction (the 3Rs). These are the same standards applied to university research facilities, pharmaceutical testing laboratories, and other recognised biomedical establishments. Donor animal blood farms already operate to these standards. Animals are maintained under monitored welfare conditions, blood collection is performed aseptically by trained personnel under veterinary supervision, and the necessary licenses and oversight structures are in place. In every substantive respect, these facilities function as biomedical establishments, and their planning classification and legal protections should reflect that function. Classifying them as ordinary agricultural land, and subjecting them to standard agricultural planning considerations, fundamentally misrepresents what they are and what they do.

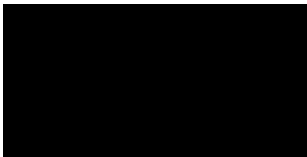


We agree that importing from the EU is not viable. It is a perishable biological product with a very short viable shelf life once collected. Unlike dry chemicals or manufactured reagents, it cannot withstand the delays and temperature variations inherent in cross-border supply chains. It would also greatly increase costs.

It is worth reflecting on the disruption caused by the global shortage of automated blood culture bottles in 2024. While that situation was serious, a loss or significant reduction in the domestic donor blood supply would, we suspect, prove considerably more damaging to both human and veterinary diagnostics.

If you need any further comments or anything please let me know.

Yours sincerely,



**President
The Royal College of Pathologists**



The Royal College of Pathologists
6 Alie Street, London E1 8QT
T: 020 7451 6700
Registered Charity in England and Wales 261035

TCS Supporting Note on Stress, Environmental Disturbance and Blood Physiology

Methodology note

1. TCS has used Consensus AI to assist with searching for and identifying relevant scientific literature concerning stress, environmental disturbance, animal physiology, blood parameters, immune function, coagulation and related topics. The searches identified a substantial body of peer reviewed literature relevant to those issues.
2. The AI search output was used as a research aid. TCS have then reviewed the articles and prepared this note with reference to the underlying scientific literature.

Supporting Note on Stress, Environmental Disturbance and Blood Physiology

Purpose of this note

3. This note provides supporting scientific literature relevant to the link between noise, vibration and environmental disturbance, donor animal stress response, physiological changes in blood and / or impaired collection reliability, and the associated potential risk to donor blood quality and TCS product specifications.
4. TCS blood products are specification controlled biological raw materials. The products must fall within a defined specification to enable them to meet the requirements for their intended use. Product quality depends on different parameters, depending on product type. Some examples include:
 - PCV / haematocrit range;
 - haemolysis / lysis;
 - absence of visible clotting or fibrin;
 - free flowing condition;
 - colour and appearance;
 - sterility;
 - shelf life;
 - controlled storage conditions;
 - batch consistency and customer acceptance.
5. For that reason, the issue is not limited to animal welfare, although animal welfare is a key requirement of our Home Office licence. It is also a product quality, supply chain and business continuity issue. A stress response that may be sub-clinical from a general animal health perspective may still be material if it affects blood physiology, immune resilience, collection reliability, batch consistency, or the proportion of material meeting product specifications.

Summary of conclusions from the literature

6. The literature supports the following points:
 - I. Stress is physiologically measurable in blood. Acute and chronic stress can alter endocrine, immune, inflammatory, haematological, vascular and haemostatic parameters.

- II. Stress can affect blood cell profiles, leukocyte distribution, inflammatory cytokines, coagulation, fibrinolysis, platelet activity, red cell indices, cortisol / corticosterone and biochemical markers.
- III. Stress related physiological change is also relevant to animal health and welfare because excessive, repeated or poorly controlled stress can alter immune and inflammatory pathways, reduce disease resilience and increase susceptibility to infection, even before obvious clinical illness is visible.
- IV. Environmental stressors, including noise and construction disturbance, have been shown in animal studies to alter stress hormones, coagulation and blood related physiology.
- V. Horse and sheep studies show that recognised stressors such as auditory stimuli, transport and shearing can alter heart rate, cortisol, cell counts, serum proteins, inflammatory markers, biochemical parameters and behaviour.
- VI. The literature does not establish a single universal noise or vibration threshold at which donor horses or sheep will be stressed. However, the literature does support the proposition that sudden, novel, impulsive, repeated, tonal or biologically salient disturbance can be physiologically relevant.

Citation counts and weight of literature

- 7. Citation counts are included where available from searches via Consensus or from reported citation data reviewed by TCS. They should be treated as approximate and database dependent. They indicate that the relevant propositions are supported by mature and widely recognised scientific literature.

General principle: stress is visible in blood

- 8. Stress activates the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis. These systems release catecholamines and glucocorticoids, including cortisol or corticosterone, which can alter immune and inflammatory responses, blood cell distribution, platelet activation, coagulation, fibrinolysis and vascular function.
- 9. A useful starting point is Marsland et al. (2017), a systematic review and meta-analysis of acute psychological stress and inflammatory markers. The Consensus search reports this paper as having approximately 598 citations. It supports the proposition that acute stress can increase circulating inflammatory markers, including IL-1 β , IL-6, IL-10 and TNF- α . The paper is important because it shows that stress can produce measurable blood based physiological changes, not merely behavioural effects.
- 10. Von Känel et al. (2001), approximately 440 citations, is also important. It links psychological stress to coagulation and fibrinolysis, including markers such as fibrinogen, von Willebrand factor and tissue plasminogen activator. Von Känel's later review on acute mental stress and haemostasis (94 citations), summarises evidence that acute stress can affect factor VIII activity, platelets, tissue plasminogen activator and D-dimer.

11. These papers are human focused, but they are useful because they establish the general physiological principle that stress can alter blood composition and function, including inflammatory and haemostatic pathways.

Relevance and limits of human blood literature for sheep and horse donor blood

12. Human stress literature is relevant to this issue as background because core mammalian blood and stress physiology is similar in important respects; including endocrine stress responses, inflammatory pathways, red cell oxygen transport, coagulation and fibrinolysis. The translational literature indicates that sheep blood is a useful comparator for human blood in specific respects. Studies of ovine haemostasis report similarities between sheep and humans in routine coagulation tests and thrombin generation, while also identifying important differences, including firmer clots and reduced fibrinolysis in sheep.
13. Studies of ovine haemostasis report similarities between sheep and humans in routine coagulation tests and thrombin generation, while also identifying important differences, including firmer clots and reduced fibrinolysis in sheep. Ovine transfusion and red cell studies also report overlap with human blood in some parameters, while noting differences such as smaller and more numerous sheep red blood cells and greater fragility in certain contexts.
14. Horse blood appears slightly more divergent from human blood in rheological behaviour, particularly because horse red blood cells show a much greater tendency to aggregate. Red cell aggregation is relevant to blood flow behaviour and product handling characteristics. Red cell aggregation is not the same mechanism as coagulation or clot formation, but when considered alongside the literature indicating that stress can affect haemostatic pathways, including coagulation, fibrinolysis and platelet activity, it reinforces the need for caution in assuming that generic human or residential noise assessment criteria can be applied to donor horses.
15. Accordingly, the human literature is used in this note only to support the general biological proposition that stress can alter blood physiology. It is then supplemented by animal, sheep and horse specific literature.

Animal evidence: stress changes blood physiology across species

16. Animal studies support the same general biological proposition. Stressors including heat, handling, transport, restraint, crowding, disease and environmental disturbance can alter cortisol / corticosterone, blood cell counts, leukocyte ratios, serum proteins, inflammatory markers, coagulation and biochemical indices.
17. Dhama et al. (2019), approximately 264 citations, is a broad review of biomarkers in stress related diseases and disorders. It identifies stress biomarkers including heat shock proteins, acute phase proteins, oxidative stress markers and endocrine / immune markers.
18. Nwaigwe et al. (2020), approximately 50 citations, evaluated haematological and clinical biochemical markers of physiological stress in broiler chickens. Although poultry are not directly comparable to horses or sheep, the study is useful as production animal evidence that blood and biochemical markers can be used to evaluate physiological stress. The study found

changes in heterophil, lymphocyte and eosinophil counts, heterophil / lymphocyte ratio, plasma fibrinogen, serum albumin, sodium and the sodium / potassium ratio.

19. Wider Consensus searches identified studies across humans, livestock, rodents and birds showing stress related changes in blood cells, coagulation, inflammation, oxidative status and hormonal markers. All 14 papers reviewed supported the proposition that stress affects blood physiology.

Environmental noise and disturbance as physiological stressors

20. One of the main areas of concern for TCS / PFL is the construction phase, although there are operational implications too. This includes noise, vibration, HGV movements, construction activity, possible impulsive noise, tonal noise, low frequency noise, visual disturbance and the wider cumulative disruption.

21. Environmental noise literature is therefore also relevant:

- Kight and Swaddle (2011), "How and why environmental noise impacts animals," is a useful general review. It supports the proposition that noise can affect animals through physiological as well as behavioural pathways. It is relevant to the basic proposition that noise is capable of being a biological stressor.
- Toukh et al. (2014) is particularly relevant because it concerned construction induced noise in rats. The study reports hypercoagulability and elevated plasma corticosteroids in rats exposed to construction noise. Although the study is not in horses or sheep, it is directly relevant to the proposition that construction type noise can produce measurable stress and blood / coagulation effects in animals.
- Münzel et al. (2017), concerning aircraft noise exposure in mice, is also relevant as an environmental noise animal model. The study identifies increased blood pressure, plasma noradrenaline and angiotensin II, vascular oxidative stress and inflammatory effects. Again, it supports the broader biological proposition that environmental noise can produce systemic physiological effects.
- Amjad et al. (2024), concerning chronic noise exposure in quail, is a further animal noise study. It describes noise exposure as affecting serology, haematology and hormonal physiology, including corticosterone related effects. It supports the wider proposition that noise exposure can affect blood related and endocrine physiology.

22. The significance of these studies is that environmental noise and disturbance can produce measurable physiological effects, including blood related effects, in animal models. That is sufficient to require proper assessment where the affected animals are donor horses and sheep used in a controlled biomedical production system.

Horse specific evidence

23. Hole et al. provides useful horse specific evidence on auditory response. The study investigated behavioural and heart rate responses of horses to auditory stimuli commonly encountered in stable or competition environments. It found that peak heart rate was

significantly greater than resting heart rate for every sound tested, and that behavioural responses differed by sound type. Trotting sounds produced the largest peak heart rate response and were associated with behaviours including evasive movement and raised tail. This supports the proposition that horses can respond physiologically and behaviourally to auditory stimuli, and that the character of the sound, not simply its average level, is relevant.

24. Arfuso et al. (2023) studied acute stress response in horses following road transport. The study measured white blood cell count, serum cortisol, C-reactive protein, albumin and globulin fractions. WBC, cortisol, CRP and several globulin fractions increased after transport, while albumin and the albumin / globulin ratio decreased. This is relevant because it shows that a recognised equine stressor can be associated with measurable endocrine, inflammatory and blood related changes.
25. The relevance to TCS is that donor horses do not need to become clinically ill for physiological change to matter. A sub-clinical stress response may still be material if it affects behaviour, handling, collection reliability, inflammatory markers, blood cell distribution, PCV / haematocrit consistency, haemolysis / lysis risk, clotting / fibrin risk, immune resilience or other product quality attributes.
26. The horse evidence should be linked with the acoustic evidence. The key question is whether the donor horses may be exposed to sudden, novel, impulsive, repeated or tonal noise / vibration, and whether the NVS considers those exposures capable of causing stress.

Sheep specific evidence

27. Arfuso et al. (2022), concerning the acute stress response of sheep to shearing, is directly relevant. The study evaluated haematological parameters, serum cortisol concentration and serum protein electrophoretic patterns in sheep exposed to shearing stress. Although the measured haematological parameters did not significantly change, serum cortisol increased and serum protein fractions changed, including reduced albumin and increased α - and β 2-globulins. It supports the proposition that a recognised management stressor in sheep can produce measurable endocrine and blood protein changes consistent with an acute phase response.
28. Pascual-Alonso et al., concerning sheep road transport stress responses is also relevant. The paper is a sheep study involving thermophysiological, haematological, biochemical and behavioural stress responses. Reported changes included increased cortisol, glucose, non-esterified fatty acids and neutrophil / lymphocyte ratio immediately after unloading, with recovery over the following hours. This provides further sheep specific support for the proposition that stress in sheep can be measurable in blood and physiology.
29. Carnovale et al. (2021) provides further sheep specific evidence that cumulative transport related stressors can affect welfare and measurable physiological parameters. The paper identifies vibration, noise, journey duration, vehicle design, loading and unloading, novelty, hunger, temperature and ventilation as relevant welfare factors. This does not establish noise as the sole cause but it supports the point that sheep can show measurable endocrine and biochemical responses to cumulative environmental and management stressors.

30. We have already identified sheep shearing as a practical example of stress affecting production and wastage. The literature supports this concept.

Animal health, immune function and disease susceptibility

31. Excessive, repeated or poorly controlled stress may also affect donor animal health and welfare by altering immune and inflammatory function.
32. Stress activates the hypothalamic-pituitary-adrenal axis and sympathetic nervous system. Those pathways can alter cortisol / corticosterone, leukocyte distribution, inflammatory signalling, acute-phase proteins and oxidative stress markers. Such changes can reduce physiological resilience and immune competence, increasing susceptibility to infectious, inflammatory or metabolic disease, even where the animal does not immediately appear clinically ill.
33. This is relevant because our system depends on stable animal health, predictable physiological baselines, effective biosecurity and reliable collection conditions. A sub-clinical stress response may therefore still be material if it affects immune status, disease susceptibility, veterinary management requirements, collection reliability, or the consistency and acceptability of donor blood products.
34. The point is that stress related immune and inflammatory effects are a recognised biological pathway and should have been considered as part of a receptor-specific assessment of donor horses and sheep.

Coagulation, fibrinolysis, red-cell fragility and lysis

35. Some of the literature concerns coagulation, fibrinolysis, red cell fragility and haemolysis. This is relevant because TCS specifications and complaints include issues such as clotting / fibrin, haemolysis / lysis, colour / appearance and product acceptability.
36. Coagulation and haemolysis are separate mechanisms. Coagulation involves platelets, fibrinogen, thrombin and fibrin formation. Haemolysis concerns the stability of red blood cells and their tendency to rupture or lyse. Both are relevant to TCS product quality.
37. The literature indicates that stress can affect haemostatic pathways, including coagulation, fibrinolysis and platelet activity, and that red cells may become more vulnerable under mechanical, osmotic, oxidative, metabolic, temperature or environmental stress. This supports the pathway by which stress related physiological change could affect blood consistency, collection reliability or product quality. That pathway should have been assessed specifically for donor horses and sheep.

Relevance to Rosefield and the Applicant's assessment

38. The relevance of this literature is heightened by the Applicant's failure to assess donor horses and sheep as receptors in the ES.
39. The literature does not remove the need for project specific acoustic and veterinary evidence. The correct sequence should have been:

- identify the donor horses and sheep as sensitive receptors;
- assess likely construction and operational noise / vibration exposure at donor animal receptor locations;
- consider relevant acoustic characteristics, including LAeq, LMax, impulsivity, tonality, low-frequency content, vibration, duration, intermittency, novelty and startle potential;
- obtain suitable veterinary input on whether those exposures could cause stress responses in the donor horses and sheep;
- assess the implications for donor blood quality, donor animal health, collection reliability and product specifications;
- secure mitigation that avoids or controls the risk before harm occurs.

40. The Applicant has not completed that pathway. A literature / mitigation note is not a valid substitute for a receptor-specific impact assessment. Nor is future liaison or adaptive management sufficient unless it is clearly defined, mandatory, secured and enforceable.

41. The literature reviewed by TCS / PFL supports our concerns and knowledge that:

- stress can measurably alter blood physiology in humans and animals;
- environmental noise and construction-type disturbance can act as physiological stressors in animals;
- horses and sheep can show measurable behavioural, blood, endocrine and inflammatory changes in response to stressors;
- TCS donor animals are a high-sensitivity receptor because they form part of a controlled biological production system;
- the Applicant should therefore have assessed the specific receptor pathway.

42. In the absence of such an assessment, the Secretary of State cannot confidently conclude that the full range of likely significant effects has been identified or that outline mitigation would be effective.

Relevant articles

Article	Relevance
Marsland et al. (2017), acute psychological stress and inflammatory markers: systematic review/meta-analysis	General high-quality evidence that stress changes inflammatory blood markers.
von Känel et al. (2001), psychological stress, coagulation and fibrinolysis	Evidence that stress affects coagulation and fibrinolysis pathways.
von Känel (2015), acute mental stress and haemostasis	Further support for stress-related effects on platelets, D-dimer, t-PA and coagulation.
Dhama et al. (2019), biomarkers in stress-related diseases/disorders	Broad review of recognised stress biomarkers, including acute-phase and oxidative-stress markers.
Kight and Swaddle (2011), environmental noise impacts animals	General animal-noise review showing physiological pathways, not merely behavioural response.

Toukh et al., construction noise and coagulation/corticosteroid effects in rats	Particularly relevant construction-noise animal study.
Münzel et al. (2017), aircraft noise, vascular function and oxidative stress in mice	Environmental-noise animal model showing systemic physiological effects.
Amjad et al. (2024), chronic noise effects in quail	Animal evidence that chronic noise can affect haematology, serology and hormonal physiology.
Hole et al., equine behavioural and physiological responses to auditory stimuli	Horse-specific evidence that auditory stimuli can affect heart rate and behaviour, and that sound character matters.
Arfuso et al. (2023), acute stress response in horses after road transport	Horse-specific evidence of stress-related blood/endocrine/inflammatory changes.
Arfuso et al. (2022), acute stress response of sheep to shearing	Sheep-specific evidence of stress-related cortisol and serum protein changes.
Pascual-Alonso et al., sheep road transport stress responses	Sheep-specific evidence of haematological, biochemical and behavioural stress responses.
Carnovale et al. (2021), sheep transport in low temperatures	Sheep-specific evidence that cumulative environmental / transport stressors affect cortisol and biochemical blood markers.
Nwaigwe et al. (2020), haematological and biochemical stress markers in broilers	Production-animal support for blood/biochemistry as stress markers.
Foley et al. (2014), ovine haemostasis	Supports sheep/human coagulation comparison while acknowledging important species differences.
Siller-Matula et al., interspecies differences in coagulation profile	Supports parameter-specific similarity between sheep and humans in clotting time and endogenous thrombin potential.

Conclusion

43. The literature supports the concept that we have highlighted all along: maintaining a stable, low disturbance and stress-free environment is integral to donor animal welfare and to the reliability and consistency of blood products used in healthcare diagnostics. This concept is one that is also recognised by other manufacturers, as previously highlighted.
44. We do not claim that every specific Rosefield activity will necessarily render blood unusable. However, the literature supports our concerns that stress and environmental disturbance can produce measurable blood, immune and physiological effects in humans and animals, including species-relevant effects in horses and sheep.
45. PFL/TCS therefore cannot understand how the Applicant has moved to a conclusion of no significant effect without first assessing the donor horses and sheep, and the associated blood quality pathway, as sensitive receptors within a specialist biological production system.



22nd June 2026

To Whom It May Concern:

Re: Potential impact of noise, vibration and environmental disturbances on grazing animals at Preston Farms, Botolph Claydon

I am the Home Office Named Veterinary Surgeon (NVS) for the horses and sheep at Preston Farms, under the Animal (Scientific Procedures) Act 1986 (ASPA). As NVS, I am responsible under ASPA for monitoring and providing advice on the health, welfare and treatment of these animals. As such, the potential significant impact of the construction and operational noise and vibration from the proposed Rosefield Solar farm falls within my remit as part of my statutory responsibility to safeguard the welfare of the animals at this establishment.

I have reviewed the notes prepared by Sharps Acoustics and have spoken with Clive Bentley to ascertain the likely practical noise and vibration issues associated with this development. I have also studied the Applicant's 'Annex A, Noise and Vibration Technical Note', as this relates to potential effects of the proposed development on the horses and sheep.

In addition to this, I have read TCS's supporting notes on stress, environmental disturbance and blood physiology and am in agreement with its conclusions. Stress not only affects the behaviour of both sheep and horses but also produces a number of biochemical changes and physiological responses as a result of the increased release of 'stress hormones' such as cortisol and adrenaline.

As the overt impact of stress on horses is generally greater than of sheep, and has therefore been more extensively studied, I shall focus mostly on this species. It is important to note this by no means belittles the impact of stress on sheep; their stress response may be less dramatic to observe but it remains highly relevant to their welfare and physiological stability.

Both horses and sheep are prey species and as such, have evolved to rapidly respond to potential danger, which may include loud noise or sudden vibrations, perceiving them to be a predator and a threat. Accepted livestock-specific criteria for noise and vibration tolerance are limited. However, domestic horses exhibit the same response to perceived danger as feral horses, who rely on flight as their primary defence mechanism; flee first, check later.

A horse's range of hearing is greater than a human to higher frequencies (over 33 kHz vs. under 20 kHz), although horses may not be able to hear the lowest frequencies audible to humans. Hearing ability is very important to survival of a horse. Horses can detect noises at a lower volume and greater distance than a human. If a human may be disturbed by a noise, then so may a horse, though a horse may be concerned and distressed about sounds which humans recognise and dismiss immediately as posing no threat.

The horses at Preston Farms are handled only once every two weeks, when they are brought in from their grazing fields. They are therefore not generally as calm and tractable as a riding horse, handled by humans several times a day. Their response to perceived potential danger is also more extreme than might be usually expected for a riding horse of similar type as they are not exposed to loud noises on a regular basis. Therefore, comparison with even the average riding horses when considering their likely response to noise stimuli is not appropriate.



Horses may exhibit extreme anxiety in the form of sweating, trembling and escape attempt when exposed to noisy stimuli, the latter of which can result in severe accidents and potentially fatal injuries (for instance fractured bones following collision with a solid object when fleeing in extreme fear). Desensitisation of horses likely to be exposed to loud noises on a day-to-day basis, for instance Police or Military horses, is a process known to take many months or even years and some horses are never accepting of noise. As such, noise anxiety is accepted as widespread behavioural problem, a having a significant negative impact on horse welfare.

To illustrate this, riding horse owners are advised to leave a loud radio on in a horse's stable if there are nearby firework displays to try to mask the loud bangs associated with fireworks to reduce the likelihood of horses panicking and injuring themselves, even in the confines of a stable. Horses are often ridden in ear coverings or have ear plugs fitted when ridden on the road or in noisy environments to muffle noises as quiet as general traffic passing on the road at 10mph (as stated in the Highway Code).

Horses experience noise anxiety to differing degrees; some are very anxious and some only slightly. Those very anxious animals react more often and exhibit more extreme behaviour in response to a stimulus and will act in response to a lower threshold of stimulus. The breeds of horses at Preston Farms are extremely diverse, ranging from draft horses, who are considered to be docile and stoic to Thoroughbreds, widely accepted to be highly reactive and sensitive, showing extreme behaviour with little provocation. These more sensitive individuals are less likely to become habituated to noise and may continue to experience increasing levels of distress when exposed to it. When considering the potential for effect on a mixed population, the reaction of the most sensitive individuals, likely to exhibit most pronounced behaviour with the least level of stimuli and lowest chance of habituation must be used as the baseline.

The likely behavioural response to a noxious noise stimulus by a group of horses of differing levels of noise anxiety is compounded by the fact that horses are herd animals and therefore the effect of noxious noise stimuli on both individual and herd behaviour must be considered. When an individual within a herd indicates alarm, this rapidly spreads to other individuals and sub-groups within the herd, resulting in them coalescing into a stampeding herd; a self-organised mass movement of individuals away from a perceived source of danger. Whilst more flighty individuals may continue to flee longer and for further, the presence of other, less reactive individuals within the stampeding herd only perpetuates this behaviour rather than acting to calm the situation; these more placid individuals tend to drop to the back of the galloping herd and are therefore not in the range of vision of more frightened individuals towards the front.

The potential for noise anxiety is of particular concern during the construction phase when loud noises are to be expected from numerous sources. Annex A refers to construction activities and controls including piling/ driven posts, noise-producing plant, construction traffic and deliveries, the dropping or depositing on materials, vehicle movements over irregular surfaces, reverse warning sirens, worker's raised voices and intermittent machinery starting. In my opinion these activities are capable of causing alarm, stress and flight responses in the Preston Farms horses, especially given the nature of the animals and the particular, calm, consistent way in which they are managed.

Whilst it is likely that many of the horses will become habituated to an increased level of background noise over time, for instance the general background noise once the solar farm is operational, any sudden loud noises above this will still elicit a flight response both on an individual and herd basis. Equally, some individuals will never become desensitised. It is also possible that a continuous level of background noise may make some horses unpredictable and difficult to handle as it masks other sounds that can be a threat and therefore they are permanently anxious and on high alert.



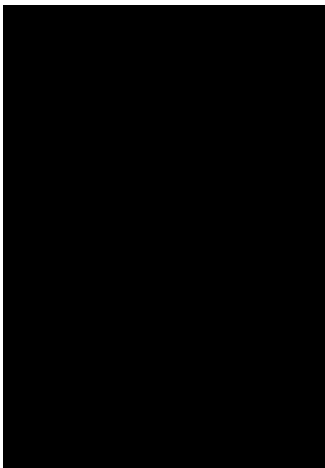
Horses are able to detect ground vibrations through their feet and teeth. As grazing animals they spend a large proportion of their time with their mouths and teeth on or in extremely close proximity to the ground, heightening the likelihood of them detecting such vibrations. In a similar way to noise, noxious stimuli from ground vibrations can elicit a flight response, which may be extreme in terms of the level of response from both the individual and subsequently the entire herd.

In addition, horses show the same flight response to visual stimuli, especially when in their peripheral vision. Rapidly moving machinery, flapping plastic sheeting, alien objects (pipes, heaps of earth and rubble, digger buckets, unfamiliar figures, such as workers in high-visibility clothing etc) can all lead to horses fleeing in fear.

Whilst the horse will be particularly susceptible to construction and operational noise and vibration all the above points are still applicable to sheep. The response of sheep to stress caused by noxious stimuli is generally less pronounced than that of horses, but the level of stress experienced by sheep, and its effect on them mentally, physically and physiologically is no less than that of horses. In addition to the effect of stress on sheep as individuals, it is worth remembering that sheep are also flock animals and will respond collectively to perceived danger in the same way horses do, with the same potential for serious accidents and catastrophic injury.

In conclusion, there is likely to be a serious, negative impact on the welfare of both horses and sheep at Preston Farms during the construction process of the proposed Rosefield Solar Farm. The impact once operational is likely to be less, but not zero. Noise, vibration and unexpected visual triggers are likely to be major causes of stress for these individuals

SIGNED:



etMB, MRCVS

██████████ (Hons) CIEH MEnvSc MIOA CEnv CSci
Acoustic Consultant and Partner

Sharps Acoustics LLP
197 Sidegate Lane, Ipswich Suffolk IP4 4JN
T ██████████
E info@sharpsacoustics.com W sharpsacoustics.com

22nd June 2026

1.0 Introduction

- 1.1 Sharps Acoustics LLP (SAL) has been commissioned by TCS Biosciences and Preston Farms to consider the impact of construction and operational noise and vibration from the proposed Rosefield Solar Farm on horses in fields, paddocks and stables in the vicinity of the development.
- 1.2 SAL produced a report dated 9th March 2026 which discussed relevant policy requirements, the importance of considering donor horses and sheep for noise and vibration; good practice for an approach to noise and vibration mitigation and provided our opinion on the extent to which this had been properly dealt with in the submitted noise and vibration chapter of the submitted ES for this development.
- 1.3 We concluded that, in our opinion:
- The submitted noise and vibration assessment fails to identify or address equine receptors, despite the recognised sensitivity of horses to unfamiliar noise and vibration and the specific welfare implications for the Preston Farms / TCS Biosciences herd. The Environmental Statement contains no acknowledgement of horses, no engagement with the owners, and no receptor-specific analysis, representing a substantive omission in the assessment's scope.
 - Methodological concerns also limit the reliability of the assessment in SAL view. Source noise levels appear lower than typical for a development of this scale, tonal and low-frequency components have not been properly evaluated, and the approach relies on what appear to be incomplete assumptions. Construction impacts have similarly been inadequately addressed: the adopted thresholds do not allow assessment of effects on horses, sudden noise events have not been evaluated using appropriate metrics, and potential vibration impacts from piling have been excluded without justification.
 - Given these omissions and uncertainties, the assessment does not provide a robust basis for determining the noise and vibration effects on equine receptors. A more rigorous, receptor-specific methodology supported by engagement with Preston Farms / TCS Biosciences and the application of appropriate mitigation measures, is required to meet policy expectations and ensure that adverse impacts on horse welfare are properly avoided or minimised.
- 1.4 Since that time, the applicant has provided a document, "Applicant's Response to Written Representations". This note provides a review of the responses to points made in relation to noise and vibration taking into account additional material that has been presented.

2.0 Whether the Applicant's Additional Material Materially Alters the Conclusions of SAL's March 2026 Report

- 2.1 The Applicant's additional submissions has now expressly recognised donor horses and sheep as receptors and provided a literature review / mitigation note.
- 2.2 Annex A and the associated responses provide a useful review of available literature and guidance and demonstrate that the Applicant has now considered issues that were not addressed within the original Environmental Statement. However, in SAL's opinion, the additional information does not materially alter the principal conclusions of our report dated 9th March 2026. Whilst livestock receptors are now recognised and additional consideration has been given to potential impacts, material uncertainty remains regarding the potential effects of noise and vibration upon the Preston Farms / TCS Biosciences donor herd since no assessment of noise and vibration impacts has been made.
- 2.3 In our March 2026 note we explained that the hearing range of horses is not the same as humans and that the way in which horses respond to sound differs from the way that humans respond to sound and varies significantly depending on the animal's nature and training. We pointed out that the adopted thresholds for significance (for example, 65dB, $L_{Aeq,T}$ for construction noise and 1mm/s PPV for construction vibration) do not enable an assessment of the impact of construction noise and vibration on equine receptors to be made for two reasons, which are:
- that they are "A weighted"; and
 - they cannot be used to assess the impact of short lived, impulsive or sudden noises.
- 2.4 The "A weighting" adjusts the measured sounds to allow for the way in which humans perceive sound at different frequencies. Humans can hear very well, for example at 1-3kHz, but cannot hear sound at very low or very high frequencies unless it is much louder in level. Horses (and other animals) do not respond in the same way, so an A weighted metric would not provide an indication of the sound that they are hearing. When assessing noise impacts on different species, the hearing response of the animal concerned must be considered.
- 2.5 Sudden noises are most likely to have a significant impact on horses as these are more likely to lead to a startle response since these are generally unexpected / unanticipated and are often short in duration and impulsive in nature. In SAL view, a metric which considers the short term "spikes" of noise which can occur (such as the L_{max} metric) is necessary in addition to the L_{eq} metric when considering noise impact from sound sources of this nature (as will occur during construction, in particular).
- 2.6 The Applicant has not proposed metrics which, in SAL's opinion, are capable of assessing the characteristics of noise and vibration most likely to be relevant to equine receptors
- 2.7 The Applicant has proposed an approach to the control of noise and vibration based upon consultation, monitoring and adaptive mitigation. However, no assessment methodology has been proposed and no assessment of impacts has been provided.

- 2.8 Consequently, although the additional information addresses a number of the concerns identified within SAL's report dated 9th March 2026, it does not materially alter our principal conclusion that the Applicant has not demonstrated that significant adverse effects from noise and vibration upon the Preston Farms / TCS Biosciences donor herd would be avoided.

3.0 Whether Annex A Constitutes a Receptor-Specific Assessment

- 3.1 Annex A is described as a Noise and Vibration Technical Study. In SAL's opinion, Annex A is best characterised as a technical review and mitigation document rather than a receptor-specific noise impact assessment as part of an environmental impact assessment. It provides a review of available literature, discusses relevant guidance, identifies potential sources of noise and vibration and proposes a range of consultation, monitoring and mitigation measures. These are useful additions to the application documentation. However, it does not undertake the type of receptor-specific assessment normally associated with an Environmental Impact Assessment.
- 3.2 The receptors have been addressed and a literature review carried out. However, there is limited consideration of receptor sensitivity and no description of the magnitude or significance of effects / residual effects.
- 3.3 SAL recognises that accepted livestock-specific noise and vibration criteria are limited and that there is currently no widely adopted methodology equivalent to that available for human receptor. However, in SAL view, the absence of a standard livestock noise criterion is not a reason not to assess noise and vibration effects. Whilst there are no meaningful assessment criteria currently available, it is possible to carry out research to consider suitable levels (and this is done, for example, where European Protected Species must be considered for an assessment under Habitat Regulations). SAL have been involved with schemes where ecological receptors have been assessed without any acknowledged assessment criteria being available and have participated in the necessary research work to enable cautious thresholds of effect to be proposed and to design and agree (with the enforcing body) avoidance measures or, if necessary, a cautious, effective and practical mitigation strategy that can be secured in advance of development.
- 3.4 The receptors in this case are novel; this does not mean that they ought not to be assessed. It is credibly argued by TCS Biosciences and Preston Farms that the sensitivity of the herd in this case is high; I note the contents of the letter of the Home Office Named Veterinary Surgeon (NVS) dated 22nd June 2022 in relation to this, which endorses this point. In such a circumstance, a bespoke approach would be justified in SAL view. Such an approach might include consultation with veterinary specialists; identification of relevant noise and vibration levels; development of reasonably cautious trigger levels; and agreement on appropriate monitoring and intervention procedures.

4.0 Assessment of Donor Horses and Sheep as Sensitive Receptors

- 4.1 Whilst SAL accepts that accepted livestock-specific noise and vibration criteria are limited, this does not remove the need for a receptor-specific assessment. Rather, it increases the importance of adopting a transparent and proportionate assessment methodology tailored to the particular circumstances of the receptor concerned, in our view.
- 4.2 The Preston Farms / TCS Biosciences horses and sheep within donor herd are not conventional livestock receptors. The animals are maintained for a specialist biological purpose and concerns have been raised regarding the potential effects of noise and vibration upon donor animals and associated operations. The issue under consideration is therefore not limited to the welfare of individual animals but extends to the functioning of a specialist biological operation which relies upon those animals. In SAL's opinion, these unusual circumstances would normally be expected to prompt consideration of a bespoke assessment approach rather than omission of assessment altogether. Annex A provides a useful review of available literature and proposes a range of mitigation and management measures. However, it does not ultimately reach a conclusion regarding receptor sensitivity, likely impact or residual effect.
- 4.3 For an Environmental Statement, the noise and vibration assessment process should ordinarily be, as follows:
- Derive definitions for receptor sensitivity
 - Derive thresholds for different sources of noise and vibration as applicable to determine the magnitudes of impact from each
 - Consider the magnitude of impact against receptor sensitivity for each receptor group to classify the effects of noise and vibration arising from the development for each receptor using a matrix such as that shown below.

	Sensitivity of receptor			
	Very Low	Low	Medium	High
Magnitude of impact	Very low	Negligible	Negligible	Negligible
	Low	Negligible	Minor	Minor
	Medium	Minor	Minor	Moderate
	High	Minor	Moderate	Major

- 4.4 Effects which are classified as "moderate" or "major" are generally considered to be "significant effects" for Environmental Impact Assessment purposes.
- 4.5 In this Applicant's submissions, although the Preston Farms / TCS Biosciences donor herd is now recognised as a receptor, the remainder of the required Environmental Assessment process has not been carried out.

- 4.6 The Applicant has not assessed noise and vibration exposure at the donor horses and sheep in a way that would allow the, for example, the NVS to assess the stress pathway.
- 4.7 Consequently, although donor horses and sheep are now recognised as receptors, they have not been assessed in a manner comparable to other receptors considered elsewhere within the Environmental Statement. This is also relevant to the assessment of TCS Biosciences and Preston Farms, given the reliance of those operations on donor livestock.

5.0 Relevant Noise and Vibration Exposures and Characteristics

- 5.1 Whilst no accepted livestock-specific criteria currently exist for many of the characteristics discussed below, it remains possible to identify acoustic and vibration attributes which are commonly recognised as having the potential to influence behavioural or physiological responses in animals. These are set out in the table below.

Characteristic	Potential Relevance
L _{Aeq}	Useful indicator of average exposure over time
L _{Amax}	Relevant to sudden noise events and potential startle responses
Impulsivity	Potentially relevant to piling, post driving and impact activities
Tonality	Relevant to operational plant including inverters and transformers
Low-frequency content	May be relevant where transformer or inverter noise contains pronounced low-frequency components
Duration	Longer duration exposures may increase the likelihood of behavioural or physiological responses
Intermittency	Repeated start-stop events may be more noticeable than continuous sound
Novelty	Unfamiliar sounds may provoke greater responses than familiar sounds
Startle potential	Potentially significant in relation to sudden or unexpected noise events
Ground-borne vibration	Potentially relevant during piling and certain construction activities

- 5.2 The characteristics identified are not presented as assessment criteria. Whilst individual characteristics alone may not necessarily give rise to adverse effects, they represent factors which may reasonably merit consideration when designing monitoring, mitigation and management measures for livestock receptors.
- 5.3 The Applicant's review focuses primarily upon average noise exposure and general behavioural response. Whilst these are relevant considerations, SAL considers that a wider range of acoustic and vibration characteristics may be relevant when considering the potential response of livestock receptors.

- 5.4 In particular, the response of donor horses and sheep may not necessarily be determined solely by average sound levels. Characteristics such as suddenness, unpredictability, tonal content and vibration may also influence behavioural and physiological responses. This is reflected within the literature reviewed by the Applicant, which identifies behavioural reactions, startle responses and physiological indicators of stress as potentially relevant considerations.
- 5.5 Consequently, when considering the potential effects of construction and operational activities upon donor livestock, SAL considers it appropriate to identify those characteristics that may be relevant to animal response, irrespective of whether accepted livestock-specific assessment criteria currently exist.
- 5.6 In SAL's opinion, consideration of these characteristics reinforces the need for a receptor-specific approach. Whilst accepted livestock criteria may not exist, it remains possible to identify the types of noise and vibration exposure most likely to be relevant and to incorporate these considerations into monitoring and mitigation strategies.
- 5.7 The impact of noise on horses has been acknowledged for the Morgan and Morecambe offshore wind farms development (another NSIP) in a document provided by the developer in response to the Examining Authority's Second Round of Questions in that case. This was discussed in our March 2026 note.
- 5.8 SAL notes the Applicant's response regarding low-frequency noise. The Applicant rejects the use of NANR45 as a means of considering potential low-frequency effects and instead relies upon the BS4142 assessment.
- 5.9 SAL does not agree that this issue has been fully resolved. Whilst the limitations of NANR45 are recognised, BS4142 itself expressly states that it is not applicable to the assessment of low-frequency noise and directs the reader towards NANR45 for further information. Rejection of NANR45 does not remove the need to consider whether low-frequency effects may be relevant.
- 5.10 The Applicant has stated that measurements of comparable equipment indicate that low-frequency tonal components are not present. If such information exists, SAL considers that provision of the underlying measurement data would assist in demonstrating the basis for this conclusion and would provide greater confidence that low-frequency effects can reasonably be discounted.

6.0 The TCS Biosciences Donor-Animal Pathway

- 6.1 SAL notes concerns raised by TCS Biosciences regarding the potential pathway between noise and vibration exposure, physiological stress responses in donor animals, donor blood quality and impacts upon TCS operations. SAL does not possess specialist expertise in veterinary medicine, animal physiology or biological product manufacture and therefore expresses no opinion regarding the likelihood or magnitude of any such effects. However, SAL notes that this pathway does not appear to have been specifically assessed within the Applicant's submissions.

- 6.2 Consequently, whilst SAL expresses no opinion regarding the significance of such effects, it remains unclear whether the possibility of such effects has been evaluated by any suitably qualified specialist.

7.0 Remaining Uncertainty and the Adaptive Mitigation Framework

- 7.1 The Applicant's response relies heavily upon a process of consultation, monitoring and adaptive mitigation. In principle such an approach appears merited. Indeed, where accepted livestock-specific criteria are unavailable, monitoring and adaptive management may represent the most practical means of addressing uncertainty. However, where this is managed through adaptive mitigation, the adaptive mitigation framework itself must be clearly defined and secured in our opinion; this is an important weakness, in SAL opinion.
- 7.2 It is not clear how such adaptive mitigation could be secured with certainty, given the nature of what the animals affected may do. In SAL view, where avoidance of significant adverse effects relies on monitoring and adaption / modification / removal of processes (such site transport, or piling) and those processes are already in place, any changes found to be required may be extremely difficult to achieve in practice (or may not even be possible).
- 7.3 The Applicant has identified a number of circumstances in which corrective measures may be introduced if monitoring identifies unexpected effects. However, comparatively little detail is provided regarding trigger levels, intervention criteria, decision-making responsibilities, implementation timescales or enforcement mechanisms. This issue arises in relation to both construction vibration and operational noise.
- 7.4 In relation to piling vibration, the Applicant indicates that alternative methodologies may be adopted if adverse effects upon livestock are identified. However, it remains unclear what criteria would trigger such intervention, who would determine whether intervention is required and how any resulting change in methodology would be secured through the construction management process.
- 7.5 SAL has reviewed the Outline CEMP and has not been able to identify a clearly defined mechanism by which vibration monitoring results would trigger mandatory intervention. Consequently, there appears to be a disconnect between the assurance provided within the Applicant's response and the provisions currently contained within the Outline CEMP.
- 7.6 The vibration assessment relies upon descriptors and assessment approaches developed primarily for human receptors. The Applicant concludes that vibration levels at livestock receptors would be below the threshold which is noticeable for humans (1mm/s PPV) and therefore unlikely to give rise to adverse effects in the donor horses and sheep. It is not clear to what extent vibration criteria derived from human perception and annoyance studies can be directly applied to livestock receptors, particularly in circumstances where the Applicant acknowledges that accepted livestock-specific vibration criteria do not exist. We also note the observation in the NSV's letter of 22nd June 2026 that grazing livestock may spend prolonged periods with their mouths and heads close to, or in contact with, the ground surface.

- 7.7 Consequently, whilst the predicted vibration levels may be low in absolute terms, a degree of uncertainty remains regarding the relationship between the predicted vibration environment and potential livestock response. This inability to predict and verify likely outcomes at this stage further reinforces the importance of the monitoring and adaptive mitigation framework proposed by the Applicant.
- 7.8 Similar concerns arise in relation to operational noise. The Applicant states that tonal characteristics associated with operational plant are expected to be limited and that corrective measures would be implemented if higher levels of tonality were identified. Whilst SAL accepts that post-installation monitoring may be appropriate, operational plant differs fundamentally from construction activities. By the time operational monitoring is undertaken, inverters, transformers and associated equipment will already have been procured, installed and commissioned. Consequently, the scope for corrective action may be substantially more limited than during the construction phase.
- 7.9 The Applicant has not explained what corrective measures would be available if tonal characteristics were found to be materially greater than anticipated, how quickly such measures could be implemented or whether they would be capable of achieving the assumed reduction in tonal audibility.
- 7.10 In SAL's opinion, the proposed mitigation therefore relies upon a future corrective process whose effectiveness has not been demonstrated. In our opinion, such an approach would only be appropriate if clearly defined and secured by an enforceable condition.

8.0 Monitoring and Control Measures

- 8.1 Should the Applicant continue to rely upon consultation, monitoring and adaptive mitigation as the primary means of noise and vibration control, SAL considers that the following matters would need to be clearly defined and secured:
- Monitoring locations
 - Monitoring methodologies
 - Trigger levels
 - Reporting procedures
 - Decision-making responsibilities
 - Intervention criteria
 - Timescales for implementation
 - Stop/pause procedures
 - Acoustic screening measures

- Construction methodology review procedures
- Post-installation verification procedures
- Mechanisms for demonstrating compliance

8.2 Whilst, in theory, this sort of approach could be appropriate, if construction work or operations had already begun when the anticipated monitoring was undertaken, intractable problems with implementing effective mitigation measures are quite possible – it may be too late to change a particular approach or to switch to different plant or modify a design. It is therefore necessary, in our view, to conduct testing to establish the effects of noise and vibration from construction activities and operation sources in advance of those activities starting in earnest to derive site and receptor specific levels required in this case.

8.3 In SAL's opinion, the effectiveness of the proposed mitigation strategy depends less upon the existence of monitoring and more upon the certainty that appropriate action can and will be taken if / when monitoring identifies an issue. In our opinion these matters would need to be secured through a suitably worded planning condition, CEMP requirement, clearly defined livestock monitoring protocol or equivalent enforceable mechanism if this is possible.

9.0 Conclusions

9.1 Annex A represents a useful addition to the application documentation and demonstrates that livestock receptors have now been considered. However, Annex A is best characterised as a technical review and mitigation document rather than a receptor-specific impact assessment.

9.2 Whilst accepted livestock-specific criteria are limited, SAL considers that the unusual nature of the Preston Farms / TCS Biosciences donor herd would normally be expected to prompt consideration of a bespoke receptor-specific approach. No assessment has yet been made of the effects of noise and vibration on the donor herd.

9.3 The Applicant has adopted a strategy based upon consultation, monitoring and adaptive mitigation. The adaptive mitigation framework proposed remains insufficiently defined and the mechanism by which intervention would be triggered, implemented and secured remains unclear. There is also the risk that, if a particular activity or construction process is already started, it may not be possible to alter this to adequately mitigate any impact.

9.4 Consequently, whilst the Applicant's additional submissions improve the consideration given to livestock receptors, they do not demonstrate that significant adverse effects on the Preston Farms / TCS Biosciences donor herd would be avoided. Material uncertainty remains and the proposed adaptive mitigation framework has not been sufficiently defined or secured.