

Case Management Team  
National Infrastructure Planning  
Temple Quay House  
2 The Square  
Bristol,  
BS1 6PN

By email only

[FrodshamSolarFarm@planninginspectorate.gov.uk](mailto:FrodshamSolarFarm@planninginspectorate.gov.uk)

Dear Team,

## **Planning Act 2008 and The Infrastructure Planning (Examination Procedure) Rules 2010**

### **Application by Frodsham Solar Ltd (the applicant) for an order granting development consent for Frodsham Solar (EN010153)**

Further to the 'Rule 8 letter' dated 16 December 2025 (**PD-008**), I am writing on behalf of Cheshire West and Chester Council as the host local authority with the responses for Deadline 2.

The Council's submissions for Deadline 2 comprise this letter and the following:

- 1) The Council's response to the Examining Authority's written questions and requests for information (ExQ1) issued on 18 December 2025 and the accompanying appendices.

The Council has the following additional comments to make:

- The Council has provided comments back to the Applicant on the Schedule 25 Protective Provisions for the Protection of Drainage Authorities, and further comments on Schedule 26 Protective Provisions for the Protection of Highway Authorities will be provided to the Applicant for Deadline 3.
- The Council and the Applicant are continuing to progress a PPA for the discharge of requirements and have provided the Applicant with a draft. The Council will provide an update once the Applicant has provided comments on that draft.
- The Council expected to provide comments back to the Applicant on the first draft of the statement of common ground (SOCG) between the Applicant and the Council in time for the Deadline 2 submission, but has not been able to do so as yet. The Council is in dialogue with

## **Development Management**

Planning Service  
Cheshire West and Chester Council  
The Portal  
Wellington Road  
Ellesmere Port  
CH65 0BA

Tel: [REDACTED]

Our ref: 25/01959/IP

Your ref: EN010153 (Reference **FROD-065**)

Please ask for: Paul Friston

Email: [REDACTED]

Web: [cheshirewestandchester.gov.uk](http://cheshirewestandchester.gov.uk)

Date: 19 January 2026

the Applicant, and will endeavour to provide and updated draft SoCG for Deadline 4 (if not before at Deadline 3).

- Further to the Council letter of 22<sup>nd</sup> December 2025 in relation to the Deadline 1 submissions, and the follow up e-mail on 6<sup>th</sup> January 2026, it is noted that the BNG Metric Spreadsheets **PD2-032** have yet to be formally submitted/published as part of the Examination Library in the original Microsoft Excel format (xls). The Council has requested the following:
  - Metric calculation in original Microsoft Excel format (.xls)
  - UK habs plans pre and post development
  - baseline and proposed habitat condition assessments (in original Microsoft Excel format (.xls))

in order to properly assess the BNG submission.

The Applicant has provided an excel version of the metric calculation to assist, but a formal submission ought to be made for the Council to comment, and this needs to be accompanied by the UK habs plans and the baseline condition assessments, which have not as yet been provided.

The Council will continue to progress discussions with the Applicant to resolve outstanding matters.

Yours faithfully

Paul Friston  
*Principal Planning Officer*



**CESHIRE WEST AND CHESTER COUNCIL**

**Frodsham Solar DCO - EN010153**

**Cheshire West and Chester Council's response to the  
Examining Authority's written questions and requests for information (ExQ1) issued on 18 December 2025**

**Submitted at Deadline 2 – 19 January 2026**

This document represents a table of responses by Cheshire West and Chester Council (**CWCC**) to the Examining Authority’s written questions and requests for information (**ExQ1**), in respect of Frodsham Solar Ltd’s (**the Applicant**) application for development consent for Frodsham Solar Farm DCO (**the Project**). CWCC’s comments for Deadline 2 (19 January 2026) are entered in the right-hand column and relate to the matters addressed to CWCC.

Further comment on the Deadline 1 submissions (22<sup>nd</sup> December 2025) will be made at Deadline 3 (28 January 2026). Reference has been made to Deadline 1 submission documents where relevant to answer ExAQ1, but generally the responses are made in relation to the documents provided at Procedural Deadline B (21 November 2025).

ExQ1	Question to:	Question	CWCC Response
<b>1. General and cross-topic questions</b>			
Q1.0.1	The Applicant	<p><b>Terminology and Acronyms</b></p> <p>Can the applicant clarify what is meant by the description “site” and “main development area” within the ES Chapters. For example ES Chapter 7 Terrestrial Ecology [APP-040] and ES Chapter 10 Ground Conditions [APP-043] refer to site, and main development area is referred to in ES Chapter 7 Terrestrial Ecology [APP-040] and ES Chapter 8 Ornithology 10 Ground Conditions [APP-041]. It is unclear if these descriptions refer to land within the Order Limits (OL), or to land forming the Solar Area Development Area (SADA), or to another land extent.</p>	
Q1.0.2	The Applicant	<p><b>Terminology and Acronyms</b></p> <p>Can the applicant check the acronyms it has used throughout application document for typo errors. For example Chapter 7: Terrestrial Ecology [APP-040] paragraph 7.7.10 bullet point i) notes NBMMA (rather than NBBMA?).</p>	
Q1.0.3	The Applicant	<p><b>Commitment Register</b></p> <p>The Nationally Significant Infrastructure Projects: Commitments Register guidance notes that the final version submitted with the application should be provided as a separate appendix to the Environmental Statement (ES). However it is unclear in the applicant’s Commitments Register [APP-133] introduction and purpose of this register whether it forms part of the ES (and it has not been listed in Schedule 10 - Documents to be certified). Can</p>	

		the applicant advise whether this commitments register should be secured in the dDCO?	
Q1.0.4	The Applicant	<p><b>Management Plans/Strategy</b></p> <p>Can the applicant provide a list of documents/plans that would not be in place prior to commencement of permitted preliminary works. For example, would any of the documents listed in paragraph 1.3.3 of the Outline Construction Environmental Management Plan (oCEMP) <a href="#">[APP-136]</a> not be in place prior to commencement of permitted preliminary works?</p>	
Q1.0.5	The Applicant	<p><b>Management Plans/Strategy</b></p> <p>Paragraph 7.7.14 of Chapter 7: Terrestrial Ecology <a href="#">[APP-040]</a> states a soil resources management plan would be implemented during any works. Can the applicant explain the relationship of the soil resources management plan with the outline soil management plan?</p>	
Q.1.0.6	The Applicant	<p><b>Management Plans/Strategy</b></p> <p>Paragraph 2.4.2 of the oDEMP <a href="#">[APP-138]</a> states that it is also likely that below ground cabling would be removed from site and recycled. Can the applicant advise where this scenario (including the parameters used) was assessed in the ES for ground cabling?</p>	

Q1.0.7	Cheshire West and Chester Council (CWCC)	<p><b>oDEMP - CWCC comments</b></p> <p>CWCC commented on the oDEMP [APP-138] submitted with the application in its relevant representation [RR-037], including in paragraphs 19.12, 19.14, 19.15, 19.19 and 19.23. The applicant responded [PD2-027] and submitted an update to the oDEMP [PD2-019].</p> <p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation [RR-037]?</p>	<p>Please note that this question responds to the updated oDEMP [PD2-019] only and that further concerns have been set out in Appendix A (Written Representation) and CWCC's Response to ISH1 Agenda Items at 5d) Decommissioning end state and 5e) Decommissioning timing [REP1-048 Appendix A - page 16 of Appendix].</p> <p><b>19.12 and 19.14.</b> Points 19.12 and 19.14 of CWCC's relevant representation [RR-037] have been satisfactorily dealt with by the Applicant.</p> <p><b>19.15 RR.</b> Although the examples given in the Applicant's Response to CWCC's Relevant Representation [PD2-027] are more extreme that would be considered not to be significant, (e.g. habitat loss that would take more than five years to recover), it is accepted that the benefits/impacts analysis will assess this and enable a judgment to be made so that CWCC can assess and approve. Any habitats or species impacts should be considered temporally i.e. there should be enough time for habitat restoration and species translocation/licencing before the end of the decommissioning period.</p> <p><b>19.19 RR.</b> To address this point CWCC suggest re-wording of para. 3.2.1 of the oDEMP [APP-138] as follows:</p> <p>"A Community Liaison Group (<b>CLG</b>) will be formed / <b>re-formed</b> prior to <b>decommissioning</b>) (per the Outline Construction Environmental Management Plan [EN010153/DR/7.5]) and will continue through its operations until decommissioning of the Proposed Development <b>is complete (including any restoration provisions)</b>".</p> <p>It should also be confirmed that the undertaker is responsible for funding the administration of the CLG</p>
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			<p>(during construction, operation and decommissioning) (e.g. in terms of hosting meetings/administrative support). This needs to be secured, and this may be achieved by incorporating into the oCEMP. CWCC recommended in paragraph 3.6 of its Written Representations [REP1-048] that Requirement 12 of the draft DCO be amended to include (<i>inter alia</i>) provision for a community liaison plan.</p> <p><b>19.23 RR.</b> With regard to point 19.23 [RR-037] and the end-state (restoration) of the site: There remains little detail on the restoration of the site, e.g. landscape cultivation and establishment of grassland on site of removed solar array / BESS.</p> <p>Clarification should be provided that the pre-decommissioning ecological survey will be provided in conjunction with the final Decommissioning Environmental Management Plan (<b>DEMP</b>).</p> <p>In terms of the decommissioning end state, the Applicant's Response to CWCC's Relevant Representation [PD2-027] refers to "current use" and "areas of landscaping" which are not defined terms and therefore require clarification, as the current use of Frodsham Wind Farm (<b>FWF</b>) mitigation Cells 2, 3 and 5 are for non-breeding bird mitigation, other parts of the site are for wildfowling and some are for agriculture.</p> <p>There does not look to be anything in the updated oDEMP that address this issue. CWCC would also refer the ExA to point "5d Decommissioning End State" of CWCC's written response to ISH1 Agenda items at Deadline 1 [<b>REP1-048 Appendix A</b> – pages 13 to 15 of Appendix] where CWCC would request that an End State is defined, periodic reviews of this should take place through the lifetime of the solar farm, provision for seasonal biodiversity surveys prior to the final DEMP</p>
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			<p>should be factored in and the state of the mitigation areas on handover should be clarified.</p> <p><b>Comments on the rest of the paragraphs in CWCC's Relevant Representation (RR-037) section on Decommissioning Submitted at Deadline 1:</b></p> <p><b>19.16 RR.</b> The Applicant's Response to CWCC's Relevant Representation [PD2-027] states that the oDEMP [PD2-019] has been revised (Table 5-3) to confirm that should mitigation areas be lost as part of the decommissioning works, a programme setting out when these areas would be lost shall be agreed with CWCC. This is welcomed and discussion on how this will be secured should take place. The response also points out that any mitigation areas within the SSSI will fall within the SSSI statutory management scheme and so will be retained, however, this is not considered to be anything other than the minimum required.</p> <p>CWCC would also refer the ExA to point "5e Decommissioning timing" of CWCC's written response to ISH1 Agenda items at Deadline 1 [<b>REP1-048 Appendix A</b> page 16 of Appendix], where CWCC requested that that phasing is secured into the decommissioning timing over the 18-24 month period, to ensure least impacts on qualifying bird species as possible. This should be the reverse of the construction phasing, i.e. the Western array should be removed first, then Eastern array, to ensure that non-breeding birds can re-populate these areas at the earliest opportunity and so impacts are reduced.</p> <p><b>19.17 RR.</b> CWCC welcomes the Applicant's commitment to retain the habitat mitigation areas until completion of the decommissioning phase and that the habitat mitigation areas will be left in situ until the land is returned to the landowner. The lack of any commitment</p>
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			<p>beyond decommissioning is a significant limitation to the benefits of the habitat mitigation areas proposed. Please refer to paragraph 4.27 of CWCC's Written Representations [REP1-048]</p> <p>CWCC recommends that as a minimum, the Applicant clarifies the extent of a minimum period for landscape restoration of the wider site (SADA) following removal of infrastructure, along with confirmation that the habitat mitigation areas would be retained and managed until at least the end of this restoration period.</p> <p>The habitat mitigation areas are in part being provided as mitigation for the loss of functionally linked land ( <b>FLL</b>) on the wider site, and it is important that the full area of FLL is returned to at least its current state, and is functioning as FLL, before the habitat mitigation areas are released from requirements under the DCO.</p> <p><b>19.21 RR.</b> It is noted that in the Applicant's Response to CWCC's Relevant Representation [PD2-027], it is stated that Table 5.3 of the updated oDEMP [PD2-019] and paragraph 4.1.26 have been amended to secure a sensitive lighting strategy to manage temporary lighting and lighting will only be used where required. This is accepted, however, it is not clear how this will be secured and this detail should be provided.</p> <p><b>19.22 RR.</b> It is noted that in the Applicant's Response to CWCC's Relevant Representation [PD2-027], it is stated that Table 5.3 of the updated oDEMP [PD2-019]), has been amended to specify "key bird seasons" as November to February. This does not include spring and passage seasons, which are also "core non-breeding periods" for the Mersey Estuary and this should be amended.</p>
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			Table 5-6 of oDEMP [APP-138] 'Impact to non-designated heritage assets'. The fencing referred to should be regularly monitored and repaired/reinstated if damaged or removed.
Q1.0.8	The applicant CWCC Environment Agency (EA) Natural England (NE)	<p><b>Pollution Control</b></p> <p>Paragraphs 4.12.2 and 4.12.10 of NPS EN-1 note that the planning and pollution control systems are separate but complementary, that pollution control is concerned with preventing pollution using measures to prohibit or limit the releases of substances to the environment, and to ensuring that ambient air, water, and land quality meet standards that guard against impacts to the environment or human health. It states that the Secretary of State (SoS) should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator.</p> <p>Paragraph 4.12.15 of NPS EN-1 requires the SoS to consider if the EA, any pollution control authority, Statutory Nature Conservation Bodies, Drainage Boards, water and sewerage undertakers, and other relevant bodies are satisfied that:</p> <ul style="list-style-type: none"> <li>• potential releases can be adequately regulated under the pollution control framework; and</li> <li>• the effects of existing sources of pollution in and around the site are not such that the cumulative effects of pollution would make the Proposed Development unacceptable, particularly in relation to statutory environmental quality limits.</li> </ul> <p>i) Please could the relevant bodies comment, highlighting any specific concerns?</p> <p>ii) Please could the applicant provide evidence of whether relevant bodies, including the water and sewerage undertakers, are satisfied and what concerns remain?</p>	<p>Pollution prevention and control is a matter for the Environment Agency and CWCC expect the Environment Agency to provide comments. The OEMP sets out measures to manage risk from surface water runoff in particular the drainage strategy for the BESS and containment of fire water runoff in the event of a fire. A final Battery Safety Management Plan and Drainage Plan should be provided to detail the containment and treatment of fire water</p> <p>An Environmental Incident Management and Pollution Prevention Plan to manage the risk of chemical and fuel spillages affecting surface water quality should be provided for review.</p> <p>CWCC are unaware of any comments from the relevant regulators suggesting that releases to air, land or water arising from this proposed development could not be adequately managed under the existing pollution control framework or else might detrimentally affect the ability of an existing facilities in the area to meet their respective obligations.</p>

		<p>iii) Please could the applicant set out the steps that will be taken to resolve any outstanding concerns?</p> <p>Please could the relevant bodies and the applicant provide regular updates to the examination?</p>	
Q1.0.9	CWCC, EA, NE	<p><b>Local Authority and Other Statutory Body Resourcing</b></p> <p>Do the relevant bodies have any concerns about their resources for the consideration of submissions, approvals and monitoring necessary for the implementation of the proposed development?</p>	<p>CWCC are in discussion with the Applicant regarding a PPA and provision of funding to cover the costs of post-decision discharges of requirements and associated monitoring. The PPA and associated funding is essential to CWCC being able to resource the post consent work within the timescales prescribed by the DCO. Subject to the completion of a PPA, and securing appropriate funding, CWCC expects to be able to meet its obligations. Much will rest on the ability of internal and external consultees to resource responses to the project in a timely manner. The Applicant's continued proactive approach to pre-application consultation over the discharge of requirements (with the LPA and consultees) is seen as essential to the process as well as the Applicant giving CWCC early sight of documents before formal submission. Even with a PPA/funding in place, limited resources within CWCC will inevitably be stretched, particularly as further DCO applications in its administrative area are anticipated to be submitted in the not too distant future, and resourcing the highly intensive workstreams associated with DCOs will remain a considerable challenge for CWCC.</p>

**Need case, effects on climate change, site selection, alternatives, electricity generation, grid connection, decommissioning**

ExQ1	Question to:	Question	CWCC Response
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2. Need case, effects on climate change, site selection, alternatives, electricity generation, grid connection, decommissioning			
2.0 Need case			
Q2.0.1	The Applicant	<p><b>Policy</b></p> <p>Please could the applicant provide an update on any changes in government policy in relation to the need case for the proposed development since the application was submitted, and please could this be updated at the close of the examination?</p>	
2.1 Effects on climate change			
Q2.1.1	The Applicant	<p><b>Operational phase</b></p> <p>i) Please clarify the level of replacement activity considered in the assessment of effects on climate change [APP-038, APP-060] and justify why it represents a reasonable worst-case scenario?</p> <p>ii) Should a maximum permitted extent of replacement be secured?</p> <p>Does the oOEMP [APP-137] secure appropriate mitigation for greenhouse gas emissions during the operational phase?</p>	
Q2.1.2	The Applicant	<p><b>Offset electricity comparison</b></p> <p>The assessment [APP-038] considers that the proposed development would generate electricity which would offset the greenhouse gas burden of producing electricity by 1,291,016 tCO<sub>2e</sub> compared with the grid average in 2023/24. It stated that the greenhouse intensity of the electricity generated would be 53.6 gCO<sub>2e</sub>/kWh, compared with:</p> <ul style="list-style-type: none"> <li>• 380 to 500 gCO<sub>2e</sub>/kWh for unabated combined cycle gas turbines</li> <li>• 90 to 245 gCO<sub>2e</sub>/kWh for gas with carbon capture and storage</li> <li>• 5 to 55 gCO<sub>2e</sub>/kWh for nuclear</li> </ul>	

		<ul style="list-style-type: none"> <li>• 5 to 24 gCO<sub>2</sub><sub>e</sub>/kWh for offshore wind</li> <li>• 7 to 20 gCO<sub>2</sub><sub>e</sub>/kWh for onshore wind</li> <li>• 20 to 85 gCO<sub>2</sub><sub>e</sub>/kWh for solar photovoltaics</li> </ul> <p>i) Please could the applicant compare the greenhouse gas burden of the proposed development with other solar photovoltaic developments? Why is the proposed development not closer to the lower end of the range for solar photovoltaics of 20 gCO<sub>2</sub><sub>e</sub>/kWh? Do the comparisons demonstrate that the measures proposed to mitigate greenhouse gas emissions are appropriate and represent best practice?</p> <p>ii) Is more up-to-date information now available on the grid average used in the assessment?</p> <p>iii) Does comparison with the grid average in 2023/24 lead to an overestimate of the offset greenhouse gas burden? Should the projected grid average in each year be considered?</p> <p>iv) Should it be considered that (perhaps for commercial reasons) solar photovoltaic developments would potentially displace other, less greenhouse gas intensive, methods of generating electricity such as offshore or onshore wind, or nuclear?</p> <p>Following the above, please could the applicant update the assessment as necessary to ensure that it considers a reasonable worst case?</p>	
<b>2.2 Site selection and alternatives</b>			
		No questions currently	
<b>2.3 Electricity generation and grid connection</b>			
Q2.3.1	The Applicant	<b>Grid connection and utilisation of the full generation capacity</b> The applicant [ <a href="#">APP-128</a> , <a href="#">APP-145</a> , <a href="#">AS-001</a> ] said that:	

		<ul style="list-style-type: none"> <li>• the current grid connection agreement was capped at 100MW because, at the time the connection offer was issued, that was the capacity that it was estimated could be accommodated on the available land</li> <li>• as well as a connection agreement with SP Manweb it entered into a Bilateral Embedded Generation Agreement with the National Grid Electricity System Operator as the facility could affect the GB Transmission System</li> <li>• it had maintained contact with Scottish Power Energy Networks (SPEN) and the National Energy Systems Operator to facilitate the grid connection date of 2029 set out in the agreements</li> <li>• the proposed development was strategically aligned with grid reform efforts to prioritise ready-to-build capacity</li> <li>• the Clean Power 2030 Action Plan published by the National Electricity System Operator in 2024, indicated that after accounting for the known project pipeline in the region where the site was located, there was still approximately 1000MW of additional solar capacity required to achieve the 1,500MW regional target for 2030</li> <li>• whilst its connection agreement was currently only for 100MW, it saw no substantive impediment to this being able to be increased by SP Manweb if desired and that it was engaging with SP Energy Networks in relation to options for securing a second grid connection offer to enable export of the surplus capacity, on the premise that there will be increased network capacity available in the future</li> <li>• was in commercially confidential discussions with businesses operating near to the site who have large scale industrial operations, have expressed interest in the prospect of securing private-wire connections to Frodsham Solar, but there are no agreements in place as the project is several years from supplying electricity</li> <li>• the onsite Battery Energy Storage System (BESS) that forms part of the proposed development would be capable of</li> </ul>	
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		<p>storing any surplus electricity generation that cannot be exported onto the national grid</p> <p>The ExA is seeking updates on the connection agreements and, in the absence of any firm undertakings for the use of the private wire connection, to improve its understanding of whether the full generating capability of the Proposed Development would be likely to be utilised.</p> <ul style="list-style-type: none"> <li>i) The applicant variously refers to SP Manweb, SP Energy Networks, and SPEN. Please could it clarify any differences between these bodies, and which is relevant for the grid connection?</li> <li>ii) Please could the applicant provide updates on its discussions with relevant bodies regarding the grid connection agreement and Bilateral Embedded Generation Agreement, and on any grid reform developments relevant to the grid connection for 100MW and for any increase to 140MW?</li> <li>iii) Please could the applicant provide justification that the BESS would be capable of storing any surplus electricity generation that could not be exported to the national grid, including during a series of long sunny days?</li> <li>iv) Please could the applicant provide an update to its responses at the close of the examination?</li> </ul>	
<p><b>2.4 Decommissioning</b></p>			

Q2.4.1	The Applicant	<p><b>Decommissioning timing</b></p> <p>Requirement 20 of the dDCO <a href="#">[PD2-005]</a> includes that decommissioning works must commence no later than 40 years following the date of the final commissioning of the solar photovoltaic generating station. The oDEMP <a href="#">[PD2-019]</a> included that decommissioning would be expected to take between 12 and 24 months, would be undertaken in phases, and that the DEMP prepared for any phase of decommissioning would be accompanied by a programme setting out the main phases of works.</p> <p>CWCC <a href="#">[RR-037]</a> requested that appropriate provision is made for both decommissioning and restoration not just after the 40-year life span of the DCO, but in the event that a relevant part of the proposed development stops generating energy (or storing energy in the case of the BESS) or is otherwise redundant/unused for a period of 24 months. It said that it expected that the decommissioning stage be completed within two years of the trigger for decommissioning to commence following energy generation ceasing, or within two years after the 40-year expiry date, whichever was sooner.</p> <p>At issue specific hearing 1, the applicant <a href="#">[EV4-005]</a> said that it would update the dDCO to point to decommissioning timing provisions in the relevant environmental management plan(s) and that these would allow flexibility for the start of decommissioning in relation to matters such as refurbishment of the substation or a force majeure. CWCC <a href="#">[EV4-005]</a> said that it would be content with dDCO provisions based on those in the <a href="#">Oaklands Farm Solar Park Order 2025</a>.</p> <ul style="list-style-type: none"> <li>i) The ExA notes the Oakland Farm provisions and, for reasons of certainty and security, is minded to include similar provisions to those for Oaklands Farm in its recommended DCO.</li> <li>ii) Please could the applicant, on a without prejudice basis, suggest decommissioning timing wording for the dDCO that is based on the Oaklands Farm provisions and that address any concerns in relation to matters outside the undertaker's control?</li> </ul>	
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		Please could the applicant comment on when any decommissioned part of the proposed development would be returned to current uses, and how that is secured?	
Q.2.4.2	The Applicant	<p><b>Decommissioning funding</b></p> <p>The applicant [<a href="#">APP-019</a>, <a href="#">PD2-027</a>] explained that costs during the decommissioning phase would be covered by revenue generated by the proposed development, through its operations, and that it would have sufficient funds for decommissioning.</p> <p>CWCC [<a href="#">RR-037</a>] said that the original undertaker will often transfer a development once operational to another undertaker or undertakers and considered that there should be a robust mechanism for ensuring the funding for decommissioning is available in relation to potential future undertakers. It would welcome clarification on the funding needed to carry out decommissioning and how this would be secured from revenue generated by the proposed development. CWCC preferred that a decommissioning fund would be in place to avoid the need to resort to enforcement of decommissioning.</p> <p>The ExA is considering the risks and consequences of relying on enforcement of decommissioning, the pros and cons of establishing a decommissioning fund during the operational stage, whether that would be precise, enforceable, necessary, relevant to the development, and whether it would cause the applicant significant difficulty. The ExA notes the decommissioning fund provisions included in the <a href="#">Oaklands Farm Solar Park DCO recommended to the Secretary of State</a>.</p> <p>The applicant [<a href="#">EV4-005</a>, <a href="#">PD2-027</a>] said that:</p> <ul style="list-style-type: none"> <li>• it would be a criminal offence under s161 of the PA2008 to breach the dDCO [<a href="#">PD2-005</a>] requirement to decommission</li> <li>• the national policy statement does not require decommissioning funding to be secured</li> <li>• its approach is consistent with recent Secretary of State's decisions</li> </ul>	

		<ul style="list-style-type: none"> <li>DCO provisions for a decommissioning fund were not necessary and it would not agree to them.</li> </ul> <p>Please could the applicant provide any additional evidence to support its position and, on a without prejudice basis, suggest decommissioning funding wording for the dDCO that is based on the Oaklands Farm provisions?</p>	

### Ground conditions

ExQ1	Question to:	Question	CWCC Response
<b>3. Ground conditions</b>			
<b>3.0 Baseline conditions</b>			
Q3.0.1	The Applicant	<p><b>Contamination sources</b></p> <p>Paragraph 10.1.4 of Chapter 10 Ground Conditions <a href="#">[APP-043]</a> states that “where contamination sources outside of the OL may have the potential to affect the Site, these have also been considered”. Can the applicant provide evidence to demonstrate how it satisfied this statement?</p>	
Q3.0.2	The Applicant	<p><b>Mersey Estuary SSSI</b></p> <p>Paragraph 10.6.17. of Chapter 10 Ground Conditions <a href="#">[APP-043]</a> states “The whole Site is located within a SSSI impact risk zone of the Mersey Estuary SSSI”. Can the applicant elaborate on the meaning of this statement?</p>	
<b>3.1 Assessment</b>			

Q3.1.1	The Applicant	<p><b>Ecological receptors</b></p> <p>Can the applicant summarise its approach to ecotoxicity and consideration of the potential effects on ecological receptors?</p>	
Q3.1.2	CWCC, EA, NE	<p><b>Migratory pathways for contaminants</b></p> <p>Are you satisfied that the migratory pathways for contaminants within soils and perched groundwater and soil dusts to impact sites of special scientific interest (SSSI) and ecology within surface water and terrestrial habitats would not be significant in EIA terms. If you disagree with the applicant's assessment, provide relevant justification and evidence to support your position.</p>	<p>CWCC expects the Environment Agency as the regulator for controlled waters to provide any comments in relation to groundwater; and for Natural England to comment in relation to potential impact on the SSSI, so as to confirm whether there is sufficient information to conclude whether the development would be likely to result in significant environmental impacts. It appears from the information available that imposition of appropriate requirements within the DCO regarding contaminated land and other mitigation measures in the associated control documents would avoid significant environmental impacts.</p>
<b>3.2 Mitigation measures</b>			
Q3.2.1	CWCC, EA, NE	<p><b>Migratory pathways for contaminants</b></p> <p>Are you satisfied that migratory pathways for contaminants within soils and perched groundwater and soil dusts to impact SSSI and ecology can be mitigated by measures such as Groundwater and Surface Water Management Plan? If no, please provide justification and relevant evidence to support your position.</p>	<p>CWCC expects the Environment Agency as the regulator for controlled waters to provide any comments in relation to groundwater; and for Natural England to comment in relation to potential impact on the SSSI. Subject to any comments from the EA and NE, CWCC considers that these issues can be suitably managed throughout the lifetime of the development provided that appropriate contaminated land requirements are included in the DCO and associated control documents.</p>
Q.3.2.2	The Applicant	<p><b>Groundwater and Surface Water Management Plan</b></p> <p>Can the applicant clarify why mitigation applied during construction phase relies upon Groundwater and Surface Water Management Plan (GWSWMP) to be produced and implemented as part of oDEMP?</p>	

		(Refer to Table 10-14: Assessment of Likely Impacts and Effects with Incorporated Mitigation Applied of Chapter 10 Ground Conditions <a href="#">[APP-043]</a> ).	
Q3.2.3	The Applicant	<p><b>Remediation of soils</b></p> <p>Paragraph 7.7.14 of Chapter 7: Terrestrial Ecology <a href="#">[APP-040]</a> states that soils types are returned in the order of removal. Can you expand on this statement particularly for permitted preliminary works?</p>	
Q3.2.4	The Applicant	<p><b>Geotechnical approach</b></p> <p>Paragraph 10.2.16 of Chapter 10 Ground Conditions <a href="#">[APP-043]</a>) states that “a geotechnical assessment will be completed following DCO approval, to inform detailed design and to mitigate any significant risks identified to the development from land instability”. Can the applicant provide further information regarding its approach, the mechanism it would adopt to consult and approve, and clarify how was geotechnical works for land stability assessed in the ES?</p>	
Q3.2.5	The Applicant	<p><b>Ground mobilising water pollutants</b></p> <p>i) Can the applicant advise how it would mitigate against any disturbed ground that could mobilise surface water/ground water pollutants?</p> <p>Has the applicant undertaken any soil sampling tests that shows suspended solids would settle prior to discharge to ground/watercourse/river? Has the ES considered the use of coagulants and/or flocculants?</p>	
Q3.2.6	CWCC, EA, NE	<p><b>Mobile contaminants</b></p> <p>Are you satisfied that migration of leachable and otherwise mobile contaminants to groundwater within superficial deposits from soils and perched groundwater can be mitigated by the management practices noted by the applicant in its oCEMP <a href="#">[APP-136]</a>?</p>	CWCC has no comment to make on this as the Environment Agency is the regulator for controlled waters.

		(Refer to Table 10-14: Assessment of Likely Impacts and Effects with Incorporated Mitigation Applied of Chapter 10 Ground Conditions [APP-043]). If no, please provide justification and relevant evidence to support your position.	
Q3.2.7	EA, Canal and Rivers Trust	<p><b>Foundation and excavation works</b></p> <p>Do you have any outstanding concerns regarding the applicant's proposed methodology for foundation and excavation works in relation to the potential for mobilisation of contaminants or the potential for silt-laden runoff, given the continuity between the River Weaver and the Weaver Navigation watercourses? If so, can you provide details of your remaining concerns.</p>	
Q3.2.8	The Applicant	<p><b>Ground disturbance at the NBBMA</b></p> <p>Can the applicant clarify whether ground disturbance would occur during permitted preliminary works at the NBBMA?</p>	
Q3.2.9	CWCC, EA, NE	<p><b>Mitigation approach for contaminants</b></p> <p>Further to the Issue Specific Hearing 1 and item agenda 5h, can you advise if you are satisfied with the applicant's management approach to:</p> <ul style="list-style-type: none"> <li>i) Elevated concentration of lead</li> <li>ii) Polychlorinated biphenyls</li> <li>iii) Hydrocarbons in soils</li> <li>iv) Leachable contaminants from dredging materials</li> </ul> <p>Ground gases from the organic dredging silts and clay</p>	CWCC is satisfied with the proposals by the Applicant for addressing elevated lead, PCBs (Polychlorinated biphenyl) and hydrocarbons in soils and ground gases from the dredging material. The risks for leachable contaminants from dredging materials has been reviewed by the Environment Agency.
Q3.2.10	The Applicant	<p><b>Waste permits</b></p> <p>Can the applicant clarify waste that will require a permit(s) and which waste would be registered as exempt?</p>	
Q3.2.11	The Applicant	<b>Study area</b>	

		Can the applicant clarify the extent of the study area which has been defined in paragraph 10.5.3 of Chapter 10 Ground Conditions <a href="#">[APP-043]</a> as on or near to the site?	
Q3.2.12	CWCC, EA	<p><b>Approach to the risk management of land contamination</b></p> <p>i) Are you satisfied with the wording in Schedule 2, Requirement 1 of the draft DCO <a href="#">[PD2-005]</a> in regard to the controls secured relating to further detailed investigation of ground contamination, including verification and remediation, specifically the wording of Requirement 1(c)? If not, please explain why not.</p> <p>ii) Are you satisfied with the wording in the oCEMP <a href="#">[PD2-015]</a> in regard to detailed investigation of ground contamination, including verification and remediation? If not, please explain why not.</p> <p>iii) Are you satisfied with the wording in Schedule 2, Requirement 12(2)(c) of the draft DCO <a href="#">[PD2-005]</a> in regard to the controls secured relating to unexpected contamination? If not, please explain why not.</p> <p>Are you satisfied with the wording in the oCEMP <a href="#">[PD2-015]</a> in regard to unexpected contamination? If not, please explain why not.</p>	<p>CWCC's responses:</p> <p>i. CWCC is broadly satisfied with the wording of Requirement 1 of the draft DCO; it would be beneficial to reference inclusion of dealing with unexpected contamination as part of the remediation strategies and verification reports in 1 (c).</p> <p>ii. The oCEMP only mentions further ground investigation, remediation and verification in relation to potential impacts from localised made ground and unexpected contamination. There is limited detail included within the document. However, the information relating to investigation, verification and remediation could be appropriately provided via the discharge of requirements (in particular Requirement 17 and the recommended Unexpected Contamination requirement referred to below).</p> <p>iii. The wording in Schedule 2 Requirement 12(2)(c) requires the CEMP to include unexpected contamination protocol. The watching brief information contained within Section 4.1.24 of the oCEMP is satisfactory.</p> <p>The purpose of the CEMP is primarily to manage amenity issues which may arise over the duration of the construction phase. There should be reference within the CEMP as to how unexpected contamination should be considered to ensure relevant site personnel, who cannot be expected to know all the requirements of the approval, are aware of the obligation. However, all amenity</p>

			<p>issues associated with the development phase, will end on completion of the facility, whereas unexpected contamination may not end at this time and may require management for many years. It potentially could generate considerable documentation and a separate workstream and should therefore be dealt with via a separate specific unexpected contamination requirement as follows:</p> <p><b>Contaminated Land - Unexpected Contamination</b></p> <p>If, during the course of development, any contamination is found which has not been previously identified, proposals for detailed Site Investigation, Risk Assessment, Remediation and Verification shall be submitted and approved in writing by the Local Planning Authority. The remediation shall be implemented as approved. No part of the development site shall be occupied or brought into operational use until a Verification Report (to demonstrate the remediation of the unexpected contamination has taken place) has been submitted to and approved in writing by the Local Planning Authority.</p> <p>The reports required above shall be completed in accordance with the Environment Agency Land Contamination Risk Management Framework.</p> <p>Alternatively, if necessary, requirement 17 could be adapted to include such provision.</p> <p>The addition / extension of the contamination requirement to include unexpected contamination is to ensure the appropriate protection of human health and other relevant</p>
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			<p>receptors such as controlled waters; and ultimately achieve the obligation</p> <p>The reason for the inclusion of this wording is to ensure the appropriate protection of human health and other relevant receptors, and that risks from land contamination to the future users of the land and neighbouring land are minimised together with those to controlled waters, property and ecological systems; to ensure that the development can be carried out safely without unacceptable risks, and to ensure that the site, following completion of development, as a minimum does not meet the statutory definition of contaminated land.</p>
Q3.2.13	The Applicant	<p><b>Agriculture</b></p> <p>Can the applicant identify and quantify the land currently being grazed by livestock and summarise the effects of the proposed development on agriculture including agriculture land classification (ALC) during construction, operation and decommissioning?</p>	
Q3.2.14	CWCC, EA	<p><b>Policy</b></p> <p>Are you satisfied that the proposed development meets paragraph 5.11.5 of NPS EN-1 that “Where pre-existing land contamination is being considered within a development, the objective is to ensure that the site is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance [<a href="#">Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance</a>] as a minimum”. If no, please provide justification and relevant evidence to support your position.</p>	<p>CWCC is satisfied that the proposed mitigation measures will ensure that the site can be suitable for its intended use as a solar farm and the site will not require consideration under Part IIA of the Environmental Protection Act 1990.</p>
Q3.2.15	CWCC, EA, NE	<p><b>Potential compaction and hydrological impact to peat</b></p> <p>Are you satisfied with the applicant’s response [<a href="#">PD2-027</a>] to CWCC’s concern [<a href="#">RR-037</a>] regarding potential compaction and hydrological impacts to peat, which state that ground investigation</p>	<p>CWCC notes in the Applicant’s responses to CWCC’s Relevant Representation at paragraphs 7.138-7.141 and 8.7-8.8 [<a href="#">RR-037</a>] relating to the need for further investigation in relation to compaction and hydrological</p>

		shows there is no peat present at depth which could be impacted by the proposed development? If not, please explain why not.	impacts. CWCC does not have the technical expertise to confirm or contradict the Applicant's conclusions. CWCC considers it appropriate to secure the mitigation measures referred to, including the use of low-pressure piling machinery (see responses at Q6.0.1 and Q9.4.2).
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## Biodiversity and ecology

ExQ1	Question to:	Question	CWCC Response
<b>4. Biodiversity and ecology</b>			
<b>4.0 Baseline conditions</b>			
Q4.0.1	The Applicant	<b>Zone of influence</b> Can the applicant clarify if its zone of influence was the same as the extent of its ecological study data?	
Q4.0.2	The Applicant, CWCC, NE	<b>Great Crested Newts</b> Can you advise if restricted access to ponds/waterbodies within 0.5km of the Main Development Area could have a meaningful impact on the significance of effects assessment including mitigation for Great Crested Newts?	As per paragraphs 7.96 of the CWCC's Relevant Representation [RR-037] CWCC do not consider restricted access to some ponds-waterbodies to have a meaningful impact on the significance of effects assessment carried out, as the surveys were considered to be robust.
Q4.0.3	The Applicant	<b>Development buffer wintering birds</b> Figure 1- Zone of influence in the Ornithology Survey Report [ <a href="#">APP-082</a> ] shows a 600m development buffer wintering birds. Can the applicant explain with evidence, why a 600m buffer was appropriate and how this buffer informed its ornithology assessment?	

Q4.0.4	The Applicant	<b>Ecological study area and Dust Assessment Area</b> Can the applicant clarify if the ecological study area for baseline conditions matched the Dust Assessment Area?	
Q4.0.5	The Applicant	<b>Site surveys</b> Can the applicant respond to Cheshire Wildlife Trust (CWT) relevant representation [RR-019] that many areas of the site were not surveyed across all years?	
Q.4.0.6	CWCC, NE, Cheshire Wildlife Trust (CWT)	<b>Consideration of reptiles in the Environmental Statement</b> Are you satisfied with the applicant's relevant representation response (reference CWACC7.85 [PD2-027]) that reptiles have been fully and appropriately considered in the Environmental Statement? If no, please provide justification and relevant evidence to support your position.	The statement referred to comments on para 7.113 of the CWCC's Relevant Representation [RR-037] in the Applicant's Response to CWCC's Relevant Representation [PD2-027] does not address the specific point made regarding lack of survey of the NBBMA area and concern due to the differences in habitats in the NBBMA area, thereby reducing the ability to extrapolate survey data from other areas on site. The response instead references areas on the eastern side of the site, which do not have habitats such as the NBBMA and are some distance from the NBBMA. Therefore, the Applicant's position in the Applicant's Response to CWCC's Relevant Representation [PD2-027] response is not accepted by CWCC.
<b>4.1 Species</b>			
Q4.1.1	The Applicant	<b>Other species</b> Can the applicant clarify if its ecological study of the skylark mitigation area included consideration of any other species?	
Q4.1.2	CWCC, NE, CWT	<b>Badger</b> Paragraph 7.7.32 of Terrestrial Ecology [APP-040] notes that habitats will be largely retained and protected during the construction process. Can you please provide your comments on	In terms of the construction process, paragraph 4.4.2 and 4.4.3 of the Environmental Statement: Volume 2 Appendix 7-2: Protected Ecological Species Baseline Report (Confidential Badger Annex) [APP-078] state that (as updated from CWCC's Relevant



			<p>██████████. This is noted in best practice guidance, such as Section 5.1 of the Badger Protection: Best Practice Guidance for Developers, Ecologists and Planners (England), by the Badger Trust, August 2023, which is referenced in Natural England’s standing advice for badgers (<b>Appendix 1</b>). It therefore follows, that to avoid impacts in line with the mitigation hierarchy, that a stand-off of 30m should be integrated into the site layout design.</p> <p>It is also stated in the Applicant’s Response to CWCC’s Relevant Representation [PD2-027] that as evidenced in the baseline survey, data between 2022 – 2025, ██████████ population may be subject to activity and distribution change between the baseline surveys and construction phase. ██████████</p> <p>██████████ and ██████████ and as a territorial animal, disturbance impacts can be significant.</p>
Q4.1.3	CWCC, NE, CWT	<p><b>Badger and Otter</b></p> <p>Are you satisfied with the applicant’s relevant representation response (reference CWACC7.88 [PD2-027]) that the proposed development would not adversely impact wildlife corridors or buffers? If no, please provide justification and relevant evidence to support your position.</p>	<p>Reference CWACC7.88 [PD2-027] is in relation to the Wildlife Corridor/buffer qualifying feature of the Frodsham Helsby and Ince Marshes Local Wildlife Site (LWS), rather than Badgers and Otters specifically.</p> <p><i>Please can the ExA refer back to CWCC if specific comments on wildlife corridors in relation to Badger and Otter, outside of the LWS considerations are required.</i></p> <p>Note that Badger and Otter movement is also discussed in response to Q4.6.4.</p> <p>Looking at the “Local Wildlife Site Selection Criteria for the Cheshire region. Covering the districts of Cheshire</p>

			<p><i>West and Chester, Cheshire East, Wirral, Halton and Warrington, November 2012, Updated February 2014</i>” by Cheshire Wildlife Trust (<b>Appendix 2</b>) which details selection criteria for LWS. Criterion H24 Wildlife Corridors/buffers are selected as follows: “Areas of land including hedges and ditches may be selected for inclusion within (or extension to) LWS where they fulfil at least one of the following:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide a physical link between two or more areas of high wildlife value and has favourable conditions for the movement of species between these habitats.</li> <li><input type="checkbox"/> Provide a buffer zone protecting vulnerable sites from disturbance, pollution or development/recreational pressure.</li> <li><input type="checkbox"/> Provide additional buffering habitat for species associated with existing wildlife sites.</li> <li><input type="checkbox"/> Provide a significant physical extension to an area of high wildlife value and has favourable conditions for the movement of species out into the wider countryside.</li> </ul> <p>An excerpt from the same document on guidance and justification on this criterion states “The movement of species through the countryside is vital for the sustainability of ecosystems by facilitating the genetic exchange of species and enabling movement in response to climate change. Important wildlife sites should be connected to other wildlife habitats and the wider countryside although it is recognised that some sites may consist of fragments of discontinuous habitat which cannot be linked.”</p> <p>The Applicant’s Response to CWCC’s Relevant Representation as stated in CWACC7.88 [PD2-027] in reference to para 7.119-7.120 of CWCC’s Relevant</p>
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			<p>Representation [RR-037] focuses on the smaller linear habitats left between panels and the fact that some habitat will be created on site. It is agreed that this provides some form of connective corridor, as stated in the original CWCC comment, however, this is significantly limited and the scale at which connectivity through and adjacent to the site will be reduced, is significant and has not been mitigated for. As stated within the LWS Selection Criteria document by CWT, the Wildlife Corridor/Buffer selection criteria does not just consider presence of direct connections, it considers links between areas of high wildlife value and providing buffering effects for existing wildlife sites, habitats and species, all of which will be severely reduced by the development, due to developing the land and fencing the solar array, leaving the SADA (approx. 250ha) inaccessible for non-breeding birds species using the site and the adjacent designated site and restricting access for other species.</p>
Q4.1.4	The applicant, NE, CWCC	<p><b>Bat</b></p> <p>Can you comment on whether spring surveys, additional static detectors, and surveys of the NBBMA would alter the conclusion of no significant residual effects on bats?</p>	<p>It is taken that this question relates to Bat commuting and foraging, rather than bat roosting. Please refer back to CWCC for further clarification if this is not the case.</p> <p>In terms of Bat commuting and foraging, as per paragraph 7.85-7.88 of CWCC's Relevant Representation [RR-037], although the activity surveys were limited, due to the lack of likely significant impacts on foraging and commuting habitats and likely benefits to such habitats from the proposals, there are no significant concerns regarding foraging and commuting bats. Therefore, it is considered that further commuting and foraging surveys would not alter the conclusion of no significant residual impacts on bats.</p>
<b>4.2 Flora and Fauna</b>			

Q4.2.1	The Applicant	<p><b>Habitats</b></p> <p>Can the applicant submit into the examination a summary table to quantify the impact of the proposed development on:</p> <ul style="list-style-type: none"> <li>• habitats <ul style="list-style-type: none"> <li>i) hedgerows and quantify separately important hedgerows, ii) woodland and ancient woodland, iii) trees, with veteran trees and tree preservation orders identified, iv) ponds, v) ditches, vi) reedbed, vii) wetland, viii) grassland, and ix) neutral grassland</li> </ul> </li> <li>• quantify total habitats loss (to those listed i-xi in the first bullet point)</li> <li>• new habitats (to those listed i-xi in the first bullet point)</li> <li>• habitat difference between new and the loss (to those listed i-xi in the first bullet point)</li> </ul> <p>quantifying habitats earmarked for enhancement management (to those listed i-xi in the first bullet point)</p>	
Q4.2.2	The Applicant	<p><b>Flora</b></p> <p>For notable flora, such for example bluebell, can the applicant confirm the potential affected area size in ha and summarise its approach to mitigate?</p>	
<b>4.3 Management Plans/Strategy</b>			
Q4.3.1	The Applicant	<p><b>Environmental masterplan</b></p> <p>Can the applicant clarify if the environmental masterplan is indicative or an illustration? The title heading above paragraph 7.7.1 in ES chapter 7 <a href="#">[APP-040]</a> is “Indicative Environmental Masterplan”, and also paragraph 7.7.2 starts with “An indicative Environmental Masterplan...” However the relevant Figure 2-3 is called “Illustrative Environmental Masterplan”</p>	
Q4.3.2	The Applicant	<p><b>Outline Landscape and Ecology Management Plan</b></p>	

		<p>The Outline Landscape and Ecology Management Plan (oLEMP) <a href="#">[PD2-023]</a> refers to long-term management and maintenance.</p> <p>Can the applicant:</p> <ul style="list-style-type: none"> <li>i) Confirm the duration of this time period?</li> <li>ii) Explain how long-term management and maintenance is to be safeguarded by a future service provider?</li> </ul> <p>Explain how management and maintenance would be funded and whether transfer of the Order would affect this approach?</p>	
Q4.3.3	The Applicant	<p><b>Outline Construction Environmental Management Plan</b></p> <p>Paragraph 4.1.36 of the Outline Construction Environmental Management Plan (oCEMP) <a href="#">[PD2-015]</a> notes that sensitive lighting strategy should ensure that lighting is not directed towards the NBBMA. Can the applicant confirm what would be the lighting strategy on functional linked land?</p>	
<b>4.4 Mitigation measures</b>			
Q4.4.1	The Applicant	<p><b>Non-Breeding Bird Mitigation Area (NBBMA)</b></p> <p>Paragraph 8.7.5 of Chapter 8 Ornithology <a href="#">[APP-041]</a> notes the NBBMA as 66.7ha. However, paragraph 4.2.3. of Volume 2 Appendix 10-1: Stage 1 Geo-Environmental Assessment <a href="#">[APP-096]</a> states that the NBBMA covers an area of approximately 52.1ha and is located across the MSCDDG Cell 3 plus the area to the north of MSCDDG Cell 3, some of which forms part of the Frodsham Marshes SSSI. Furthermore in paragraph 5.2.6 it states that that “Part of the north section of the NBBMA forms part of the Mersey SSSI and Mersey Estuary SPA”. Taking into account the above statements can the applicant confirm the area in ha for the following:</p> <ul style="list-style-type: none"> <li>i) Total NBBMA size</li> <li>ii) Neutral grassland size in the NBBMA</li> <li>iii) Grassland size in the NBBMA</li> <li>iv) Wetland size in the NBBMA</li> </ul>	

		and clarify whether the NBBMA and any associated works would encroach into the Mersey SSSI and Mersey Estuary SPA?	
Q4.4.2	CWCC, NE, CWT, MECCG	<p><b>NBBMA</b></p> <p>Are you satisfied with:</p> <ul style="list-style-type: none"> <li>i) The applicant's Cleeve Hill Solar Park mitigation method to calculate the amount of NBBMA required to accommodate the types of non-breeding bird utilising the OL</li> <li>ii) The relevant representation response (reference CWACC7.51 <a href="#">[PD2-027]</a>) that the NBBMA would provide adequate mitigation</li> </ul> <p>If no, please provide a summary and reasons for your position.</p>	<p>i) and ii)</p> <p>In para 7.54 of CWCC's Relevant Representation [RR-037], the Cleeve Hill method is queried, as it does not take into account habitat quality, as confirmed by the Applicant, which is one of the underpinning principles of the mitigation strategy proposed by the applicant; that a smaller area, of higher quality habitat will compensate for the loss of usable non-breeding bird habitat through the development of the SADA and loss of existing mitigation area. In the Applicant's Response to CWCC's Relevant Representation [PD2-027] to para 7.5.4, it is asserted that the lack of ability of the calculations to take into account habitat quality does not matter, due to the birds using the site, including on the NBBMA, being taken into account. The Applicant's NMMBS is based on these calculations, as well as reportedly providing a "step-change in quality" to the existing NBBMA. It therefore is queried, that if the calculation cannot take into account habitat quality, how can the level of required quality of habitat provision, or in fact, area, be known, and how can the principle of adequately re-mitigating for birds on existing mitigation areas, as well as mitigation for loss of mitigation areas, as well as loss of other land used by birds, be proven.</p> <p>In addition, this relies solely on the number of birds using the land, as the only measure of value of the land. The field survey data did not capture all seasons or areas of the site in any one year, especially the late spring and early autumn seasons. Surveys are a snapshot in time and although desk based data has been used as well, the value of the land is also due to its habitat quality,</p>

			<p>size, connectivity to other important non-breeding bird areas and relative lack of disturbance.</p> <p>As noted by the applicant in the Applicant's Response to CWCC's Relevant Representation [PD2-027], in the updated Outline Landscape and Ecology Management Plan, Appendix B - Outline Non-Breeding Bird Mitigation Strategy, Annex 1, it is stated that the Cleeve Hill approach is based on mean utilisation of predominantly dry agricultural land/dry grassland. This therefore, significantly undervalues the existing habitat provision on site, which includes wetland areas, scrapes and wet grassland, some of which specifically designed for non-breeding birds. The principle of the mitigation proposal is that one of the existing mitigation areas is being uplifted in habitat quality, to account for loss of existing mitigation areas and mitigation for loss of other areas used by birds. This cannot be measured by this approach.</p> <p>In addition, the approach only assesses three bird species associated with the Mersey Estuary (Lapwing, Curlew and Golden plover). It is assumed this is because these are the species that the FWF mitigation documents specifically mention, but this means that the calculation does not account for the other qualifying bird species recorded on site, and their mitigation requirements, such as Black-tailed godwit, Dunlin, Redshank and Teal.</p> <p>The updated further information in the updated NBBMS (contained within the OLEMP [PD2-023] in Annex 1, states that the area of functional land considered in the calculations, due to the fact that the majority of bird-days were generated from there, are based on the actual functional area (predominantly Cell 3), so as not to overvalue the rest of the SADA. This grossly underestimates the area required by birds who were recorded over the remaining site, such as Cells, 1 2 and</p>
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			<p>5, as well the area by The Lum. This also does not account for the replacement of Frodsham Windfarm mitigation areas.</p> <p>CWCC understand what is meant by the applicant when it is stated that that there is no agreed metric that exists to calculate what the non-linear habitat enhancements and additive mitigation being implemented as part of the NBBMA design (provide?). However, CWCC would extrapolate that principle to the fact that the loss of existing mitigation areas and existing habitat quality cannot therefore be taken into account and properly compensated for.</p> <p>Therefore, the issue is not resolved and CWCC is not satisfied that the Cleeve Hill approach is suitable for the proposed development. In the absence of a robust method of calculation, and significant impact on existing mitigation areas proposed, as well as areas to be developed being used by birds outside the defined mitigation areas, the approach is rejected. To progress the issue, the Applicant should amend the proposed layout to release back the existing mitigation areas to enable a less risky approach.</p>
Q4.4.3	The applicant, CWCC, NE	<p><b>Frodsham windfarm mitigation areas</b></p> <p>Can you respond to CWT's relevant representation [<a href="#">RR-019</a>] that the applicant should not be re-allocating Frodsham windfarm mitigation areas for its NBBMA and should be providing additional mitigation areas on top of that?</p>	<p>In terms of the specific issue of re-allocating FWF Mitigation, it is CWCC's position that with two of the mitigation Cells being proposed to be lost for development, there is no robust way of demonstrating that the windfarm mitigation areas can be compensated for. The Applicant has not robustly evidenced that the mitigation can be fully re-allocated. CWCC does not doubt that the existing Cell 3 mitigation area can be enhanced for qualifying birds species, however, the question of whether it is enough to compensate for the loss of mitigation areas in Cells 5 and part of Cell 2, as well as loss of land used by qualifying birds outside of defined mitigation areas, has not been satisfactorily</p>

			<p>demonstrated and therefore should be the approach taken. The Applicant should retain further existing areas of mitigation, for a more robust and less uncertain strategy.</p> <p>In para 16.7-16.12 of the CWCC's Relevant Representation [RR-037], it is highlighted that the mitigation strategies for the FWF are wider than just the defined mitigation Cells 1, 2 and 3. For example, it obliges Cell 6 to be kept as an active deposit ground (which will cease halfway through the lifetime of the proposed development). This is in conjunction with grassland management, scrape creation and designed-in mitigation providing a gap between the two turbine arrays (see detail in response to Q.4.6.4).</p> <p>The mitigation was also designed to compensate for displacement at height, due to the turbine blades. Although the FWF mitigation takes into account that birds would be displaced to some extent, the ground below and around turbines is still accessible for birds should they choose to use it. The proposed development renders all land within the 253ha SADA as completely inaccessible for non-breeding birds. Cells 2, 3 and 5 were the only cells purposed for grassland mitigation, with Cell 4 providing reedbed and Cell 6 providing lagoon and muddy edge habitats. The proposal means that grassland habitats on Cells 2 and 5 will be completely lost and grassland provision reduced on Cell 3. There is also embedded mitigation within the FWF, such as distances from the Estuary, and the gap between the two turbine arrays (see further comment on the FWF design in the response to Q4.6.4 below). Therefore, the two mitigation strategies are not comparable, due to the different impacts of the projects and therefore, the mitigation should not be as integrated as it is currently proposed. Further areas of existing mitigation should be left undeveloped.</p>
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Q4.4.4	The Applicant	<p><b>Retention of mitigation measures</b></p> <p>Can the applicant advise if any incorporated mitigation and enhancement mitigation, and any additional mitigation and enhancement measures, would not be retained following handover of the land to the landowner.</p>	
Q4.4.5	The Applicant	<p><b>Skylark mitigation area</b></p> <p>Can the applicant advise on:</p> <p>i) How existing land utilised by skylark has informed the location and size of the proposed skylark mitigation area including how noise from the adjacent motorway was considered?</p> <p>The influence of song by the skylark to establish and maintain nesting territory (and therefore breeding success), and whether this could be inhibited by the ambient noise levels?</p>	
Q4.4.6	CWCC, NE, CWT	<p><b>Mersey SSSI</b></p> <p>Are you satisfied that the mitigations proposed by the applicant will mitigate any harmful aspects of the proposed development on the Mersey SSSI and, where possible, would conserve and enhance the SSSI affected by the proposed development?</p>	<p>Please refer back to CWCC for clarification if there are specific elements of the question that require addressing further.</p> <p>It is considered that concerns relating to non-breeding bird species for the SPA are the same for the SSSI, with further concerns regarding the SSSI, due to its designation including more passage species. The updated further information in the updated NBBMS (contained within the oLEMP [PD2-023] para 1.3.4, separates out the SSSI features for consideration. Para 1.3.5 lists the species features of the SSSI. CWCC would query the “migrating birds in spring and autumn” qualifying feature listed, which is a much wider definition than that of the SPA qualifying species, which only list Redshank as a passage qualifying feature, with all other species wintering. (See also response to Q5.1.7).</p>

			<p>The above should be clarified, as other passage species which qualify for the SSSI and not the SPA, may have not been taken into consideration.</p> <p>It would be useful to have all RAMSAR, SPA and SSSI qualifying species, both wintering and passage, to be listed in one table for comparison and evidence that all species and assemblages relevant to the various designations have been assessed.</p> <p>In terms of physical habitats, the Mersey Estuary SSSI contains Canal Pools, which are used by qualifying birds as a high tide roost when weather is bad. These are not shown as being replaced in the updated HRA [PD2-009] Proposed Levels Option 2 drawing, whereas they are shown as such in the Figure 3 - Proposed NBBMA drawing of Appendix B – Outline Non-Breeding Bird Mitigation Strategy in the updated Outline Landscape and Ecology Environmental Management Plan [PD2-023]. This should be clarified.</p> <p>In paragraph 1.6.1 of the document, enhancement measures/additional benefits for the SSSI, such as removal of uncontrolled recreational fishing, eradication of New Zealand Pygmy weed and removal of a stand of trees. However, it is not clear if the removal of NZPW removal of uncontrolled recreational fishing is obliged to be carried out by the landowner in any case, rather than being a specific benefit of the development. It is stated in paragraph 2.8.2 that the actions are not considered to be mitigation for the proposed development but do constitute actions necessary to the successful delivery of the NBBMA and management of the SSSI.</p>
<b>4.5 Assessment</b>			
Q4.5.1.	CWCC, NE, CWT, Mersey	<b>Environmental Statement conclusions for terrestrial ecology</b>	CWCC is not content that there would be no residual significant effects on terrestrial ecology as a

	Estuary Conservation Group (MECG)	Are you content with the applicant's assessment in its Terrestrial Ecology Chapter 7 (Vol 1) [APP-040] that there would be no residual significant effects as a consequence of the proposed development? If you disagree with the applicant's assessment, please provide justification and relevant evidence to support your position.	consequence of the proposed development, in terms of Bats and Reptiles (although likely to be resolvable and just requiring clarification), Otters, Badgers, habitats, Biodiversity Net Gain and Local Wildlife Sites. This is explained in paragraphs 7.83-7.84, 7.90, 7.92-7.95, 7.105-7.110, 7.113, 7.118-7.137 of the CWCC Relevant Representation [RR-037]. Please also cross refer to comments in CWCC's Local Impact Report: Section 14 and Appendix 5 [REP1-046] and Written Representations (Section 4) [REP1-048].
Q4.5.2.	The Applicant	<b>Potential impacts of decommissioning works on the proposed mitigation areas</b> Can the applicant clarify if the ES has assessed the potential impacts of decommissioning works on the proposed mitigation areas such as NBBMA and skylark mitigation area?	
Q4.5.3.	The Applicant	<b>Fragmentation of connecting habitat/ commuting routes</b> Can the applicant clarify whether fragmentation of connecting habitat/ commuting routes within and adjacent to the OL have been assessed?	
Q4.5.4.	NE, CWCC, CWT, MECG	<b>Impacts on Local Wildlife Site (LWS)</b> Can you advise if you agree with the applicant's assessment that although there would be significant temporary adverse effects on Frodsham, Helsby and Ince Marshes LWS during the construction phase, and that there would be significant positive effects in the medium-long term? If you disagree with the applicant's assessment, please provide justification and evidence to substantiate your position.	CWCC disagrees that there would be significant positive effects in the long-term on Frodsham, Helsby and Ince Marshes LWS. This is because there are permanent adverse effects on some of its qualifying features, therefore a likely reduction in its extent and there is limited detail provided by the applicant to come to their conclusion, in terms of which criteria of the LWS are impacted and to what extent. This is explained in paragraphs 7.118-7.125 of CWCC's Relevant Representation [RR-037]. The ES Volume 2 Appendix 7-5 Assessment of Frodsham Helsby and Ince LWS [APP-061] only assesses whether the LWS still meets its criteria, not whether, and to what extent these qualifying criteria will be impacted and therefore impact on the LWS as a whole. Some further information on

			<p>impacts to LWS qualifying criteria is given in the Applicant's Response to CWCC's Relevant Representation [PD2-027] in response to 7.119 and 77.120 of CWCC's Relevant Representation [RR-037], however, this should be assessed in the ES and updated as such, to enable full assessment. See also response to Q4.1.3 above (addresses paragraph 7.122 of [RR-037]).</p> <p>In reference to the Applicant's response to paragraph 7.121 of CWCC's Relevant Representation [RR-037], note that in terms of the reedbed qualifying criterion, the CWCC response to misclassification of reedbed habitats on site is discussed at the response to Q4.5.7.</p> <p>In Table 7-3: Terrestrial Ecology Chapter 7 (Vol 1) [APP-040] it is stated that Scoping of Ecological Features ES Vol 2 Appendix 7.5 Assessment of Frodsham Helsby Ince Local Wildlife Site includes an assessment of Frodsham, Helsby and Ince Marshes LWS against the current LWS selection criteria. This states "In order to avoid repetition, where a criteria of the LWS is met, and the receptor is scoped in separately (including HPIs, other habitats, otter, water vole, fish and invertebrates), these are not assessed under non-statutory designated site." This is not an accepted approach, as it means that the receptors are not assessed as a whole, in terms of impacts on the LWS as a whole receptor and this approach is not supported.</p>
Q4.5.5.	The Applicant CWCC, NE, CWT, MECG	<p><b>Frodsham, Helsby and Ince Marshes LWS</b></p> <p>Can the applicant confirm if its significance of effects conclusion (during permitted preliminary works/construction, operation, and decommissioning stages) took into account Frodsham, Helsby and Ince Marshes LWS qualifying features?</p> <p>If any party believes the applicant's significance of effects conclusion omitted any qualifying features associated with</p>	<p>As per paragraph 7.119-7.120 of the CWCC's Relevant Representation [RR-037], CWCC asserts that the Applicant's significance of effects conclusion omitted birds and mammal qualifying features associated with Frodsham, Helsby and Ince Marshes LWS, including mammals and birds, that there are adverse impacts on qualifying features (Reedbeds, Wildlife corridors/buffers, birds and mammals) and the Applicant</p>

		Frodsham, Helsby and Ince Marshes LWS, please provide justification and evidence to substantiate your position.	<p>did not assess the impacts of the Frodsham, Helsby and Ince Marshes LWS qualifying criteria as a whole. Therefore, qualifying features were omitted from the LWS assessment.</p> <p>See also response above to Q4.5.4.</p>
Q4.5.6.	CWCC, NE, CWT, MECG	<p><b>Noise assessment</b></p> <p>Are you satisfied with the applicant's noise assessment and that there would be no significant effect on any species? If you disagree with the applicant's assessment, please provide justification and relevant evidence to support your position.</p>	<p>As per paragraph 7.12-7.14 of CWCC's Relevant Representation [RR-037], there were concerns regarding consistency of the assessment of the effect of cell elevations on noise abatement on other parts of the site.</p> <p>In the Applicant's Response to CWCC's Relevant Representation [PD2-027] on para 7.12 of CWCC's Relevant Representation [RR-037], it is further explained that visual disturbance was being considered in terms of the higher elevation of fishing pools, causing disturbance to Cell 3 and that noise disturbance was being considered in terms of construction disturbances from Cells 2 and 5 on to the lower Cells 3 and 6, so there were different pathways being considered. However, the response also states "No birds using Cell 6 would be able to see or likely hear any activity on Cell 3." This again confuses the two pathways and also does not consider birds flying to and from Cell 6, so this is not accepted.</p> <p>In the Applicant's Response to CWCC's Relevant Representation [PD2-027] on paragraph 7.13 of CWCC's Relevant Representation [RR-037], it is stated that flight activity represents a transient and short-duration exposure, in contrast to sustained foraging or roosting behaviour. No evidence is provided to support this principle as such. However, the response references Seaforth Docks in Liverpool as an example of birds overflying areas of development to access</p>

			roosting areas. Further detail of this should be presented, to assess whether this example is comparable to the proposed development.
Q4.5.7.	CWCC, NE, CWT	<p><b>Biodiversity net gain metric</b></p> <p>Are you satisfied that the latest BNG metric [PD2-032] :</p> <ul style="list-style-type: none"> <li>i) Follows best practice/guidance?</li> <li>ii) Contains the necessary information?</li> <li>iii) That habitat, hedgerow and watercourse are classified accurately?</li> <li>iv) The metric results are correct?</li> </ul> <p>If no, please provide justification and relevant evidence to support your position.</p>	<p>It is CWCC's position that the metric must be provided in Excel (xls) format, to enable assessment, due to the complexity of the site and volume of information contained within it. At the time of writing these are not yet available in the Examination Library.</p> <p>Further to CWCC's letter of 22<sup>nd</sup> December 2025 in relation to the Deadline 1 submissions, and the follow up e-mail on 6<sup>th</sup> January 2026, it was noted that the BNG Metric Spreadsheets [PD2-032] had yet to be formally submitted/published as part of the Examination Library in the original Microsoft Excel format (xls). CWCC requested the following:</p> <ul style="list-style-type: none"> <li>• Metric calculation in original Microsoft Excel format (.xls)</li> <li>• UK habs plans pre and post development</li> <li>• baseline and proposed habitat condition assessments (in original Microsoft Excel format (.xls))</li> </ul> <p>in order to properly assess the BNG submission.</p> <p>The Applicant has provided an excel version of the metric calculation to assist, but a formal submission ought to be made for CWCC to comment, and this needs to be accompanied by the UK habs plans and the completed baseline and proposed habitat condition assessments, which have not as yet been provided.</p> <p>To respond to these questions, CWCC has looked at the main summary tables only (Headline Results and Trading summaries) of the updated metric [PD2-032], as these are accessible and used the information as set out</p>

			<p>in the Applicant's Response to CWCC's Relevant Representation [PD2-027].</p> <p>i) Notwithstanding the above, CWCC do not agree that the BNG metric follows best practice/guidance. The Applicant's Response to CWCC's Relevant Representation [PD2-027] for para 7.131 of CWCC's Relevant Representation [RR-037], states that to take account of the trading rule deficit would be to assess the metric "in strict accordance" with the rules. CWCC disagrees; the trading rules are a basic function of the metric and Natural England user guidance on this point has been clear in all metric versions (including historical non-statutory and statutory versions) to date. The trading rules are set as such, to avoid habitat deficits and work in partnership with the metric's principle of calculating all habitat types and conditions into the same units. The higher the distinctiveness, the stricter the trading rule, to ensure valuable habitats are retained and replaced satisfactorily. For High distinctiveness habitats, such as Reedbeds, the rule is that the habitat must be replaced with the same habitat. Therefore, the metric does not follow best practice guidance. In addition, the trading rule deficit of reedbed has significantly decreased from 65.61 units to 12.59 units, with no updated supporting information or plans to explain this significant reduction. There is explanation provided of the de-classification of an area of reedbed, but there is no information about how this translates into units. CWCC disagrees with the declassification, in any case.</p> <p>In terms of the Applicant's Response to CWCC's Relevant Representation [PD2-027] for paragraph 7.132 of CWCC's Relevant Representation [RR-037], it is stated that Reedbeds have been classified as such, but do not meet priority habitat descriptions, so have been overvalued. This point is then used to justify the deficit in trading rules when concerning reedbeds, which is not accepted, as trading rules apply within the metric.</p>
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			<p>Referring to Priority habitat JNCC definition confuses the applicant's approach. Therefore, there is no precedent or justification for this approach, and the layout should be amended to retain or create further reedbeds to resolve this trading rule error. This will be assessed by CWCC when the full information has been provided.</p> <p>The Applicant's Response to CWCC's Relevant Representation [PD2-027] for para 7.132 of CWCC's Relevant Representation [RR-037], directs CWCC to Appendix C, provided to give further detail on characterisation of reedbed across the site, with a focus on those areas of reedbed lost to development. There is no accompanying updated Biodiversity Net Gain report to include this explanation, nor explanation of the new metric information submitted that has a reduction in trading rule deficit for Reedbeds.</p> <p>Appendix C is discussed as follows:</p> <p>The secondary codes "504-Waterlogged" and "505-Inudnated", are stated as corresponding with the section of the f2f Reedbed definition that states "water table is above ground or at ground level for most of the year". This is not correct; these secondary codes are used to further define the level 2 primary code of "Wetland", of which the Level 3 code is Reedbed and are not referred to at the Level 3 stage in terms of definition. They can be used to define discreet areas within the level 3 code when mapping habitats, to provide further information regarding that habitat, but do not contribute to its definition. In addition, the definition of one of the exclusions of the Wetland category, has been incorrectly added to the definition of secondary code "504-Waterlogged" "wet defined as water table within 40cm of the surface and soil contains free water for most of the year". Note that secondary code 504- Waterlogged, states that only small patches remain wet during mid-</p>
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			<p>summer, that either the water table is at the surface for 50-7-0% of the year, or the soil is completely saturated, so does account for dry areas reedbeds.</p> <p>The most robust factor of the classification of reedbed habitats, is the presence of more than 5m width of reedbed. This is the primary factor that should define the classification of the reedbed, in the absence of any other agreed evidence, especially ones that are defined by season or percentage of water/saturated soil over a year, which cannot often be demonstrated, due to time constraints. Inclusions for the f2e reedbed habitat type are areas that meet the stands of Common reed size threshold and that include both reed-filled ditches and reed-dominated vegetation extending on to dry land. Therefore, dry areas of reedbed are accepted into the f2e classification. The only exclusions to f2e are if parcels of common reed are less than 5m in width, and Common reedmace swamp, which note, does not include references to water levels.</p> <p>Four areas of reedbed are singled out for assessment within Appendix C, with no justification as to why the other areas of Reedbed, as mapped in Figures 1a, 1c, 1d and 1e of the Biodiversity Net Gain Report [APP-143]. On the basis of the coding of reedbed habitats as discussed above, it is not into concurred that the section of reedbed labelled Frodsham Windfarm East, should not be classified as UK Habs reedbed, as the areas of reed are reported to exceed 5m in width.</p> <p>Although reedbed habitats are not directly associated with the bird species associated with the Estuary (although Teal have been recorded near to the Lum which has reedbed habitats) per se, in terms of wetland habitats and hydrology, the reedbed habitats will be complementary to the overall wetland network on and adjacent to the site that these species will be using. There are also bird species recorded on site not</p>
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			<p>associated with the Estuary, that utilise the reedbed habitats.</p> <p>In terms of the Applicant's Response to CWCC's Relevant Representation [PD2-027] on para 7.133 of CWCC's Relevant Representation [RR-037], it is stated that habitats of high distinctiveness have been avoided as far as possible across the Order Limits and that the development has avoided higher value habitats where reasonably practicable. These are general statements, with no project-specific justification and the metric provided evidences this, with the deficit in trading rules demonstrated. It is also stated that the loss of wet woodland has been reviewed, and this will be assessed when the full metric spreadsheets are provided.</p> <p>In terms of the Applicant's Response to CWCC's Relevant Representation [PD2-027] on para 7.134 of CWCC's Relevant Representation [RR-037], similar assertions are made, that the higher value habitats have been avoided "where possible", with no detailed justification given. References to existing reedbed being lost to succession are made, which is not relevant to the biodiversity gain metric, as already pointed out by CWCC in 7.132 of CWCC's Relevant Representation [RR-037]. The Applicant asserts again, that the mitigation hierarchy has been applied "to avoid and reduce losses where possible", with no detailed project-specific justification.</p> <p>ii) This will be ascertained in full when the metric spreadsheets are provided, but based on the review of summary tables provided in PD2-032 when compared to the original AS-036 information, and the Applicant's Response to CWCC's Relevant Representation [PD2-027] on para 7.137 of CWCC's Relevant Representation</p>
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			<p>[RR-037] the following comments are made, with the following necessary information still outstanding:</p> <ul style="list-style-type: none"> <li>• The missing watercourses are reported to have been included now and this will be assessed when the information is received.</li> <li>• The “5% rule” has been further justified giving examples from other DCO applications and asserting that the panels should not be fully classed as sealed surface, due to accessibility and habitat provision underneath, which CWCC now accepts.</li> </ul> <p>The following missing information previously requested has not been responded to in the Applicant’s Response to CWCC’s Relevant Representation [PD2-027]:</p> <ul style="list-style-type: none"> <li>• Baseline habitat type and condition assessments should be provided, to ensure the most appropriate habitat types have been assigned correctly according to UK Habs and the correct condition has been assigned.</li> <li>• The classification of watercourse types is required to be detailed, to understand why different habitat types have been allocated.</li> <li>• Baseline and proposed UK Habs plans with the habitat references used in the Habitat Reference Number column of the metric, should be provided.</li> </ul> <p>In the Applicant’s Response to CWCC’s Relevant Representation [PD2-027] on para 7.135 of CWCC’s Relevant Representation [RR-037], states that the Design Approach Document [APP-130] gives information on justification for decisions made on habitat retention and loss, however, this document does not</p>
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			<p>give any detailed information on the approach, with only general statements given.</p> <p>In addition, an updated Biodiversity Net Gain report has not been provided to include the explanation provided in Appendix C of the Applicant's Response to CWCC's Relevant Representation [PD2-027], nor explanation of the new metric information submitted. The trading rule deficit of reedbed has significantly decreased from 65.61 units to 12.59 units, with no updated supporting information, explanation, or plans provided.</p> <p>iii) Please see comments on reedbed classification in point i). CWCC does not agree that habitats have been classified accurately. This will be fully assessed when the full Metric Excel spreadsheets and supporting information as outlined above, are provided.</p> <p>iv) There are currently disputes regarding the metric results as outlined above. This will be assessed in full when the full Metric Excel spreadsheets and supporting information as outlined above, are provided. CWCC would note that even if the metric results are agreed, in terms of the habitat classifications and numerical values, if the standard interpretation of those results is not applied as best practice, in terms of trading rules, a significant overvaluing of the habitat provision and undervaluing of habitat loss will occur.</p>
Q4.5.8.	CWCC, NE, CWT	<p><b>Biodiversity net gain proposal</b></p> <p>Are you satisfied with the Applicant's assessment that the proposed development will deliver a measurable gain in biodiversity units? The project design committed to achieving a minimum increase of 10 % in habitat and hedgerow units and no net loss in watercourse units (paragraph 7.7.66 of ES Chapter 7: Terrestrial Ecology [<a href="#">APP-040</a>]).</p>	<p>CWCC is not satisfied with the Applicant's assessment that the proposed development will deliver a measurable net gain in biodiversity units, or no net loss in biodiversity units, due to misclassification of habitats and trading rule deficit, along with lack of supporting information, as detailed above in response to Q4.5.7. A full response will be provided when the full metric spreadsheet and supporting documents are provided.</p>

		If no, please provide justification and relevant evidence to support your position.	
<b>4.6 Policy</b>			
Q4.6.1.	The applicant	<p><b>NPS EN-1</b></p> <p>Paragraph 5.4.44 of NPS EN-1 states that ‘the Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into, in order to ensure that any mitigation or biodiversity net gain measures, if offered, are delivered and maintained’. Can the applicant provide suitable wording for a Biodiversity Net Benefit Requirement in its dDCO?</p> <p>(For reference, see example R8 in the made order for <a href="#">EN010142-001365-Development Consent Order Tillbridge Solar Project.pdf</a>)</p>	
Q4.6.2.	The applicant, CWCC, NE, CWT	<p><b>NPS EN-1</b></p> <p>Can you comment whether paragraph 4.6.7 of NPS EN-1 has been satisfied which notes that the latest version of the biodiversity metric is encouraged and that calculation data for biodiversity baseline and present planned biodiversity net gain outcomes are presented in full as part of the application?</p>	<p>It is CWCC’s position that the metric must be provided in Excel (xls) format, to enable assessment, due to the complexity of the site and volume of information contained within it. At the time of writing these are not yet available in the Examination Library (as referred to reply to Q4.5.7 above).</p> <p>Paragraph 4.6.7 of NPS EN-1 states that the latest version of the biodiversity metric should be used, which has been done by the applicant. However, the paragraph also states that this calculation data should be presented in full as part of an application and directs the reader to Note 96, which is a hyperlink to the statutory metric Excel spreadsheet. This has not been provided and so the policy is not satisfied.</p>
Q4.6.3.	CWCC, NE, CWT, MEGG	<p><b>NPS EN-1</b></p> <p>Are you satisfied that the proposed development meets the following paragraph in NPS EN-1: paragraph 4.6.15 Applications for development consent should be accompanied by a statement demonstrating how opportunities for</p>	<p>CWCC has concerns regarding the wider environment benefits that the Applicant has claimed.</p> <p>The Applicant’s Policy Compliance Statement [APP--129] refers in Table 1 to the required NPS statement and</p>

		<p>delivering wider environmental net gains have been considered, and where appropriate, incorporated into proposals as part of good design (including any relevant operational aspects) of the project.</p> <p>If no, please provide justification and relevant evidence to support your position.</p>	<p>cross refers to the Design Approach Document [APP-130]. Point 4.6.15 in Table 1 [APP-129] states:</p> <p><i>“The Proposed Development includes measures to enhance public access in an ecologically sensitive manner, fostering appreciation of wildlife whilst minimising disturbance. New permissive paths through the Site will be guided to less sensitive areas, and designated wildlife viewing points with screening (such as bird hides or viewing screens) will be installed at strategic locations. Informative signage will be placed to encourage responsible behaviour (e.g. keeping dogs on leads) in the vicinity of important habitats. These measures will enhance the educational and recreational value of the Site, turning it into a well-managed nature-rich area accessible to the public. The Proposed Development goes beyond just mitigation and compensation and delivers wider gains for biodiversity, creating a richer mosaic of habitats and long-term management commitments that will leave a positive ecological legacy on the Frodsham Marshes landscape”.</i></p> <p>Generally, the provision of permissive paths is a welcome environmental benefit. However, as noted in response to Q9.5.4 and paragraph 11.1 [RR-037] CWCC has concerns about the biodiversity impacts from elements of the permissive paths proposals,</p> <p>Also, given the temporary nature of the project and return of the land (including habitat areas and permissive paths) back to the landowner with no longer term commitment, the reference to <i>‘leaving a positive ecological legacy’</i> is not justified.</p> <p>Paragraph 4.6.13 of EN-1 identifies potential areas of wider environmental gains, including reductions in GHG emissions, reduced flood risk, improved air quality,</p>
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			<p>climate adaptation, landscape enhancement, increased access to greenspace and enhanced tree woodland areas.</p> <p>Whilst the Design Approach Document itself does not directly address the EN-1 paragraph, it is clear that the focus has been on developing good design principles for the project. Again, whilst not explicitly brought together as a single statement, it is clear that there are wider environmental benefits to the development e.g. in terms of the GHG emissions.</p> <p>There are other aspects where wider environmental benefits occur, such as potential improvement to water quality as a result of changes to the agricultural activities. Another example would be managing habitat, e.g. preventing reedbed succeeding to scrub.</p> <p>It may be an over-simplification, but CWCC regard much of the Applicant's stated environmental enhancements as being necessary mitigation for the project, which would otherwise be having a more detrimental impact e.g. in terms of matters such as landscape and biodiversity/habitat impacts. There is also some concern over whether the Applicant's approach has genuinely followed the mitigation hierarchy, as some different design choices early on in the design process could have avoided some of the impacts (most notably by retaining more of the areas of habitat already providing mitigation for the FWF and allowing greater buffers for protected species (e.g. Badgers).</p>
Q4.6.4.	CWCC, NE, CWT, MECCG	<p><b>NPS EN-1</b></p> <p>Are you satisfied that the proposed development meets the following paragraph in NPS EN-1:</p> <p>5.4.22 The design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and</p>	<p>The Applicant has not demonstrated that the design of the solar farm has considered movement of mobile and migratory species and their potential to interact with infrastructure, to the extent that CWCC is satisfied with the assessment. In particular, there are significant concerns regarding the movement of migratory birds</p>

		<p>marine and terrestrial mammals and their potential to interact with infrastructure.</p>	<p>associated with the Mersey Estuary RAMSAR, SPA and SSSI, as well as movement of Otters and Badgers.</p> <p>The solar panels are proposed in-between identified qualifying bird species flight lines from the Mersey Estuary, to other areas of adjacent habitat, such as the Cell 6 lagoon, as detailed in para 7.13 of CWCC's Relevant Representation [RR-037]. In the Applicant's Response to CWCC's Relevant Representation [PD2-027] for this paragraph, it is stated that flight activity represents a transient and short-duration exposure, in contrast to sustained foraging or roosting behaviour. No evidence is provided to support this principle as such. However, the response references Seaforth Docks in Liverpool as an example of birds overflying areas of development to access roosting areas. It is not stated whether this is comparable to solar farm development, but further detail of this should be presented, to assess whether this example is comparable to the development.</p> <p>In para 7.15 of CWCC's Relevant Representation [RR-037], it was noted that the Glint and Glare Assessment did not include ecological receptors in the assessment and this impact was only mentioned briefly within the Information to Inform Habitats Regulations Assessment [APP-125](latest version being [PD2-10]) that the bird species associated with the SPA/Ramsar generally move across the flat estuarine landscape in broad, dispersed flight paths, meaning their exposure to visual elements, such as solar panel reflections or structural outlines is brief and intermittent. This, however, does not address the scale of impact of such a large area of solar panels across the landscape. If exposure is accepted to be intermittent and brief, this does not mean it is not significant, due to the scale. In the Applicant's Response to CWCC's Relevant Representation [PD2-027] it is stated that "<i>Natural England has confirmed it is satisfied with the information in relation to Glint and Glare, as outlined in its Relevant Representation (RR-</i></p>
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			<p><i>012). As CWCC has indicated that it will defer to Natural England on all ornithological matters, the Applicant considers the issue to be resolved.” This is not the case, CWCC stated in para 7.3 of the CWCC Relevant Representation [RR-037] that “at this stage, CWCC has raised broad concerns and will defer to Natural England’s assessment. CWCC will provide further comments on its representations at a later stage”.</i></p> <p>In addition, the solar farm will reduce the unobstructed gap for bird flight between the two FWF turbine arrays, which were left for wildlife access, from 1.8km to 1.2km, further reducing the area accessible for qualifying bird species, especially considering birds can be impacted up to 600m from wind turbines. Published literature on disturbance distances for non-breeding birds is referenced at paragraph 6.3.4 of the information to Inform Habitat Regulations Assessment [AS-017] (<i>although the reference is taken out of the later iteration [PD2-009] reflecting the change to the construction phasing of the Eastern Array and the need for separation from the NBBMA during construction</i>).</p> <p>Extracts from the Environmental Statement accompanying the FWF application (10/00597/DECC) are provided in <b>Appendix 3</b>. The FWF design evolution is dealt with in paragraphs 2.76 to 2.110 (<b>Appendix 3a</b>).</p> <p>It can be seen from Fig 2.3 (Design 2) in the appendix that the early design iteration for FWF encompassed turbines across the whole frontage of the deposit grounds adjacent to the Mersey Estuary. The design was amended to take account of the ornithological impacts:</p> <p><i>“2.86 During 2008/2009 ornithological surveys it became evident that significant numbers of birds were feeding, roosting and moving through the area. The</i></p>
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			<p><i>majority of birds present were associated with the main lagoon (indicated by the orange dot in Figure 2.4). In light of bird movements over the proposed development site the turbines were re-configured to provide a layout less likely to result in significant ornithological impacts”.</i></p> <p>Designs 4 and 5 were subject to further amendment to account for bird movements:</p> <p><i>“2.91 Minor siting amendments were made to Design 4 seeking to establish a more balanced and visually permeable arrangement as judged from a range of potential viewpoints. In addition concerns were raised from an ornithological perspective that one of the new turbines was encroaching onto the preferred bird free corridor.” and</i></p> <p><i>“2.92 Following further landscape impact assessments and a detailed ornithological impact assessment a consensus was reached that 4 turbines needed to be removed to minimise the potential collision risk on birds, based on the current habitats onsite. A 20 turbine development was deemed to be more acceptable from both a visual and ornithological perspective (Figure 2.6).”</i></p> <p>Figure 13.2 to Chapter 13, the Ornithological chapter, of the Environmental Statement (<b>Appendix 3C</b>) illustrated the direction and frequency of bird movements at that time, indicating why Cell 3 and to a lesser extent Cells 5 and Cell 2 provide an important gap for birds accessing Cell 6.</p> <p>Chapter 13 of the Environmental Statement (<b>Appendix 3B</b>) provides more detail, including on bird movements (paragraphs 13.74 to 13.80).</p>
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			<p><i>“13.74. The main movements of birds over the proposed Frodsham Wind Farm area were between the Mersey Estuary and Weaver Bend to and from the lagoon at Cell 6. The most frequent direction of flights from the Mersey Estuary, were south over Cell 3 to Cell 6 and the grazed fields at Cell 5. There were also regular movements of birds returning to the Mersey Estuary flying north over Cell 3. [REDACTED]</i></p> <p><i>[REDACTED] and</i></p> <p><i>“13.76. Regular movements of birds were noted flying south-west over the site from the Weaver Bend to Cells 5 and 6. The majority of these movements were within a 500m buffer around the proposed Frodsham Wind Farm but were not actually within the area swept by the blades of the proposed turbines.” and</i></p> <p><i>“13.78. Disturbance of birds feeding and roosting on and around the lagoon at Cell 6 was mainly caused by raptors such as Peregrine Falcon and Merlin passing through the area and low flying light aircraft or helicopters. This often resulted in large flocks of birds taking flight. These flocks generally flew up high and circled within the confines of the lagoon. The large feeding and roosting flocks of European Golden Plover and Northern Lapwing together with smaller numbers of Dunlin, Eurasian Curlew and Common Redshank that fed and roosted in the north-west corner of Cell 5 suffered similar disturbance events. These flocks would circle around the north-west corner of Cell 5, within Cell 2 as well as moving over the bund to Cell 6 with smaller movements observed within the proposed eastern cluster of turbines in Cell 5 and over Cell 1 by Frodsham Marsh Farm.”</i></p>
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			<p>The Environmental Statement details further the assessment of impacts.</p> <p><i>“13.136. The assessment of impacts as a result of construction (noise, disturbance and habitat loss) and operation (reduction in habitat quality caused by noise, displacement and barrier effect) are presented in Table 13.9. In this table the impacts and mitigation are detailed and the residual impact is presented. Ecological mitigation is detailed in Section 12; however the specific mitigation for ornithological receptors is dealt with in greater detail in Paragraphs 13.175 to 13.179. Table 13.9 does not include the collision risk impacts which are detailed in Paragraphs 13.49 to 13.57. The impacts on the SPA and SPA qualifying species are considered in Paragraphs 13.164 to 13.174”</i></p> <p>And Table 13.10 B in Appendix 3 b) summarises the impact assessment during the operational phase of the FWF, noting under mitigation:</p> <p><i>“Iterations in project have resulted in large areas of suitable breeding habitat in Cell 5 remaining turbine free Creation of habitat complex in Cell 3 includes large areas of wet and dry grassland and a wader scrape (with sparsely vegetated island) will provide ideal breeding opportunities for this species</i></p> <p><i>At all stages the project design and turbine layout have been influenced by the results of the combined bird surveys. This has resulted in iterations to the turbine layout to avoid major flight lines and areas of highest bird activity. All major flight lines are in turbine free areas including the mitigation area in Cell 3. A proposed turbine to the north of Cell 6 was also removed from the scheme to reduce any potential barrier effect to birds</i></p>
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			<p>flying [REDACTED] from the Mersey Estuary”</p> <p>As stated in E.001 of CWCC’s Local Impact Report submitted at Deadline 1 [REP1-046], there is approx. 200 hectares of High potential Functionally Linked Land (as shown on Page 18 of the “<i>Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England, Identification of Functionally Linked Land supporting SPA waterbirds in the North-West of England – Phase 2 Appendix 5 – Functionally Linked Land Maps for the Dee Estuary, Mersey Estuary and North Wirral Foreshore BOWLAND ECOLOGY. 2022. December 2022</i>”), within the Order Limits (of a total area of 460 hectares of FLL across the whole of the Marsh), of which, Cells 1, the majority of Cell 2 and Cell 5 is proposed for development, rendering approx. 130 hectares of the High potential FLL no longer functional. Further, the applicant considers the whole of the SADA (253ha) to constitute FLL, due to the birds recorded.</p> <p>The development will reduce the area of functionally linked land, without adequate compensation, rendering a significant area of it inaccessible for migratory bird species, and change the way the birds currently access their favoured areas of land within and outside of the Order Limits.</p> <p>Also, there are concerns regarding the movement of Badger and Otter across the development.</p> <p>In para 7.92-7.94 of CWCC’s Relevant Representation [RR-037], it is detailed how it is assumed the solar panel fences will not restrict access through the SADA for Otter, due to standard buffers from watercourses and open span crossings included in the general design, but this should be confirmed. Otters will be prohibited access to the NBBMA, which is where their activity has</p>
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			<p>been recorded. It is stated in CWCC's Relevant Representation [RR-037] that there are concerns to whether this cessation of access to the 64ha NBBMA, which is likely the favoured food source across the whole site, will disrupt movement across the landscape and territory. It is not clear whether Otters are using the Manchester Ship Canal or travelling through the SADA to get to the NBBMA. In the Applicant's Response to CWCC's Relevant Representation [PD2-027], the response is concerned with the justification of the prohibition of access for Otters to the NBBMA. It is stated that the fishing pools will be replaced with new pools at the Biodiversity Enhancement Area, however, as fishing will be prohibited, it is not certain that this will replace the fish stock in the existing pools to the level that currently exists. Therefore, Otters will have to change their movements to find food resource elsewhere.</p> <p>In terms of Badger movement, para 7.108 of CWCC's Relevant Representation [RR-037] details concerns regarding the lack of [REDACTED] marking surveys to ascertain where the [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]. The [REDACTED] will be [REDACTED], due to anti-predator fencing required for the success of the NMMBA. The 253ha SADA will also be fully-fenced. This means that there is no area of the site that is not restricted in some way, apart from embankments. Although mammal gates are proposed in the SADA fencing, there is no indication of the frequency of these and due to the lack of survey information, there is no degree of certainty that they will be placed where they are required. The Applicant's Response to CWCC's Relevant Representation [PD2-027] does not provide any further reassurance on this matter.</p>
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## Habitat Regulations Assessment

ExQ1	Question to:	Question	CWCC Response
<b>5. Habitats Regulations Assessment</b>			
<b>5.0 Baseline</b>			
Q.5.01	The applicant	<p><b>Non-breeding bird surveys</b></p> <p>Can the applicant provide further justification as to why the non-breeding bird surveys undertaken are considered to be robust and adequate in supporting the Habitats Regulations Assessment (HRA) Report's <a href="#">[PD2-009]</a> conclusions of no adverse effects on integrity (AEol) on the qualifying non-breeding waterbirds and the wider waterbird assemblage of the Mersey Estuary SPA and Ramsar site, given the identified data gaps for certain months and site areas surveyed?</p>	
<b>5.1 Assessment</b>			
Q5.1.1.	The applicant	<p><b>Construction noise</b></p> <p>NE in its relevant representation <a href="#">[RR-012]</a> notes that the project would result in significant noise disturbance and displacement of qualifying bird features for Mersey Estuary Special Protection Area (SPA) and Mersey Estuary Ramsar. Can the applicant provide evidence to show that construction noise would not result in significant noise disturbance and disturbance to the qualifying features for these designated sites?</p>	

Q5.1.2.	The applicant	<p><b>Noise contours</b></p> <p>Can the applicant provide plan maps into the examination showing predicted noise contours in 5dB increments from 55dB upwards for both LAeq and LAmx levels for the Mersey Estuary SPA including functional linked land, the Mersey Estuary Ramsar, and the Mersey Estuary SSSI?</p>	
Q5.1.3.	NE	<p><b>NE's conclusions on likely significant effects and AEol</b></p> <p>Can NE confirm whether it agrees with the applicant's conclusions in respect of likely significant effects and AEol for the European sites and features considered in the Information to Inform Habitats Regulations Assessment (the HRA Report) [PD2-009] which are not specifically referenced in its RR [RR-012]?</p>	
Q5.1.4.	NE	<p><b>Functionally linked land</b></p> <p>NE in its RR [RR-012] highlights concerns in relation to the definition utilised for functionally linked land (FLL) and the need for the HRA to ensure the assessment considers the SADA as a whole as FLL and provide suitable mitigation for all FLL affected. The applicant provided an updated HRA Report [PD2-009] at Procedural Deadline B which incorporates additional data analysis and clarifies the applicant's approach to FLL. Can NE confirm whether it is content that its comments in relation to this matter have been resolved and whether they consider the proposed NBBMA to be sufficient for the entire SADA?</p>	
Q5.1.5.	NE, CWCC	<p><b>In-combination assessment</b></p> <p>NE [RR-012] and CWCC [RR-037] have provided advice on the approach and projects to be considered within the in-combination assessment. The applicant's Response to Local Planning Authority and Statutory Environmental Body Relevant Representations [PD2-027] submitted at Procedural Deadline B provides a response to the matters raised.</p>	<p>CWCC disagrees with the Applicant's approach. In the Applicant's Response to CWCC's Relevant Representation [PD2-027] in-combination effects are discussed within Sections 7.32-7.35. Since the ExA questions were published, CWCC has submitted Written Representations (REP1-048), which includes Appendix A Response to ISH Agenda items, which discuss in-combination effects (see Item 5 k) pages 39-40 of Appendix A).</p>

		<p>Can NE and CWCC confirm whether they agree with the applicant's approach and projects to be considered within the in-combination assessment?</p>	<p>The Applicant's Response to CWCC's Relevant Representations [PD2-027] para 7.32 and 7.33 states that they have committed to a working group between parties, as stated in the updated Outline Construction Environmental Management Plan [PD2-015] and updated Information to Inform Habitat Regulations Assessment [PD2-009] para 8.6.30 to 8.6.38 and that CWCC has control over the Runcorn Spur Pipeline project via planning conditions. This, however, does still not link the projects together in a robust way.</p> <p>CWCC advises the current cumulative impact assessment is not robust. In 4.1.59 of the updated Outline Construction Environmental Management Plan [PD2-015], the Applicant's proposal is to avoid simultaneous construction and recommends phasing; however, phasing construction could have more of an impact. For example, if the proposed development and pipeline are constructed within a few months or year or two of each other, this would amount to continued long-term cumulative disturbance, past the original assessed impacts. There are more cumulative scenarios than currently assessed, and these should be clearly set out and assessed. in the Environmental Statement and HRA, as opposed to any other documents.</p> <p>CWCC advised the following scenarios should be assessed, as well as the impacts on different areas within these scenarios, including impacts on Cells 1, 2, 5 and the NBBMA, and if works are simultaneous or not:</p> <ul style="list-style-type: none"> <li>- Solar farm built after pipeline</li> <li>- Solar farm built the same time as pipeline</li> <li>- Solar farm built before pipeline</li> </ul>
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			<p>In the Applicant's Response to Relevant Rep [PD2-027], further information is given, with references to works in Cells 1, 2 and 3 being constructed between April 2027 and October 2027.</p> <p>However, this would still lead to disturbance in passage seasons and passage bird species. It is not clear how this corresponds with details of the oLEMP given further down in the response which states: Reference RU-BD-051: High-disturbance activities within land functionally linked to the Mersey Estuary SPA, Ramsar and SSSI will be completed outside of the winter months (November – March, inclusive).</p> <p>A trenchless crossing is proposed at the western extent of Cell 3 into Cell 4, whilst the construction in Cells, 1, 2 and eastern extent of Cell 3 would be open trenched. This does not reduce concerns.</p> <p>It is stated that construction of the NBBMA would also be timed to be undertaken outside of the core non-breeding bird period, November to February inclusive. However, again, this still impacts the passage seasons, so could still have an impact on qualifying non-breeding bird species.</p> <p>It is noted that the scenario where the pipeline is built after the solar farm has not been assessed by the applicant, and CWCC is deferred to, in terms of imposing planning conditions. This is not acceptable, as all scenarios, which could have significant impacts, have not been assessed.</p> <p>In addition, impacts on any habitats, species and the LWS in the same area should be addressed, as well as impacts on Biodiversity Net Gain.</p>
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			<p>It is CWCC's position that the issues are so crucial and complex, with so little flexibility in timescales in terms of non-sensitive seasons (a maximum of only 3 months of the year), that a working party (as suggested by the Applicant in updated PD2 deadline documents) would not provide enough control or oversight and that the mitigation measures should be secured by way of a suitably worded legal agreement to restrict the proposed development appropriately. A full timeline of both projects with all intra and inter project scenarios, should be assessed and detailed in an updated ES and HRA, with any inter-project measures secured within a legal agreement.</p> <p>CWCC note from the draft Statement of Common Ground with LBCSS [REP1-039] that</p> <p><i>"LBCC's position is that the Runcorn Spur Pipeline will be installed through Cell 3 prior to the creation of the NBBMA. This execution scenario has informed the planning application submitted for the Runcorn Spur Pipeline application. Other alternative execution scenarios have not been considered as part of this application."</i></p> <p>Further, the draft statement of common ground confirms Frodsham Solar Ltd <i>"already holds an Option over the relevant land meaning that LBCCS's project will only be able to proceed if the Applicant grants consent to an additional option being granted to LBCCS over the same land, even if that is agreed by Peel NRE."</i> This suggests that Frodsham Solar Ltd can exercise control over the land and that effective control could be achieved via a legal agreement between the relevant parties (noting that the parties are already working towards and agreement on other matters.</p>
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			<p>In the absence of an appropriately worded legal agreement the ExA is requested to consider appropriate provision in the Requirements to ensure appropriate controls which CWCC can enforce.</p> <p>The Applicant's Response to Relevant Rep [PD2-027] para 7.34 states that further detail will be provided in the updated HRA on the approach to not include FWF as an in-combination project, and that the fact that the mitigation proposed is additive to the baseline is enough to evidence an in-combination effects assessment. On this basis, there should not be an issue with including the FWF as an in-combination project and this should be done, assessing the full mitigation strategy for the FWF, including embedded mitigation (wind turbine layout) and how the other mitigation measures (e.g. keeping Cell 6 an active deposit ground) interact with the Solar Farm project and how that impacts on the existing mitigation within the Order Limits.</p> <p>The Applicant's Response to Relevant Rep [PD2-027] para 7.35 states that Tourism and Recreation have already been considered in the documents in terms of intra-project cumulative effects, however CWCC asserts this is not to the level of detail required, for example, assessing the level of likely pedestrian increase in volume and also in extent across the site, as well as the type of access (cyclists, walkers etc), should be carried out.</p>
Q5.1.6.	The applicant	<p><b>Impact pathways</b></p> <p>Table 7-1 of the HRA Report [<a href="#">PD2-009</a>] does not clearly define which designated site each impact pathway applies to. Can the applicant please update the HRA Report accordingly, ensuring the report is clear in what it is referring to? The screening assessment should clearly set out which impact pathways apply to the relevant European sites, to which features and to which</p>	

		<p>phases of the proposed development and where impact pathways have been screened out robust justification should be provided.</p> <p>Accordingly, the ExA requests a summary table of all European sites and qualifying features and each pathway of effect considered at each HRA stage (screening, appropriate assessment/AEol, and the derogations, as applicable), for each phase of the proposed development (construction, operation, and decommissioning, as relevant).</p>	
Q5.1.7.	The applicant, NE, CWCC,	<p><b>Redshank</b></p> <ul style="list-style-type: none"> <li>i) Can you confirm if passage redshank is a qualifying feature of the Mersey Estuary SPA and whether it should appear as such in Chapter 8 of the ES [APP-041] and the Information to Inform the Habitats Regulations Assessment [PD2-010]?</li> <li>ii) If so, and noting that redshank was recorded in ornithological surveys during September [APP-082], for example, should the assessment of possible AEol in relation to redshank from the Mersey Estuary SPA (including those using the functionally linked land) clearly address the wintering flock and the passage flock separately?</li> <li>iii) Which months of the year might passage redshank be expected to be present, and do the ornithological surveys adequately cover these autumn and spring periods in terms of the survey dates and the number of surveys carried out?</li> <li>iv) Could disturbance avoidance mitigation measures of a similar nature to those identified to avoid an AEol of the wintering qualifying bird species be required to avoid an AEol of a passage redshank qualifying feature?</li> </ul> <p>Noting the intention to start construction works on the non-breeding bird mitigation area in March and the possibility of these extending into November, could these include extended seasonal restrictions on noisy and otherwise disturbing construction</p>	<ul style="list-style-type: none"> <li>i) The Mersey Estuary SPA Citation, May 2004 Version 1.1 (<b>Appendix 4</b>) states “<i>The site qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season: Redshank, 4513 individuals - passage</i>” Therefore, Redshank on passage should appear as such in Chapter 8 of the ES [APP-041] and the Information to Inform the Habitats Regulations Assessment [PD2-010].</li> <li>ii) CWCC agrees that addressing the passage and wintering Redshank separately would enable full consideration to take place, as they are different qualifying elements of the SPA.</li> <li>iii) Passage season refers to the spring and autumn seasons, as well as late summer, when birds are migrating from breeding to wintering grounds and back. The Mersey Estuary SPA citation (<b>Appendix 4</b>) states that the site is important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.</li> </ul> <p>In para 7.36 and 7.37 of CWCC’s Relevant Representation [RR-037], concerns are raised that the survey data each year either both missed out areas of the site and some of the relevant seasons, with specific concerns that only one set of surveys covered both full spring and autumn seasons (Year</p>

		activities in addition to physical mitigation commitments? If so, what should these be?	<p>1 2022/23). The Applicant's Response to CWCC's Relevant Representation [PD2-027] states that the core non-breeding period of October to March was covered, however, CWCC would point out that early autumn and late spring seasons were not covered in each survey; Year 2 (2023-2024) included surveys in September but not April, and Year 3 (2024-2025) did not include either September or April. Therefore, the full passages seasons were not surveyed at these times.</p> <p>iv) It is assumed this question is primarily for the Applicant/NE. CWCC will provide further comment at Deadline 3 if necessary.</p> <p>WCC agrees that seasonal restrictions on noisy and otherwise disturbing construction activities should be extended into the late summer, spring and winter periods and not just what the Applicant refers to as the "core" non-breeding bird periods.</p>
Q5.1.8.	The applicant	<p><b>European site conservation objectives and current status</b></p> <p>The conservation objectives and 'threats and pressures' for each European site are described in section 6.4 of the HRA Report [PD2-009]. However, the current conservation status of the European sites is not identified. The ExA requests this information for each European site considered in the HRA along with confirmation of whether they are in favourable or unfavourable condition.</p>	
Q5.1.9.	The applicant	<p><b>Zone of influence</b></p> <p>The HRA identifies European sites within a Zone of Influence (Zoi) of 10km from the OL.</p> <p>i) Can the applicant provide a justification as to why the 10km Zoi buffer utilised is considered sufficient? The</p>	

		<p>applicant is requested to consider NE's definition of FLL in its response.</p> <p>Can NE confirm whether it considers that any additional European sites should have been identified in addition to those already identified within the HRA Report?</p>	
Q5.1.10.	The applicant	<p><b>Qualifying features</b></p> <p>Several of the qualifying features for the European sites listed in Table 6-2 of the HRA Report [<a href="#">PD2-009</a>] are missing. Can the applicant please update this information and ensure that the correct information is reflected throughout the HRA Report, and the relevant qualifying features are assessed?</p>	
Q5.1.11.	The applicant	<p><b>Potential hydrological impacts on FLL</b></p> <p>The potential hydrological impacts on the surrounding FLL from the proposed re-engineering of Cell 3 during both construction and operation have not been addressed in the HRA Report [<a href="#">PD2-009</a>]. The ExA requests that hydrological connections to the surrounding FLL should be assessed and detailed within the HRA Report.</p>	
Q5.1.12.	The applicant	<p><b>Possible environmental impacts from unexploded ordnance detonations</b></p> <p>The ES Appendix 10-1 Stage 1 Geo-Environmental Assessment [<a href="#">APP-096</a>] identifies the potential for unexploded ordnance (UXO) at the site.</p> <p>i) Can the applicant please confirm whether the HRA and ES ecological assessments have taken into account the impact of any possible detonations?</p> <p>The ExA requests an assessment be provided on possible environmental impacts from unexploded ordnance detonations where there is potential for an AEoI (HRA related) on European site qualifying features or the potential for likely significant effects</p>	

		on ecological receptors (environmental impact assessment (EIA) related).	
<b>5.2 Assessment</b>			
Q5.2.1.	NE, CWCC	<p><b>Mitigation proposals for habitat loss affecting SPA species</b></p> <p>NE <a href="#">[RR-012]</a> and CWCC <a href="#">[RR-037]</a> state that they do not consider that sufficient information has been provided to demonstrate that the mitigation proposals for habitat loss for SPA species are satisfactory. The applicant provided further information in the updated NBBMS (contained within the OLEMP <a href="#">[PD2-023]</a>) which included a Water Balance Report (Annex 4) at Procedural Deadline B.</p> <p>i) Can NE and CWCC confirm whether they consider adequate information has been provided to demonstrate that the mitigation proposals for habitat loss affecting SPA species are satisfactory, and if not, identify any outstanding issues?</p> <p>Additionally, can they confirm whether they are satisfied with the updated details on the long-term management of the mitigation area?</p>	<p>It is assumed that the question refers to the additional information provided in the updated OLEMP <a href="#">[PD2-023]</a> only and that previous representations on the inadequacy of the mitigation proposal do not require repetition. Please refer back to CWCC if this is not the case.</p> <p>In the oLEMP, at para 1.5.3, it states that further areas of wetland retained and enhanced, referred to as The Lum and biodiversity enhancement zone north-east of the SADA, will provide further mitigation for SPA species. This is not detailed in terms of types of habitat provision, and it is understood that the biodiversity enhancement zone will be publicly accessible, with boardwalks, reducing its effectiveness as mitigation. These do not seem to have been included in the overall area calculations for the amount of mitigation area required (even though these calculations are flawed, as set out in response to Q4.4.2), or considered as a whole package, with the calculations carried out. The Water balance report is welcomed, however, CWCC does not have the expertise to assess this in terms of hydrology and will defer to Natural England on this point.</p> <p>CWCC does not consider that adequate information has been provided to demonstrate that the mitigation proposals for habitat loss affecting SPA species are satisfactory, as outlined in response to Q4.4.2 and in CWCC's Relevant Representation <a href="#">[RR-037]</a>, as well as the Local Impact Report <a href="#">[REP1-046]</a> and Written Representations <a href="#">[REP1-048]</a> submitted at Deadline 1.</p>

			Para 1.1.3 of the updated oLEMP [PD2-023]) states that there is an intention that the NBBMA will be managed by a reputable nature conservation organisation and if not, suitably qualified and experienced person will be employed. CWCC considers that this is not enough; if the mitigation strategy depends on the long-term success of the area and therefore agreement with a nature conservation organisation is required to be evidenced at this stage.
Q5.2.2.	The applicant, NE, CWCC	<p><b>Quantity and type of habitat loss</b></p> <p>Limited detail has been provided within the HRA Report [PD2-009] with regard to the quantity and type of habitat loss.</p> <p>i) Can the applicant please provide further detail on these matters including reference to the timeframes for each proposed habitat component within the NBBMS to become functional?</p> <p>Can NE and CWCC confirm whether they agree with the applicant's proposed NBBMA habitat components and whether they consider the NBBMA to be of a sufficient size and habitat makeup to mitigate for the loss of land within the entire SADA?</p>	<p>It is assumed this question is in relation to the plans provided in the HRA Report [PD2-009]. Please refer back if this is not the case.</p> <p>CWCC refers to the proposed plan as shown in the Proposed Levels Option 2 drawing within the HRA Report [PD2-009]. The habitats proposed look to be suitable for qualifying bird species associated with the Mersey Estuary RAMSAR, SPA SSSI. However, the plan does not show the replacement of the Canal Pools within the SSSI, nor the proposed reservoir/water storage area. This should be rectified.</p> <p>CWCC does not consider that the NBBMA has been demonstrated to be of a sufficient size to mitigate for the loss of land within the entire SADA (nor to be demonstrably additive to the existing FWF mitigation). This is discussed in the CWCC response to Q4.4.2, as well as the Local Impact Report [REP1-046] and in the Written Representations [REP1-048] as submitted at Deadline 1.</p>

## Historic Environment

ExQ1	Question to:	Question	CWCC Response
<b>6. Historic Environment</b>			
<b>6.0 Historic Environment</b>			
<b>Q6.0.1.</b>	CWCC	<p><b>Peat deposits - CWCC comments</b></p> <p>CWCC commented on the investigation and assessment of peat deposits in its relevant representation <a href="#">[RR-037]</a>, including in paragraphs 8.7 and 8.8. The applicant responded <a href="#">[PD2-027]</a>.</p> <p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation <a href="#">[RR-037]</a>?</p>	<p>CWCC's Relevant Representation <a href="#">[RR-037]</a> paragraphs 8.7 and 8,8 refer to wider matters other than the historic environment (archaeological) interest (e.g. the habitats, natural environment and climate change aspects).</p> <p>From an archaeological perspective CWCC/CAPAS confirm that the supply of more information on the nature of the peat deposits through a programme of geoarchaeological field investigation can be dealt with at the discharge of Requirements stage (Requirement 18 of draft DCO) <a href="#">[REP1-005]</a> and as indicated in Section 2.2 of the oWSI <a href="#">[AS-025]</a>.</p> <p>CWCC maintains that a clearer assessment of the peat depths across the site and assessment of compaction and hydrological impacts is required.</p> <p>Please cross reference to comments in CWCC's Local Impact Report: E.026 <a href="#">[REP1-046]</a> and Written Representations (paragraphs 4.79 to 4.83) <a href="#">[REP1-048]</a>.</p> <p>The Applicant's response to CWCC's Relevant Representation <a href="#">[RR-037]</a> (7.138-141) <a href="#">[PD2-027]</a> deals with additional loading and hydrology.</p> <p>The Applicant's Peat Reconnaissance Survey Appendix I <a href="#">[APP-097]</a> only provides information to a depth of 5m. Further investigation is expected to be carried out under the oWSI <a href="#">[AS-029]</a>.</p>

			<p>At Deadline 1 following ISH1 the Applicant provided a Technical Note on Peat Resources [REP1-043]. It is noted that Figure 3.3. reveals peat encountered below 2m within the proposed NBBMA; and at paragraph 3.7 <i>“the potential for interaction of drainage or duct excavations and groundworks, in the areas outside the SADA and NBBMA, is limited though potentially may occur to the south west of the NBBMA”</i>.</p> <p>Regarding paragraph 4.1 that: <i>“for a project of this nature it would not be unreasonable for investigation points to be based on a 25m to 50m grid spacing and the method of investigation selected to determine the presence or absence of peat”</i>. CWCC accepts that a 25m grid interval seems appropriate but, clearly, this will need archaeological oversight and monitoring to retain samples from appropriate cores. This needs to be covered in the detailed geoarchaeological WSI.</p> <p>Fig 4.1 makes reference to <i>“potentially up to 6 No. boreholes may be considered within these (black hatched) areas”</i>. CWCC do not raise issue with this.</p> <p>CWCC welcomes the commitment in the oCEMP (REP1-021) to a Peat Management Plan should further pre-construction ground investigation reveal peat resources that are liable to be impacted. The use of low-pressure piling should also be secured via the draft DCO. (See also response to Q 9.4.2 below).</p>
<p><b>Q6.0.2.</b></p>	<p>Cheshire Archaeology Planning Advisory Service (CAPAS),  Historic England (HE)</p>	<p><b>Ventilation shafts</b> The applicant [APP-044] refers to a worst case of complete removal of possible ventilation shafts (Asset 16), mitigation to record them prior to demolition, and mitigation to provide for the protection and retention of any that would not need to be lost or damaged by the proposed development.</p>	<p>CWCC/CAPAS confirm that:</p> <ul style="list-style-type: none"> <li>i) The ventilation shafts are modern industrial features and are, at most, of Local Archaeological Significance. As such, where threatened by development, preservation in situ is not required and recording prior to removal is appropriate.</li> </ul>

		<p>Please could CAPAS and HE comment on:</p> <ul style="list-style-type: none"> <li>i) The value of the ventilation shafts as historic assets?</li> <li>ii) The adequacy of the applicant's proposed mitigation measures?</li> </ul> <p>If (and if so, why) it should be firmly secured that one or more of these structures should be retained?</p>	<ul style="list-style-type: none"> <li>ii) The Applicant's proposed mitigation (recording of any threatened structures) is appropriate.</li> </ul>
Q6.0.3.	CAPAS, HE	<p><b>Archaeology – potential assets</b></p> <p>The applicant [<a href="#">APP-044</a>] said that the only existing records of prehistoric archaeology from within the 1 km study area were several chance finds, including two middle bronze age socketed spearheads, that were found on Frodsham Marsh and probably within the site.</p> <p>Please could CAPAS and HE comment on:</p> <ul style="list-style-type: none"> <li>i) The potential for other archaeology within the site?</li> </ul> <p>With reference to paragraph 5.9.6 of the Overarching National Policy Statement for Energy, the potential for non-designated heritage assets of archaeological interest to be present that are demonstrably of equivalent significance to Scheduled Monuments?</p>	<p>CWCC/CAPAS confirm that:</p> <ul style="list-style-type: none"> <li>i) There is potential for other finds to be present within the order limits, either within the topsoil or deeply buried within the sedimentary sequence. However, these are likely to be isolated finds of Local or Regional Significance which were either lost or discarded within a wetland environment that is unlikely to have been attractive for early settlement. As such it is considered that the potential for non-designated heritage assets of archaeological interest to be present that are demonstrably of equivalent significance to Scheduled Monuments is extremely limited.</li> </ul>

Q6.0.4.	CAPAS, HE	<p><b>Archaeology - mitigation</b></p> <p>Requirement 18 of the dDCO [PD2-005] secures measures in relation to an archaeological mitigation strategy.</p> <p>The applicant [AS-001] has submitted an oWSI [AS-029] which it said addresses the areas proposed to be subject to a WSI within section 11.9 of the assessment [APP-044].</p> <p>i) Are CAPAS and HE content with Requirement 18 of the dDCO [PD2-005] and the oWSI [AS-029]? If not, what changes should be made, and why?</p>	<p>CWCC/CAPAS confirm that:</p> <p>i) The content of Requirement 18 of the DCO (latest version [REP1-005] is acceptable.</p> <p>ii) the content of the outline WSI is acceptable. However, this is an outline document which (as acknowledged by the Applicant) will need to be supplemented by detailed WSIs for each discrete piece of mitigation (recording of the ventilation shafts, programme of geoarchaeological / paleoenvironmental work).</p>

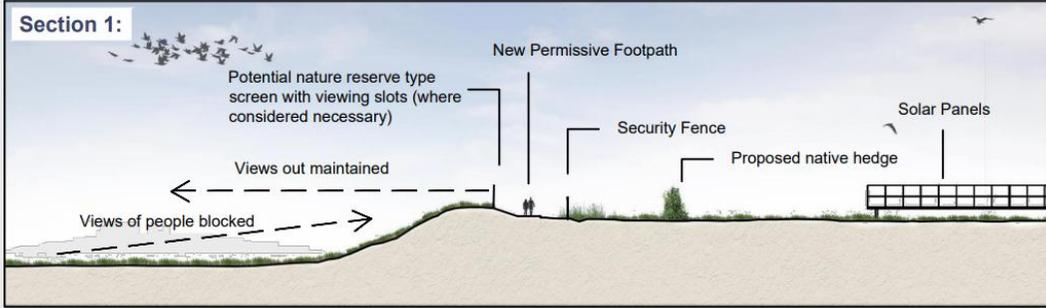
## Landscape and visual

ExQ1	Question to:	Question	CWCC Response
<b>7. Landscape and visual</b>			
<b>7.0 Landscape and visual</b>			
Q7.0.1.	CWCC	<p><b>Landscape and visual - CWCC comments</b></p> <p>CWCC commented on landscape and visual matters in its relevant representation [RR-037], including in paragraphs 2.9, 2.10, 2.11, 2.12, 6.4, 6.5, 6.7, 6.8, 6.9, 6.10, 6.12, 6.13, 6.15, 6.16, 6.17, 6.18, 6.19, 6.20, 6.21, 6.23, 6.24, 6.25, 6.26, 6.27, 6.28, 6.29, 6.30, 6.31, 6.33, 6.35, 6.36, and 6.38. The applicant responded [PD2-027].</p>	<p>In the Applicant's response to paragraph 2.9 of RR-037 it states, "<i>The Applicant's assessment accepts that parts of the site fall within an area identified as having higher landscape sensitivity in the Council's 2016 study</i>".</p> <p>The Applicant refers to parts of the site being within an area of higher landscape sensitivity. The whole of the SADA falls within an area of high landscape sensitivity to very large solar farms as shown by Figure 10 in the study (<b>Appendix 5</b> – page 132 of original study). Table 5: Summary of Sensitivity of Landscape Character areas to Solar Photovoltaic Development shows that of the four LCT4: Drained Marsh areas within the borough, the LCA 4a Frodsham Helsby and Lordship Marshes area have the highest overall assessment</p>

		<p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation <a href="#">[RR-037]</a>?</p>	<p>of sensitivity ('Moderate to High') i.e. before considering the scale of proposed solar scheme. (<b>Appendix 1</b> – pages 67-68 of original study).</p> <p>The extracts from the landscape sensitivity study (<b>Appendix 5</b>), include LCT 15 River Valley and LCT 16 Mudflats &amp; Saltmarsh, as well as LCT 4 Drainage Marsh as these are character types adjacent to the LCA 4a area. Appendix B General Design Guidance Principles is also included for reference.</p> <p>Paragraph 6.6.40 of the Applicant's LVA [APP-039] acknowledges that even a small scale development would be contrary to the management strategy identified in "A Landscape Strategy for Cheshire West and Chester Borough" (2016) which is to conserve the open, undeveloped character of the drained marshland.</p> <p>CWCC disagrees with the Applicant's conclusion [PD2-027] responding to 2.9-2.12 of [RR-037] that "<i>the overall structure and key characteristics of the marshland landscape would remain legible</i>". CWCC's position is that the magnitude of change associated with the proposed development is significant. This view is supported by some of the key characterises of LCT4 sensitivity to solar PV development (<b>Appendix 5</b> - pages 79-80 of original study):</p> <ul style="list-style-type: none"> <li>• <i>The open, exposed landscape of the drained marsh is highly sensitive to solar PV development in principle;</i></li> <li>• <i>However, the simple uniformity of landform and land cover, and its medium to large scale pattern with only occasional landscape features means there is some potential for solar PV development.</i></li> <li>• <i>The influence of built development within adjacent landscapes reduces the perception of naturalness and reduces sensitivity;</i></li> <li>• <i>The mostly small scale, low density, dispersed settlement pattern is highly sensitive to solar PV development that would be out of scale and further increase the perception of human influence.</i></li> <li>• <i>Skylines are not prominent, with generally only locally significant views, limited intervisibility and visual receptors reducing sensitivity. However there are sensitive views down to LCA 4a: Frodsham, Helsby and Lordship Marshes from important viewpoints on the sandstone ridge.</i></li> <li>• <i>Low to medium scenic quality with some distinctiveness reduces sensitivity, but the drained marsh is a less common landscape in CWaC the character of which could be adversely affected by solar PV development.</i></li> </ul>
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			<p>The Applicant states that the design has been shaped to limit perceived scale and visual exposure, with the use of low panel heights. However, the panel heights are no lower than any other typical solar scheme, and due to the need to mitigate impacts of flooding due to the location within EA flood zone 3, the panels are raised higher than the norm on the eastern side of the SADA.</p> <p>It is agreed that there is conflict with Policy DM52. There is disagreement as to the extent of conflict with Policy DM52</p> <p>[RR-037] paragraph 6.4 deals with compliance with objectives of STRAT 9. CWCC's position on STRAT 9 is that there is Policy conflict, due largely to the scale of the development and the resulting magnitude of change in terms of the character of the countryside. CWCC accept that this Local Plan policy conflict will be considered in relation to the NPS guidance (e.g. EN-01 5.10.12, 5.10.35-36), but it would not be appropriate to conclude that application of design mitigation measures is sufficient to achieve policy compliance in terms of STRAT9.</p> <p>In relation to paragraphs 6.5 to 6.9 of [RR-037], and considering the Applicant's response to the three strands of Policy GBC2:</p> <ol style="list-style-type: none"> <li>1. protect and, wherever possible, enhance landscape character and distinctiveness;</li> <li>2. integrate into the landscape character of the area; and</li> <li>3. be designed to take account of guidance in the Landscape Strategy;</li> </ol> <p>CWCC considers there is a failure on point 1. to protect the landscape character due largely to the overall scale of proposed development. There is disagreement with the Applicant over the impact of the proposed development which the Applicant describes as "inherently low in height and horizontal in form". The spread of development across the current open grazing areas of the dredging deposit cells in particular is transformative in terms of its urbanising influence.</p> <p>CWCC notes that the Overall Landscape Management Strategy for LCA 4a is "<i>to enhance and restore the condition of habitats and features of the marshes whilst <b>safeguarding its open character</b></i>" (our emphasis); and that one of the management guidelines is to</p>
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			<p><i>“Conserve the ‘remote’ character of the marshes away from the main transport corridor of the M56”.</i></p> <p>Please cross refer to Table 2 (page 16) of [APP-068] (Landscape Character Baseline).</p> <p>CWCC acknowledges the Applicant’s efforts to comply with points 2 and 3 (GBC2) by maintaining field patterns (which reveal the planned 19th century enclosure of the marsh) and reinforcing landscaping etc.</p> <p>The Landscape Strategy management guidelines for LCA4a encourage recreational development (and the Applicant’s proposals for permissive paths is consistent with this), ought to be done whilst safeguarding the nature conservation interest of the area, particularly its importance for birds. The adoption of less-intensive agricultural practices would also be consistent with the guidelines.</p> <p>The final landscape management guideline for LCA4a is to: <i>“Retain the open character of the marsh by restricting planting to low growing scrubby species typically found in the local landscape, taking into account the importance of the area for ground nesting birds and wintering/passage birds. Woodland planting /screening using tall or ornamental species is not appropriate in the open marsh”.</i></p> <p>This is relevant in terms of the details of proposed planting and the longer-term landscape management of existing and enhanced new planting. It is also relevant in considering other representations relating to screening of the solar arrays.</p>
Q7.0.2.	The applicant	<p><b>Frodsham Hill War Memorial</b></p> <p>Please could the applicant respond to the concerns raised in relevant representations about the visual effects at Frodsham Memorial, including those raised by Christine Webber <a href="#">[RR-015]</a>, Ruth Carol Basden <a href="#">[RR-025]</a>, Tom Esser <a href="#">[RR-028]</a>, CWCC <a href="#">[RR-037]</a>, and Climate Action Frodsham <a href="#">[RR-040]</a>?</p>	

<p>Q7.0.3.</p>	<p>The applicant, CWCC</p>	<p><b>Security fencing and alternatives to fencing</b></p> <p>CWCC [APP-039] said that the proposed development should aim to minimise the use and height of security fencing and that where possible existing features, such as hedges or landscaping, should be used.</p> <p>The applicant [APP-039] referred to paragraphs 2.4.152 to 2.4.157 of ES Chapter 2 [APP-035] and said that the fencing would typically be 2.0m high wire-mesh deer fencing.</p> <p>i) Please could the applicant set out how it proposes to mitigate the landscape and visual impact of security fencing and respond to CWCC's regarding the use of existing features?</p> <p>Does CWCC have any comments about how mitigation measures in relation to the design of security fencing and alternatives to fencing should be secured?</p>	<p>In hindsight, CWCC acknowledges that adequate security is not liable to be achieved by reliance on hedging alone, and security fencing (up to 2m high) is liable to be necessary around the perimeter of the solar arrays.</p> <p>However, the use of existing/proposed landscape features to screen/filter views of new security fencing broadly as shown on the sections to the Illustrative Environmental Masterplans in the ES Volume 3 Chapter 2 Figures [APP-106] is considered appropriate and/or necessary.</p> <p>Section 1 on Figure 2-3b Illustrative Environmental Masterplan Sheet 1 [APP-106] is an outlier in terms of the approach, as the security fence is shown between the permissive path and the proposed native hedge, and this would seem to be at odds with the general approach of screening/filtering the impact of new security fencing.</p> <p>The nature reserve screen (required because of the introduction of the permissive path, which CWCC have commented on as not appropriate in this location) would also be at odds with the landscape management guidelines from CWCC's Landscape Strategy for Cheshire West and Chester Borough, reproduced in Table 2 of [APP-068] and referred to above (e.g. in terms of retaining openness). Mention is made of maintaining views out, but these are liable to be limited viewpoints.</p> 
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Q7.0.4.	CWCC	<p><b>Trees and hedges</b></p> <p>CWCC [APP-039] said that the ES should be accompanied by an arboricultural and hedgerow assessment to assist with the landscape assessment.</p> <p>The applicant [APP-039] referred to ES Chapters 7 and 8 [APP-040, APP-041] and said that ecology surveys included the tree and hedgerow vegetation within the OL.</p> <p>Does CWCC have any outstanding concerns?</p>	<p>Please refer to CWCC's Written Representation [REP1-048]: CWCC recommends that the draft DCO, Article 39 Felling or lopping of trees and removal of hedgerows be clarified so that Article 39 applies only to features approved for removal and not retained features.</p> <p>Please refer to CWCC's Local Impact Report [REP1-046]: 13.12 to 13.17 and LV.007 and in particular: "13.16. Further clarity on identifying trees (and hedgerows) to remain and the controls to protect them is needed to assess the development's impact on trees and hedges".</p> <p>LV.007 refers to the removal of the removal of trees, and that Policy DM45 includes provision for replacement on a 2 for 1 basis: "...2. <i>include replacement planting at a ratio of at least two new trees for each tree lost. Replacement trees should be of heavy or extra heavy standard, and where prominent trees are to be removed, large specimen trees may be required;....</i>"</p> <p>This should be reflected in Requirement 9 (3) of Schedule 2 of the DCO.</p>
Q7.0.5.	The applicant, United Utilities Water Limited (Uuw)	<p><b>United Utilities Water Limited assets</b></p> <p>United Utilities Water Limited [RR-006] raise concerns about the potential for changes in ground level, landscaping and planting to impact its assets.</p> <p>i) Please could the applicant comment on how these assets would be protected, and how this is secured? Are there similar issues for other buried utilities?</p> <p>Please could Uuw provide updates on its position during the examination?</p>	

Q7.0.6.	CWCC	<p><b>Cheshire Sandstone Ridge</b></p> <p>The applicant [APP-039] said that in 2021 the Cheshire Sandstone Ridge was shortlisted for potential designation as an Area of Outstanding Natural Beauty, noting that they were renamed as National Landscapes in 2023. It referred to CWCC saying that the proposals to designate were at an early stage and that there were no draft special qualities or draft management plan available. The applicant said CWCC agreed that no specific assessment was required in relation to the draft National Landscape, but the sensitivity of the area should be recognised.</p> <p>i) Please could CWCC provide an update on the potential designation?</p> <p>Is CWCC satisfied that the applicant has considered the potential designation appropriately?</p>	<p>In June 2025 Natural England provided an update on Natural England’s Landscape Designation Programme (<b>Appendix 6</b>) to confirm that work on the new National Landscape in Cheshire has stopped (along with work on the Chilterns National Landscape boundary extension project).</p> <p>However, in consideration of the evidence gathered to date for the purpose of assessing these areas, Natural England noted, and would continue to note that, Natural England considers the Cheshire Sandstone Ridge and the Chilterns to be a valued landscape under paragraph 187 of the National Planning Policy Framework.</p> <p>Natural England comment in their update that “An assessment of the landscape and visual impacts of the proposal on this area should therefore be undertaken, with opportunities taken to avoid or minimise impacts on the landscape and secure enhancement opportunities. Any development should reflect or enhance the intrinsic character and natural beauty of the area and be in line with relevant development plan policies”.</p> <p>Natural England is expected to publish the landscape designation technical assessments in due course.</p> <p>In light of further work on the designation not now progressing, CWCC are satisfied that the applicant has considered the potential designation sufficiently.</p>

### The water environment

ExQ1	Question to:	Question	CWCC Response
8. The water environment			
8.0 Assessment			

Q8.0.1.	The applicant, EA, Marine Management Organisation (MMO)	<p><b>Tidal influence of the River Weaver</b></p> <p>Can you advise if the application considers tidal influence of the River Weaver and whether a tidal influence exists between the River Weaver and the main rivers within the OL?</p>	
Q8.0.2.	The applicant	<p><b>Mean high water springs data</b></p> <p>Can the applicant advise how it has considered mean high water springs data and its contribution to defining the design flood level of 6.52m Above Ordnance Datum (AOD)?</p>	
Q8.0.3.	CWCC, NE, EA	<p><b>ES conclusions</b></p> <p>Are you content with the applicant's assessment that there would be no residual significant effects as a consequence of the proposed development? If you disagree with the applicant's assessment, please provide justification and relevant evidence to support your position.</p>	<p>With regards to Chapter 9.0 of the ES [APP-042] and the conclusions on flood risk, drainage and surface water, and subject to any comments from the Environment Agency and/or Natural England, CWCC does not consider that there would be residual significant effects, although CWCC notes the following:</p> <ul style="list-style-type: none"> <li>i) NE's comments about potential in combination effects in relation to potential changes in hydrology of the NBBMA associated with the CO2 project [REP1-056], as well as the comments about the conclusion for the HRA at this stage; and</li> <li>ii) The Environment Agency has outstanding concerns, including concern that post construction water quality monitoring would be inadequate [REP1-050](E008).</li> </ul>
<b>8.1 Mitigation Measures</b>			
Q8.1.1.	The applicant	<p><b>Clarification of any proposed works below the mean high water springs mark or within the tidal influence</b></p> <p>Table 9-13 Sensitivity of receptors of Chapter 9 Risk and Surface Water [APP-042] states that main rivers on site are hydrologically linked to The River Weaver which is a Water Framework Directive (WFD) waterbody with a 'moderate' ecological classification and a 'fail' chemical classification. Can the applicant summarise how the</p>	

		proposed development would not result in any works, below the mean high water springs mark or in any tidal river to the extent of the tidal influence?	
Q8.1.2.	The applicant, EA, MMO	<b>Licence/Consents</b> Can parties advise if a licence/consent/permit would be required from the MMO and /or EA to construct works such as an area to accommodate foundation/pole to string the conductors across the River Weaver?	
Q8.1.3.	The applicant	<b>Surface and groundwater management</b> Can the applicant summarise its management arrangements and controlling documents during the permitted preliminary works for surface and groundwater management?	
Q8.1.4.	The applicant, CWCC, NE, EA	<b>Sampling and analysis</b> Can you summarise what sampling and analysis of the water environment should/would be undertaken prior and during the permitted preliminary works?	CWCC defer to the Environment Agency to provide advice on this.
Q8.1.5.	CWCC, EA	<b>Water Framework Directive</b> i) Are you content that the proposed development has regard to the current River Basin Management Plans and meets the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (including regulation 19)? ii) Would the proposed development cause deterioration of a water body or its failure to achieve good status or good potential, unless the requirements set out in Regulation 19 are met?	i) Subject to: a) any comments from the Environment Agency; b) securing a Construction Groundwater and Surface Water Management Plan (GWSWMP) (referred to in the oCEMP) (para. 1,3,2 of REP1-021) to ensure surface water management during construction and to manage potential mobilisation of sediment and release of hydrocarbons and other pollutants into watercourses; c) provision of water quality monitoring in the CEMP (as per EA's comment EA0008 referred to above)  CWCC considers that the project has regard to the River Basin Management Plans and meets the requirements of the Water Framework Directive (WFD) regulations.

			<p>It may assist to reference Appendices B &amp; C of the Applicant's Water Framework Directive Assessment (APP-089) for the EA's and LLFA's initial correspondence on the WFD.</p> <p>ii) With regard to the question relating to water body status the Environment Agency is best placed to comment.</p>
<b>8.2 Flood Risk</b>			
Q8.2.1.	The applicant, EA, CWCC	<p><b>Flood risk and coastal change - 7- Planning Practice Guidance (PPG)</b></p> <p>Can you advise if the update to Flood risk and coastal change - 7- Planning Practice Guidance (PPG) dated 17 September 2025 <a href="#">Flood risk and coastal change - GOV.UK</a> necessitates further work by the applicant on its sequential approach?</p>	<p>PPG advice was updated in Sept 2025 amending paragraphs 23, 27 and 28 and adding 27a. which all relate to the sequential approach to the location of development.</p> <p>The guidance confirms that consideration be given to all sources of flooding including areas at risk of surface water flooding.</p> <p>Given that much of the site is already covered by EA mapping Flood Zone 3, (as opposed to surface water), it is unlikely that further work by the Applicant on its sequential approach would result in development being steered to an alternative site with a lower risk of flooding.</p> <p>CWCC made reference in its Relevant Representation [RR-037] (paragraph 10.4) to the surface water flood risk identified on the higher-level dredging deposit grounds (which are EA Flood Zone 1). This was in regards to sequential assessment of the BESS options within the SADA. The Applicant's response in PD2-027 did not comment directly on paragraph 10.4 in RR-037 but provided response to RR-037 10.5-10.18. The Applicant's response addresses the latest PPG (referring to para. 27a and some of the background case law). With regards to the specific point about avoiding surface water flooding on the higher dredging deposit</p>

			<p>cells (and the options for siting the BESS) the Applicant states:</p> <p><i>“CWACC raise a point in relation to modifying the layout in areas identified at risk of surface water flooding (as different from fluvial flooding). This matter is considered within the Flood Risk Assessment (page 29) (AS-019) where it is identified that the easternmost extent of the Option 1 BESS and Frodsham Solar. Substation encroaches into the ‘low’ risk surface water flood extent during the present day and climate change scenarios. EA surface water flood depth mapping shows that during the ‘low’ risk climate change event, flood depths do not reach up to 200mm. It is evident that these areas of surface water flooding are associated with low spots / depressions within this area of the dredging deposit ground. The area of the BESS and Frodsham Solar Substation compound would be re-engineered as part of the development process, which is likely to eliminate the localised survey water flooding in this area. Furthermore, as can be seen from Figure 2- 5f, the BESS units and Power Conversion Units would be raised above ground level and thus not susceptible to localised shallow surface water flooding. Given the low risk and shallow nature of the surface water flooding, along with the ability to introduce design measures to mitigate any localised flooding it is evident that BESS and substation compound can be designed to ensure the built development components remain operational and that operatives would remain safe.”</i></p> <p>Reference is then made to PPG paragraph 27 and the advice in relation to NPPF paragraph 175 to take a proportionate approach and concluding that the sequential test need not be applied.</p> <p>Paragraph 27 of PPG omits referring to the point in paragraph 175 that the exception to carrying out a sequential assessment is in relation to situations where</p>
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			<p>there is no built development etc.. “<i>The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that <b>no built development</b> within the site boundary ...</i>” (our emphasis).</p> <p>Following the Applicant’s response in [PD2-027] regarding flood risk, CWCC generally accepts the Applicant’s submission in relation to the sequential test relating as it may relates to finding other potential sites/disaggregation of the development etc.</p> <p>However, CWCC considers that the sequential approach ought to be applied to the site layout, and where practical, the project ought to avoid built development in areas of the site where there is a higher level of surface water flood risk (e.g. in considering the BESS options).</p> <p>See Waterco drawing 14740_EA_RoFSW Appendix F ‘EA Maps &amp; Correspondence’ in Appendix 9-1: Flood Risk Assessment and Drainage Strategy Part 1 of 5 (AS-019).</p> <p>Were the sequential test passed or not needed, as Essential Infrastructure consideration of the Exception Test is still needed.</p>
Q8.2.2.	EA, CWCC	<p><b>NPS EN-1</b></p> <p>Are you satisfied that the proposed development meets paragraph 5.8.12 of NPS EN-1 that “Development should be designed to ensure there is no increase in flood risk elsewhere, accounting for the predicted impacts of climate change throughout the lifetime of the development. There should be no net loss of floodplain storage, and any deflection or constriction of flood flow routes should be safely managed within the site.</p>	<p>CWCC note that the main flood risk is fluvial and the EA is best placed to comment on this and around floodplain storage.</p>

		Mitigation measures should make as much use as possible of natural flood management techniques”?	
Q8.2.3.	EA, CWCC	<p><b>NPS EN-1</b></p> <p>Are you satisfied that the proposed development meets paragraph 5.8.41 of NPS EN-1 that “Energy projects should not normally be consented within Flood Zone 3b, or on land expected to fall within this zone within its predicted lifetime. This may also apply where land is subject to other sources of flooding (for example surface water). However, where essential energy infrastructure has to be located in such areas, for operational reasons, they should only be consented if the development will not result in a net loss of floodplain storage, and will not impede water flows”?</p>	CWCC considers that the EA is best placed to comment on Flood Zone 3b and floodplain storage matters.
Q8.2.4.	The applicant	<p><b>Flood Zone 3</b></p> <p>i) What proportion of the solar array development area, in percentage and area terms, is within Flood Zone 3a and 3b?</p> <p>What is the estimate of the power generation from these areas?</p>	
Q8.2.5.	The applicant	<p><b>Sequential test and site selection</b></p> <p>i) What justification was there for the limitation of a 5km search area for this proposed development when other solar NSIPs have used significantly greater search areas, some in excess of 10km?</p> <p>ii) Can you explain the policy basis for limiting the search area to 5km?</p> <p>Can you explain how the approach you have taken to the sequential test complies with the requirements of NPS-EN1 and the Planning Practice Guidance?</p>	
Q8.2.6.	The applicant	<p><b>Construction compound flood risk</b></p> <p>i) The ExA notes your response [<a href="#">PD2-027</a>] to CWCC’s concern in its RR [<a href="#">RR-037</a>] regarding to the location of construction compounds with regards to flood risk and your statement that the compounds are required to service the construction of the proposed development. Nevertheless, can you explain the</p>	

		<p>sequential approach taken to the choice of location of these compounds in regard to flood risk? Can you explain if there are any possible other areas in which these construction compounds could be located which would be at a lower flood risk and service the construction of the proposed development?</p> <p>Can you explain how the proposed construction compounds would operate (including any temporary storage of materials), to avoid impeding water flow or increasing flood risk elsewhere?</p> <p>Can you confirm what commitments have been proposed to manage flood risk on the construction compounds in the event of a flood during construction and how these commitments would be secured?</p>	
Q8.2.7.	CWCC	<p><b>The sequential test</b></p> <p>The ExA notes the applicant's responses [<a href="#">PD2-027</a>] to your concerns regarding the sequential test in your RR [<a href="#">RR-037</a>]. Can you update the ExA with your latest views on the sequential test in light of the recent meeting held with the applicant on this matter [<a href="#">PD2-027</a>]?</p>	<p>Please refer to comments above Q8.2.1 and Waterco drawing 14740_EA_RoFSW Appendix F 'EA Maps &amp; Correspondence' in Appendix 9-1: Flood Risk Assessment and Drainage Strategy Part 1 of 5 (AS-019) (page 72 of pdf).</p> <p>CWCC is satisfied that the Applicant has provided responses to address the points concerning alternative site assessment and / or disaggregating the project.</p> <p>With regard to adopting a sequential approach to siting and layout within the SADA, it is acknowledged that the extent of land covered by Flood Zone 3 would make it difficult to make reasonable adjustments, and the development (giving the location in Flood Zone 3) ought to be considered in relation to the Exception Test in this regard. (EN-1 paragraph 5.8.9).</p> <p>However, in relation to surface water flood risk, where relatively small adjustments can be made to either select siting in locations of lower surface water flood risk (such as BESS option 2, or by pulling back solar arrays from the areas of highest surface water flood risk), to avoid areas of flood risk remains preferable in relation to</p>

			<p>adopting a sequential approach (e.g. south east corners of Cells 1 and 5).</p> <p>(See Figure 4 of Information to Inform HRA – [PD2-009] for Cell identification).</p> <p>This approach would be consistent with EN-3 (paragraph 2.10.60):</p> <p><i>2.10.60 As set out above applicants will consider several factors when considering the design and layout of sites, including proximity to available grid capacity to accommodate the scale of generation, orientation, topography, previous land-use, and ability to mitigate environmental impacts and flood risk.</i></p>
Q8.2.8.	EA	<p><b>Relevant representation responses</b></p> <p>The applicant's responses [PD2-027] to your relevant representation (RR) [RR-024] suggest resolution has been achieved for the following issues; EA001, EA002, EA003, EA004, EA005, EA008, EA009, EA012, EA013, EA015, EA017, EA019, EA021, EA026, EA027 and EA028. Please confirm if these issues are now fully resolved. If not, please provide details of outstanding matters in relation to these issues, together with any suggestions as to how they might be resolved.</p>	
Q8.2.9.	The applicant, EA	<p><b>Flood Risk Activity Permits (FRAPs)</b></p> <p>Can you update the ExA with details of any outstanding matters in relation to the proposed disapplication of the FRAPs within the protective provisions of the daft DCO [PD2-005]?</p>	
Q8.2.10.	EA	<p><b>Position of bridge abutments and soffit level</b></p> <p>i) Can you confirm whether the additional information provided by the applicant in Appendix A to their Response to Local Planning Authority and Statutory Environmental Body Relevant Representations [PD2-027] is sufficient or whether any further information is required?</p>	

		<p>ii) Can you confirm if the updated protective provisions in Schedule 23 of the draft DCO [PD2-005] are adequate?</p> <p>Can you confirm if the updated design requirements within the Outline Construction Environmental Management Plan - P02 (oCEMP) [PD2-015] are adequate?</p>	
Q8.2.11.	EA	<p><b>Potential risks associated with embedding cables within the proposed crossings</b></p> <p>i) The ExA notes you suggested [RR-024 issue EA010] outstanding matters with potential risks associated with embedding cables within the proposed crossings could be addressed at the detailed design stage, if the applicant provides adequate commitments secured in the draft DCO. Can you confirm if this is your current view and whether the current dDCO addresses your concerns?</p> <p>ii) Can you update the ExA as to whether you consider the information provided by the applicant in Appendix B - Technical Note Integrity of New Bridges in Flood Event (14740-WCD-XX-XX-TN-S-001) [PD2-027] is adequate? If not, can you provide details of any outstanding matters in relation to this issue and how they might be resolved?</p>	
Q8.2.12.	EA	<p><b>Flood warning, evacuation plan and post flood actions</b></p> <p>i) Can you confirm whether information in the Outline Flood Warning and Evacuation Plan P02 [PD2-028] is sufficient to resolve your concerns regarding works undertaken during high astronomical tides [RR-024 issue EA011]?</p> <p>ii) Can you confirm if the updates made by the applicant to the Outline Operational Environmental Management Plan (oOEMP) [PD2-017] to inspect flood defences annually, report defects to the Environment Agency and to inspect bridges after flood events for damage and repaired as necessary, are sufficient to resolve your concerns?</p>	

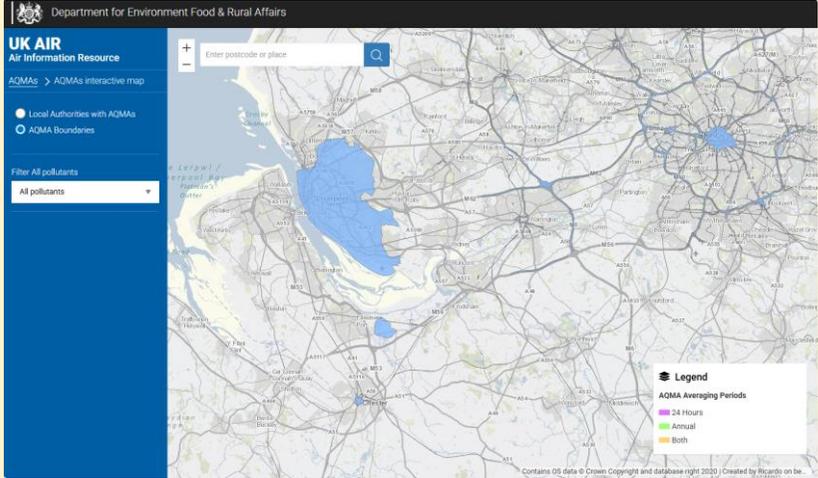
Q8.2.13.	EA	<p><b>Cable decommissioning</b></p> <p>Can you confirm whether the applicant's update to the Outline Decommissioning Environmental Management Plan [<a href="#">PD2-019</a>] regarding removal of cables as part of the decommissioning works, where this results in the best environmental outcome, is sufficient to resolve your concerns?</p>	
Q8.2.14.	The applicant	<p><b>Cable decommissioning</b></p> <p>Can you confirm:</p> <ul style="list-style-type: none"> <li>i) The process to be undertaken to determine the best environmental outcome from balancing the impact of disturbance from cable recovery against the sustainability benefits of recycling the cables?</li> <li>ii) Which organisation would be consulted and who would ultimately take the decision as to whether cable removal from the site would result in the best environmental outcome?</li> </ul>	
Q8.2.15.	EA	<p><b>Height for above ground cable crossing of the River Weaver</b></p> <p>Can you confirm whether the applicant's response to your concern [<a href="#">RR-024</a> issue EA014] is sufficient, or whether you have outstanding concerns?</p>	
Q8.2.16.	CWCC, EA	<p><b>Frodsham pumping station</b></p> <p>Can you confirm whether you have any concerns regarding the ongoing use of Frodsham pumping station in relation to this application?</p>	<p>CWCC defer to the EA on this. However, given the critical nature of the project in terms of electricity generation, and the expectation that the development would remain functional during times of flood, the potential for reliance (or at least benefit to the project) associated with the continuing operation of Frodsham pumping station would appear to warrant potential contribution towards ensuring that the pumping station remains operational should the EA seek such provision.</p>
Q8.2.17.	The applicant	<p><b>Presence of public sewers</b></p> <ul style="list-style-type: none"> <li>i) UUW disagrees [<a href="#">RR-006</a>] with the statement in the Appendix 9-1 Flood Risk Assessment and Drainage Strategy 1 of 5 [<a href="#">AS-019</a>], that there are no public sewers crossing the site of the proposed</li> </ul>	

		<p>development. Can you update the ExA with the outcome of discussions with UUW in regard to this issue, including any implications for the flood risk assessment?</p> <p>ii) UUW raises concerns in its RR <a href="#">[RR-006]</a> regarding potential impacts on its drainage assets. Can you update the ExA with the outcome of discussions with UUW in regard to this issue, including any implications for the flood risk assessment for the proposed development?</p> <p>iii) UUW states in its RR <a href="#">[RR-006]</a> that it will not accept the connection of any dewatering proposals to the public sewer. Can you respond to this statement, stating whether the position held by UUW has any implications for the proposed development?</p>	
Q8.2.18.	The applicant, EA	<p><b>Flood risk development lifetime</b></p> <p>The ExA notes the Environment Agency's concern <a href="#">[RR-024 issue EA024]</a> that flood risk has only been assessed up to the year 2075. Schedule 2 of the draft DCO would enable commencement of the authorised development at year 5 from the date the Order comes into force. Please comment on the suggestion of a requirement being added to Schedule 2 of the draft DCO to say if for any reason activity was proposed at a later date to persist beyond 2075, then a new flood risk assessment would be required.</p>	
Q8.2.19.	EA	<p><b>Hydraulic Modelling Report Addendum</b></p> <p>Can you provide any general comments you have on the applicant's additional modelling presented in the Hydraulic Modelling Report Addendum <a href="#">[PD2-030]</a>. In addition, can you provide comments in relation to your concern <a href="#">[RR-024 issue EA018]</a> regarding the possible underestimation of flood risk impacts from structures associated with new permanent and temporary crossings?</p>	
<b>8.3 Other water related matters</b>			

Q8.3.1.	The applicant	<p><b>Water supply</b></p> <p>Can you confirm whether any water supply would be required for any stage of the proposed development (construction, operation or decommissioning)? If so, what is the volume and duration of water estimated to be required and has this requirement been discussed and agreed with U UW?</p>	
Q8.3.2.	EA	<p><b>Risk of chemical and fuel spillages near sensitive water receptors during the operational phase</b></p> <p>Do the amendments the applicant has made to Table 5-5 of the oOEMP [PD2-017] to reflect the same requirements as the oCEMP [PD2-015] allay you concerns in relation to the risk of chemical and fuel spillages near sensitive water receptors during the operational phase? If not, please specify what further amendments should be made.</p>	
Q8.3.3.	The applicant	<p><b>Water Framework Directive terminology</b></p> <p>The EA has raised concern [RR-024 issue EA026] regarding the use of out of date terminology in the Environmental Statement: Volume 2 Appendix 9-2: Water Framework Directive Assessment [APP-089]. The ExA notes you state the change in terminology would not affect the outcome of the assessment [RR-024]. However, in the interest of clarity, the ExA requests you to update this appendix using the correct terminology and resubmit the update into the examination.</p>	
Q8.3.4.	EA	<p><b>Non Breeding Bird Mitigation Area (NBBMA)</b></p> <p>Do the applicant's responses [PD2-027] allay your concerns in relation to issues EA029, EA030 and EA031 [RR-024] regarding controlled water management for wetland areas of the NBBMA, water quality monitoring of the NBBMA and timing of the construction of the NBBMA? If not, please provide further details.</p>	

#### Other planning issues

ExQ1	Question to:	Question	CWCC Response
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9. Other planning issues			
9.0 Air Quality			
Q9.0.1.	The applicant  CWCC	<p><b>Air Quality Management Areas (AQMA)</b></p> <p>i) Please could the applicant advise whether the proposed development would cause an increase in the number of vehicle movements through any AQMA?</p> <p>ii) If so, and with reference to paragraph 5.2.12 of NPS EN-1, please could the applicant provide its consideration of whether the proposed development would be likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/ strategy?</p> <p>Please could CWCC comment?</p>	<p>Please refer to comments in CWCC’s Local Impact Report: [REP1-046] Section 18. Thornton le Moors AQMA is the nearest (only) (AQMA) with the potential for the development to impact on air quality. The Thornton le Moors AQMA is in relation to Sulphur dioxide and industrial processes rather than in relation to traffic.</p> <p>It is not considered that the proposed development would be likely to lead to a breach of any relevant statutory air quality limits, objectives or targets with respect to the AQMA.</p> <p>For background it is understood that Halton Borough Council does not have any AQMA’s and Liverpool City AQMA (April 2009) is declared for NO2.</p> <div style="text-align: center;">  <p>The screenshot shows the 'UK AIR Air Information Resource' interface. It features a search bar at the top with the text 'Enter postcode or place'. Below the search bar, there are navigation options: 'AQMA's &gt; AQMA's interactive map'. There are two radio buttons: 'Local Authorities with AQMA's' (selected) and 'AQMA Boundaries'. A 'Filter All pollutants' dropdown menu is set to 'All pollutants'. The main area is a map of the UK with AQMA boundaries highlighted in blue. A legend in the bottom right corner indicates 'AQMA Averaging Periods' with three categories: '24 Hours' (pink), 'Annual' (green), and 'Both' (yellow). The map shows a large blue area in the north, likely representing the Thornton le Moors AQMA.</p> </div> <p><a href="#">AQMA's interactive map</a> (Last accessed 9 January 2026)</p>
Q9.0.2.	The applicant	<b>Dust assessment</b>	

		<p>The applicant provided a construction dust assessment [APP-055]. Dust assessments were not provided for cumulative effects or for the operational or decommissioning phases. Demolition works were not considered.</p> <p>i) Is there is any potential for significant impacts arising from demolition works and/ or cumulative effects with other developments during the construction, operational, or decommissioning phases?</p> <p>ii) Dust mitigation measures are provided in the oCEMP [PD2-015]. Should they also be provided in the oOEMP [PD2-017] and in the oDEMP [PD2-019]?</p> <p>The residential caravan sites are identified as being at greatest risk. Should specific mitigation measures be provided for those receptors?</p>	
<p><b>9.1 Glint and glare, aviation and defence</b></p>			

Q9.1.1.	CWCC	<p><b>Glint and glare – residential amenity</b></p> <p>The Glint and Glare Assessment [APP-056] said that 15 dwellings would experience glint and glare effects for more than three months per year, but for less than 60 minutes on any given day. ES Chapter 6 [APP-039] included that CWCC said that potential glint and glare effects could impact on residential amenity. The applicant [APP-039] said that mitigation of new planting and antireflective coating to the solar panel would reduce glint and glare effects and considered it very unlikely that the threshold upon which material effects on residential visual amenity would occur would be exceeded by the proposed development.</p> <p>Does CWCC have any remaining concerns about potential glint and glare effects on residential amenity?</p>	<p>Please refer to comments in CWCC’s Local Impact Report: [REP1-046] Section 20 and Appendix A (ISH Agenda item 5J) WR [REP1-048].</p> <p>CWCC does not raise any principal concerns with the conclusions of the Glint &amp; Glare Assessment [APP-056]. However, there are some apparent anomalies that justify further explanation from the Applicant.</p> <p>It would be helpful to have further details of how many minutes/months each property identified as having ‘low’ impact is potentially exposed to (e.g. at what point is low attributed, and at what point would ‘moderate’ be given).</p> <p>There appears to be an inconsistency between the documents provided by the Applicant in relation to glint and glare, including over the number of dwellings effected, i.e. whether it is 3 dwellings or 15 dwellings; differing assessment as to whether impacts are moderate or low, whether no mitigation, or further mitigation is recommended.</p> <p>There is a need to ensure anti reflective coating to solar modules is included in the detailed design approval under Schedule 2 Requirements (Part 6 (1) (see Oaklands DCO issue for precedent - Sched 2 Art 47 detailed design approval (k)).</p> <p>Note: CWCC’s response to ISH Agenda item 5J [REP1-048] also deals with comments on the ZTV.</p>
Q9.1.2.	The applicant	<p><b>Glint and glare – public rights of way</b></p> <p>Please could the applicant set out the consideration given to potential glint and glare effects on users of public rights of way?</p>	

Q9.1.3.	The applicant	<p><b>Glint and glare – aviation, meteorological radars, other defence assets, cumulative impacts</b></p> <p>The applicant provided a Glint and Glare Assessment [<a href="#">APP-056</a>]. The Planning Statement [<a href="#">APP-128</a>] says that the nature of the proposed development would be such that it would not present an unacceptable risk to local or UK defence.</p> <p>i) With reference to paragraphs 5.5.37 and 5.5.39 of NPS EN-1, please could the applicant set out any other consideration given to potential impacts due to glint and glare or any other effects on:</p> <ul style="list-style-type: none"> <li>• civil or military aviation communications, navigation and surveillance infrastructure other than John Lennon Airport</li> <li>• meteorological radars</li> <li>• other defence assets</li> </ul> <p>ii) Please could the applicant set out the consideration given to the potential for cumulative glint and glare impacts with other developments?</p>	
9.2 Green Belt			
Q9.2.1.	The applicant, CWCC	<p><b>Green Belt – CWCC comments</b></p> <p>CWCC commented on Green Belt matters in its relevant representation [<a href="#">RR-037</a>], including in paragraphs 5.8, 5.10, 5.11, 5.13, 5.15, 5.19, 5.20, 5.21, 5.25, 5.26, 5.29, 5.33, 5.37, 5.38, 5.39, and 5.41. The applicant responded [<a href="#">PD2-027</a>].</p>	Please cross refer to comments in Section 11 and Appendix 4 of CWCC's Local Impact Report [ <a href="#">REP1-046</a> ] and Section 20 and Section 6 of its Written Representation [ <a href="#">REP1-048</a> ].

		<p>i) Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation [RR-037]?</p> <p>In its relevant representation [RR-037] CWCC commented on 'Footnote 7' matters, including in paragraphs 5.43, 5.44, 5.45 and 5.46. It also commented on the 'Remainder of Paragraph 155 of NPPF', including in paragraphs 5.48, 5.49, 5.53, 5.54, 5.62, 5.67, and 5.68.</p> <p>Please could the applicant respond to CWCC's comments, using the same paragraph numbering as CWCC?</p>	<p>Paragraph 5.8 of CWCC's Relevant Representation [RR-037] deals with the history to the Green Belt; see also 11.3 to 11.7 of the Local Impact Report [REP1-046].</p> <p>CWCC's comments on paragraph 5.10 and 5.11 of CWCC's Relevant Representation [RR-037] relating to PDL have been dealt with/agreed with the Applicant. There remains disagreement about the extent of the proposed development's impact in terms of spatial and physical openness of the Green Belt. The Applicant considers there to be limited harm, and CWCC considers that there would be substantial harm to openness for reason set out in paragraphs 5.60 to 5.67 of CWCC's Relevant Representation [RR-037]; as well as the Local Impact Report paragraphs referred to above, and LV.002 in the Local Impact Report:</p> <p><i>"The project will add substantial additional built infrastructure over a wide expanse of the currently open green and naturally regenerated former deposit cells, and other fields that provide openness to the landscape. The Frodsham, Helsby and Lordship marshes area currently retain an open green character, notwithstanding the wind turbines of FWF. The scale of solar development covering such an extensive ground area is markedly different to the form of the FWF where openness is retained between the high structures".</i></p> <p>In relation to the assessment of grey belt, the Applicant refers to CWCC having not undertaken a similar assessment to the Applicant's structures approach, and that as a result CWCC's conclusion is not justified in the same way. CWCC's reasoning takes on board the Applicant's assessment and provides a reasoned critique of that assessment to justify why it comes to a different conclusion.</p> <p>Regarding Purpose A - to check the unrestricted sprawl of large built-up areas; the Applicant refers to the following in support of the view that the Green Belt north of the M56 does not contributing strongly to Purpose A:</p> <p>i) <i>the existence of large man-made structures (Frodsham Wind Farm, Overhead Pylons, elevated M56);</i></p>
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			<p>These structures are evident, as are the man-made elements of the landscape (e.g dredging deposit grounds), but the overwhelming attribute of this area is its openness an expanse. The engineered landscape has largely been assimilated to green open expanse, albeit with the former deposit ground landform forming an elevated plateau.</p> <p>ii) <i>the fact that there would continue to be open space between the extent of the Order limits and the existing built up area;</i></p> <p>Whilst the proposed development would not be physically adjacent to Runcorn or Frodsham, and there would be separating features such as the River Weaver/Weaver Navigation, the resulting sprawl of the solar farm does not have to be a continuous linking element to result in effectively the same perception that the currently largely undeveloped landscape has been replaced by an engineered development covering the majority of the currently open area between these towns.</p> <p>iii) <i>the fact that it would not appear an incongruous pattern of development,</i></p> <p>There is disagreement over whether the development pattern would be incongruous. By effectively spreading across such an open area of the marshes, containing pasture and agricultural land, the development would by its nature be an incongruous addition, despite the surrounding area being influenced by built development, and there being some significant structures (turbines) already embedded within the otherwise open landscape, the contrast between the marshes area and the urban/industrial landscape adjacent provides the essence of the importance of retaining the open landscape character, and the spread of the solar arrays across this landscape would be incongruous. The landscape sensitivity study provides backing for this conclusion.</p> <p>The Applicant refers to the PPG (paragraph 005) list of illustrative features to assess whether the contribution if an area is 'strong', 'moderate' or 'weak'. Regarding assessing sprawl, freedom from existing development is one attribute, and the Applicant's LVA has already described development withing this part of the Green Belt as sparse (see para 5.23 of [RR-037]). Whilst the River Weaver and M56 provide features that may</p>
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be seen as restricting/containing development, in practice the proposed solar development would be the overwhelming feature spreading over the landscape. The strong role of this area in checking unrestricted sprawl is amplified by being adjacent/near to two large built- up areas, and its very position between Frodsham and Runcorn.

There is disagreement over the relevance of features that the Applicant purports to restrict and contain development. The Applicant refers to the River Weaver, M56 and the railway as features in this context. However, the development in effect leapfrog's these features, and rather than containing development, the solar development fills much of the intervening open landscape, leaving isolated pockets of openness (former INEOS deposit lagoon) and relatively narrow strips either side of the M56.

Regarding Purpose B - to prevent neighbouring towns merging into one another; the Applicant refers to Viewpoint 9 [APP-113] to illustrate the elevated view between Frodsham and Runcorn. The Applicant refers to retaining a 'feeling of visual separation', but taking a direct line of view between Frodsham and Runcorn it is clear to see the extent that the solar array closes the existing gap.



EN010153  
Doc: EN010153/DR/6.1  
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Environmental Statement: Volume 3 FRODSHA  
Figure 6-397ii Viewpoint 9: Frodsham Hill Wa

			Again, for Purpose B areas performing strongly are likely to be free of existing development (which has been dealt with above for Purpose A) and forming a substantial part of a gap between towns, which clearly is the case here, with development, resulting in the loss of visual separation.
<b>9.3 human health, fire risk, safety and security</b>			
Q9.3.1.	The applicant, CWCC	<p><b>Safety – CWCC comments</b></p> <p>CWCC [RR-037 paragraph 12.12] recommended that the applicant contact its Emergency Planning team in relation to flood risk, proximity to hazardous installations/ pipelines, and fire safety associated with the Battery Energy Storage System (BESS). The applicant [PD2-027] subsequently reported on a meeting with the Lead Emergency Planning Officer of the Joint Cheshire Emergency Planning Team.</p> <p>Does CWCC have any outstanding concerns?</p>	<p>Part of the context to consideration of the issue of safe access and egress in the event of a flood is the overarching National Policy Statement for Energy (EN-1) referring to new energy infrastructure being “designed and constructed to remain operational in times of flood” (Section 5.8.7).</p> <p><i>“5.8.7 Where new energy infrastructure is, exceptionally, necessary in flood risk areas (for example where there are no reasonably available sites in areas at lower risk), policy aims to make it safe for its lifetime without increasing flood risk elsewhere and, where possible, by reducing flood risk overall. It should also be designed and constructed to remain operational in times of flood”.</i></p> <p>CWCC’s Lead Emergency Planning Officer made some key recommendations to the Applicant concerning the Outline Flood Warning and Evacuation Plan (oFWEP) (see meeting notes 19 Sept 2025)) (<b>Appendix 7</b>) and the key suggestions were incorporated in an updated plan [PD2-028]. The Lead Emergency Planning Officer noted the exception of carrying out a debrief after an event to cover lessons learnt and improvements. A debrief template was provided to the Applicant and this has now been incorporated it into the plan.</p> <p>See oFWEP (Rev P02) [PD2-028].</p> <p>Please note the Environment Agency’s Written Representations at Deadline 1 [REP1-050] and [RR-024] (EA009) where the EA defer to CWCC regarding consideration of safe access and egress to the site. CWCC is not in a position (and it is understood nor is Cheshire Fire and Rescue Service (<b>CFRS</b>)) to say whether the Applicant’s arrangements provide safe access and egress in the event of a flood, although it is</p>

			<p>understood (from the Environment Agency's correspondence referring to liaison with CFRS, that CFRS consider the Applicant's emergency plans to be adequate; and as noted above CWCC's Emergency Planning team's recommendations have been taken on board.</p> <p>Given no objection from the emergency team/CFRS, CWCC has no further comment.</p>
Q9.3.2.	The applicant	<p><b>BESS</b> National Highways [<a href="#">RR-031</a>):</p> <ul style="list-style-type: none"> <li>expressed caution regarding BESS proposals due to the lack of UK-specific safety and design standards</li> <li>said that it could not verify the safety of BESS installations near the strategic road network (SRN)</li> <li>recommended that any BESS application be assessed against the National Fire Chiefs' Council (NFCC) Guidance, especially regarding access for emergency services and fire suppression capabilities</li> <li>said that it would expect to be involved in the approval of the battery safety management plan and for this to be included in Requirement 7 of the dDCO [<a href="#">PD2-005</a>]</li> </ul> <p>The applicant [<a href="#">PD2-027</a>] replied that the Outline Battery Safety Management Plan [<a href="#">APP-139</a>] had been submitted with reference to NFCC Guidance and the fire and rescue service would be consulted. It saw no need for National Highways to be consulted on this plan.</p> <p>i) Please could the applicant set out the consideration given to SRN safety issues in relation to the BESS?</p>	

		Please could the applicant justify why there would be no need for National Highways to be consulted on the Outline Battery Safety Management Plan <a href="#">[APP-139]</a> ?	
<b>9.4 Noise, vibration and nuisance</b>			
Q9.4.1.	The applicant, CWCC	<p><b>Tranquillity</b></p> <p>The applicant <a href="#">[APP-128]</a> considered that the area of the site was not perceived as 'tranquil' in the context of the National Planning Policy Framework.</p> <p>CWCC <a href="#">[RR-037]</a> paragraph 12.3] suggested that the proposed development would impact on the "acknowledged relative tranquillity of the area of this locally valued landscape" and said that adding noise into a tranquil area should be included as part of the overall assessment of the impact of the proposed development.</p> <p>The applicant <a href="#">[PD2-027]</a> replied that:</p> <ul style="list-style-type: none"> <li>• tranquillity was understood as a perceptual quality influenced by both sound and visual context</li> <li>• the existing environment within and around the site was influenced by notable sources of human activity that would reduce the area's overall sense of tranquillity and that once away from the main transport corridors, parts of the site can feel open and relatively remote reflecting the flat topography, sparse settlement and wide horizons typical of the estuarine fringe</li> <li>• no local or national landscape designations apply to the site</li> </ul>	<p>Impacts in relation to noise during construction will be additional to the landscape impacts already identified.</p> <p>During the operational phase CWCC make the following comments.</p> <p>The perception of tranquillity in relation to the Frodsham Marshes is arguably heightened (once passing further into the site and away from the M56 motorway) due to the extreme contrast between the noise of the motorway, the activity associated with the urban area of Frodsham and the backdrop of industrial development in Runcorn on the far side of the River Weaver, followed by experiencing the relative quiet and remoteness and associated long range views from the dredging deposit grounds and association with the Mersey Estuary/river environment. There are still urban influences on the deposit grounds, notably the turbines, with their distinctive noise as the blades rotate through the air. The very different nature of the noise sources between the motorway, generating a constant and dominant noise, to the more intermittent/rhythmic and localised turbines, within an otherwise relatively quiet and natural environment, provides an almost unique environment. One only has to experience the residential environment of residential properties along the south side of the M56 and compare this with the benefits of being able to access the Marshes for recreational enjoyment, to appreciate the relative tranquillity and local value of the area.</p> <p>In terms of the proposed development, the construction period will bring temporary noise and general disturbance for a period of time that will detract from the qualities of the Marshes, but it is acknowledged that this will be temporary, and during the operational period it is more the visual aspects that will impact on the experience of the landscape.</p>

		<ul style="list-style-type: none"> <li>the noise and vibration assessment demonstrated that construction effects would be temporary and well-managed through standard mitigation measures, and that operational noise would be low and consistent with existing background levels</li> <li>the proposed development would not materially alter the established acoustic or perceptual environment, nor would it introduce effects likely to change the existing character or perceived tranquillity of the surrounding landscape</li> </ul> <p>i) Please could the applicant provide a detailed justification of why it considers that no parts of the site, including those most remote from the M56 and Frodsham Wind Farm, should be considered 'tranquil'? What are the implications for the noise and landscape assessments if parts of the site are considered "tranquil"?</p> <p>Does CWCC have any outstanding concerns?</p>	<p>The issue / point is largely to recognise that the particular noise environment of the site and the surrounding area is complex, and any existing tranquillity found on the more remote parts of the site, take on a greater value than might otherwise be the case because of the particular mix and relationship between various elements.</p> <p>CWCC's concern is mainly to ensure that the nature and local value of the site is recognised, not that the development itself will lead to a different noise climate once operational or an unacceptable noise climate during construction.</p>
Q9.4.2.	The applicant, CWCC, NE	<p><b>Piling</b></p> <p>For the construction phase, the assessment <a href="#">[APP-054]</a> assumed the use of non-percussive mini piling for the solar panels and non-percussive continuous flight augur piling for the BESS.</p> <p>To ensure the integrity of the assessment, should those piling methods be secured and should it be secured that percussive piling would not be permitted?</p>	<p>The noise impact assessment [APP-054] refers to non-percussive piling as part of the assumptions when considering the highest likely vibration levels (Table 5.3), and whilst the assessment may be precautionary, the draft DCO ought to secure the use of such techniques, and to restrict percussive piling (or at least to establish a hierarchy of methods, from continuous flight, pushed and only driven is necessary with local conditions being taken into account).</p> <p>In addition to the need for "careful choice of piling rigs to minimise noise and vibration at ecological receptors (e.g. non-percussive mini piling rigs, CFA piling* at BESS and Frodsham Solar Substation)" as one of the possible range of measures to control construction noise referred to at 5.3.21 of [APP-054], the use of low pressure piling machinery has been advocated in relation to mitigation of potential impacts in relation to peat.</p>

			(See PD2-027 and Applicant's responses to RR-037 (7.138- 141 and 8.7-8.8).
Q9.4.3.	The applicant	<p><b>Operational Phase</b></p> <p>The assessment for the construction phase [APP-054] is considered a worst case for any significant replacement campaigns during the operational period.</p> <p><b>For the operational phase, is it necessary to assess potential noise and vibration impacts from the combination of a worst-case replacement campaign with operational plant and equipment?</b></p>	
Q9.4.4.	The applicant	<p><b>Cumulative effects</b></p> <p>Please could the applicant set out the consideration given to cumulative noise and vibration impacts with other developments?</p>	
<b>9.5 Socio-economics and public rights of way</b>			
Q9.5.1.	CWCC	<p><b>Visitors' car park</b></p> <p>CWCC [RR-037 paragraph 11.2] said that further discussion was required to clarify the mechanisms for triggering the delivery of the visitors' car park on land to the north of Moorditch Lane as well as other matters including the responsibility for management and maintenance. The applicant [PD2-027] updated paragraph 4.1.7 of the oOEMP to include a commitment for the provision of the car park to be an agenda item on Community Liaison Group meetings during the operational phase.</p> <p>Is CWCC satisfied that the timing of the delivery of the car park is secured sufficiently and does it have any remaining concerns?</p>	<p>In hindsight, it may be preferable for the visitor car park to be provided in conjunction with the wider development before operational use of the development commences. CWCC will endeavour to discuss this with the Applicant with a view to confirming the position for Deadline 4 (if not before).</p> <p>In principle, there is no objection to deferring the decision as to whether and when to implement the visitor car park off Moorditch Lane to the operational phase of the development. The Applicant's reason for provision of the car park is related to managing any increase in recreational use arising from the mitigation works in relation to PRoW / permissive path enhancements.</p> <p>However, if such decision is to be deferred, it would be beneficial to set out more details of the physical works / parameters for the visitor car park at the same time as other details of the authorised development are submitted for approval. This is in part to avoid uncertainty as to what the</p>

			<p>proposals for the visitors' car park entail, and in part to ensure that there is no delay to implementation of the car park due to the need for deliberation over the design parameters, once a decision has been taken that a car park is needed.</p> <p>Furthermore, there would be difficulty in establishing appropriate and robust criteria for assessing whether there has been a demonstrable increase in informal parking along Moorditch Lane that would trigger provision of the car park.</p> <p>Establishing a trigger would require further work on the baseline, e.g. with pre-commencement survey of parking in the vicinity of the proposed car park before the commencement of development.</p> <p>There would need to be a mechanism for triggering delivery to be approved by CWCC. This might be in conjunction with approval of the detailed CTMP.</p> <p>There would also need to be a monitoring strategy to establish post-development parking levels e.g. along Moordtich Lane. This would need to be approved by CWCC and funded / administered by the Applicant.</p> <p>It may be preferable to provide the visitor car park at the outset. This is not least because any disruption caused in construction of the visitor car park would be dealt with alongside the wider development and the various control documents.</p> <p>The Applicant should be responsible for the costs of construction, ongoing management and maintenance costs and decommissioning. This should be secured through the draft DCO.</p>
Q9.5.2.	The applicant, CWCC	<p><b>Public rights of way – CWCC comments</b></p> <p>CWCC commented on public right of ways matters in its relevant representation <a href="#">[RR-037]</a>, including in paragraphs 11.12, 11.13, 11.14, 11.15, 11.16, 11.17, 11.18, 11.19, 11.21, 11.23, 11.26, 11.27,</p>	<p>Please cross refer to comments in i) the LIR: <a href="#">[REP1-046]</a>]; in particular FNP policy referred to at 6.25 and 6.26, Section 24 of the LIR 'tourism and recreation' and Appendix 10 of LIR; and ii) the WR <a href="#">[REP1-048]</a>; in particular in relation to the relationship between footpaths and biodiversity under (paragraphs 4.14 to 4.25) and the proposed layout suggestions in Section 5.</p>

		<p>11.28, 11.31, 11.32, 11.33, 14.12, 19.18, 19.27, and 19.30. The applicant responded <a href="#">[PD2-027]</a>.</p> <p>i) Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation <a href="#">[RR-037]</a>?</p> <p>CWCC <a href="#">[RR-037]</a> paragraph 19.28] said that there had been issues historically with fly-tipping on parts of the deposit grounds, and the management plan should provide details of measures to control this, particularly given likely increased accessibility of the site. It recommended a review of public rights of infrastructure, and removal of redundant structures, that stiles/gates should ideally be used to control livestock movement, and that stiles that act as a barrier to mobility should be removed.</p> <p>ii) Please could the applicant respond to CWCC's comments, using the same paragraph numbering as CWCC?</p>	<p><b>11.11 – 11.12 RR.</b> Regarding Outline Public Rights of Way Management Plan [PD2-021] (<b>oPRoWMP</b>), CWCC welcomes the addition of 3.3.10 relating to advertising closures and diversions to the local community in the Public Rights of Way Management Plan. It would help to include specific reference to publicity of an overarching programme of works as part of that publicity; and that the Community Liaison Group will be consulted on the programme at an early stage in the process; and kept informed of subsequent changes.</p> <p>There is no reference at 3.3.10 of the oPRoWMP to suggest inclusion of online advertising of closures; CWCC's PRoW section recommend that this be included.</p> <p><b>11.13 – 11.14 RR.</b> In principle, CWCC accepts the Applicant's approach, which is similar to the construction of the FWF in relation to keeping RB40 open to cyclists during construction, and for providing others access outside of construction working hours.</p> <p>For information, the FWF scheme approved under 12/00217/DIS is provided at <b>Appendix 8</b> (Frodsham Wind Farm Condition Discharge - Planning Condition 29 – Public Rights of Way (Updated March 2015) (Parsons Brinckerhoff March 2015). With reference to the comments under 11.15 RR below, the clarity of Figure 1 Master Plan of Site in Appendix 8 aids the reader's understanding, and it is recommended that the Applicant provides clear and legible plans for the Frodsham Solar Public Rights of Way Management Plan (<b>PRoWMP</b>).</p> <p>The commencement of construction of FWF was notified as being 13 April 2015 (discharge of condition 14 under 10/00597/DECC) and the FWF commissioning date was 13 February 2017; i.e. less than 24 months. The closure of RB40 would have been less again.</p> <p>CWCC do not object in principle to the proposed arrangements, but the longer duration of closure/disruption adds to the adverse impact of the development and is a factor to be weighed in the planning balance. A similar point is made in relation to impacts on, and users of, RB98 and RB103.</p>
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			<p>CWCC's PRow team advise that if the construction hours are modified (e.g. for abnormal loads) as per 2.5.13 and 2.5.14 in ES Volume 1 Chapter 2 The Proposed Development [APP-035] that the change be advertised to notify the public in advance. It is also appropriate to establish a particular channel that the Applicant would notify CWCC Highways/Public Right of Way teams as per 2.5.14 of [APP-035].</p> <p><b>11.15 RR.</b> As noted previously the Street Works, Public Rights of Way, Vehicular Usage and Access Plans [APP-010] (now [AS-008]) lack clarity and separate/clearer drawings relating to both temporary and permanent arrangements, closures and diversions would assist in the understanding and presentation of the various elements to the works proposed. This would be particularly appropriate to accompany any publicity around temporary diversions and closures.</p> <p><b>11.16-11.18 RR.</b> There is disagreement with Applicant's statement that:</p> <p><i>"The introduction of the Proposed Development into the locality does not significantly change the landscape experience for the majority of the PRow network that users will access in the area".</i></p> <p>The LVA conclusions are based on professional judgment, and no doubt the ExA will draw its own view on the matter. CWCC's view is that the experience of walking or cycling along the PRow network will be significantly changed by the extensive solar array development surrounding the PRow network within the site. There will be a greater sense of enclosure along parts (where views over the panels are not available); and on the more elevated sections of PRow, the vast expanse of the solar arrays will be a dominating feature.</p> <p>The presence of the wind turbines in the landscape added an urbanising influence some 10 years ago now, but these have been assimilated without dominating the openness of the landscape to the same extent that the spread of the proposed solar arrays would.</p> <p>The enhancements to the footpath network (e.g. with permissive paths) are generally welcome (noting the biodiversity concerns with some aspects) and the improvements may encourage use of the footpath</p>
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			<p>network, but at the same time the overall experience of users and enjoyment of the wider landscape is liable to be adversely impacted by the proposed development, and to a greater degree than the mitigation works provide in terms of positive impacts.</p> <p><b>11.19 – 11.24 RR.</b> It is noted that the Applicant is not proposing to re-route Permissive Path A and B. CWCC considers that this a missed opportunity to reduce the habitat impacts, adding more pressure to the already reduced mitigation area of the NBBMA. In Applicant’s Response to CWCC’s Relevant Representation (PD2-027), in response to point 11.24 of CWCC’s Relevant Representation (RR-037), it is stated that “ it is considered that adequate mitigation is proposed to enable these proposed enhanced recreational opportunities to be realised whilst ensuring that the ecology of the area is protected”. This is not concurred with; CWCC have proposed changes to the proposed extended footpath network and there has not been any justification provided to demonstrate that the footpaths are essential in this location and that their introduction outweighs the risk to non-breeding birds. Due to lack of a detailed assessment of Recreation in terms of public rights of way in the ES, as per 11.1 of CWCC Relevant Representation (RR-037), CWCC consider that 11.24 is still valid.</p> <p><b>11.23 RR.</b> See comment under Q9.5.4 below.</p> <p><b>11.26 – 11.27 RR.</b> CWCC welcomes including reference to the programme of implementation at 5.1.4 of [PD2-022] oPRoWMP) and the inclusion of a programme as part of Requirement 9 (2)(h) to the draft DCO [REP1-005].</p> <p>Further clarity on the opening of the permissive paths, and agreements with the landowners relating to general arrangements over the permissive paths (e.g. provisions relating to temporary closures of the paths) should be confirmed and made available to CWCC.</p> <p>CWCC seek confirmation over securing a limit / commitment on the maximum timescale the permissive paths may be closed during the operational phase.</p> <p><b>11.27 RR.</b> The Applicant’s response in [PD2-027] refers to Requirement 15 and the Public Rights of Way Management Plan. Requirement 15</p>
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			<p>should be amended to clarify that this includes permissive paths. It would also assist if the oPRoWMP were updated to include reference to the details of 11.27 e.g. <i>“to include contact details, provision for reporting and dealing with complaints during the operational phase, including standards for resolution of complaints/carrying out remedial action, and ensuring that paths do not remain temporarily closed for longer than necessary”</i>.</p> <p>CWCC recommends that these contact details and standards/resolution processes be made available online, and that CWCC / Frodsham Town Council be consulted on the detailed arrangement.</p> <p><b>11.28 RR.</b> The professional disagreement over the assessment of the view from Frodsham War Memorial has been well documented, and further comment is not considered necessary or helpful to the ExA.</p> <p><b>11.31 - 11.33 RR and 19.18 RR.</b> CWCC welcomes confirmation by the Applicant to the points of relating to retention of the permissive paths in place for the lifetime of the Proposed Development, including the decommissioning period, and responsibility for maintenance of the permissive paths and PRoW within the site during this period. It is noted that there is no proposal to secure an extension of the life of the permissive paths beyond the decommissioning period. This is considered a missed opportunity and reduces the values of the mitigation proposed. With regards to the Applicant’s response to paragraph 19.18 of RR-037, it is not clear whether the Applicant approached the landowners (as suggested) to confirm their support or objection for longer term retention. If they are willing to enter into a more permanent arrangement, this could be incorporated into the proposals. Clarification on the position regarding retention of the visitor car park longer term is also noted in paragraph 19.18 of RR-037.</p> <p>CWCC would like confirmation as to whether the Landowners have been contacted by the Applicant in relation to the Permissive Paths and negotiations which have been undertaken</p> <p><b>11.32RR.</b> CWCC appreciates the Applicant’s commentary regarding the Design Approach Document [APP-130] regarding retaining and enhancing the open character; retaining open vistas looking across Frodsham</p>
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			<p>Marshes and the wider estuary, where feasible; and that the need to maintain qualities of the open character are recognised. These comments should be cross referenced with CWCC's comments on Green Belt openness (Q9.2.1) above. However, as indicated at paragraph 11.32 of RR-037 there would still be a significant change resulting from the development, irrespective of the design and other measures to mitigate the impact of such change.</p> <p>CWCC welcome inclusion of reference at 6.6.51 of the oLEMP [REP1-029] to certain hedgerows being maintained at 1.5m height to retain views over the hedgerows from adjacent public rights of way and permissive paths.</p> <p><b>14.12 RR.</b> Regarding PRoW closure and RB40, comments as per Q9.5.2 above.</p> <p><b>19.27 RR.</b> CWCC welcomes the Applicant's clarification that the powers under Article 13(7) of the draft DCO are sought to provide use of motor vehicles for the purposes of the authorised development and not for the opening up to the public.</p> <p>The Applicant should provide confirmation as to the means of monitoring/identifying use by authorised / unauthorised vehicles (e.g. with windscreen markers or similar to identify authorised vehicles?).</p>
Q9.5.3.	The applicant, NH	<p><b>Public rights of way management plan – National Highways approval</b></p> <p>Referring to Requirement 15 of the dDCO [PD2-005], National Highways [RR-031] said that it required an approval role in relation to any public rights of way management plan as it is the highway authority for the SRN and the SRN fell within the definition of a "street".</p> <p>The applicant [PD2-027] said that its proposals in terms of managing impacts to public rights of way related to public rights of way that were some distance away from the bridges which pass over the</p>	

		<p>SRN. It therefore considered that National Highways did not need to be a consultee for the plan.</p> <p>i) Please could the applicant clarify how public rights of way on the bridges that pass over the SRN would be managed if they are not to be included in the public rights of way management plan?</p> <p>Does National Highways have any remaining concerns?</p>	
Q9.5.4.	CWCC	<p><b>Public rights of way – cumulative and in-combination effects – CWCC comments</b></p> <p>CWCC commented on public right of ways cumulative and in-combination effects matters in its relevant representation <a href="#">[RR-037]</a>, including in paragraphs 11.1 and 11.29. The applicant responded <a href="#">[PD2-027]</a>.</p> <p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation <a href="#">[RR-037]</a>?</p>	<p>Paragraph 11.1 of [RR-037] is directed at concerns over the biodiversity impacts of promoting increased recreational use via the additional permissive paths in environmentally sensitive areas of the site. Local Policy (e.g. FNP Policy EDVE2 tourism policy) recognises the tension between wanting to encourage recreational opportunities and the need to protect environmental interests, by including criterion: <i>“Will not result in adverse impacts on the ecological value and function of Frodsham Marshes”</i> and DM37 Recreational routeways of LP2 also recognises the potential for increased recreational pressure on designated sites.</p> <p>It is acknowledged, that the Applicant has attempted to address some of these concerns and competing interests by proposing a hierarchy of PRoW and permissive path enhancement, to encourage recreational use closer to the motorway side of the SADA, but the introduction of additional routes near to the NMMBA and around Cell 1 are regarded as unnecessary and detrimental.</p> <p>CWCC’s WR [REP1-048] provides more detail on concerns and suggested amendments to address these matters.</p> <p>Paragraph 11.29 of [RR-037] is a relatively general point that the impact of the other known projects liable to directly impact the site (Hynet Hydrogen and Runcorn CO2 spur pipeline) do not feature in consideration of potential cumulative impact in relation to impacts on the existing PRoW and/or any new permissive paths proposed as part of this proposed development.</p>

**9.6 Traffic, transport, and access**

<p>Q9.6.1.</p>	<p>NH</p>	<p><b>SRN</b></p> <p>National Highways <a href="#">[RR-031]</a> said that dDCO <a href="#">[PD2-005]</a> provisions, including articles 10, 12, 13, 14, 16, 17, 18, 19, 23, 24, 27, 29, 30, 31, 39 and 46, which authorise the interference with its statutory powers and responsibilities and/ or grant the applicant powers over the SRN which would have significant safety implications if not properly and proportionately controlled through protective provisions. The concerns included in relation to powers over the SRN and the use of bridges crossing the SRN. National Highways considered that detailed design approval would deal with vehicular and pedestrian accesses including its bridge structures and said that details submitted in accordance with paragraphs 6(1) and 6(4) of Requirement 6 of the dDCO <a href="#">[PD2-005]</a> need to be submitted to and approved by NH.</p> <p>The applicant <a href="#">[PD2-027]</a> responded, and updated the dDCO <a href="#">[PD2-027]</a>, including the protective provisions. It considered that the protective provisions did not need to deal with the interaction of the proposed development with the bridges. The applicant said that there would be no new accesses being built directly from the bridges, that the nearest extent of Work No. 8 was some distance away from the bridges, and so National Highways did not need to be a consultee for Requirement 6.</p> <p>i) Please could National Highways set out any outstanding concerns and provide updates during the examination?</p> <p>If the concerns are not addressed to National Highway's satisfaction, please could it submit its</p>	
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		proposed changes to the protective provisions, with justification for why the changes are required?	
Q9.6.2.	The applicant, CWCC, NH	<p><b>Cumulative effects, including abnormal loads and decommissioning</b></p> <p>National Highways [RR-031] said that the construction phase would generate the highest level of traffic and it was essential to manage this effectively to minimise disruption, particularly given the number of other developments proposed in the area, which could lead to cumulative impacts on the M56 and M53 junctions and corridors. It said that it was studying the cumulative traffic generation for the major development proposals in the area to understand where the likely impacts would be, the scale of those impacts, and their likely timings.</p> <p>CWCC [RR-037] said that the proportion of the total cumulative impact that would be a direct result of the proposed development would be minimal.</p> <p>The applicant [APP-134] considered cumulative effects with other proposed infrastructure projects. It considered that there was the potential for significant traffic impacts if the construction periods of these projects should overlap with that of the proposed development. The oCTMP [PD2-013] includes a commitment for the applicant to maintain ongoing communications with other major developments to liaise on managing any potential cumulative impacts and, if there was a significant overlap, to establish a Construction Traffic Management Plan Working Group. The applicant assumed that the other developers would work pro-actively with it. The oCEMP [PD2-015] includes that the programme for the works would be prepared cognisant of other nearby developments which could result in cumulative construction effects.</p>	<p>CWCC welcomes the introduction of para 4.1.6 to the oCTMP [PD2-013] regarding provision of an illustrative plan for construction access.</p> <p>CWCC requests that 8.3.1 8.3.2 of the oCTMP be amended to refer to submitting a report to the local planning authority (<b>LPA</b>) with a copy to the local highway authority (<b>LHA</b>) (and that the LPA will consult the LHA at the relevant stages).</p> <p>CWCC have no further concerns in relation to the Applicant's proposed mitigation measures for abnormal loads as proposed under the latest oCTMP (Rev P03) [REP1-019].</p> <p>However, it is recommended that the programme for abnormal loads be part of the agenda/ notification protocols for the Community Liaison Group; and that this be included in the oCTMP.</p> <p><b>Please note:</b> the track changes to paragraph 5.4.1 made in [PD2-013] have only partially been carried forward to [REP1-019].</p>

		<p>i) Please could the applicant set out the consideration has been given to potential cumulative impacts in relation to the traffic from any major replacement activities during the operational phase?</p> <p>ii) Please could the applicant comment on the sensitivity of the Transport Assessment [APP-134] to assumptions of timing in relation to the construction of the proposed development and other major development proposals in the area? How can the ExA be satisfied that it has considered as reasonable worst case?</p> <p>iii) Please could National Highways provide its study of the cumulative traffic generation for the major development proposals in the area and set out the proportion of traffic generation that would result from the proposed development?</p> <p>iv) When National Highway's study is available, please could the applicant set out any implications for its Transport Assessment [APP-134] and mitigation proposals?</p> <p>National Highways [RR-031] encouraged the applicant to engage with NH at an early stage to establish an appropriate movement strategy for abnormal loads. CWCC [RR-037] said that impacts of abnormal traffic movements relating to the proposed development and considered cumulatively with other projects needed consideration. The applicant updated the oCTMP [PD2-013] to clarify that it would be a responsibility of the proposed Construction Traffic Management Plan Working Group to co-ordinate the planning of</p>	
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		<p>abnormal load movements across the identified cumulative developments.</p> <p>v) Do National Highways or CWCC have any outstanding concerns about the applicant's proposed mitigation measures for abnormal loads?</p> <p>The applicant [APP-134] considered that a reasonable worst case of impacts during the decommissioning phase was those for the construction phase. For the construction phase it considered that there was a potential for significant traffic impacts cumulatively with other proposed infrastructure projects.</p> <p>vi) What reasonable worst case of cumulative traffic impacts during the decommissioning phase does the applicant suggest for the purposes of the planning balance?</p>	
Q9.6.3.	CWCC	<p><b>Decommissioning phase</b></p> <p>CWCC [RR-037 paragraph 19.13] said that that the scope of the Decommissioning Traffic Management Plan should be to minimise the environmental and other potentially adverse impacts associated with the transport aspects of the decommissioning and that this should include minimising the extent and duration of temporary road closures and closures of PROW and the permissive paths. The applicant [PD2-027] responded and updated the outline Decommissioning Environmental Management Plan [PD2-019].</p> <p>Please could CWCC set out any outstanding concerns?</p>	<p>CWCC consider that prior to the commencement of the decommissioning stage an assessment of the local environment and the changes that have taken place during the operational phase will need to be submitted along with suitable mitigation and control measures. The assessment criteria, mitigation measures and methodology of the decommissioning phase must be approved by the relevant planning authority prior to its commencement.</p>
Q9.6.4.	CWCC	<p><b>Transport Assessment – other CWCC comments</b></p>	<p><b>14.7 RR.</b> On reflection, CWCC accepts that linking Frodsham Solar's HGV construction trip generation to the existing cap on operational HGV movements for Protos is not appropriate or necessary.</p>

		<p>CWCC commented on the Transport Assessment [APP-134] in its relevant representation [RR-037], including in paragraphs 14.7, 14.10, 14.13, 14.14, 14.15 and 14.17. The applicant responded [PD2-027].</p> <p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation [RR-037]?</p>	<p>The cumulative impact of construction traffic associated with multiple projects potentially overlapping is a concern highlighted at paragraph 8.6.1 of the Applicant's Transport Assessment (TA).[APP-134]. Whilst the TA provides an assessment of the construction traffic associated with other projects liable to overlap with Frodsham Solar, it would be useful for the Applicant to provide an update / table to quantify the worst case scenario, noting that in the TA (7.3.8) i) the Hynet Hydrogen pipeline scheme is forecast to peak at 96 two-way HGV movements per day, and that this development (lasting over a year) was expected to occur in early 2028, and it is understood to now be delayed and therefore this needs to be updated; and ii) no construction traffic data was available for the Runcorn Carbon Dioxide Spur pipeline at the time of preparing the TA.</p> <p>The Applicant's Table 7.1 in the Transport Assessment sets out the maximum daily HGV movement associated with the Protos development (under reference 21/04477/NMA). The latest amendment to the condition controlling HGV movement is under 24/01799/NMA granted on 2 September 2025 (<b>Appendix 9</b>). The overall number of 2 daily 2-way HGV movements remains 718. Also, on the 7<sup>th</sup> October 2025, CWCC's Planning Committee resolved to grant planning permission for the most recent amendment to the Ince resource recovery park (<b>RRP</b>) under application ref. 24/01322/S73. This altered the provision for the implementation of the first rail infrastructure prior to the occupation of plots within the Protos site. The extant planning permission for Ince resource recovery park is application ref.14/02277/S73 (as amended by 24/01779/NMA) which altered the phasing of development of the RRP site.</p> <p><b>14.10 RR.</b> CWCC notes the Applicant's response, and that any temporary diversion would need to be adhered to.</p> <p><b>14.13 RR.</b> CWCC notes the Applicant's response and commitment to clearly identify the construction traffic access route in the CTMP.</p> <p><b>14.14 RR.</b> CWCC notes the Applicant's response and commitment to manage and monitor construction staff parking. Reference is made to no construction traffic parking outside the site, but there is no detail over how this may be monitored/enforced, or indeed if there may be a need for off-site parking and transport to the site. It would be helpful to include further</p>
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			<p>commentary in the oCTMP, including dealing with complaints about employee off-site parking in a similar manner to the construction traffic routing.</p> <p><b>14.15 RR.</b> CWCC notes the Applicant's response and commitment to the use of qualified banksmen. It would be beneficial to include reference in the oCTMP that provision for forward traffic movements (and potentially use of one way routes to achieve this) would be included in the detailed design principles to avoid/minimise the need for reversing.</p> <p><b>14.17 RR.</b> CWCC welcomes the Applicant's recognition over the potential for cumulative impacts associated with other projects, and that this may be addressed via the Construction Traffic Management Plan. However, any apportionment / shared responsibility needs to rest with the developers, and there needs to be clear responsibility for Frodsham Solar to secure enforcement with other parties, without reliance on CWCC.</p> <p>CWCC will address this with the Applicant and update the ExA at the appropriate time.</p>
Q9.6.5.	The applicant	<p><b>Potential severance</b></p> <p>Please could the applicant comment on the potential for severance and impacts on access to Frodsham Marsh Farm, the residential caravan sites, and other residential properties and businesses? How are these potential impacts mitigated?</p>	
Q9.6.6.	The applicant, Canal & River Trust	<p><b>Canal &amp; River Trust comments</b></p> <p>The Canal &amp; River Trust raises concerns, including:</p> <ul style="list-style-type: none"> <li>• clarification that the works to the SPEN substation, in connection with grid connection, would not exceed the level of vehicle use outlined in the Transport Assessment [<a href="#">APP-134</a>]</li> <li>• any proposed increase in use of the Access Track and Sutton Swing bridge (which is</li> </ul>	

		<p>owned and managed by the Trust), including the impact of traffic on the route and the stability of the embankment of the Weaver Navigation</p> <ul style="list-style-type: none"> <li>existing movement and longitudinal cracking in areas of the Access Track, and that the means of supporting the roadway along the river sections, or condition below water level, is not known</li> <li>details of any indivisible abnormal load vehicles needing to cross the Sutton Swing bridge</li> <li>clarification that mitigation measures and management of construction traffic would also apply to the Access Track <ul style="list-style-type: none"> <li>i) Please could the applicant respond?</li> </ul> </li> </ul> <p>Please could the Canal &amp; River Trust set out any outstanding concerns and provide updates during the examination?</p>	
<b>9.7 Waste</b>			
Q9.7.1.	The applicant	<p><b>Anticipated lifespans</b></p> <p>Please could the applicant set out the anticipated lifespan of the Solar PV Modules and other plant, equipment and infrastructure, how often they would each need to be replaced, and any related implications for waste management?</p>	
Q9.7.2.	The applicant	<p><b>Reuse and recycling</b></p> <p>With reference to paragraph 5.15.9 of NPS EN-1, please could the applicant set out whether, and if so, how, the Solar PV Modules and other plant, equipment and infrastructure would be designed to maximise reuse and recycling?</p>	

Q9.7.3.	The applicant, CWCC	<p><b>Waste infrastructure</b></p> <p>i) With reference to paragraph 5.15.15 of NPS EN-1, please could the applicant set out whether the waste from the proposed facility could be dealt with appropriately by the waste infrastructure which is, or is likely to be, available during the construction, operational and decommissioning phases?</p> <p>ii) Please could the applicant identify what policy support is there for any assumptions made about future recycling facilities, e.g. for the likely expansion of specialist recycling facilities in the future?</p> <p>iii) What consideration has the applicant given to cumulative effects with other solar projects?</p> <p>iv) Please could CWCC comment?</p>	<p>The Applicant's Section 2.8 of ES Chapter 2 [APP-035] deals with waste management.</p> <p>The EXA's question (i) appears to be directed principally at the second bullet point under 5.15.15 of NPS EN-1 that:</p> <p><i>"the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area."</i></p> <p>In terms of Local Plan policy, ENV8 Managing waste of LP1 and EP6 Ince Park of LP2) are relevant. Land at Ince Park (Protos) is safeguarded for a multi-modal resource recovery park and energy from waste facility for use in connection with the recycling, recovery and reprocessing of waste materials.</p> <p>CWCC's monitoring reports for minerals and waste includes the Waste Needs Assessment 2023 - Hazardous Waste Management Requirements to 2045 (<a href="#">CWA C WNA 2023</a>) (<b>WNA</b>).</p> <p>Appendix 5 of the WNA deals with Hazardous Waste Management Requirements for Cheshire West &amp; Chester to 2045 (see <b>Appendix 10</b>).</p> <p>Paragraph 4.1 of Appendix 5 states that: <i>"Increasing use of producer responsibility schemes, such as those provided for Waste Electrical and Electronic Equipment (WEEE) which require the separate collection of WEEE resulting in more hazardous items being removed from the mixed municipal waste stream, collected separately as hazardous waste"</i>.</p> <p>The overall quantity of hazardous waste generated in the borough is expected to fall over time, to end up at a tonnage of c21,500 tonnes in 2045 i.e. nearly halved, although there would be a projected increase in WEEE (from 808 (2025) to 1,029 tonnes (2045) (see tables 85, 86 and 87 in the waste needs assessment).</p> <p>Paragraph 5.2 of Appendix 5 to the waste needs assessment comments: <i>"Comparing the total managed value shown in Table 10 (c96,500 tonnes)</i></p>
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			<p><i>to the final arising value derived for Cheshire West and Chester (c46,000 tonnes) suggests a surplus in hazardous waste management capacity of c50,500 tonnes currently exists within the Borough. This comes as no surprise given CW&amp;C hosts a number of strategically significant facilities for the management of hazardous waste, one of which being the Ellesmere Port HTI with capacity of up to 100,000tpa and, the presence of the chemicals sector such as Brunner Mond and oil treatment capacity.”</i></p> <p>Paragraph 5.4 of Appendix 5 continues: <i>“With respect to hazardous waste management capacity in Cheshire West and Chester excluding landfill, comparing the updated capacity value (c152,000tonnes) to the final arising value derived suggests a surplus of between c110,000 tonnes per annum at the start of the Plan period and c130,500 tonnes per annum in 2045 the end of Plan period.”</i></p> <p>In conclusion to Appendix 5 of the WNA, paragraph 5.6 states: <i>“Cheshire West and Chester hosts a number of facilities that manage significant quantities of hazardous waste, including treating such wastes. The combined capacity offered by these facilities equates to at least 152,000 tonnes per annum, with a number of niche operators taking hazardous wastes as a raw material for manufacturing processes. In doing so these operators provide strategically significant management capacity for a number of niche waste streams arising from within the region and beyond”.</i></p> <p>It should be noted that the commentary provided above is based on the contents of the hazardous waste report in the WNA, and assumes that waste solar panels will be classed as hazardous. However, this is generally not the case and would only apply if their chemical composition includes such materials as cadmium. Some electrical components may be classed as such, but the panels themselves being made from crystalline silicon are unlikely to be.</p> <p>All panels and components are likely to be classed as WEEE and therefore are required to be separately collected for onward management at a suitably authorised treatment facility (AATF). It is understood that at present, very few UK AATFs actually process panels. It is understood that those that do only dismantle frames and junction boxes to recover</p>
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			<p>the metals, and then send the laminate elsewhere for management or disposal.</p> <p>An update of the waste needs assessment has been commissioned, and the update is expected to be completed within the next 2 to 3 months.</p> <p>The update will take account of the latest available waste data and anticipated future changes to waste creation and waste recycling and disposal requirements.</p> <p>CWCC is in the process of preparing a new Local Plan and this will contain new policies relating to waste. CWCC is currently reviewing the responses received to the Issues and Options stage consultation and drafting revised policies.</p> <p>The following additional comments may assist:</p> <ol style="list-style-type: none"> <li>1. With reference to a Decommissioning Waste Management Plan in Table 5-11 [RE1-024], whilst that may be the point at which the bulk of panels will require removal, it is reasonable to expect a panel failure rate during the life of the solar farm, which will mean panels will need replacement, and those removed will require management. Therefore, the waste management plan should not be confined to decommissioning alone.</li> <li>2. Table 5-11 states compliance with the waste hierarchy but doesn't state what that will mean in practice. All waste holders need to demonstrate they are complying with the waste hierarchy in priority order i.e. from the top down. This means that any maintenance and decommissioning plan should set out clearly how the panels will be assessed to ensure that: <ul style="list-style-type: none"> <li>• they are checked for suitability for reuse (following repair or refurbishment if needed), failing that:</li> <li>• that receiving recycling sites are maximising the amount of materials recovered for recycling and achieving high quality recycling with those materials (rather than downcycling);</li> </ul> </li> </ol>
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			<ul style="list-style-type: none"> <li>minimising the amount of materials that end up managed as residual waste (intact panels should be handled as WEEE - see below).</li> </ul> <p>3. Table 5-11 refers to the panels being dismantled and being sent to specialist PV recycling facilities, but it is not clear what such facilities exist.</p> <p>CWCC may need to comment further once the Applicant has submitted its response to the ExA's first written questions.</p>
Q9.7.4.	The applicant	<p><b>The Waste Electrical and Electronic Equipment Regulations 2013</b></p> <p>Please could the applicant set out its consideration in relation to compliance with <a href="#">The Waste Electrical and Electronic Equipment Regulations 2013</a>?</p>	
<b>9.8 Cumulative and inter-related effects</b>			
Q9.8.1.	CWCC	<p><b>Cumulative impacts – CWCC comments</b></p> <p>CWCC commented on the cumulative impact assessment in its relevant representation <a href="#">[RR-037]</a>, including in paragraphs 16.1, 16.2, 16.3, 16.4, 16.5 and 16.6. The applicant responded <a href="#">[PD2-027]</a>.</p> <p>Please could CWCC set out any outstanding concerns, using the same paragraph numbering as in its relevant representation <a href="#">[RR-037]</a>?</p>	<p>Please cross refer to CWCC's Written Representations [REP1-048]: (Section 10):</p> <ol style="list-style-type: none"> <li>paragraphs 10.2 to 10.12 for Hynet Runcorn CO2 spur pipeline (and Appendix A (CWCCs response to ISH1 agenda and item 5k)</li> <li>paragraphs 10.13 for HyNet North West Hydrogen Pipeline.</li> </ol> <p>Please also cross refer to the Local Impact Report [REP1-046] Section 25.</p> <p>Paragraphs 16.1 and 16.2 [RR-037] refer to the <b>HyNet North West Hydrogen pipeline project</b>.</p> <p>In terms of HyNet Hydrogen pipeline the Applicant's response refers to the route of the HyNet Hydrogen pipeline (illustrated on Figure 4.3, Environmental Statement: Volume 3 Chapter 4 Figures [APP-108]) running along the southern boundary of the site, and that there is very little use of this area by SPA birds. However, the route does go through the</p>

			<p>easternmost area of the site and the Skylark Mitigation Area and so assessment should further consider impacts.</p> <p>Paragraphs 16.3 and 16.6 [RR-037] refer to the Runcorn Carbon Dioxide Spur Pipeline Project, and the above Written Representations and Local Impact Report outline further the outstanding concerns.</p> <p>The Applicant refers in CWACC16.1 [PD2-027] to the use of trenched construction techniques being proposed through Cell 1, 2 and 3, with a trenchless crossing proposed at the western extent of Cell 3 into Cell 4.</p> <p>The Applicant has outlined its position regarding the three possible scenarios concerning the sequence of the pipeline construction and the works to establish the NBBMA in [PD2-027].</p> <p>Scenario 1: Pipeline constructed prior to the NBBMA</p> <p>Scenario 2: Concurrent Construction of the Pipeline and the NBBMA</p> <p>Scenario 3: Pipeline constructed following establishment of the NBBMA</p> <p>As noted in CWCC's response under Q5.5.1, the Applicant refers to works in Cells 1, 2 and 3 being constructed between April 2027 and October 2027. However, this would still lead to disturbance in passage seasons and passage bird species. It is not clear how this corresponds with details of the oLEMP given further down in the response which states: Reference RU-BD-051: High-disturbance activities within land functionally linked to the Mersey Estuary SPA, Ramsar and SSSI will be completed outside of the winter months (November – March, inclusive).</p> <p>A trenchless crossing is proposed at the western extent of Cell 3 into Cell 4, whilst the construction in Cells, 1, 2 and eastern extent of Cell 3 would be open trenched. This does not reduce concerns.</p> <p>It is stated that construction of the NBBMA would also be timed to be undertaken outside of the core non-breeding bird period, November to February inclusive. However, again, this still impacts the passage</p>
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			<p>seasons, so could still have an impact on qualifying non-breeding bird species.</p> <p>It is noted that the scenario where the pipeline is built after the solar farm has not been assessed by the Applicant, and CWCC is deferred to, in terms of imposing planning conditions. This is not acceptable, as all scenarios, which could have significant impacts, have not been assessed.</p> <p>The Applicant has provided an update of the draft SoCG with Liverpool Bay CCS Ltd [REP1-039], and CWCC will comment further for Deadline 3 in response to Deadline 1 documentation provided by the Applicant.</p> <p>The principal concern is that the Applicant has not fully assessed the cumulative impact of the Runcorn Carbon Dioxide Spur Pipeline Project, particularly in the scenario of the CO2 pipeline being implemented post the establishment of the NBBMA, as well as sequencing within project timelines. Reliance is put on the CWCC imposing a planning condition on the CO2 pipeline project, or alternatively, that Liverpool Bay CCS Limited <b>LBCCS</b>) as applicant to the CO2 pipeline would need to propose adequate mitigation measures to ensure there will be no likely significant effects on the integrity of the Mersey Estuary SPA as a result of the temporary impacts from construction of the pipeline through the NBBMA. LBCCS have not assessed the scenario of installing the CO2 spur pipeline post construction of the NBBMA for their application and no means of control for this has been presented by LBCCS. At this stage CWCC do not consider that a planning condition would be appropriate or provide the necessary control.</p> <p>CWCC does not consider that this is a sufficiently robust cumulative assessment from the Frodsham Solar Applicant.</p>
Q9.8.2.	The applicant, Cadent Gas Limited (Cadent)	<p><b>Hynet Hydrogen Pipeline Project</b></p> <p>Cadent <a href="#">[RR-020]</a> said that it was promoting the Hynet Hydrogen Pipeline Project and expected to submit an application for development consent soon. It said that it would be seeking rights to construct and maintain the pipeline and was seeking</p>	

		<p>flexibility for construction of the pipeline within the OL. It proposed protective provisions [<a href="#">RR-020</a> appendix 2] in relation to the interaction of its pipeline with the proposed development.</p> <p>i) Please could the applicant respond to Cadent's comments?</p> <p>ii) Please could Cadent provide:</p> <ul style="list-style-type: none"> <li>• an overview of the Hynet Hydrogen Pipeline Project, including scope and anticipated timings for consenting, detailed design, construction, operation and (if appropriate) decommissioning</li> <li>• a plan showing the limits of the Hynet Hydrogen Pipeline Project, above and below ground installations, mitigation areas, and areas for construction, operation and maintenance activities and access</li> <li>• comment on the appropriateness of the dDCO [<a href="#">PD2-005</a>], including any protective provisions, in relation to the Hynet Hydrogen Pipeline Project</li> </ul> <p>iii) Please could the applicant and Cadent provide an update on their discussions, including a summary of the matters coordinated, matters that have been agreed, any inconsistencies or outstanding matters, and the next steps to be taken to resolve them.</p> <p>iv) The relationship between the proposed development and the Hynet Hydrogen Pipeline Project was discussed at Issue Specific Hearing 1 [<a href="#">EV4-007</a>], as</p>	
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		<p>prompted by agenda item 5k for that meeting <a href="#">[EV2-002]</a>. The applicant undertook to provide a written summary of its representations to that meeting and to respond to various actions arising by deadline 1 of the examination.</p> <p>v) Please could Cadent comment on the applicant's deadline 1 submissions at deadline 2?</p> <p>vi) Please could Cadent set out any outstanding concerns and provide updates during the examination?</p>	
Q9.8.3.	The applicant, Liverpool Bay CCS Limited (LBCCS)	<p><b>Runcorn Carbon Dioxide Spur Pipeline Project</b></p> <p>LBCCS <a href="#">[RR-011]</a> said that its primary concern was the timing of the construction of the proposed development and how this would impact the viability of its pipeline. It welcomed the applicant's commitment to collaborate and engage in the drafting of a statement of common ground (SoCG) and requested that the applicant provide a plan showing the pipeline overlaid on the proposed development's Works Plans to facilitate future discussions regarding the interaction between the two schemes. LBCCS considered it essential that the pipeline works in Cells 1, 2 and 3 would be completed before the proposed development works commenced in that area. It suggested that these considerations had not been addressed by the applicant and therefore objected to the proposed development. It said that construction schedules were subject to change, suggested that measures such as agreed DCO requirement could ensure the successful development of both projects, and had communicated its desired points of agreement within the proposed protective provisions. LBCCS said that there were inconsistencies in how the</p>	

		<p>pipeline was described in the applicant's documents.</p> <p>i) Please could the applicant respond to LBCCS's comments?</p> <p>ii) Please could LBCCS provide:</p> <ul style="list-style-type: none"> <li>• an overview of the Runcorn Carbon Dioxide Spur Pipeline Project, including scope and anticipated timings for consenting, detailed design, construction, operation and (if appropriate) decommissioning</li> <li>• a plan showing the limits of the Runcorn Carbon Dioxide Spur Pipeline Project, above and below ground installations, mitigation areas, and areas for construction, operation and maintenance activities and access</li> <li>• comment on the appropriateness of the dDCO <a href="#">[PD2-005]</a>, including any protective provisions, in relation to the Runcorn Carbon Dioxide Spur Pipeline Project</li> </ul> <p>iii) Please could the applicant and LBCCS provide an update on their discussions, including a summary of the matters coordinated, matters that have been agreed, any inconsistencies or outstanding matters, and the next steps to be taken to resolve them.</p> <p>iv) The relationship between the proposed development and the Runcorn Carbon Dioxide Spur Pipeline Project was discussed at Issue Specific Hearing 1 <a href="#">[EV4-007]</a>, as prompted by agenda</p>	
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		<p>item 5k for that meeting [EV2-002]. The applicant undertook to provide a written summary of its representations to that meeting and to respond to various actions arising by deadline 1 of the examination.</p> <p>v) Please could LBCCS comment on the applicant's deadline 1 submissions at deadline 2?</p> <p>vi) Please could LBCCS set out any outstanding concerns and provide updates during the examination?</p>	
Q9.8.4.	The applicant, National Grid Electricity Transmission PLC (NGET)	<p><b>Frodsham 400kV Substation</b></p> <p>NGET [RR-021] raised concerns about the cumulative impacts of the proposed development with HyNet Hydrogen Pipeline and Runcorn Carbon Dioxide Spur Pipeline. It would like to understand how the applicant would work with the promoters of the other schemes to minimise disruption to the access road to NGET's Frodsham 400kV Substation and ensure the protection of the associated overhead and underground apparatus including cables.</p> <p>i) Please could the applicant respond to NGET's comments?</p> <p>ii) Please could NGET set out any outstanding concerns and provide updates during the examination?</p>	
<b>9.9 Good Design</b>			
Q9.9.1.	CWCC	<p><b>Draft DCO Requirement 6(1)</b></p> <p>Is CWCC content that Requirement 6(1) secures sufficient details for detailed design approval? Please provide the reasoning for any addition.</p>	<p>Broadly, Requirement 6(1) together with the Design Parameters Statement (latest version [REP1-014]) is considered appropriate for the detailed design approval stage.</p> <p>Paragraph 3.6 of CWCC's Written Representations [REP1-048] refers to the provision of details of fencing; drainage; power cables (with details of</p>

			<p>conducting); anti-reflective coating to solar modules and landscape programming to be included in Requirement 6 (1).</p> <p>However, it is noted that landscape implementation is included in Requirement 9, fencing is covered by Requirement 10 and surface water drainage is covered by Requirement 11. Therefore, it is not necessary to include these items in Requirement 6.</p> <p>Regarding power cables, it is the confirmation of proposals for conduiting that is key; and the reason for seeking details of this is in relation to the ability to facilitate replacement and removal on decommissioning. This could be addressed in Requirement 6, or clarification provided in the Design Parameters Statement. For onsite cabling (between PV modules and inverters) and (between cattery containers and inverters) the statement currently refers to the '<i>cabling being buried within underground trenches</i>' as opposed to reference to the use of conduits. Proposals for all electrical cabling should be clarified.</p> <p>The reasoning for the anti-reflective coating is to secure the mitigation proposed under the Glint and Glare Assessment [APP-056].</p>
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### Compulsory acquisition and related matters

ExQ1	Question to:	Question	CWCC Response
<b>10. Compulsory acquisition and related matters</b>			
<b>10.0 Compulsory acquisition and related matters</b>			
Q10.0.1.	The applicant	<p><b>Relevant Works numbers for each plot of land</b></p> <p>To assist the ExA's consideration of whether the land rights powers requested by the applicant for each plot of land should be granted, please could the applicant prepare a schedule to set out which</p>	

		Works numbers <a href="#">[AS-007]</a> are relevant to each Plot number <a href="#">[PD2-004]</a> ?	
Q10.0.2.	The applicant	<p><b>Private wire connections</b></p> <p><a href="#">Planning Act 2008: associated development applications for major infrastructure projects</a> includes that:</p> <ul style="list-style-type: none"> <li>• associated development should either support the construction or operation of the principal development, or help address its impacts</li> <li>• associated development should not be an aim in itself but should be subordinate to the principal development</li> <li>• development should not be treated as associated development if it is only necessary as a source of additional revenue for the applicant, in order to cross-subsidise the cost of the principal development</li> </ul> <p>Schedule 1 of the dDCO <a href="#">[PD2-005]</a> identifies that Work 4B would be associated development relating to works to lay underground 132kV electrical and communication cables from Frodsham Solar Substation to nearby businesses. The Statement of Reasons <a href="#">[APP-018]</a> says that this private wire electricity connection would provide the opportunity to supply renewable energy generated by the Proposed Development directly to the nearby industrial businesses.</p> <p>The s51 advice following acceptance advised that clarification is provided of agreements with local businesses. The applicant <a href="#">[AS-001]</a> responded that:</p> <ul style="list-style-type: none"> <li>• it was in commercially confidential discussions with businesses operating near to the site who have large scale industrial operations and had expressed interest in the prospect of securing private-wire connections to Frodsham Solar</li> <li>• under such an arrangement, a proportion of the electricity generated by Frodsham Solar would be supplied directly to</li> </ul>	

		<p>one or more of these businesses, reducing their demand and reliance on their supply from the national grid</p> <ul style="list-style-type: none"> <li>• the Government has identified high electricity costs as a significant barrier to growth and investment in the UK</li> <li>• under a private-wire arrangement, the buyer would purchase electricity at a lower-rate than they pay for a supply from the national grid, and the generator will receive a higher-rate than if they were to export the electricity into the national grid</li> <li>• there would be benefits in terms of reducing the carbon footprint of the buyer's business or the products it produces</li> <li>• it was intended that the applicant and the buyers would enter into Power Purchase Agreements (PPA) – long-term contracts detailing the amount of electricity that the buyer will purchase and the pre-negotiated price</li> <li>• as the project was several years from supplying electricity, there were no agreements in place owing to the dynamic nature of power prices, and buyers not wishing to enter into agreements before the project is consented</li> <li>• confidence in establishing a private-wire arrangement was sufficiently high to justify the Applicant's financial investment in the design and environmental work committed to date in relation to Work No. 4B</li> <li>• Net Zero North West <a href="#">[PD1-005]</a> welcomed a potential private-wire connection for its members local to the proposed development. It said that access to home-grown and sustainably generated electricity at an attractive price would potentially bolster the region's economic competitiveness and growth and be an influential determinant for international investment in deciding where to establish energy-intense operations such as advanced manufacturing and datacentres. <ul style="list-style-type: none"> <li>i) Please, with reference to relevant legislation and guidance, could the applicant provide detailed justification of why it considers that Work 4B should be considered as associated development? Is there any policy support in NPS EN-1, NPS EN-3 or NPS EN-5?</li> </ul> </li> </ul>	
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		<p>ii) Should Work 4B be accepted as associated development, the ExA is minded that the dDCO [PD2-005] should include a provision whereby the exercise of the powers requested by the applicant should only be permitted if there was sufficient security that a sufficient quantity of electricity generated by the proposed development would be used by local businesses. Please could the applicant suggest suitable wording for the dDCO [PD2-005] in case that is the ExA's recommended approach?</p> <p>Please could the dDCO [PD2-005] and oDEMP [APP-138] be updated to secure the timing for the decommissioning of Work 4B, how much of those works should be removed during decommissioning, and how the land should be reinstated?</p>	
Q10.0.3.	The applicant	<p><b>Decommissioned land</b></p> <p>i) Please could the applicant comment on any implications for the requested land powers for when any decommissioned part of the proposed development, including any that would be decommissioned before 40 years of operation, would be returned to current uses?</p> <p>ii) Which powers would not be required and what would be the justification of not surrendering them?</p> <p>How should it be secured that any powers no longer required would be surrendered in a timely manner?</p>	

Q10.0.4.	<p>Cadent Gas Limited</p> <p>Frodsham Wind Farm Limited</p> <p>Inovyn Chlorovinyls Limited and Ineos Fluor Limited</p> <p>Inovyn Enterprises Limited</p> <p>National Gas Transmission plc</p> <p>National Highways</p> <p>NGET</p> <p>SP Energy Networks</p> <p>The Canal &amp; River Trust</p> <p>United Utilities Water Limited</p>	<p><b>Individual objections</b></p> <p>Cadent Gas Limited <a href="#">[RR-020]</a>, Frodsham Wind Farm Limited <a href="#">[RR-047]</a>, Inovyn Chlorovinyls Limited and Ineos Fluor Limited <a href="#">[RR-004]</a>, Inovyn Enterprises Limited <a href="#">[RR-001]</a>, National Gas Transmission plc <a href="#">[RR-032]</a>, National Highways <a href="#">[RR-031]</a>, NGET <a href="#">[RR-021]</a>, SP Energy Networks <a href="#">[RR-018]</a>, The Canal &amp; River Trust <a href="#">[RR-010]</a>, United Utilities Water Limited <a href="#">[RR-006]</a> have commented on the powers requested by the applicant.</p> <p>i) Please could each organisation set out any outstanding concerns and provide updates during the examination?</p> <p>ii) If the concerns are not addressed to any organisation's satisfaction, please could it submit its proposed changes to the dDCO <a href="#">[PD2-005]</a>, including any protective provisions, with justification for why the changes are required?</p> <p>iii) Please could National Highways advise the full name of its legal entity for relevant land right purposes?</p> <p>Please could SP Energy Networks advise its relation to SP Manweb and the full name of its legal entity for relevant land right purposes?</p>	
Q10.0.5.	The applicant	<p><b>Human rights</b></p> <p>The applicant <a href="#">[APP-034]</a> and elsewhere] refers to two residential caravan sites adjacent to the site to the north-west of Frodsham and alongside the M56. Please could the applicant summarise the</p>	

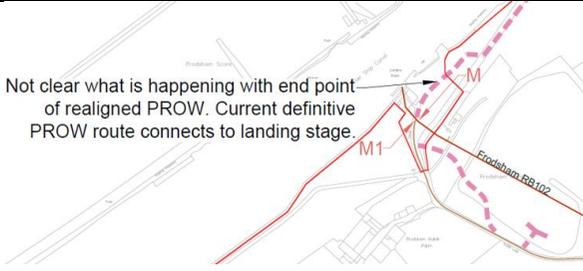
		consideration given to the human rights of the residents of those sites?	
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### The draft Development Consent Order (DCO)

ExQ1	Question to:	Question	CWCC Response
<b>11. The draft Development Consent Order (DCO)</b>			
<b>11.00 General matters</b>			
Q11.0.1.	The applicant	Can then applicant confirm where has the draft Development Consent Order and the EM be available for the community to inspect?	
Q11.0.2.	The applicant	The applicant should check the dDCO for any errors replated to duplication of text. For example, see article 10 (1) and 'in in' ..... the table <b>in in</b> Schedule 4 (permanent alteration of streets).	
Q11.0.3.	The applicant	The applicant should check the dDCO for potential formatting issues for example, Part 4 Interpretation – Article 30 and its justification. Also, checks should be carried out with numbering sequence for example Article 28, then Article 30, then Article 29.	
<b>11.1 Articles</b>			
Q11.3.1.	The applicant	<b>Article 2. Interpretation</b> Should 'battery energy storage system' be added and defined as it is referred to in schedule 1, Work no 2?	
Q11.3.2.	The applicant	<b>Article 2. Interpretation</b> Should 'replacement activities' be added and defined as it is referred to in Schedule 2, R13(2)(e)?	
Q11.3.3.	The applicant	<b>Article 7. Application and modification of statutory provisions</b>	

		<p>i) Paragraph 4.2.13 of the EM refers to previous precedents in other made DCO's however the EM does not provide any information regarding the likely operations and reasons. For example, if (f) section 28E (duties to sites of scientific interest) of the Wildlife and Countryside Act 1981(f) is to be disapplied can the applicant identify what the operations would be and where? Can the applicant look again at this paragraph in the EM and where relevant indicate which plots would be applicable?</p> <p>ii) Can the applicant advise which of those provisions that you are looking to disapply would relate to the permitted preliminary work?</p> <p>iii) Where the consent falls within a schedule to the Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015 evidence will be required that the regulator has consented to removing the need for the consent in accordance with s.150 Planning Act 2008. Could the applicant refer to such evidence in the EM?</p> <p>iv) The EM should make it clear which relevant consents are being sought to be disapplied (paragraph 4.2.18 of the EM) and which byelaws that the applicant is seeking to amend (paragraph 4.2.14)</p> <p>v) Can the EM refer to precedent to disapply the Community Infrastructure Levy Regulations 2010(b)?</p>	
Q11.3.4.	The applicant	<p><b>Article 7. Application and modification of statutory provisions</b></p> <p>Article 7 (3) k Could the text be amended to include the bold highlighted text:</p> <p>for carrying out development which has been authorised by an order granting development consent <b>(and to the locations stated in Schedule 9 – hedgerows to be removed)</b> and the pursuant to the Planning Act 2008. If the text cannot be amended, please provide justification and relevant evidence to support your position.</p>	

Q11.3.5.	The applicant	<p><b>Article 8. Defence to proceedings in respect of statutory nuisance</b></p> <p>Can the applicant respond to comments raised at pre application stage which relate to:</p> <ul style="list-style-type: none"> <li>i) Article 8(1)(c) – delete “the nuisance”?”</li> <li>ii) Article 8(2) – Section 61(9) (prior consent for work on construction sites)?</li> </ul>	
Q11.3.6.	The applicant	<p><b>Article 12. Temporary prohibition or restriction of use of streets and public rights of way, and authorising vehicular use on public rights of way</b></p> <p>Can the applicant:</p> <ul style="list-style-type: none"> <li>i) review Article 12 which provides access to certain users put does not appear to include all users of rights of way?</li> <li>ii) advise if Article 12 should include consult with street authority as 12(4), street authority consent for any other street or public right of way?</li> </ul>	
Q11.3.7.	The applicant	<p><b>Article 12. Temporary prohibition or restriction of use of streets and public rights of way, and authorising vehicular use on public rights of way</b></p> <p>Article 12 (3) refers to premises abutting a street or public right of way affected by the temporary alteration. Can the applicant advise what measures would be in place to impose and identify those people going to or from such premises including the travellers site?</p>	
Q11.3.8.	The applicant	<p><b>Article 13. Permanent stopping up of, and creation of new public right of way and authorising vehicular use of public rights of way</b></p> <p>Can the applicant provide justification for permanent stopping up for the purpose of a temporary development?</p>	
Q11.3.9.	The applicant	<p><b>Article 13. Permanent stopping up of, and creation of new public right of way and authorising vehicular use of public rights of way</b></p> <p>Can the applicant advise how it intends to resolve ambiguity in the application document that intrinsically link to the dDCO. For example, AS-003 (sheet 3) notes the following:</p>	

		 <p>Not clear what is happening with end point of realigned PROW. Current definitive PROW route connects to landing stage.</p>	
Q11.3.10.	The applicant	<p><b>Article 16. Traffic regulation measures</b></p> <p>Can the applicant respond to NH relevant representation [RR-031] that this article should include NH consent for any works affecting its network.</p>	
Q11.3.11.	The applicant	<p><b>Article 16. Traffic regulation measures</b></p> <p>Can the applicant explain why it is necessary to place temporarily place traffic signs and signals in any road outside the OL? [Article 16 (2)]</p> <p>The Great Yarmouth Third River Crossing Development Consent Order 2020 DCO clause 18 is limited “for the purposes of the authorised development”. The Mallard Pass Solar Farm Order 2024 Pass DCO article 15 is limited to “in the interests of safety and for the purposes of the authorised development, or in connection with the authorised development”. The Cottam Solar Project Order 2024 order article 15 is limited “in the interests of safety and for the purposes of, or in connection with, the construction of the authorised development, temporarily place traffic signs and signals in the extents of the road specified in column 2 of the table in Schedule 8 (traffic regulation measures)”.</p>	
Q11.3.12.	The applicant	<p><b>Article 16. Traffic regulation measures</b></p> <p>Should Article 16(5) include site notices and also include ‘prior approval’ rather than ‘prior notice’? How would these notices relate to approval of traffic management plans for construction and decommissioning?</p>	
Q11.3.13.	The applicant	<p><b>Article 17. Discharge of water</b></p> <p>Can the applicant clarify if this article applies to NH’s drainage system as drafted or whether this applies to public drains only? If not, can you please</p>	

		respond to NH concerns related to this article in its relevant representation <a href="#">[RR-031]</a> .	
Q11.3.14.	The applicant	<b>Article 18. Protective works to buildings</b> Can the applicant respond to NH concerns raised in its relevant representation <a href="#">[RR-031]</a> regarding the need for NH consent for access/work.	
Q11.3.15.	The applicant	<b>Article 19. Authority to survey and investigate the land</b> Can the applicant respond to NH concerns raised in its relevant representation <a href="#">[RR-031]</a> regarding the need for NH consent for access/work.	
Q11.3.16.	The applicant	<b>Article 19. Authority to survey and investigate the land</b> Article 19(6) is quite novel, and the EM sets out what it is and why it has been added. This power is normally exercised by local authorities or statutory undertakers. Could the applicant update the EM to justify in more detail the reason to seek power to issue a warrant directly to an enforcement officer and then charge for this.	
Q11.3.17.	The applicant	<b>Article 20. Temporary suspension of navigation</b> This article enables temporary suspension of navigation to the River Weaver within the OL. Can the applicant provide justification for including “any other enactment” in article 20(1) if no specific legislation or enactments are to be disapplied as a consequence of this article?	
Q11.3.18.	The applicant	<b>Article 23. Compulsory acquisition of rights</b> The EM sets out that article 23 is subject to article 44 (Crown Rights). Where an applicant wishes to compulsorily acquire some other person’s interest in that same land, that can only be done if the appropriate Crown authority consents to it under s135(1) of the Planning Act 2008. Can the applicant update the EM to set out if the crown authority has been consulted and also provide the ExA with a progress update on discussions with the Crown.	
Q11.3.19.	The applicant	<b>Article 23. Compulsory acquisition of rights</b>	

		<p>Article 23(2) and 23(4) allow acquisition rights to be delegated to statutory undertakers. However, not all transferees benefitting from protective provisions in Schedule 13-27 under article 23(3) are undertakers. Can the applicant:</p> <ul style="list-style-type: none"> <li>i) Provide full justification why these parties need the powers to compulsorily acquire rights.</li> <li>ii) Update article 23 (2) so that order rights are capable of being transferred to undertakers but only if "required for the purpose of diverting, replacing or protecting apparatus of a statutory undertaker". An example of such wording can be noted on the Gate Burton Energy Park Order 2024 and Cottam Solar Project Order 2024.</li> </ul> <p>Detailed justification why article 23(3) is required so that the consent of the Secretary of State is not required pursuant to article 36(3) and the undertaker has notified the Secretary of State.</p>	
Q11.3.20.	The applicant	<p><b>Article 23. Compulsory acquisition of rights</b></p> <p>Article 23(10) states that access rights”, “cable rights” and “vegetation maintenance rights” have the same meaning as they are defined in Schedule 8. Can the applicant check through dDCO for schedule 8 references as in some instances the reference appears to be Schedule 7 (land in which only new rights etc. may be acquired).</p>	
Q11.3.21.	The applicant	<p><b>Article 23. Compulsory acquisition of rights</b></p> <p>Can the applicant respond to NH relevant representation <a href="#">[RR-031]</a> and the concerns it has raised regarding the lack of NH consent, and extinguishment of its rights.</p>	
Q11.3.22.	The applicant	<p><b>Article 24. Private rights</b></p> <p>Can the applicant respond to NH relevant representation <a href="#">[RR-031]</a> and the concerns it has raised regarding any land within the OL limits to be temporarily possessed and the effects upon NH.</p>	
Q11.3.23.	The applicant	<p><b>Article 24. Private rights</b></p>	

		<p>Article 24 (1) and 24 (8) extend the definition of private rights beyond the model to include “any right of way, trust, incident, restrictive covenant, easement, liberty, privilege, right or advantage annexed to land and adversely affecting other land, including any natural right to support; and include restrictions as to the user of land arising by virtue of a contract, agreement or undertaking having that effect” .</p> <p>Can the applicant explain how it consulted with relevant parties regarding its approach and going beyond the model?</p>	
Q11.3.24.	The applicant	<p><b>Article 27. Power to override easements and other rights</b></p> <p>Can the applicant respond to NH relevant representation [<a href="#">RR-031</a>] and clarify whether there will be a temporary interference or permanent extinguishment of NH’s interests?</p>	
Q11.3.25.	The applicant	<p><b>Article 29. Rights under or over streets</b></p> <p>Can the applicant respond to NH relevant representation [<a href="#">RR-031</a>] and the concerns it has raised that NH consent would not be required.</p>	
Q11.3.26.	The applicant	<p><b>Article 30. Temporary use of land for constructing the authorised development</b></p> <p>Can the applicant provide further justification to explain why under article 30(10) it requires new rights over all of the order land which in effect creates undefined new rights in the land over temporary possession powers?</p>	
Q11.3.27.	The applicant	<p><b>Article 30. Temporary use of land for constructing the authorised development</b></p> <p>Should any provisions relating to notices/counter notices which do not reflect the Neighbourhood Planning Act 2017 (NPA 2017) proposed regime (not yet in force) be modified to more closely reflect the incoming statutory regime where possible? For example, the notice period that will be required under the NPA 2017 Act is 3 months, substantially longer than the 14 days required under article 30(3). Other than prior precedent, what is the justification for only requiring 14 days’ notice in this case?</p>	

Q11.3.28.	The applicant	<p><b>Article 30. Temporary use of land for constructing the authorised development</b></p> <p>Can the applicant respond to NH relevant representation <a href="#">[RR-031]</a> and the concerns it has raised that NH consent would not be required.</p>	
Q11.3.29.	The applicant	<p><b>Article 31. Temporary use of land for maintaining the authorised development</b></p> <p>Can the applicant explain what provisions would be in place under article 31 to prevent compulsory acquisition of land which is only intended to be used temporarily? This is done for article 30 (see 30(4) and 23(1)) but not article 31.</p>	
Q11.3.30.	The applicant	<p><b>Article 31. Temporary use of land for maintaining the authorised development</b></p> <p>Can the applicant respond to NH relevant representation <a href="#">[RR-031]</a> and the concerns it has raised that NH consent would not be required.</p>	
Q11.3.31.	The applicant	<p><b>Article 33. Apparatus and rights of statutory undertakers in temporarily closed streets</b></p> <p>Should the title for article 33. Apparatus and rights of statutory undertakers in temporarily closed streets be amended as the article is not just applicable for temporarily closed streets?</p>	
Q11.3.32.	The applicant	<p><b>Art 36. Consent to transfer the benefit of the Order</b></p> <p>Should Article 36(3)(c) be removed; and 36(3)(a) and 36(3)(d) must both apply?</p>	
Q11.3.33.	The applicant	<p><b>Article 38. Planning permission, etc.</b></p> <p>The EM refers to similar orders where this has also been allowed but does not give a justification for allowing it in these circumstances. Can the applicant provide this justification for the proposed development?</p> <p>Can the applicant explain why does it require permitted development rights that is normally available to statutory undertakers. The EM refers to other schemes but does not set out why it is needed.</p>	

Q11.3.34.	The applicant	<p><b>Article 44. Crown rights</b></p> <p>Should the word “<b>take</b>” be removed from Crown rights</p> <p>44.— (1) Nothing in this Order affects prejudicially any estate, right, power, privilege, authority or exemption of the Crown and in particular, nothing in this Order authorises the undertaker or any licensee to <b>take</b>, use,.....</p> <p>Should consent under PA2008 s135 (1) and 135(2) also be obtained from the Crown authority. The EM confirms that “the proposed Order land includes parcels of land which constitute Crown land” but not that consent was obtained in line with s135.</p>	
Q11.3.35.	The applicant	<p><b>45. Service of notices</b></p> <p>The applicant is requested to justify its approach to Article 45. Service of notices as currently drafted it does not require notices to be served through the postal recorded delivery service</p>	
Q11.3.36.	The applicant	<p><b>46. Procedure in relation to certain approvals etc.</b></p> <p>The guidance contained within Nationally Significant Infrastructure Projects - Advice Note Fifteen: drafting Development Consent Orders suggest this article could be embedded in a schedule rather than an article. Can the applicant advise?</p>	
Q11.3.37.	The applicant	<p><b>46. Procedure in relation to certain approvals etc.</b></p> <p>The undertaker already has the benefit of Article 46(2) which sets out that “consent, agreement or approval must not be unreasonably withheld or delayed”. Can the applicant provide relevant justification to demonstrate why it is necessary to include Article 46(4) i.e. provides for requests for consent to be agreed by default where the consenting authority does not respond within eight weeks.</p>	
Q11.3.38.	The applicant	<p><b>46. Procedure in relation to certain approvals etc.</b></p> <p>Can the applicant respond to NH relevant representation [<a href="#">RR-031</a>] and advise whether article 46 could be disapplied in the context of any consent relating to the strategic road network</p>	

Q11.3.39.	The applicant	<b>47. Guarantees in respect of payment of compensation</b> Can the applicant explain why this article guarantee would only be in place for 15 years (after the date on which the relevant power is exercised). Can the guarantee be in place for the operational period of 40 years + the duration of the decommissioning phase?	
Q11.3.40.	The applicant	<b>48. Compulsory acquisition of land – incorporation of the mineral code</b> Can the applicant advise if any minerals been identified, and if not, then is this article required as the SoS may consider such articles unnecessary	
<b>11.2 Schedule 1 – Authorised development</b>			
Q11.2.1.	The applicant	<b>Paragraph 1 of Schedule 1</b> Can the applicant provide a definition of CCTV in paragraph 1 of Schedule 1 as CCTV is referred to in work numbers, for example Work no.2A.	
Q11.2.2.	The applicant	<b>Work no 5</b> For work no 5, can the applicant review the use of the term ‘and’ that appears the end of (c) electrical and communication cables connecting Work No. 1 to Work No.2; <b>and</b>	
Q11.2.3.	The applicant	<b>Work no 7</b> Can the applicant clarify what is meant by the term ‘download’ in bullet point f	
Q11.2.4.	The applicant	<b>Work no 8</b> Can the applicant clarify if any activities in work no 8 would be required within the non breeding bird mitigation area (work no 6C).	
<b>11.3 Schedule 2 – Requirements</b>			
Q11.3.1.	The applicant	<b>Requirement (R) 2. Commencement of the authorised development</b>	

		Can the applicant advise if the word “begin” should be changed to “commence”; that is, the authorised development must not commence.....	
Q11.3.2.	The applicant	<b>R6. Detailed design approval</b> Can the applicant respond to NH relevant representation [ <a href="#">RR-031</a> ] and advise if this requirement can be expanded to also include NH approval?	
Q11.3.3.	The applicant	<b>R6. Detailed design approval</b> Should R6(2) also include reference to the works plans? That is, 6(2) The authorised development must be designed and constructed in accordance with the design parameters statement <b>and works plans</b> ?	
Q11.3.4.	The applicant	<b>R6. Detailed design approval</b> Paragraph 10.4.4. of Appendix 10-1: Stage 1 Geo-Environmental Assessment [ <a href="#">APP-096</a> ] notes that an appropriate site investigation will be required to inform the final mitigation measures and this could be completed under a requirement of the DCO during the detailed design phase of the development. Can the applicant advise if site investigation proposals would be submitted and approved in writing by the relevant planning authority and whether this can be added to R6.	
Q11.3.5.	The applicant	<b>R7. Battery safety management</b> Can the applicant respond to NH relevant representation [ <a href="#">RR-031</a> ] and advise if this requirement be amended to include consultation with NH on the battery safety management plan?	
Q11.3.6.	The applicant	<b>R9. Landscape and ecological management plan</b> Can the applicant advise why R9(2) which secures for details of landscaping works and ecological mitigation/enhancement measures does not explicitly state a minimum 10% biodiversity net gain in habitats, hedgerows and watercourse units during the operation of the authorised development? Can the applicant also confirm what metric would be used to show how those percentages had been reached.	

Q11.3.7.	The applicant	<b>R9. Landscape and ecological management plan</b> R9(2) (g) the ecological surveys – can the applicant clarify the context of commencement of a numbered work? Does it mean that ecological surveys would be undertaken prior to permitted preliminary works?	
Q11.3.8.	The applicant	<b>R9. Landscape and ecological management plan</b> R9(2) (j) notes that the non-breeding bird mitigation strategy must include a New Zealand pygmyweed control and management strategy. Can the applicant advise if this New Zealand pygmyweed control and management strategy would be consulted upon and approved by the local planning authority and Natural England prior to commencement of preliminary permitted works?	
Q11.3.9.	The applicant	<b>R10. Fencing and other means of enclosure</b> Where reference is made to 'any proposed permanent or temporary fences, walls or other means of enclosure' should the R be explicit in that it 'must be carried out in accordance with the approved details'.	
Q11.3.10.	The applicant	<b>R11. Surface and ground water management</b> Can the applicant clarify the reference in R11(1) to substantially in accordance with section 11 of the flood risk assessment and drainage strategy? Can an outline surface water drainage strategy be submitted into the examination?	
Q11.3.11.	The applicant	<b>R11. Surface and ground water management</b> Regarding R11(3) can the applicant include the EA as a relevant authority to be consulted on the construction ground water and surface water management plan?	
Q11.3.12.	The applicant	<b>R11. Surface and ground water management</b> Can the applicant respond to NH relevant representation [ <a href="#">RR-031</a> ] and advise if this requirement can be amended to also include NH approval?	
Q11.3.13.	The applicant	<b>R12. Construction environmental management plan</b>	

		Regarding R11(3) can the applicant include NH as a relevant authority to be consulted on the construction environmental management plan?	
Q11.3.14.	The applicant	<p><b>R12. Construction environmental management plan</b></p> <p>Paragraph 1.3.5 of the Outline Construction Environmental Management Plan [APP-136] states if the DCO is granted, each of the outline plans submitted with the Application will be developed into a final document once a contractor is appointed, with approval by Cheshire West and Chester Council prior to construction (following consultation on each plan as set out in the DCO). As this statement only mentions outlines plans already submitted into the examination this implies that other plans not yet in place may not follow a regime of consult and approval?</p>	
Q11.3.15.	The applicant	<p><b>R15. Public rights of way</b></p> <p>Can the applicant respond to NH relevant representation [RR-031] and advise if this requirement can be amended to also include NH approval?</p>	
Q11.3.16.	The applicant	<p><b>R17. Ground conditions</b></p> <p>Can the applicant respond to NH relevant representation [RR-031] that it expects to be involved in the approval of the ground conditions investigations, the assessments strategy should accord with CD622 – Managing Geotechnical Risk, and where construction is close to the network, geotechnical risks to the strategic road network would need to be considered</p>	
Q11.3.17.	The applicant	<p><b>R17. Ground conditions</b></p> <p>Requirements 17 (1) notes that no part of the permitted preliminary works for that phase comprising geotechnical surveys and other investigations for the purpose of assessing ground conditions may start, until a ground conditions investigations and assessments strategy for that phase has been submitted to and approved by the relevant planning authority, such approval to be in consultation with the Environment Agency. However, the interpretation of permitted preliminary works in the dDCO includes (e) remedial work in respect of any contamination or other adverse ground conditions. Should R17 (1) therefore include remedial work rather than just geotechnical surveys and other investigations to assess ground conditions?</p>	

Q11.3.18.	The applicant	<b>R18. Archaeological mitigation strategy</b> Should R18 include reference to the Outline Written Scheme of Investigation, and could this R include post-excavation analysis, reporting, publication and archiving? Is R18(2) section 11.9 of the environmental statement referring to Volume 1 Chapter 11: Cultural Heritage and Archaeology?	
Q11.3.19.	The applicant	<b>R20. Decommissioning</b> i) Can the applicant advise where decommissioning works commence no later than 40 years how long these decommissioning works would last? Could this timeframe be included in the R? ii) Can the applicant advise where decommissioning works commence no later than 40 years how long these decommissioning works would last? Could this timeframe be included in the R? iii) Where parts of the proposed development stops generating electricity earlier than 40 years (for example solar PV modules) what would be the timescales for decommissioning to start on those affected infrastructure?	
<b>11.4 Schedule 3 – Street subject to street works</b>			
Q11.4.1.		No questions currently	
<b>11.5 Schedule 4 – Permanent alterations to street works</b>			
Q11.5.1.		No questions currently	
<b>11.6 Schedule 5 – Temporary prohibition or restriction of use of streets and public rights of way, and authorising vehicular use on public rights of way</b>			
Q11.6.1.		No questions currently	
<b>11.7 Schedule 6 – Access to works</b>			
Q11.7.1.		No questions currently	

<b>11.8 Schedule 7 – Land in which only rights etc. may be acquired</b>			
Q11.8.1.		No questions currently	
<b>11.9 Schedule 8 – Modification of compensation and compulsory purchase enactments for the creation of new rights and imposition of new restrictive covenants</b>			
Q11.9.1.		No questions currently	
<b>11.10 Schedule 9 – Hedgerows to be removed</b>			
Q11.10.1.		No questions currently	
<b>11.11 Schedule 10 – Documents and plans to be certified</b>			
Q11.11.1.		No questions currently	
<b>11.12 Schedule 11 – Arbitration Rules</b>			
Q11.12.1.	The applicant	This schedule does not recognise that any matter for which the consent or approval of the Secretary of State (or the Marine Management Organisation if applicable) is required under any provision of this Order would not be subject to arbitration. Can the applicant review this schedule in context with the wording examples contained in the Norfolk Vanguard Offshore Windfarm DCO and the draft Hornsea Three Offshore Windfarm DCO.	
Q11.12.2.	The applicant	Would schedule 11 (4)(10) result in expeditious decisions taking prominence over quality decisions?	
<b>11.13 Schedule 12-</b>			
Q11.13.1.		No questions currently	
<b>11.14 Schedules 13 to 27</b>			

Q11.14.1.		No questions currently	

## APPENDICES

**Appendix 1.** Badger Protection: Best Practice Guidance for Developers, Ecologist and Planners (England) (Aug 2023)

**Appendix 2.** Local Wildlife Site Selection Criteria for the Cheshire Region (Nov 2012)

**Appendix 3.** Frodsham Wind Farm Environmental Statement (Section 2) (Feb 2010)

- a. Section 2 -
- b. Section 13 – Ornithology
- c. Section 13 – Ornithology Figures

**Appendix 4.** Mersey Estuary SPA Classification Citation, Version 1.1 (May 2004)

**Appendix 5.** Extracts from Cheshire West and Chester Council Landscape Sensitivity Study and Guidance on Wind and Solar Photovoltaic Developments (2016)

**Appendix 6.** Update on Natural England’s Landscape Designation Programme (June 2025)

**Appendix 7.** Emergency Planning meeting notes 19 September 2025 - recommendations to the Applicant concerning the Outline Flood Warning and Evacuation Plan (oFWEP)

**Appendix 8.** Frodsham Windfarm Consent - Discharge of Condition 29 – Public Rights of Way (Updated March 2015) (Parsons Brinckerhoff March 2015)

**Appendix 9.** Extracts from Appendix 5 Hazardous Waste Management Requirements for Cheshire West & Chester to 2045 (from CWAC WNA 2023)

**Appendix 10.** Decision Notice 24/01799/NMA relating to Ince Resource Recovery Park



# Badger Protection: Best Practice Guidance for Developers, Ecologists and Planners (England)

Badgers are a protected species, and with development projects occurring daily across the UK, it remains incredibly important that interested parties understand the law and best practice guidance when encountering this iconic mammal and its habitat.

*August 2023*

## Foreword

We all know that human activity is the leading cause of species decline in Britain, and badgers are no exception. The rise in property, infrastructure and road expansion projects means planning and development now represents one of the most significant threats to our wildlife. Yet, awareness of that fact alone isn't enough to counter the extraordinary pressure on our natural environment. Real action is urgently needed.

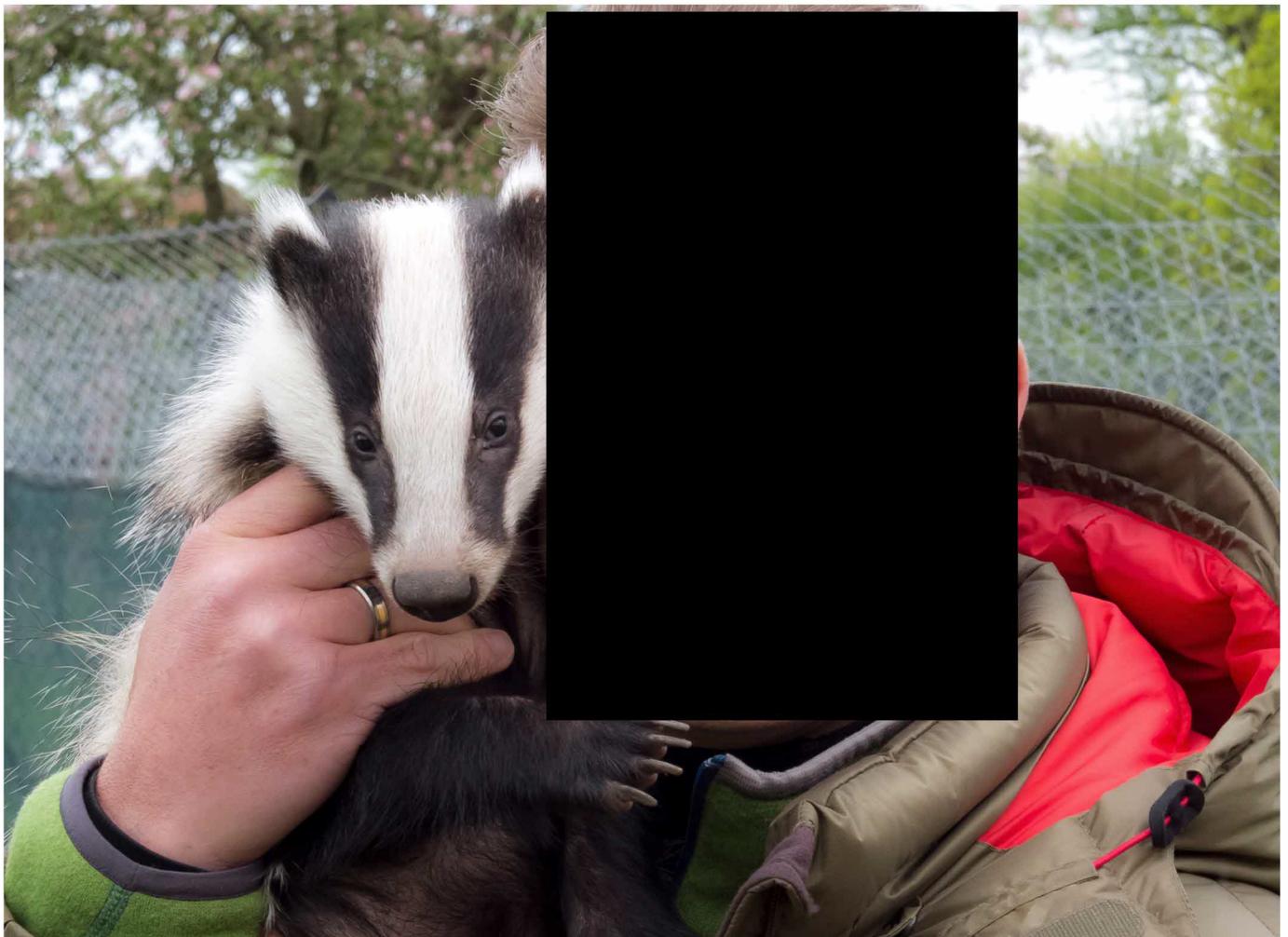
Planning developments impact plants and animals, there is no ambiguity about that. So, whether you're a developer, ecologist, planning officer, councillor or construction specialist, you have an absolutely critical part to play in helping to stop the decline of nature. You all count and you all have a responsibility, legal and moral, to conserve and care for the environment.

Anyone involved in the development of an area inhabited by badgers should comply with the guidelines outlined here. At the very least, and importantly, it will avoid you risking offences under our wildlife protection laws. It will also €

More creatively, by following these best practice guidelines from Badger Trust, it will allow for sustainable human-badger co-existence in both the short and long-term.

We must allow space for badgers – indeed space for all nature – and learning to live alongside this iconic and ecologically important species is a challenge which pays enormous rewards.

Broadcaster and Environmental Campaigner





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## Acknowledgements

Thanks to everyone who contributed to this guide, particularly Badger Trust's Planning and Development Working Group members.

# 1. Introduction

This guide aims to widen knowledge and make best practice guidance for badger protection easier to understand among planners, developers, ecologists, local authorities, wildlife crime investigators, and nature lovers and other interested parties so that the legal requirements for badger protection are properly understood and practised.

Badgers and their setts have unique protection under the Protection of Badgers Act (1992), and it is illegal to disturb, harm or destroy a badger or its sett either with intent or through negligence. With development projects occurring daily across the UK, it remains incredibly important that interested parties understand the law and best practice guidance when encountering this iconic mammal and its habitat.

Planning and development activities are some of the most common threats to badgers reported to Badger Trust. **Over 50% of badger crimes reported relate to sett interference, and 20% of these are related to housing and development projects.**

A lack of clarity regarding badger protection and obligations during planning and development projects can lead to costly delays in the project, breaches of the law, and unintended harm to badgers. This guide can be used to clearly identify the legal requirements for wildlife surveying, ecological assessments, licensing, and mitigation or monitoring of badgers living or foraging on development sites.

Consultants are often under unrealistic time pressure to complete survey work and can come under pressure to forego required standards in their work. Not only does this lead to last-minute delays for the client when objections are invariably lodged, but can also lead to legal action. It is in all parties' interests to follow the guidance in this document.

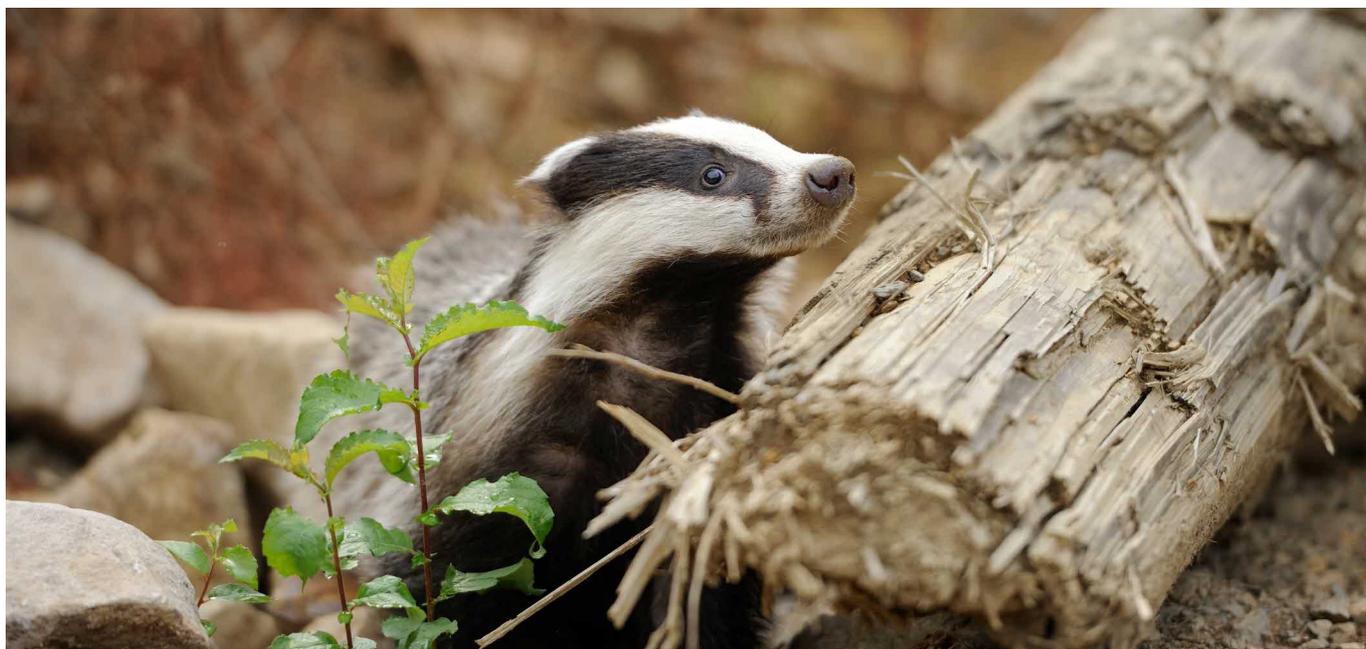
Poor planning can also increase the potential for conflict between badgers, householders, and property owners by pushing badgers into other areas ripe for development or where badgers are not welcome. This can lead to a recurring cycle of badger disturbance, ecological, infrastructure and planning issues with resultant financial costs and pressures falling on local authorities and the police going forward.

Badgers have been part of the British landscape for thousands of years and can be found in countryside, towns, and other urban locations. With land development projects occurring daily across the UK, it is essential that interested parties are knowledgeable about the law and their responsibilities. Applied incorrectly, development projects can result in wildlife crimes with severe repercussions.

Badger Trust aims to provide best practice guidance to define how development can be carried out within the law, in line with Natural England current guidelines, and in a way that minimises any negative impact on badgers at the development site and in the wider area going forward. This guidance document provides an overview of the law and appropriate surveying and activities that are licensable, licence requirements, and mitigation measures.

*Where reference is made to current Natural England "standing advice" this refers to the Natural England "standing advice" for badgers.*

*Natural England has issued standing advice for badgers as part of a collection of standing advice for protected species. The impact of development proposals on badgers may be a material consideration in planning decisions. Natural England's standing advice should be taken into account by local planning authorities when determining relevant planning applications.*



## 2. Badgers and the law

Badgers (*Meles meles*) are an iconic wild mammal in Britain and are relatively widespread in England and Wales. As a result of continued persecution and public concern for the badger, it has become a UK protected species. Badgers are fully protected in the UK by the Protection of Badgers Act 1992, by Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and by the Animal Welfare Act 2006.

### It is an offence to:

- Wilfully kill, injure or take a badger, or attempt these actions.
- Treat a badger cruelly.
- Interfere with a badger sett (the entrances, tunnels and chambers where they live).
- Possess or control a live badger.
- Mark or ring a badger.

**A person is guilty of an offence if, except as permitted by or under the Protection of Badgers Act 1992, they interfere with a badger sett by doing any of the following things:**

[a] Damaging a badger sett or any part of it.

[b] Destroying a badger sett.

[c] Obstructing access to, or any entrance of, a badger sett.

[d] Causing a dog to enter a badger sett.

[e] Disturbing a badger when it is occupying a badger sett, intending to do any of those things or being reckless as to whether their actions would have any of those consequences.

A badger sett includes the entrance holes, tunnels and chambers.

Penalties for breaches of the Protection of Badgers Act 1992 may include a fine and/or prison sentence of up to six months. This is also the case for breaches of the Wildlife Countryside Act 1981. Breaches of the Animal Welfare Act leading to unnecessary suffering by badgers if trapped and under the control of man can lead to the offender receiving a maximum five-year prison sentence.

### 3. Responsibilities of planning authorities, ecologists and developers

The National Planning Policy Framework (July 2021) states that when determining planning applications, local planning authorities should apply the principle that if significant harm to biodiversity resulting from a development cannot be avoided, mitigated or, as a last resort, compensated for, then planning permission should be refused.



Natural England's standing advice in relation to badgers and their legal protection is that planning officers should consider if the developer has taken appropriate measures to comply with the above.

Planning authorities also have a responsibility under **Section 40 of The Natural Environment and Rural Communities Act 2006**, which requires that "every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, the purpose of conserving biodiversity".

**The Crime and Disorder Act 1998** requires local authorities to demonstrate a duty to implement crime and disorder reduction strategies in areas including wildlife and the environment. Planners and ecologists are reminded that they are categorised as partners and should always, as a priority, assist the police, disclose details of concerns and be prepared to submit a written statement.

#### When to ask for a badger survey

Planning authorities should ask for a survey if either historical or distribution records show badgers to be active in the area, if there are signs of setts or badgers on the development site or nearby, or if there is suitable habitat for sett building or foraging by badgers at the location.

Natural England advice is that **absence of a record does not mean there are no badgers present** or using the location. It could simply mean there is no survey data available. Submissions from other interested parties, such as nearby residents or badger groups, indicating the presence of badgers on site should also be taken into consideration when assessing survey requirements.

### 3.1 Pre-application advice

Early consultation is always advised and encouraged –it can save time as well as money. If not licensed, works taking place too close to a badger sett could result in a wildlife crime.

Local Planning Authorities should welcome pre-applications, and many will have their own ecologists who can be consulted. A developer may need to separately appoint a qualified ecologist to advise on the planning application and help provide supporting evidence.

Natural England also offers pre-application advice as part of its suite of chargeable discretionary services.

## 4. Badger surveys

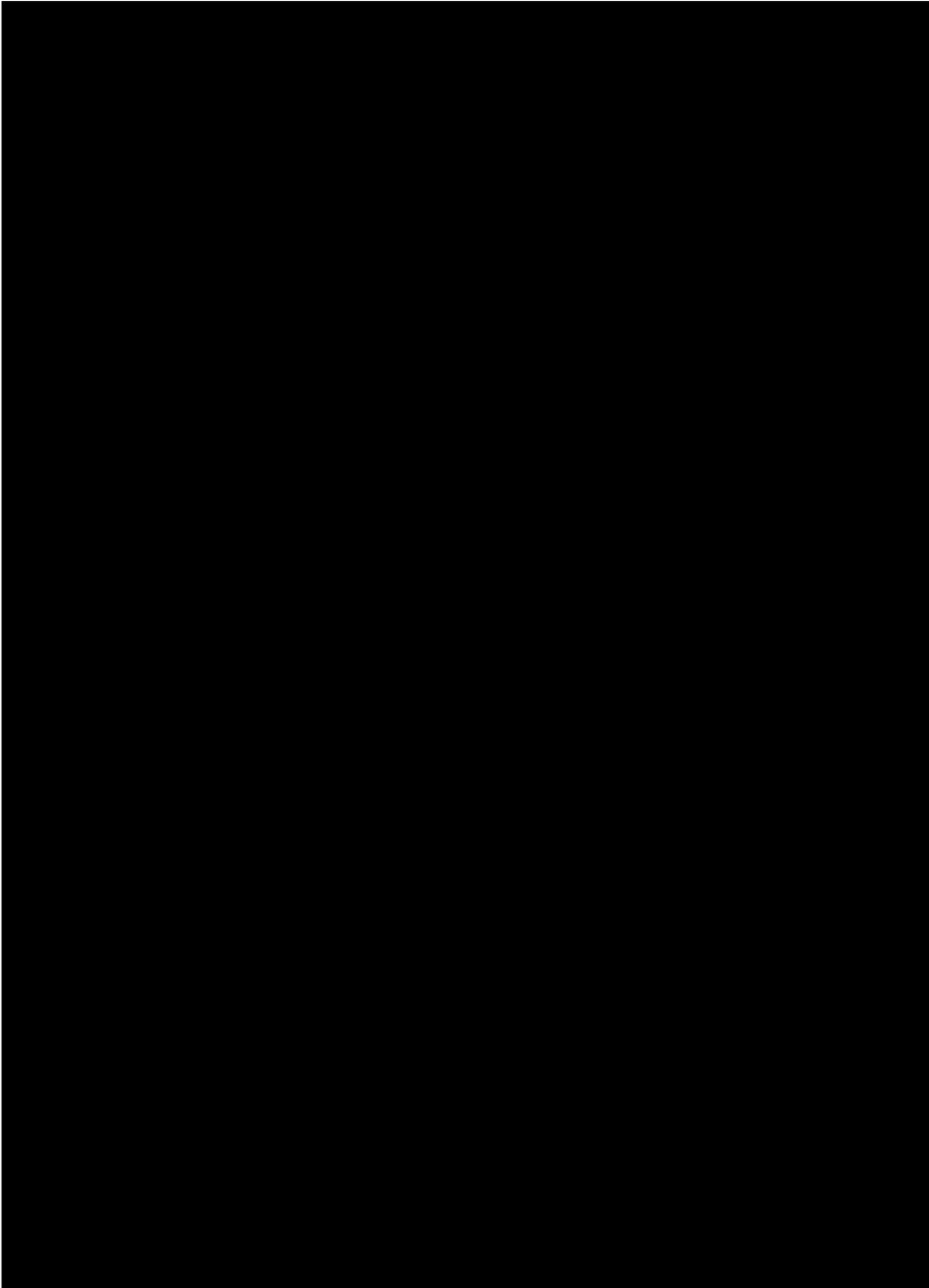
An ecological survey should include details of the number and status of any badger setts affected by a proposed development and whether a protected species licence is required to facilitate the proposals. **Any report that states a site has been cleared before an ecological assessment was undertaken should be treated with extreme caution and indicates that the legal requirements outlined in Section 3 of this document have not been met.**

The survey should show if the site is currently being used by badgers and identify the presence of any setts on or near the site. Surveys should be kept confidential to avoid ill-treatment of badgers and should be undertaken by an ecologist qualified and experienced to carry out surveys for badgers. Natural England standing advice is that the ecologist should also follow the Biodiversity Code of Practice for planning and development available on the British Standards Institute website. Ecologists must ensure they have permission in writing to be on the land subject to survey.

The purpose of the survey is to identify the use of a site by badgers and assess the effect of a proposed development on them. Badgers could be affected if the development proposal causes damage to setts, loss of setts, loss of foraging areas or disturbance to badgers whilst they're occupying setts. Dangers to badgers can also occur during any development works on a site. Such disturbance can arise from noise, lights, vibration, fires or chemical use.

**Badger Trust considers the following as examples of best practice to ensure surveys meet Natural England guidance and safeguard the welfare of badgers in and around the development area.**

- The survey should be conducted by a suitably trained and qualified ecologist early in the project timeline.
- The survey report should contain sufficient detail to inform the Local Planning Authority of the badger status at the application site and any mitigation, compensation and enhancement measures proposed to protect badgers prior to, during development and after work has been completed.
- The report should include the results of a desktop survey search.
- The report should include the results of a field survey carried out within the last 12 months, ideally in early Spring or late Autumn and state the presence or absence of badgers and any setts.
- A map of survey findings (with grid references) should be included showing any badger field signs, including any setts, and their exact proximity to the development footprint.
- Photographs, as appropriate, should be included.



- The report should state the classification of badger setts identified using standard methodology, i.e. Main/Annexe/Subsidiary/Outlier, together with a justification for the classification chosen.
- A requirement to update the survey pre-commencement of works is a MUST (as sometimes the activity status at a badger sett changes).
- A detailed survey conducted over a continuous period of no less than 21 days of any setts located to establish any badger activity may be required in some situations. Ideally, such a survey should employ the use of trail cameras to provide visual evidence.
- Proposals for ongoing site or sett monitoring where appropriate.

**Please note:**

Sometimes smaller sites may incorporate the badger survey findings with a preliminary ecological survey, whilst some schemes may require dedicated badger surveys and a mitigation strategy. Publishing the location of badger setts within the public domain is not advised, so a redacted version of the report may be requested by the Local Planning Authority. **Setts are still protected by law if there are signs indicating current use by badgers, even if the sett is unoccupied at that time.** Occupation and use are different.

## 5. Development impacts

The impact of any proposed development on badgers should be considered early in the design stage of the project. **Badgers are territorial animals and often try to return to existing territories during the building process and after the development is completed.** This can lead to badger welfare issues, time delays and cost and is best avoided through careful planning and an understanding of badger ecology. Even during a build, excluded or disrupted badgers can occupy large piles of topsoil and soft building materials. Excluded badgers can cause damage to land and property through broken fences, trying to gain access to foraging areas, new or old, or looking to create setts within new gardens, under sheds or in public open spaces. It may also lead to conflict with other nearby badger populations in larger development projects.

Retention of setts, together with sufficient space around them, is often key to minimise disturbance, avoiding the need for a wider survey of competing badgers in areas adjacent to the project site before planning and building an artificial sett elsewhere, and even the need for a licence. Relocated badgers often seek to return to their original site, with consequences to both the badgers and the developer. Sett closures should be carefully considered. Long-term consideration must be given to the impact on setts and badgers during a construction project and the period afterwards. Badger movements across a site during and after development must also be a consideration of mitigation and enhancement proposals. **Development proposals including sett closure should demonstrate that other available options have been considered and explain why they are not being pursued.**

Green space connectivity is vital, with wildlife corridors essential to allow the retention of commuting routes on and off retained spaces for badgers and other species that make use of their runs. Gardens of new properties being constructed are never and should never be seen as an adequate replacement for lost foraging availability as this may increase any potential conflict with homeowners. Some gardens may be accessible to badgers, others may not be. Badgers may be welcome garden visitors to some and not to others. Supplementary feeding, accidental or otherwise, may occur but should never be relied upon as a foraging enhancement.

Natural England standing advice is that badgers could be affected if the development proposal causes:

- Damage to sett.
- Loss of setts.
- Loss of foraging areas.
- Disturbance to badgers while they're occupying setts –from noise, lights, vibration, fires or chemical use.

Work which leads to any of the above is illegal without a licence.

## 5.1 Badger disturbance

It must be recognised that badgers can be disturbed by work near a sett, even if there is no direct interference or damage to the sett. It is difficult to know what badgers will find disturbing in each circumstance or where in a sett badgers may be living. In light of this, Badger Trust considers the following activities may require a licence:

- Use of heavy machinery within 30 metres of any sett entrance.
- Use of lighter machinery (particularly for digging) within 20 metres of any sett entrance.
- Use of hand tools such as hand digging or scrub clearance within 10 metres of any sett entrance.

These are guidelines only. Other factors should be taken into account including topography, sett type and age and if the location is in a rural or urban environment. Some other activities can cause disturbance at far greater distances (such as the use of explosives or pile driving), and these should be given individual consideration. As a guide, blasting activities within 100m of a sett may require a licence, but the level of disturbance will depend on the type and nature of the blasting and the geography of the surrounding area.

## 5.2 Avoidance, mitigation and compensation measures

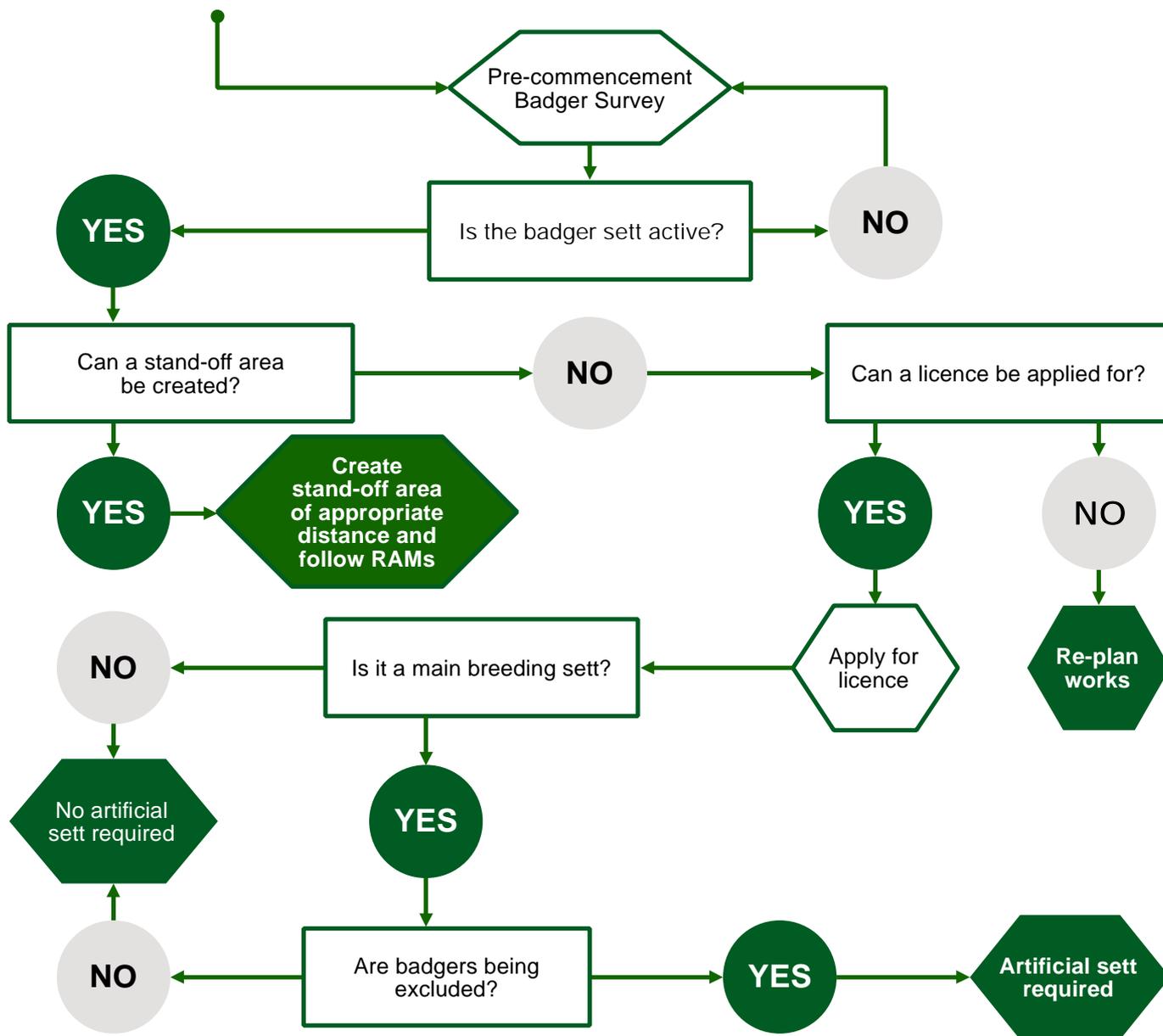
Natural England advice is that, where possible, developments should avoid effects on badgers. Where this is not possible, the developer will need to include mitigation or compensation measures in their proposal.

The following are previously accepted examples:

- A layout designed to avoid isolating the badgers' territory with badger sett retention/protection/enhancement, such as exclusion zones around setts/sett entrances.
- Avoid artificial lighting around setts and retain unlit wildlife corridors to provide safe badger access to foraging areas within existing territories.
- Creation of non-public areas using fencing and/or planting of native species (particularly fruit or nut-bearing).
- Retention of vegetation around setts, to provide cover and enhancement of public areas away from setts to provide improved foraging habitats.
- Artificial sett construction to compensate for loss of setts.
- Underpasses/traffic calming measures.
- Badger-proofing methods.

- Setts licensing, exclusion, closure of setts.
- Sensitive lighting schemes during and after construction.
- Reasonable Avoidance Measures (RAMs) during development to ensure badgers are unharmed such as avoiding disturbance, including noise and vibration near active setts, keeping heavy machinery/excavation work away from setts, and avoiding activity between dusk and dawn when badgers are most active.

## Badger Mitigation Flow Chart



Mitigation should not include moving badgers from the site, known as translocation. There is no licensing provision for this under the Protection of Badgers Act 1992.

### 5.3 Badger foraging enhancement

An assessment of the current foraging habitat value of a site for badgers should be made at survey stage, and the likely impact of the development calculated. Retention, enhancement and/or creation of habitat should then be considered.

Areas with higher worm densities are more favourable as foraging habitats. Vermicides (chemical treatments for earthworms) should not be used.

For examples, please see the habitats table below:

<b>Examples of primary foraging habitat type</b>	Short grassland (amenity), improved grazing pasture, improved mown grassland, golf course, semi-improved grazed pasture or mown grassland
<b>Examples of secondary foraging habitat type</b>	Rough grassland (un-grazed), arable, scrub, broadleaved woodland, mixed woodland, riparian
<b>Examples of less favoured foraging habitat type</b>	Coniferous woodland, beech woodland

### 5.4 Licensing

Natural England advice states that a developer may need to apply for a protected species licence before they start work if they plan to:

- Exclude a badger from a sett.
- Disturb a badger.
- Damage or remove a sett.

Planning consents and badger licences are separate legal functions. In granting planning permission, the Local Planning Authority is not confirming that development operations will not breach the Protection of Badgers Act 1992. Likewise, obtaining planning permission does not guarantee that a badger licence will be granted by the issuing authority.

A badger licence is essentially a permit to action an activity that would otherwise be an offence under the Protection of Badgers Act 1992. Licensing authorities will only issue a licence after planning permission has been granted so that there is no conflict with the planning process.

Licences cannot be issued retrospectively, and licensing authorities require time to process applications. Licences will normally only be granted for works to be undertaken between 1<sup>st</sup> July and 30<sup>th</sup> November.



*Image © Chris Packham*

**If badgers have to be excluded from a sett under licence:**

- Make sure there are suitable alternative setts nearby to which badgers can relocate.
- Build artificial setts before excluding badgers from the natural sett. Ensure that badgers have found the artificial setts before excluding them from natural setts.
- Use one-way badger gates and welded mesh/chain link for at least 21 days from the last sign of badgers accessing the sett.
- Do not use chemical repellents.
- Follow all licence conditions imposed.

## 6. Measures for protecting badgers during works

A method statement must be prepared, describing how work will be undertaken to avoid any offences being committed and badgers and/or setts being adversely affected. This will accurately reflect working operations and the site use by badgers. **This must be approved by the Local Planning Authority before work starts.**

The following should be adopted as a minimum in most cases:

- A pre-commencement of work badger survey should be conducted by a suitably qualified ecologist to ensure the current badger situation is known and that the recommendations are correct.
- All site personnel should be fully briefed concerning the method statement, the presence of badgers, the mitigation measures to be followed, the relevant legislation, the penalties imposed and who to contact should they need to.
- Trees and shrubs should be felled so that they fall away from the direction of a sett and outside exclusion zones.
- Ensure excavations or trenches left overnight are covered or have an escape route such as a shallow gradient at one or both ends.
- Ensure excavations or trenches are inspected each morning and evening to ensure no badgers have become trapped.
- Open pipework with a diameter of more than 120mm should be properly covered or capped at the end of the working day to prevent badgers from entering and becoming trapped.
- During the work, the storage of any chemicals should be contained in such a way that they cannot be accessed or knocked over by any roaming badgers.
- The storage of topsoil or other “soft” building materials within the site should be given careful consideration. Badgers will readily adopt such mounds and dig setts which would then be afforded the same protection as established setts. To avoid the adoption of such mounds, they should be subject to daily inspections before work commences or alternative measures put in place, such as being fenced off for higher-risk areas.
- Litter, tools and potentially dangerous materials on site should be cleared at the end of the working day. Care should be taken that there are no sharp metal objects or pointed protrusions on the ground which could seriously injure a badger due to their poor eyesight.
- Ensure no dogs are brought to the work site.
- Adherence to these measures should be confirmed to planners at regular intervals by the project ecologist.

**Additional measures may be necessary depending on the specifics of the project, such as:**

- Security lighting should be kept to a minimum and away from setts to avoid disturbance to any badgers on site.
- Fires should be lit only in secure compounds away from areas of badger activity and should be fully extinguished at the end of the working day.
- Use of noisy plant or machinery should cease at least two hours before sunset and not commence until an hour after sunrise to avoid causing a disturbance to badgers or preventing access or egress to setts.
- Badger paths must not be blocked to ensure access to foraging areas is maintained.



## 7. Site management and monitoring

Natural England advice is that you should consider the need for site monitoring and management. These measures are likely to be needed by wildlife licences and should set out the issue considered, the conclusions reached, and the plan decided for monitoring and management, as well as who is responsible for its implementation and oversight.

### A site management and monitoring plan should:

- Ensure sett building and foraging/commuting habitats are intact and still available in the long term.
- Check that setts, including artificial setts, have not been interfered with after development, such as from increased human presence or vandalism.
- Include carrying out management works to habitats, and additional survey work to check that mitigation measures are working as intended, followed by remedial work if needed.

## 8. Example wording for planning conditions

A good quality survey, with any mitigation plan, is required **BEFORE** planning permission is granted. Initial surveys should not form part of the pre-commencement conditions. Surveys requested at the approval stage should relate to **additional** surveys only.

### The following may be used by Local Planning Authorities when applying planning conditions:

- As close as practicable and no earlier than three months prior to commencement of development, an additional badger survey report shall be submitted to and approved in writing by the Local Planning Authority. Should the position, in so far as it relates to badgers, have changed from that originally reported when the application was submitted, the new survey report should incorporate a revised badger mitigation plan.
- Prior to first occupation/use of the site, a report prepared by an appropriately qualified and experienced ecologist demonstrating the implementation of the badger mitigation/enhancement measures, as set out in the badger survey report, shall be submitted to and approved in writing by the Local Planning Authority.

Reason: To ensure the protection of badgers in compliance with the Protection of Badgers Act 1992 and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

## 9. Conclusion

**Badgers are a protected species**, and certain measures must be taken to ensure that activities taking place near badger setts are carried out within the law.

**With appropriate measures and advanced planning, badgers can remain protected and unharmed during the course of development activities and developments can proceed on time, to budget and specification and with good neighbourly relations intact. Cutting corners leads to false economies, negative impacts on nature, additional expenditure, adverse publicity, and reputational damage.**

Lots of projects are managed in an exemplary fashion for others to follow, and we thank those involved for the care and responsibility they demonstrate towards our iconic native wildlife.

There is no reason to get any of this wrong: advice is widely available.

*If you are in any doubt or have questions about the correct course of action that should be taken, please contact Badger Trust at [hello@badgertrust.org.uk](mailto:hello@badgertrust.org.uk).*



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# Local Wildlife Site Selection Criteria for the Cheshire region.

Covering the districts of Cheshire West and Chester,  
Cheshire East, Wirral, Halton and Warrington

November 2012

Updated February 2014



**Cheshire**  
Wildlife Trust

**RECORD**



Cheshire West  
and Chester



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For more information contact:

Local Wildlife Sites Officer  
Cheshire Wildlife Trust,  
Bickley Hall Farm,  
Bickley,  
Malpas,  
SY14 8EF  
01948 820728  
[info@cheshirewt.org.uk](mailto:info@cheshirewt.org.uk)

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# 1. The Cheshire region LWS system

## 1.1 Introduction

Local Wildlife Sites are sites with 'substantive nature conservation value'. They are defined areas identified and selected locally for their nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and (**importantly**) a local context. The purpose of selection is to provide recognition of the substantive nature conservation value and to help conserve those features for which the site was selected. Together with the statutory sites (such as National Nature Reserves and Sites of Special Scientific Importance), they form the essential building blocks of an ecological network.

Found on both public and private land, Local Wildlife Sites vary in size and shape from small ponds and copses and linear features such as hedgerows, road verges and water courses to much larger areas of habitat such as ancient woodlands, heaths, wetlands and grassland.

Collectively they play a critical role in the conservation of the UK's natural heritage by providing essential wildlife refuges in their own right<sup>21</sup> and by acting as stepping stones, corridors and buffer zones to link and protect other site networks and the open spaces of our towns and countryside.

The Cheshire Region LWS system ensures a consistent approach for identifying, selecting, assessing, monitoring and protecting Local Wildlife Sites. Administration of the system requires enabling access to the most up to date information for approximately one thousand sites across the region. It operates as a partnership organisation across five local authorities, Halton, Warrington, Wirral, Cheshire East and Cheshire West and Chester. In addition to the local authorities the key partners include the Cheshire Wildlife Trust, Record, Natural England and the Environment Agency. Private landowners and other stakeholders are encouraged to participate in the partnership by attending annual site selection meetings. Typically stakeholders include organisations such as the Forestry Commission, the Woodland Trust and 'Friends of' groups.

This document outlines the role and purpose of the Cheshire Region LWS system and provides details of the management of the system including the site selection criteria and procedures. It is based upon the 2006 Defra publication 'Local Sites – Guidance on their identification, selection and management'.

## 1.2 Background and context

1. Non-statutory Local Sites include both Local Geological Sites (previously known as RIGGS) and Local Wildlife Sites (previously known as SBIs, SINC<sup>s</sup> or SNCV<sup>s</sup>). Statutory designations such as Sites of Special Scientific Interest provide a representative rather than a comprehensive suite of sites. Not all sites which meet the criteria for statutory designation can be designated and instead are selected under the Local Sites system. Consequently such Local Sites may be amongst the best sites in the region for the habitats, species or geology they support. It is essential, therefore, that the different status assigned to Local Sites compared to SSSIs should not lessen the perception of their importance and the vital role they play in conserving our natural heritage.
2. Local Wildlife Sites should be distinguished from the Local Green Space designation which was introduced in the 2011 Localism Act. Local Green Spaces may be selected for wildlife value, but unlike Local Wildlife Sites selection they could also be selected solely on their local community significance for beauty, historic importance, recreational value and tranquillity.
3. In the Cheshire region prior to 2012 each local authority had its own guidance and site selection criteria for Local Sites. In Halton and Warrington such sites were known as Sites of Importance for Nature Conservation (SINC<sup>s</sup>) and in Wirral, Cheshire East<sup>1</sup> and Cheshire West and Chester the sites were known as Sites of Biological Importance<sup>4</sup> (SBIs). A smaller number of sites in Cheshire West and Chester were previously known as Sites of Nature Conservation Value (SNCV<sup>s</sup>).
4. In 2006 Defra issued comprehensive guidance on Local Sites<sup>11</sup>. The Cheshire Region Local Wildlife Site system for site identification, selection and management is based upon this guidance and is set out in this document.

According to this guidance:

- Local Sites networks provide a comprehensive rather than representative suite of sites.
- Local Sites provide wildlife refuges for most of the UK's fauna and flora and through their connecting and buffering qualities, they complement other site networks.
- Local Sites have a significant role to play in meeting overall national biodiversity targets.
- Local Sites represent local character and distinctiveness.
- Local Sites contribute to the quality of life and the well-being of the community, with many sites providing opportunities for research and education.

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<sup>1</sup>Cheshire East LA refer to sites which have not been reviewed under the new criteria as SBIs. The CCC 2000 criteria remain valid for these sites until they are re-assessed under the new criteria.

## 1.3 Legislation and policy

Local sites are afforded a level of protection via the following policies and guidance:

- **NPPF – Sustainable development.** Local wildlife sites may provide building blocks and linkages of networks of biodiversity and as such the NPPF guidance advises that sustainable development requires such networks should be protected, enhanced and managed.
- **NERC act 2006. Biodiversity duty.** This places a duty on local authorities to conserve biodiversity in exercising its functions. This duty includes restoring or enhancing populations or habitats of principal importance which appear on the S41 list (UK BAP).
- **The conservation of habitats and species regulations 2010.** Part 2, section 39. This regulation provides guidance on nature conservation policy in planning contexts. Paragraph (3) encourages the management of features of the landscape which are linear/continuous or act as stepping stones essential for the migration, dispersal and genetic exchange of wild species. The regulations in part 3 refer to EU protected species and Local Wildlife Sites which support these species may be protected from disturbance and/or activities which destroy breeding sites or resting places.
- In addition to the legislation for European protected species referred to above other UK specific legislation may apply including: **Protection of Badgers act 1992, Wildlife and Countryside Act 1981 (schedules 1, 5 and 8), Countryside and Rights of Way Act 2000 (section 74) and the Hedgerows Regulations 1997.**
- **Good agricultural and environmental conditions for habitats and wildlife (GAECs).** Semi-natural habitat in the farmed environment is afforded some protection through the GAECs. These standards provide a baseline of environmental protection for habitats and wildlife in order to maintain biodiversity and sustainable farming and are linked to Cross Compliance requirements and the Single Payment Scheme.

By identifying sites which host priority and protected species and habitats the LWS system provides a robust evidence base. This enables the development of well-informed special planning policies and facilitates objective planning decisions so that local authorities can fulfil their biodiversity duty. Furthermore reporting on the management of Local Sites contributes to the Single Data List, specifically *Local nature conservation/biodiversity* (reference 160-00)

## 1.4 The LWS system – Key interests and the role of the partnership

1. With their statutory roles and responsibilities relating to nature conservation and biodiversity the lead partners for the Cheshire Region LWS system are the local authorities, with the Cheshire Wildlife Trust and Record taking responsibility for overseeing site surveys, administration and data storage.
2. Other stakeholders include statutory agencies and bodies (such as Natural England and the Environment Agency), landowners and the voluntary and community sector. Due to the large number of sites included within the system the success of the partnership is dependent on the input from volunteers with nature conservation expertise.
3. The role<sup>11</sup> of the LWS partnership is to
  - Agree the basis for site selection.
  - Co-ordinate site selection procedures including survey and identification of candidate sites.
  - Actively promote and support site management.
  - Co-ordinate funding provision and/or identify and promote the taking up of funding opportunities.
  - Promote educational use where appropriate.
  - Establish a process for monitoring the condition of the selected sites.
  - Review the operation of the Local Sites system at suitable intervals.
  - Promote the role and importance of Local Sites at a strategic level (for example in delivering BAP targets, targeting of agri-environment schemes).
  - Promote the enhancement of sites through buffering and increasing connectivity.
4. All sites which are selected or de-selected by the partnership are submitted to the relevant local authority for inclusion in, or deletion from, their Local Development Plan.

## 1.5 Evaluation and selection of LWS

### 1.5.1 Key functions of partnership in site selection and de-selection

1. The evaluation and selection of Local Wildlife Sites is a central responsibility of the LWS partnership. The partnership is the final arbiter for the evaluation and selection process.
2. The partnership is responsible for developing and periodically reviewing the site selection criteria in line with published guidance.
3. The partnership is responsible for ensuring all site surveys are undertaken by suitably trained staff or volunteers. The selection process must also be undertaken by suitably qualified personnel representing the LWS partnership.
4. The partnership is responsible for maintaining a list of candidate/alert LWSs and periodically assessing these sites against the LWS criteria. Candidate/alert sites may hold habitat or species of local/national importance but have not been assessed against the LWS criteria. Such sites may be proposed by members of the partnership or other stakeholders including the general public. The list should act as an alert for the planning process and may indicate that an ecological survey is required before determination of any application affecting the site.
5. Existing/candidate/alert sites should be assessed against the criteria by the LWS partnership. The objective of site selection is to select *all*<sup>11</sup> sites that meet the criteria and to review all sites against these criteria at least once every 10 years.
6. The partnership should decide whether sites are in positive management by completing the questionnaire in appendix 5.2. Reporting this figure contributes to the single data list, specifically *Local nature conservation/biodiversity (reference 160-00)*. The questionnaire has been compiled following the guidance set out in *Defra guidance on the improved Local Biodiversity indicator (NI197). Revised guidance note December 2008*.
7. Site owners should, whenever possible, be contacted by the partnership and asked for access permission to survey and monitor sites. Where access is denied those wishes should be respected and no change should be made to the site's status. However where there is a threat to a LWS (existing or proposed) section 324 of the 1990 Town and Country Planning Act indicates that any person duly authorised in writing by the Secretary of State or by a local planning authority may at any reasonable time enter land for the purpose of surveying it in connection with preparation of development plans or submission of a planning application. Although in the case of land which is 'occupied' 24 hours' notice of the intended entry has to be given to the occupier.
8. Prior to formal endorsement of sites by the LWS partnership, site owners should be given the opportunity to make observations, for example, on whether or not the site continues to host the listed features, provides the functions as stated and accords with the assessment

made against the selection criteria. This liaison with the landowner relates to the partnership's precise function of identifying appropriate sites and should, therefore be confined to factors relating directly to the application of the site selection criteria.

9. In the information sent to owners of a proposed site, the partnership should set out the process it will follow in considering any observations received from site owners and how the partnership will respond.
10. The criteria have been devised so that sites with restoration potential should not be de-selected, however careful consideration must be given to such sites. If a site no longer meets the criteria and has low restoration potential then it should be de-selected. Site owners and other interested parties should be notified and given the opportunity to make observations. Formal de-selection, once agreed by the partnership, should be notified to owners and other interested parties where appropriate.

### 1.5.2 Key principles and priorities in site selection

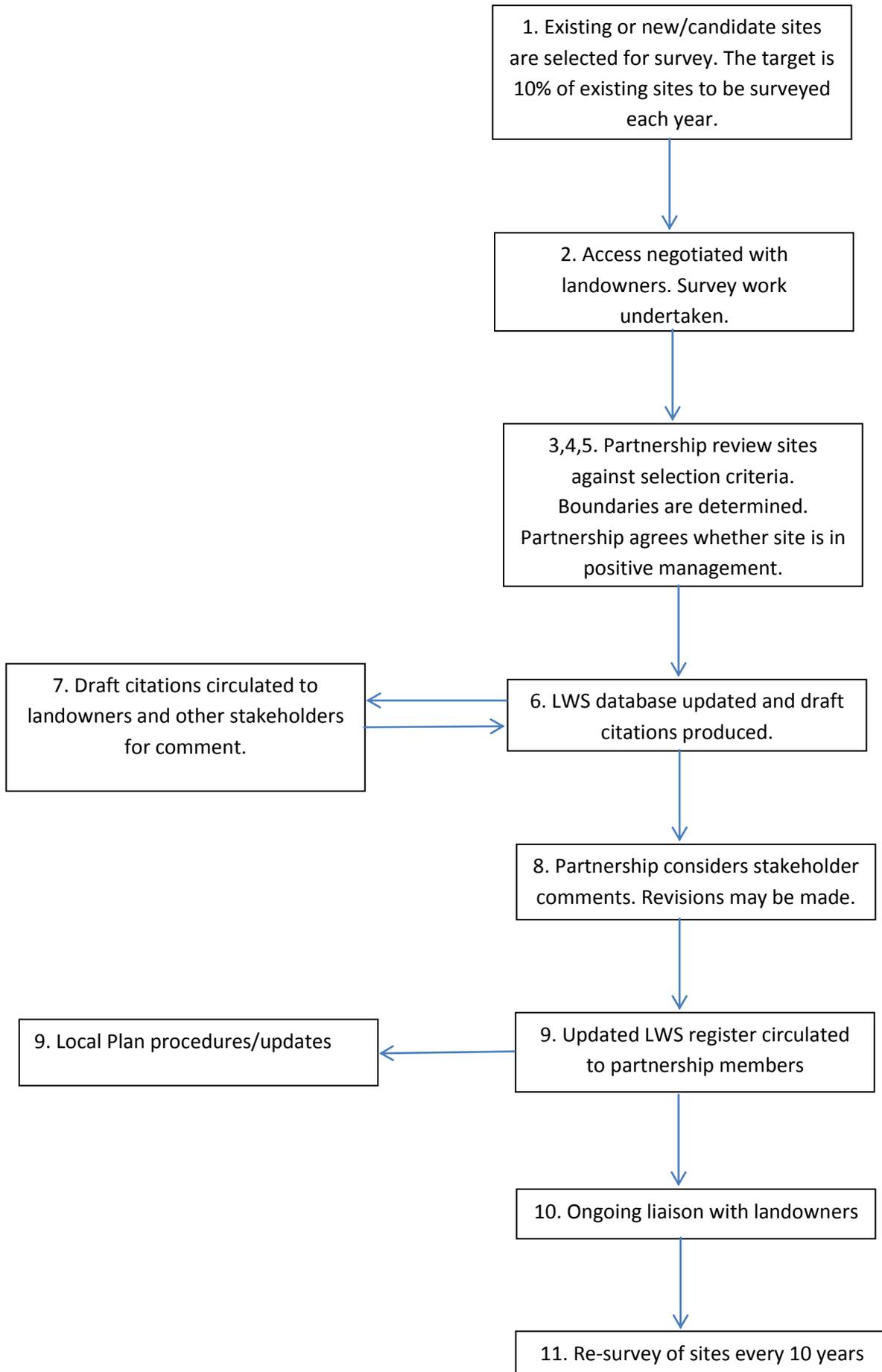
1. Sites with a substantive nature conservation interest will be selected. What constitutes substantive nature conservation interest is set out in the site selection criteria (sections 2 and 3) and reflects the local context as well as national priorities. Sites where the social/aesthetic/educational interest of the site derives from the wildlife features present may also be selected. Only one criterion needs to be met in order for a site to qualify as a LWS.
2. The criteria have been developed in wide consultation with various naturalist organisations and their representatives. Criteria H1 – H26 are generally habitat based, whereas criteria S1-S13 are species specific. The criteria represent a set of clear guidelines with measurable thresholds and provide a structured and systematic approach to site selection. The set of criteria has been devised to reflect local and national priorities as set out above and takes into consideration the following attributes<sup>2</sup>:
  - Size or extent
  - Diversity
  - Naturalness
  - Rare or exceptional value
  - Fragility
  - Typicalness
  - Recorded history and cultural associations
  - Connectivity with the landscape
  - Value for appreciation of nature
  - Value for learning

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<sup>2</sup> Based upon the Ratcliffe approach set out in the Nature Conservation Review 1977

3. Criteria are weighted relative to each other and geographically so that the suite of LWSs (together with other networks such as SSSIs) can maintain the nature conservation interest of the Cheshire region by supporting viable populations and functioning ecological communities.
4. The habitat criteria in section 2 closely follow the definitions of UK BAP habitats<sup>8</sup>. Several of these UK BAP habitats are also listed as European Annex 1 habitats as they are important in a European context as well as nationally. For a small number of sites the habitat may be excluded from the UK BAP but will appear on the Local BAP (lime-beds and some waxcap grasslands for example). Under the site selection criteria provision is also made for sites that provide important wildlife corridors or perform a buffering function for other important sites.
5. Sites may be selected for the species they support where these are of local or national conservation status, or if the site supports important species assemblages or a significantly large population. Detailed guidance is provided in section 3.

### 1.5.3 Procedures



1. Each year a number of existing or new sites are put forward for assessment. The target number for each local authority area is 10% existing sites to be surveyed each year. Where this rate is achieved sites are reviewed on a ten year rolling basis in line with Defra guidance. New candidate/alert sites can be put forward for survey by the partnership or other stakeholders including private individuals. Both new and existing sites are surveyed using the same methodology. Further guidance is given in 1.5.1.4.
2. Site surveys should be undertaken once site access has been negotiated. The survey process is similar to extended phase 1 methodology and requires the production of a phase 1 habitat map, and a completed LWS survey form (appendix 1). The form must include a concise description of the site and a list of indicator species (ideally with DAFOR score). In most cases the survey form will include brief management recommendations and a condition assessment of the site (based upon Higher Level Stewardship condition assessment methodology<sup>5</sup>).
3. The review process decides whether a site meets any of LWS criteria. Only one criterion needs to be met in order for a site to qualify. All criteria that are met should be recorded. If a site no longer meets the criteria it should be deleted.
4. The boundary of the site should be determined. This may include deletions or additions to existing sites. Further guidance is provided in the site selection criteria (sections 2 and 3).
5. The partnership will determine if sites are in positive management according to the methodology set out in appendix 2. Site owners/managers must be sent management recommendations, or possess a similar document if a site is to be assessed as being in positive management. Sites that are in schemes such as Higher Level Stewardship would be deemed to be in positive management unless evidence suggests otherwise. Entry Level Stewardship participation does not qualify a site as being in positive management.
6. The database is updated and draft citations are produced.
7. Draft citations are circulated to landowners and other interested parties for comment on how the criteria were applied. Additionally the standard survey form should be given to landowners/managers. The form would normally include brief management recommendations which if implemented would maintain the features for which a site was selected.
8. Partnership considers stakeholder comments and revisions may be made. A final decision on the status of each site is made.
9. Updated LWS registers are finalised for each local authority to incorporate into their Local Plans. The register will include the data on whether newly surveyed sites are considered to be in positive management.

10. Ongoing liaison with landowners which may include further site visits
11. Re-survey of site at least once every ten years.

#### **1.5.4 Data storage**

1. Following the review and selection procedure the boundaries of Local Wildlife Sites are transferred to GIS. Responsibility for this is agreed locally with individual local authorities. In some instances (and where funding allows) the habitat data may be included in the GIS layer.
2. Electronic databases of the suite of Local Wildlife Sites are held by all partners. For sites which have been surveyed from 2012 onwards the database will also hold a list of each site's qualifying criteria.
3. Electronic copies of citations are held by partnership members and electronic copies of site survey reports (post 2010) and phase 1 habitat maps are held by the Cheshire Wildlife Trust. Paper copies of reports pre 2010 are held by the Cheshire Wildlife Trust.
4. A list of alert/candidate sites should be maintained alongside the database for existing sites.

#### **1.5.5 Access to information**

The partnership operates a general presumption in favour of making the information relating to LWSs available for public inspection, unless:

- The disclosure of such information could harm or pollute the environment, for example in the case of threatened or protected species.
- The person who has supplied the data has refused permission for disclosure.
- The site owner(s) specifically requested confidentiality
- Requests are unreasonable

There is a charge for supplying this information. This has been levied to cover the costs of administration and to provide support for the running of the LWS system

## 2. Habitat criteria

### H1 –H3 Woodland - UK BAP priority habitat

- H1 Lowland mixed deciduous woodland** - UK BAP priority habitat (contains European Annex 1 habitats)
- H2 Wet woodland** - UK BAP priority habitat (contains European Annex 1 habitats)
- H3 Upland oakwood** - UK BAP priority habitat

**Areas of locally native semi-natural lowland mixed deciduous woodland and/or wet woodland greater than 0.25ha should be selected as LWS. All areas of woodland listed on the Ancient Woodland Inventory should be selected. Plantation on ancient woodland sites (PAWS) should be selected where there is survival of significant elements of the original woodland ecosystem<sup>26</sup>. All areas of woodland on peat should be selected. Any site supporting species/species assemblages which qualify under the species selection criteria S1 - 13 should be selected.**

### Guidance

Sites may meet multiple woodland criteria where mosaics of different habitat types occur (such as dry and wet woodland together).

Criteria **H1-H3** cover the following locally native deciduous NVC communities and community mosaics<sup>1</sup>, all of which are BAP priority habitat:

**H1** dry woodland : W8, W9, W10, W14, W15, W16 (canopy may have oak sp., birch sp., ash, elm, wych elm, sweet chestnut, lime, hornbeam, field maple, sycamore\*, beech\*)

**H2** wet woodland : W2, W4, W5, W6, W7 (alder, willow sp. or downy birch dominant)

**H3** upland oakwood : W11 (with sessile and/or pedunculate oak and birch sp.)

Although beech woodland (W14 and W15) is non-native to Cheshire<sup>2</sup>, long established beech plantations that have acquired a high conservation value will be selected as LWS (see below). Upland oakwood is rare in Cheshire however areas may be found on the Pennine fringe and the Peckforton Ridge.

#### \*Excluded are:

- Small impoverished woodlands <1ha in size<sup>26</sup> with low species diversity (for their likely NVC community) or frequent non-native/invasive species; unless they act as wildlife corridors/stepping stones between areas of high wildlife value.
- Beech dominated woodland unless the canopy/ground flora has 2 or more of oak, birch, yew, bilberry, heather(s), great wood rush, bluebell, enchanter's nightshade, lords and ladies, honeysuckle, wood sorrel<sup>3</sup> or a Cheshire class 1 AW indicator species<sup>4</sup> from Table 1.

The above must be present **throughout** and not obviously planted and there must be few invasive/non native species.

- Conifer dominated woodland, including Scot's pine or other none locally native species, unless a Cheshire class 1 AW indicator<sup>4</sup> species from Table 1 is present **throughout** and not obviously planted. There must be few invasive/non native species.  
Deciduous woodland with small patches of conifer should be considered as restorable native woodland<sup>26</sup> (BAP habitat) and not excluded. Coniferous woodland may have rich ride fauna or significant bird interest and where this is the case it should be selected under the species selection criteria<sup>26</sup>.
- Sycamore dominated woodland, unless the canopy/ground flora has:
  - Either both wood sorrel **and** creeping soft grass, **plus** at least one of ash, native bluebell or hazel (may suggest NVC community W10e). All must be at least occasional **throughout** and there must be few invasive/non native species.
  - Or has occasional sessile oak and supports a rich bryophyte community (such woodlands may be a European Annex 1 habitat).
  - Or a Cheshire class 1 AW indicator species<sup>4</sup> from Table 1 rare/occasional **throughout** and not obviously planted. There must be few invasive/non native species.
  - Or there is a rich (typical NVC community) woodland ground flora (which may suggest invasion of sycamore into established woodland). There must be few invasive/non native species.
- Immature plantation woodland (usually less than 30 years old). Mature plantation woodland should broadly conform to one or more of the above NVC communities and have few invasive/non-native species in order to qualify.

Woodland containing **extensive** areas of native bluebells (LBAP species) and which do not otherwise meet criteria H1-H3 may be selected using criterion S13.

A woodland is dominated by a particular tree species if that tree occurs more frequently in the canopy than any other tree species.

### **Justification**

Britain is one of the least well wooded countries in Europe and with around 5% woodland cover Cheshire is a particularly poorly wooded county. Much of Cheshire's semi-natural woodland is thought to be ancient in origin and often survives in steep sided valleys which have afforded it a degree of protection. Many sites have been felled in the past but still retain much of the original ground flora. Larger woods are generally more valuable than similar smaller woods and the fewer exotics and the greater the range of typical flora, the more valuable the site is. This should be taken into consideration during the selection process.

Several of Cheshire's woodland habitats are also EU Annex 1 habitats and therefore important on an international scale. These include areas of long established alluvial alder woodland which are periodically inundated (though not riparian trees or secondary woodland) and areas of sessile oak woodland (typically NVC communities W10e and W16b). Cheshire also has important areas of secondary woodland which have developed on heathlands, grasslands and wetlands following

changes in traditional management practices. Peatlands are a finite resource and may have restoration potential; therefore any woodland on peat would qualify under the woodland criteria.

The semi-natural woodlands in Cheshire are highly fragmented which compromises the long term survival of specialised woodland species and communities. Therefore woodland that provides a stepping stone between other important woodlands, or links areas of wildlife value, should be selected. This may be done using criterion **H24** if the woodland criteria are not met.

#### **H4 Wood pasture and parkland – UK BAP priority habitat**

**Wood pasture and parkland with occasional veteran or ancient trees and an open grassland or heathland ground flora should be selected as LWS. Where the parkland/pasture has been changed to arable there must be significant remaining nature conservation interest in the veteran or ancient trees and their associated flora and fauna. Any site supporting species or species assemblages which qualify under the species selection criteria S1-13 should be selected.**

#### **Guidance**

The parkland or wood pasture may show some correspondence to the following NVC communities: W10, W14, W15, W16<sup>2</sup>. The ground flora may host important communities which may also qualify under grassland, heathland or waxcap grassland criteria **H7-H16**.

Veteran trees may be native or non-native and display attributes associated with late maturity; whereas the term ancient refers to a developmental stage beyond late maturity<sup>26</sup> (refer to criterion **H5**).

Excluded are:

- Sites originating from the 19<sup>th</sup> century or later which do not have veteran/ancient trees or were not derived from earlier parklands or forests.
- Upland sheep grazed closed-canopy woodland (refer to woodland criteria **H1/H3**).

#### **Justification**

Wood-pasture and parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. Grazing animals are fundamental to the existence of this habitat. The varied habitats within wood-pasture and parkland provide a home for a wide range of species (many of which occur only in these habitats) such as invertebrates, lichens, bryophytes and fungi which depend on dead and decaying wood. Individual trees, some of which may be of great size and age, are key elements of the habitat and many sites are also of national historic, cultural and landscape importance.

## **H5 Veteran and Ancient trees**

**Veteran trees are trees which are in late maturity and should be selected as LWS where they display one or more of the following:**

- **The tree has a large girth relative to other mature trees of the same species (see table 2 for guidance)**
- **The tree displays characteristic age related features such as hollowing or crown die back.**
- **The tree supports important populations of invertebrates, lichens, fungi or bryophytes.**
- **Historical records of the individual tree exist.**

**The land lying directly under the canopy should also be selected.**

**Ancient refers to a developmental stage beyond late maturity and such trees are likely to meet more than one of the above.**

### **Guidance and Justification**

Veteran and ancient trees may have a cultural and/or landscape value but they are also important for the species they support, particularly invertebrates, lichens, bryophytes and fungi. All qualifying species criteria should be recorded.

Veteran and ancient trees usually have a girth measurement which is larger than other trees of the same species<sup>5</sup>; however other characteristic features should also be taken into consideration. Such features may include trunk cavities, a large quantity of dead wood in the canopy or physical damage including bark loss.

## **H6 Traditional orchards – UK BAP priority habitat**

**Traditional orchards should be selected as LWS when all of the following apply:**

- **The orchard consists of at least 5 fruit or nut trees planted at low density (3-20m apart).**
- **At least 50% of the trees in the orchard are traditional varieties of fruit or nut (not dwarf varieties).**
- **The ground flora consists of permanent grassland.**
- **The orchard is managed in a low intensity way without the wide use of pesticides, herbicides or inorganic fertilisers.**

**Orchards listed on the national orchard inventory should be selected as Local Wildlife Sites providing they meet all the above.**

**Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### **Guidance and Justification:**

Most Cheshire farms and larger houses historically had an orchard. Although many orchards have been removed there are still areas of the county, such as Vale Royal, where numerous orchards still survive. A recent survey by PTES recorded 455 traditional orchards in the county covering an area of 90.2 hectares.

Traditional varieties of fruit trees (not modern dwarf varieties) may be unusual or highly localised cultivars<sup>2</sup> of species such as apple, damson, plum and pear. Traditional orchards are normally managed at low intensity, without the use of pesticides and inorganic fertilisers. Such orchards usually contain numerous micro habitats and are hotspots for biodiversity often supporting rare and declining species. The orchard may consist of several habitat features such as scrub, ponds, walls, hedgerows and hedgerow trees.

Windfall fruit is an important food source for populations of over wintering birds such as fieldfare and redwing. The presence of dead wood is particularly important as it may support rare species of saproxylic invertebrates, fungi, bryophytes and lichens<sup>6</sup>. The flowering trees provide an important source of pollen and nectar for numerous species of declining pollinators including bees, hoverflies and moths.

**H7 – H15 Grassland and Heathland – UK BAP priority habitats**

**H7 Neutral grassland** – Lowland meadows UK BAP (contains an EU Annex 1 habitat)

**H8 Marshy grassland** – Purple moor grass and rush pasture UK BAP habitat

**H9 Acid grassland** – Lowland dry acid grassland UK BAP habitat

**H10 Calcareous grassland** – Lowland calcareous grassland UK BAP habitat (contains LBAP limebed communities)

**H11 Restorable grassland** – good semi-improved (restorable to BAP grassland)

**H12 Undetermined grassland** – species rich (UK BAP habitat)

**H13 Lowland heathland (dry)** – Lowland heathland UK BAP habitat, EU Annex 1 habitat

**H14 Lowland heathland (wet)** - Lowland heathland UK BAP habitat, EU Annex 1 habitat

**H15 Upland heathland** – Upland heathland UK BAP habitat

**Areas of semi-natural grassland which support 4 or more indicator species\* (from table 3) should be selected as LWS. Areas of upland heath (above 300m) > 5ha should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S1-13 should be selected.**

\*Refer to guidance. Thresholds lower for acid grassland/heathland.

## Guidance

Apart from semi-improved indicator species, all indicators (in table 3) can be used interchangeably and a judgement made as to which grassland type best describes the site<sup>5</sup>; however where clear mosaics of different habitat types occur all relevant criteria codes should apply. If a judgement on grassland type is not possible (for example on post-industrial sites) the criterion **H12** may be used. Sites with >25% dwarf shrub should be recorded as heathland **H13/H14**, above approximately 300m this should be recorded as Upland heathland **H15**.

Minimum thresholds for BAP priority grassland habitats (and LWS criteria) are listed below together with the corresponding NVC communities and community mosaics<sup>2,7</sup>. **Indicator species must not be confined to the field edges.** DAFOR score is referred to (details in table 3).

**H7 Neutral grassland**, NVC MG4, MG5, MG8. Threshold to qualify as Lowland meadow BAP priority habitat<sup>5</sup> (and LWS status) requires a minimum of:

*Four 'occasional' indicator species (from table 3), at least 3 of which are listed as neutral grassland indicators.*

**OR**

*Four 'rare' neutral grassland indicators (from table 3).*

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved neutral grassland' and corresponds to code B2.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B2.1 in phase 1 (unimproved neutral grassland).

**H8 Marshy grassland, NVC M22, M23, M23.** Threshold to qualify as Purple moor grass and rush pasture BAP priority habitat<sup>5</sup> (and LWS status) requires a minimum of:

- *Four 'occasional' indicator species (from table 3), at least 3 of which are listed as marshy grassland indicators.*

**OR**

- *Four 'rare' marshy grassland indicators (from table 3).*

There may be some overlap with NVC M27 but where dominated by meadowsweet, yellow iris or tussocky sedges the area should be selected under criterion **H18** Fens, swamps, bogs and reedbeds.

Marshy grassland corresponds to code B5 in phase 1 terminology.

**H9 Acid grassland, NVC U1, U2, U4.** Threshold to qualify as Lowland acid grassland BAP priority habitat<sup>5</sup> (and LWS status) requires a minimum of:

- *Three 'occasional' acid grassland/heathland indicator species (from table 3).*

**OR**

- *Four 'rare' acid grassland/heathland indicators (from table 3).*

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved acid grassland' and corresponds to code B1.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B1.1 in phase 1 (unimproved acid grassland). Lowland acid grassland is often present in mosaics with Lowland heath. It occurs on enclosed land below approximately 300m (although particularly good examples may be considered if they lie above 300m and are enclosed). Above 300m unenclosed acid grassland is likely to be either degraded upland heath (<0.5m peat) or degraded blanket bog (>0.5m peat) and should be assessed against these criteria.

**H10 Calcareous grassland,** Examples of calcareous grassland in Cheshire (post industrial sites) do not generally conform to existing NVC communities. Threshold to qualify as Lowland calcareous grassland BAP priority habitat<sup>5</sup> (and LWS status) requires a minimum of:

- *Four ‘occasional’ indicator species (from table 3), at least 3 of which are listed as calcareous grassland indicators.*

**OR**

- *Four ‘rare’ calcareous grassland indicators (from table 3).*

Where the above minimum thresholds are just met the habitat is classified as ‘good quality semi-improved calcareous grassland’ and corresponds to code B3.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B3.1 in phase 1 (unimproved calcareous grassland).

**H11 Restorable grassland<sup>5</sup> – (moderately species rich semi-improved, where there is good potential to restore to BAP quality).** Threshold to qualify as restorable grassland habitat<sup>5</sup> (and LWS status) requires a minimum of:

- *Four 4 ‘occasional’ indicator species present from table 3, but 2 or fewer occur from the lists given for neutral/acid/marshy/calcareous grassland.*

Restorable semi-improved grassland should have less than 30% cover of white clover and rye grass and generally host at least 3 of the following grasses: common bent, crested dog’s tail, false oat grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, tufted hair grass (rarer grasses more typical of unimproved grassland may be counted).

This criterion includes degraded examples of the above NVC communities e.g. more species rich examples of MG1, MG6, MG9, MG10, MG11, MG13. The latter two are typical of coastal or floodplain grazing marsh and may be selected under criterion **H17**.

Where the above minimum threshold of indicator species are present the habitat is classified as ‘good quality semi-improved grassland of moderate species richness’<sup>5</sup> and corresponds to either code B1.2, B2.2 or B3.2 in phase 1 terminology.

**H12 Undetermined species rich grassland,** Threshold to qualify as BAP priority grassland habitat<sup>5</sup> (and LWS status) requires a minimum of:

- *Four ‘occasional’ indicator species (from table 3), only one of which may be a semi-improved indicator.*

**OR**

- *Any four ‘rare’ neutral, marshy, acid or calcareous grassland indicators (from table 3).*

This type of grassland is still considered BAP priority habitat as indicator species are interchangeable<sup>5</sup>. Species rich arable field margins may be selected using this criterion providing they are not sown.

Sown wildflower grasslands may qualify under this criterion once they have proved to be sustainable e.g. retaining a species-rich sward approximately 20 years after sowing.

Where the above minimum thresholds are just met the habitat is classified as 'good quality semi-improved grassland'<sup>5</sup> and is likely to best correspond to code B2.2 in phase 1 terminology. Where the above thresholds are clearly exceeded the habitat is likely to correspond to code B2.1 in phase 1.

**H13 Lowland heathland – dry**, may correspond to NVC H1, H2, H4, H7, H8, H9, H10, H11, H12, H16, H18 (usually present as a mosaic with acid grassland **H9**)

Lowland heath generally occurs below 300m. There should be at least 25% cover of heathers and other dwarf shrubs with fine grasses, wildflowers and lichens in a complex mosaic. Areas with less than 25% dwarf shrub may qualify under criterion **H9** Acid grassland.

**H14 Lowland heathland – wet**, may correspond to NVC M15, M16 (wet heath may grade to wetter, sphagnum rich habitat which should be recorded as **H18**)

Lowland heath generally occurs below 300m. There should be at least 25% cover of heathers and other dwarf shrubs with fine grasses, wildflowers and lichens in a complex mosaic. Areas with less than 25% dwarf shrub may qualify under criterion **H9** Acid grassland.

**H15 Upland heathland**, may correspond to NVC M3, M15, M17, M18, M19, M20 (where wet upland active bog with bog mosses and cottongrass record as **H18**)

Upland heath generally occurs above 300m, on <0.5m of peat and above the line of enclosure. Above 600m (tree-line) it is considered to be a montane heath. On peats depths > 0.5m it is considered to be blanket bog (**H18**). There should be at least 25% cover of dwarf shrubs including heathers, bilberry, crowberry and western gorse.

### **Other grasslands**

Roadside verges can be selected as LWS where they qualify under the grassland criteria. The calcareous grasslands on post-industrial sites e.g. those associated with the salt industry in mid-Cheshire, are recognised in the LBAP and may qualify under **H10** or **H12**.

### **Excluded are:**

- Sites sown from a seed mix. However these sites may qualify once they have proved to be sustainable e.g. retaining a species-rich sward approximately 20 years after sowing. (Sown sites may be important habitats for terrestrial invertebrates and should be assessed against the species criteria. Such sites may also qualify under criterion **H26** Accessible natural greenspace.)
- Areas of degraded heath and mire above 300m where dwarf shrubs are less than frequent in **species poor** grassland (typically with bent and fine leaved fescues, mat

grass and purple moor grass). But consider if likely to qualify as waxcap grassland (H16).

### **Condition**

The above criteria list the **minimum** thresholds required for a site to be considered as BAP priority habitat (or restorable to BAP priority habitat – **H11**) and to qualify as a LWS. A number of grassland sites exceed these quality thresholds and are therefore considered to be in ‘favourable condition’, which in phase 1 terminology is likely to be classified as ‘unimproved’. For neutral and marshy grassland ‘favourable condition’ requires the presence of at least two frequent and two occasional indicator species (not including those listed as semi-improved indicators). For acid grassland there should be at least one frequent indicator and three occasional and for calcareous grassland there should be at least two frequent indicators and three occasional. The amount of scrub and undesirable species such as thistle and dock will also affect the condition assessment. Further information is given by Defra<sup>5</sup>

### **Justification**

Semi-natural grassland and heathland can be hundreds or even thousands of years old and many sites have survived due to a long history of traditional management practices. Such habitats often support rich species assemblages, both above and below ground, with complex webs of beneficial associations of flowering plants, soil mycorrhizae and invertebrates. This complexity means that such habitats are difficult or impossible to replace once destroyed, yet semi-natural lowland grassland is being lost faster than any other habitat type in the UK. As a consequence of this rapid loss semi-natural grassland supports more priority species than any other habitat.

Due to the twin pressures of intensification of landuse and neglect Cheshire has lost 99% of its species rich grassland compared to a national average of 97% and there are now less than 60 hectares of lowland heath remaining in the county. For this reason all remaining areas of these important habitats should be considered for site selection.

Dry and wet lowland heaths and *Alopecurus – Sanguisorba* meadows (NVC MG4) are internationally important EU Annex 1 habitats.

### H16 Waxcap grasslands – Local BAP habitat

Sites should be selected as LWS where<sup>24</sup>:

- they host one or more of the following: *Hygrocybe calptriformis*, *Hygrocybe punicea*, *Hygrocybe ovina*, *Hygrocybe ingrata*, *Hygrocybe spadicea* (BAP and British Red list species)

**OR**

- they host at least **8** Waxcap species identified on a single visit
- they host at least **12** Waxcap species (from table 4) identified on multiple visits

Two visits are recommended during the fruiting period, mid-Sept to mid-November

### Guidance<sup>24</sup>

"Waxcap grassland" is so called because it is the specific habitat of a distinct assemblage of macrofungi which includes members of the genus *Hygrocybe*, otherwise known as waxcaps. The particular character of this habitat is that it is long-standing, unimproved, nutrient poor, well-drained, semi-natural grassland. It can occur in a variety of situations e.g. as pastures, reservoir embankments, churchyards or old cricket pitches. The sward is usually kept short by grazing or mowing and can be mossy. Given the low nutrient levels, waxcap grasslands often have a rich vascular plant flora. Indeed because of this they may be selected as Local Wildlife Sites even if their mycological importance is unappreciated. However, waxcap grasslands may also be botanically impoverished and thus their conservation value could be overlooked altogether.

To determine whether a grassland site should be selected as a Local Wildlife Site for its mycological importance, and to complement the criteria suggested for the selection of grassland sites as SSSIs based on mycological interest<sup>23</sup> these LWS selection criteria have been based primarily on the *Hygrocybe* (waxcap) species present.

There are several other fungal families whose species are also grassland specialists, and which occur alongside the *Hygrocybe* species in the distinct assemblages of macrofungi found in waxcap grasslands. These are the Clavariaceae (Fairy Clubs), Entolomataceae (Pink Gills) and Geoglossaceae (Earth Tongues). Although threshold figures are not provided for these species here, they should be identified and recorded if possible and will serve to further confirm the importance of a site (see Table 4 for several examples).

### Justification

Grassland specialist fungi are vulnerable primarily through loss, fragmentation or changes to management of their grassland habitat. Research suggests that waxcap grasslands would take decades to re-establish. Evidence from surveys indicates that the UK is particularly important for grassland fungi compared with other European countries. Many species relatively common in the UK are on one or more European red lists. The UK therefore has an international responsibility for the conservation of these fungi and their special grassland habitat.

**H17 Coastal and Floodplain grazing marsh -UK BAP priority habitat**

**Areas of coastal and floodplain grazing marsh that are subject to seasonal inundation should be selected. Areas of floodplain hosting a semi-natural, predominantly grassland flora that have the potential to be seasonally inundated should be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

**Guidance and Justification**

Floodplains which retain a high water table for at least part of the year provide important habitat for populations of over wintering wildfowl and breeding waders. Where ditches retain water these can provide important habitat for populations of dragonflies, water voles and specialised wetland flora.

Coastal and floodplain grassland can be species poor (typically NVC communities MG9, MG10, MG11, MG13)<sup>8</sup> with species such as Yorkshire fog, tufted hair grass, soft rush, creeping bent, common fleabane and silverweed. However there may be areas with a richer flora which also meet the criteria for wetlands/grasslands. Where this is the case all criteria that are met should be recorded in addition to **H17**. If the site is predominantly fen it should be selected under criterion **H18** rather than as floodplain grazing marsh.

Many floodplains are no longer seasonally inundated due to changes in water management, however if the site retains a semi-natural, predominantly grassland flora and has the potential to be restored to grazing marsh, then it should be selected as a LWS.

**H18 Fens, swamps, bogs and reedbeds** - Fens UK BAP priority habitat, Lowland raised bog UK BAP priority habitat, Reedbeds UK BAP priority habitat, (contains EU Annex 1 habitat)

**Areas of fens, swamps, reedbeds, lowland raised bogs and blanket bogs with sphagnum moss, cotton grasses or abundant tall vegetation such as common reed, tall sedges and grasses or wetland plants from table 5 should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### Guidance

Wetland communities exist on soil that is waterlogged with the water table close to, or above the surface for most of the year. Fens are wetlands found on flood plains, on the fringes of open water, in valleys and basin-like depressions and around springs and flushes. Fens occur on both peat and mineral soils. Lowland raised bogs are found in similar locations but are only fed by rainwater and always occur on peat. Blanket bog is present in the uplands usually between 250 and 600m above sea level lying on >0.5m of peat (<0.5m it is considered to be upland heath).

Fens encompass a wide range of wetland communities including narrow fringes of tall herb vegetation (e.g. meadowsweet, yellow flag iris) alongside water bodies, sphagnum rich flushes and areas of tall swamp vegetation with common reed or sedges. Upland blanket bog and Lowland raised bogs are peatland communities dominated by bog mosses, cotton grasses and heathers. Schwingmoor is a very rare habitat developed from a raft of peat vegetation sitting on top of open water.

This criterion may correspond with the following NVC communities<sup>2</sup> which often occur in complex mosaics with marshy grasslands, wet heathland, wet woodland and open water.

M18, M17, (also M1, 2, 3, 15, 19, 20, 25) - raised bog communities.

M1-14, M18, 19, 27, S1-28, - fen and swamp communities

M17-20, M25 – upland blanket bog whether it is active or not.

### Excluded are:

- Large/significant areas dominated by willowherb, butterbur, nettle or invasives such as Himalyan balsam.
- Areas of upland blanket bog which no longer contain semi-natural bog vegetation unless such areas are important for the protection and/or enhancement of the adjacent bog.
- Areas of degraded heath and mire above 300m where dwarf shrubs are less than frequent in **species poor** grassland (typically with bent and fine leaved fescues, mat grass and purple moor grass).

## **Justification**

The wetlands of the Cheshire plain form part of a unique and internationally important landscape known as the 'Meres and Mosses Natural Area' which formed as glaciers retreated after the last ice age. Several wetlands have their origins in a post industrial landscape following extraction of sand and salt, whilst others sit on river floodplains such as the Mersey and the Dee.

These fragile landscapes with their suite of specialised wetland species, are just a fragment of their former size. Losses have occurred as land has been drained for agriculture and development, or as a result of diffuse pollution. Further losses have occurred as changes in traditional agricultural practices have led to the scrubbing over and drying out of former wetlands. In the uplands of east Cheshire the extent of blanket bog has been reduced through overgrazing, burning and pollution although restoration projects are helping to reverse the decline.

Reedbeds are amongst the most important habitats for birds in the UK. They support a distinctive breeding bird assemblage including nationally rare Red Data Birds such as the bittern, marsh harrier, Cetti's warbler and bearded tit. They also provide roosting and feeding sites for migratory species and are used as roost sites for several raptor species in winter. Reedbeds are also important havens for invertebrates, particularly moths and beetles.

Upland blanket bog, Lowland raised bogs and closely related 'Transition mires' are all present in Cheshire and are internationally important EU Annex 1 habitats.

**H19 Meres, lakes, reservoirs, canals** – Eutrophic standing water UK BAP priority habitat, Mesotrophic lakes UK BAP priority habitat (contains European Annex 1 habitat)

- **Any mesotrophic or naturally eutrophic lake, mere, reservoir or canal greater than 2ha in size with an abundance of native floating, submerged and emergent plants should be selected. Qualifying emergent species are listed in table 5. Marshy grassland species may also be present.**
- **Any mere or lake which supports species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### Guidance

Mesotrophic lakes and meres have relatively low levels of plant nutrients whereas naturally eutrophic standing waters have plentiful nutrients. Mesotrophic water bodies are rare and are now normally confined to the margins of upland areas. In Cheshire much of the open water is highly eutrophic due to artificially increased levels of phosphorous and nitrogen leading to an increase in algae and a loss of other aquatic organisms.

Where the vegetation (or other aquatic species assemblages) suggests the level of nutrient enrichment is lower, the site should be selected as a LWS. Naturally eutrophic waters can be identified by the presence of aquatic species such as pondweeds, spiked watermilfoil, yellow water lily and stoneworts and are often fringed by common reed<sup>8</sup>.

Reservoirs and canals may also be considered under this category, so long as they meet the selection criteria by supporting an abundance of native floating, submerged and emergent plants. Where this is not the case such sites may qualify under the species selection criteria or **H26** Accessible natural greenspace or **H24** Wildlife corridors/buffers.

There are various corresponding aquatic, swamp and fen NVC communities<sup>2</sup> including OV28-OV35.

### Justification

The meres of the Cheshire plain form part of a unique and internationally important landscape known as the 'Meres and Mosses Natural Area' which formed as glaciers retreated after the last ice age. Many of Cheshire's lakes have their origins in a post industrial landscape following extraction of sand and salt and have since developed into important wildlife habitats.

Naturally eutrophic lakes are internationally important EU Annex 1 habitats.

## **H20 Ponds and ditches** – contains UK BAP priority habitat

All seasonal or permanent ponds or ditches of <2ha should be selected as LWS providing one or more of the following criteria are met:

- **High value<sup>5</sup> ponds\* or ditches which support species or species assemblages which qualify under the species selection criteria S 1-13 and are dependent on the pond.**
- **Ponds or ditches which sit within 250m of a high value pond or ditch, which have a strong likelihood of hosting the qualifying species or species assemblages.**
- **All ponds which sit within 250m of a high value pond where they form part of ‘an exceptional pond density or pond network\*\*’.**
- **Ponds/pond clusters\* or ditches with at least 9 species<sup>9</sup> of native floating or submerged aquatic or emergent wetland species and a good physical structure\*\*\*. Qualifying emergent species are listed in table 5. Marshy grassland species from table 3 may be substituted.**

\*Including all ponds within the **immediate** cluster (with connectivity of water bodies at times of high water levels) unless there is a reason to exclude.

\*\*According to Pondlife

\*\*\*Excludes ponds where the majority of the flora has been introduced unless the pond has a good physical structure/water quality, with conditions suitable for supporting healthy populations of invertebrates or amphibians or breeding wetland birds. Ponds stocked with high numbers of fish are unlikely to meet this requirement.

### **Guidance**

The most valuable ponds/pond clusters have a diverse flora and a good physical structure with areas of open water and a good marginal marsh. The selected area must contain the whole pond (or pond cluster) and sufficient habitat to enable the species or species assemblages to be maintained as a minimum viable population. Where this cannot be estimated a minimum 6 metre riparian zone around the pond should be selected. Where ponds host *good* breeding populations of great crested newts (refer to criterion **S5**), any habitat suitable for foraging which sits within 250m of the pond could be considered for selection.

Ditches can be considered as linear ponds and should be selected as LWS where they meet the above criterion. Ditches which do not meet the above criterion may meet criterion **H24** Wildlife corridors/buffers. Where a pond is part of another habitat (e.g. part of a larger wetland), or was selected using species criteria, all qualifying criteria should be listed on the site citation, including **H20**.

There are various corresponding aquatic, swamp and fen NVC communities<sup>2</sup> including OV28-OV35.

The criteria for selecting ponds have been set following an audit of Local Wildlife Sites in Cheshire West and Chester LA<sup>35</sup> and subsequent review of the quality of ponds present on these sites.

## **Justification**

Cheshire has approximately 16,000<sup>15</sup> ponds which is approximately 10% of the total number for England and Wales<sup>10</sup>. Most are farm ponds many of which originate from flooded marl pits. Today only 40% of those existing in 1870 remain<sup>10</sup> and numbers are continuing to decline through natural succession, deliberate infilling and runoff from agricultural practices.

Ponds often sit within intensively managed grasslands and provide important stepping stones for the movement of wetland species through the landscape. They also provide open water for birds and mammals to drink from and feeding areas for bats. In south Cheshire ponds form an integral part of the internationally important landscape known as the 'Meres and Mosses Natural Area'.

**H21 Rivers** – contains UK BAP priority and European Annex 1 habitat

All *near natural*<sup>2</sup> sections of rivers and larger streams will be selected as LWS where they display one or more of the following features:

- Display signs of active erosion and /or meandering, such as extensive areas of gravel, pebble and sand beds, eroding cliffs or the presence of ox bow lakes. Many of these features will be unvegetated reflecting their dynamic nature.
- Support an abundance of water crowfoots (*Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation – a European Annex 1 habitat)
- Support invertebrate species that are strongly indicative of river shingle.
- Support species or species assemblages which qualify under the species selection criteria S 1-13.

**Guidance and justification**

The LWS should include all areas of the active river system such as floodplains, ox bow lakes and ponds which were formed as part of the natural river evolution process. Consideration should be given to areas of historic floodplain which may be essential to the functioning of the river system<sup>2</sup>. In the absence of adjacent qualifying areas a 6 metre riparian zone from the top of the riverbank should be included.

Sections of the river of >250m away from any qualifying features should be excluded unless there is potential for re-colonisation or restoration, for example when considering the restoration of areas of the river which sit between two qualifying sections.

Sections of several rivers in Cheshire support an abundance of river water crowfoot. These are internationally important Annex 1 habitats and therefore should be selected as LWS.

There are various corresponding aquatic, swamp and fen NVC communities including A2, A8-9, A11-20, S4-9, S11-14, S16-19, S22 and others<sup>2</sup>. Where there is a good marginal vegetation present but the above river criterion is not met, the site should be selected under **H18** Fens, swamps, bogs and reedbeds.

**Excluded are:**

Canals

Ditches

**H22 Rock outcrop and stone structures** – contains LBAP habitat and UK BAP priority habitat

**Areas of rock, scree and stone structures supporting a rich assemblage of ferns, lichens and bryophytes will be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### **Guidance and justification**

This type of vegetation can occur in areas of low atmospheric pollution and is associated with acidic rock surfaces (both sedimentary and igneous), usually at moderate altitudes below 600m. Often these surfaces are found on man-made structures such as stone walls and gravestones, but also on glacial erratics which are pieces of rock that differ from the native rock of the area. The vegetation may correspond with the NVC U21 community.

Rock ledges and cliff faces which are inaccessible to grazing animals often develop a specialised flora and support rare species. Such habitats may host numerous terrestrial invertebrates such as beetles, diptera and spiders. Raptors such as the peregrine falcon also favour this particular habitat.

## **H23 Open mosaics on previously developed land- UK BAP priority habitat**

**Sites should be selected that fulfil the following criterion (where other habitat criteria are not met):**

- **The site supports species or species assemblages which qualify under the species selection criteria S 1-13.**

**Where the above is not fulfilled all of the following must apply<sup>2</sup>:**

- **The site is an open mosaic habitat of at least 0.25ha.**
- **There is a known history of disturbance or evidence material has been added or removed.**
- **The vegetation comprises early successional communities of mainly stress tolerant species such as annuals, mosses/liverworts, lichens, ruderals, inundation species, open grassland, flower rich grassland, heathland.**
- **The site contains some loose bare substrate (very small areas will qualify).**

### **Guidance and justification**

Open mosaics may include areas of scattered scrub or other communities such as reedbed or open water however early successional communities should comprise the majority of the habitat. Such communities often contain numerous niches within a relatively small area and can be particularly important for invertebrates, reptiles and amphibians with many sites hosting rare or declining species. Open mosaic vegetation sites may also be important for birds such as little ringed plover, skylark and grey partridge. These primary successions are generally rare in the wider landscape and may persist for decades without active management as edaphic conditions can severely limit plant growth. However with appropriate management these sites can persist indefinitely. The plant species of such areas are often declining in the wider countryside but there are also likely to be exotic species which may contribute to the value of the site for invertebrates and birds. Typical sites include disused quarries, former railway sidings and landfill sites. Such sites tend to be concentrated in urban or urban fringes or former industrial landscapes.

All selection criteria that apply should be recorded.

## **H24 Wildlife corridors/buffers**

Areas of land including hedges and ditches may be selected for inclusion within (or extension to) LWS where they fulfil at least one of the following:

- Provide a physical link between two or more areas of high wildlife value and has favourable conditions for the movement of species between these habitats.
- Provide a buffer zone protecting vulnerable sites from disturbance, pollution or development/recreational pressure.
- Provide additional buffering habitat for species associated with existing wildlife sites.
- Provide a significant physical extension to an area of high wildlife value and has favourable conditions for the movement of species out into the wider countryside.

### **Guidance and Justification**

The movement of species through the countryside is vital for the sustainability of ecosystems by facilitating the genetic exchange of species and enabling movement in response to climate change<sup>21</sup>. Important wildlife sites should be connected to other wildlife habitats and the wider countryside<sup>11, 21</sup>, although it is recognised that some sites may consist of fragments of discontinuous habitat which cannot be linked.

Sites should be selected as LWS using criterion **H24** where they fail to meet other selection criteria but have the potential to act as wildlife corridors. This criterion can also be used to buffer wildlife sites from existing or potential factors that may adversely affect the site, or to provide additional habitat for species associated with an existing wildlife site.

Hedges and ditches of *high value* may meet criteria **H20** Ponds and ditches or **H25** Hedges.

**H25 High value hedges – UK BAP priority habitat**

***High value*<sup>5</sup> species rich hedges at least 20m in length should be selected as LWS where either of the following apply:**

- If they have a least 4 native woody species in a 30metre section within 2m of the centre of the hedge (excluding bramble and honeysuckle)<sup>2</sup>

Or

- A high biodiversity value within the hedge and surrounding ground flora.

**Guidance and Justification**

Many hedges are protected by the hedgerow regulations and should not require further protection; however *high value*<sup>5</sup> species rich hedges can be considered for selection. Such hedges are likely to be ancient and may date back to before the enclosures act and are usually associated with historic features such as green lanes, banks, ditches, walls or relic woodland boundaries. They often provide refuges for species such as woodland plants, butterflies, moths, farmland birds, bats, amphibians and dormice and may contain ancient or veteran trees. Adjacent verges, ditches and field margins should also be included within the LWS boundary.

Hedges of lower value may meet criterion **H24** Wildlife corridors/buffers.

## **H26 Accessible natural greenspace**

**Sites should be selected as LWS under criterion H26 when the social/aesthetic/educational interest of the site derives from the wildlife features of the site.**

### **Guidance**

Where local space provides primarily for social and community benefits *not* related to a site's nature conservation interest, it should *not* be selected as a LWS, but should be recognised for these in relation to local open space policies<sup>11</sup>. The Open Space Strategy should make provision elsewhere for the demand for other functions which would have an adverse effect on Local Sites' biodiversity or geological value<sup>11</sup>.

The social/aesthetic/educational values of a site *related to nature* include:

- Recorded biological history (especially valuable as habitats change with climate change).
- Opportunities for public access for appreciation of nature.
- Educational value in relation to nature (both formal and informal and at all ages/levels).

## **H27 Mosaics**

**This criterion is only to be used to select mosaic sites which fail to reach the minimum size specified in the habitat criteria (e.g. woodlands which have a size threshold). The total area of the site must be equivalent to the minimum size specified for the component habitat. The majority of the site must meet the LWS criteria. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### **Guidance**

Where a habitat mosaic complements/buffers an adjacent LWS through provision of additional habitat for species associated with the LWS, it should be incorporated into the existing LWS or selected independently using criterion **H24 Wildlife corridors/buffers**.

All selection criteria that apply should be recorded.

**H28 Saltmarsh and intertidal mudflats**, UK BAP priority habitat, contains European Annex 1 habitat.

**All zones of saltmarsh and intertidal mudflats which support characteristic flora shall be selected. All areas of anthropogenic or naturally occurring inland saltmarsh/salt meadows should be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected**

### **Guidance**

There is a natural zonation of plant communities from species poor lower saltmarsh at the edge of estuarine mudflats through the mid saltmarsh to the upper tidal limit swamp or transitional communities. Salt tolerant plants of the lower salt marsh are adapted to regular immersion by the tides, whereas upper salt marsh plants may only be inundated occasionally. Mudflats and saltmarsh are particularly important habitats for wading birds and wildfowl but also provide feeding grounds for species such as skylark and meadow pipit.

Sites which support characteristic species of mud flats and saltmarsh should be selected as LWS. Accreting areas should be included as they develop the characteristic flora and fauna. Many sites would additionally qualify on the grounds of species criteria, particularly bird assemblages. Where this is the case the relevant species criteria should also be recorded. Where coastal grassland is present this should be assessed using criterion **H17**.

### **Justification**

The majority of saltmarsh and mudflats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

Inland salt marsh and salt meadows are post-industrial habitats which have developed following salt extraction. There are a small number in mid-Cheshire. Very rarely such habitats may occur naturally due to brine springs enabling the development of saltmarsh vegetation. Inland salt marsh is a European Annex 1 habitat.

**H29 Sand dunes and estuarine rocky habitats** UK BAP priority habitat (contains Annex 1 habitat)

**All sites that support characteristic species of sand dunes or estuarine rocky habitats shall be selected. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

### **Guidance**

Sand dunes depend upon dune building grasses such as marram grass which traps sand above the high water mark. There is a natural zonation of plant communities from species poor lower dunes through to the more stable upper dunes which can be species rich.

The reduced salinity of an estuarine rocky habitat allows specialised communities to develop, often with rare species of algae and lichens. Estuarine rocky habitat is a European Annex 1 habitat.

Sites which support characteristic species of dunes and estuarine rocky habitats should be selected as LWS. Accreting areas should be included as they develop the characteristic flora and fauna. Many sites also would qualify on the grounds of species criteria, particularly bird assemblages. Where this is the case the relevant species criteria should also be recorded.

### **Justification**

The majority of sand dunes and rocky habitats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

### **H30 Maritime cliff and slopes** UK BAP priority habitat

**All sites that support characteristic species of maritime cliff and slopes should be selected as LWS. Any site supporting species or species assemblages which qualify under the species selection criteria S 1-13 should be selected.**

#### **Guidance**

Maritime cliff and slope comprises sloping to vertical faces on the coastline. This habitat broadly fits into one of two categories:

- Soft cliffs and slopes which can be colonised relatively easily by maritime or inland species particularly grassland, ruderal and scrub vegetation.
- Hard cliffs which may be rich in lichens but have fewer higher plants apart from on ledges.

The vegetation can vary substantially depending upon substrate and prevailing conditions and can extend inland for a considerable distance to the limit of salt spray deposition. The edge of this habitat on the seaward side extends to the limit of the supralittoral zone and includes the splash zone lichens.

Sites which support characteristic species of maritime cliff and slope habitats should be selected as LWS. The boundaries should include all cliff top areas which are influenced by salt deposition. Sites may also qualify on the grounds of species criteria. Where this is the case the relevant species criteria should also be recorded.

#### **Justification**

Maritime cliffs and slopes are particularly important for the species they support. Hard cliffs may support populations of breeding seabirds and characteristic species of lichens. Soft cliffs may host populations of sandmartins as well as rare invertebrates including species of solitary bees, wasps, weevils and beetles.

The majority of maritime cliff and slope habitats of the Dee and Mersey estuaries are internationally important areas and protected through legally designated sites including SPAs, SSSIs and SACs. However some areas remain unprotected and should be considered for LWS selection if they support characteristic species.

**Table 1 Class 1 Ancient Woodland indicator species for Cheshire<sup>4</sup>.**

<b>Taxon</b>	<b>Vernacular</b>	<b>Comment</b>
<i>Allium ursinum</i>	Ramsons	May also be found in non-ancient alder woodland (NVC W6d)
<i>Campanula latifolia</i>	Giant bellflower	Blue flowered form only
<i>Campanula trachelium</i>	Nettle-leaved bellflower	
<i>Carex strigosa</i>	Thin-spiked wood sedge	
<i>Carex sylvatica</i>	Wood sedge	
<i>Chrysosplenium alternifolium</i>	Alternate-leaved golden saxifrage	
<i>Crataegus oxyacanthoides</i>	Woodland hawthorn	Beware of plantings
<i>Daphne laureola</i>	Spurge laurel	Beware of plantings
<i>Elymus caninus</i>	Bearded couch	
<i>Euonymus europaeus</i>	Spindle	
<i>Festuca altissima</i>	Wood fescue	
<i>Gagea lutea</i>	Yellow star of Bethlehem	
<i>Galium odoratum</i>	Woodruff	
<i>Hordelymus europaeus</i>	Wood barley	
<i>Lathraea squamaria</i>	Toothwort	
<i>Lathyrus sylvestris</i>	Wild pea	
<i>Luzula pilosa</i>	Hairy woodrush	
<i>Melica uniflora</i>	Wood melick	
<i>Paris quadrifolia</i>	Herb Paris	
<i>Poa nemoralis</i>	Wood meadow grass	
<i>Polygonatum multiflorum</i>	Solomon's seal	Beware 'Solomon's Walrus' <i>Polygonatum x hybridum</i> – the garden form
<i>Polystichum aculeatum</i>	Hard shield fern	Also in relict hedges
<i>Polystichum setiferum</i>	Soft shield fern	
<i>Prunus padus</i>	Bird cherry	Also in relict hedges. Beware of plantings.
<i>Rhamnus catharticus</i>	Purging buckthorn	Also in relict hedges
<i>Sanicula europaea</i>	Sanicle	
<i>Sorbus torminalis</i>	Wild service tree	Also in relict hedges
<i>Stellaria neglecta</i>	Greater chickweed	
<i>Stellaria nemorum</i>	Wood stitchwort	
<i>Tilia cordata</i>	Small-leaved lime	Beware of plantings
<i>Viola odorata</i>	Sweet violet	
<i>Viola reichenbachiana</i>	Early dog violet	

Species such as greater stitchwort, barren strawberry, dog's mercury, yellow archangel and wood speedwell (class 2 indicators) are often found in ancient woodlands but may survive long periods after a wood has been felled and subsequently re-invade secondary woodland.

**Table 2** Minimum tree girth for trees to be considered 'very large'<sup>5</sup>.

<b>Tree girth (minimum)</b>	<b>Species</b>
80 cm	Holly
133cm	Rowan
160cm	Birch spp. hawthorn, field maple
200cm	Alder, white/crack willow
213cm	Goat willow, hornbeam, holm oak
266cm	Scots pine
320cm	Ash, small-leaved lime, beech
373cm	Elm, sycamore
400cm	Oaks, yew, sweet chestnut

These measurements represent a guide and where trees have obviously lost girth due to great age this should be taken into account

**Table 3 Indicators and thresholds for grassland and heathland UK BAP priority habitat (Defra<sup>5</sup>).**

<b>Indicator species</b> Refer to descriptions for H1-H12 for full explanation. In summary DAFOR 'occasional' occurrence of any 4 species from list below denotes LWS status grassland. For acid grassland the threshold is 3 'occasional' acid grassland indicators. Indicators should not be confined to field edges	<b>Habitat type (indicators are all interchangeable<sup>5</sup>)</b>				
	<b>Neutral grassland (lowland meadows and other neutral grassland).</b> At least 4 DAFOR 'rare' neutral indicators (or 3 'occasional' neutral indicators plus one other 'occasional' indicator from the table).	<b>Marshy grassland (purple moor grass and rush pasture)</b> At least 4 DAFOR 'rare' marshy indicators (or 3 'occasional' marshy indicators plus one other 'occasional' indicator from the table).	<b>Acid grassland or acid grassland/heathland mosaics (dry and wet)</b> At least 4 DAFOR 'rare' or 3 'occasional' acid indicators should be present.	<b>Lowland Calcareous grassland</b> At least 4 DAFOR 'rare' calcareous indicators (or 3 'occasional' calcareous indicators plus one other 'occasional' indicator from the table).	<b>Semi-improved grassland<sup>a</sup></b> The presence of at least 4 DAFOR 'occasional' indicators denotes grassland which may be restored to BAP quality. Indicators should not be confined to field edges
Adder's tongue fern	✓				
Agrimony	✓				
Autumn hawkbit	✓				✓
Betony	✓		✓	✓	
Bilberry			✓		
Biting stonecrop			✓		
Bitter vetch	✓		✓		
Black knapweed	✓				
Black medick					✓
Bloody crane's-bill				✓	
Blue fleabane			✓		
Bog asphodel		✓	✓		
Bog pimpernel		✓			
Bristle club rush		✓			
Buck's-horn plantain			✓		
Bugle	✓	✓			
Bulbous buttercup					✓
Burnet saxifrage	✓				
Carline thistle				✓	
Clustered bellflower				✓	
Common bird's-foot trefoil	✓		✓	✓	
Common bistort	✓				
Common catsear					✓
Common centaury			✓	✓	
Common meadow-rue	✓				
Common rock-rose			✓	✓	
Common sorrel					✓
Common stork's-bill			✓		
Common valerian		✓			
Cotton grasses		✓	✓		
Cowberry			✓		

Cowslip	✓			✓	
Cranberry			✓		
Crowberry			✓		
Cuckoo flower					✓
Devilsbit scabious	✓	✓	✓	✓	
Dropwort (s)	✓			✓	
Dyer's greenweed	✓				
Eyebrights	✓		✓	✓	
Fairy flax				✓	
Field scabious	✓			✓	
Field woodrush					✓
Gentians				✓	
Germander speedwell					✓
Globeflower		✓			
Goatsbeard	✓				
Greater bird's-foot trefoil	✓	✓			
Greater burnet	✓	✓			
Greater knapweed				✓	
Hairy violet				✓	
Harebell			✓	✓	
Heath bedstraw			✓		
Heath speedwell			✓		
Heathers <sup>b</sup>		✓	✓		
Hemp-agrimony		✓			
Hoary Plantain				✓	
Hoary Rock-rose				✓	
Horseshoe vetch				✓	
Jointed rushes		✓			
Kidney vetch				✓	
Lady's bedstraw	✓		✓	✓	
Lady's mantle sp.	✓				
Lesser hawkbit			✓	✓	
Lesser spearwort		✓			
Lesser trefoil					✓
Lesser water-parsnip		✓			
Lichens			✓		
Lousewort		✓	✓		
Marjoram				✓	
Marsh cinquefoil		✓			
Marsh hawk's-beard		✓			
Marsh marigold	✓	✓			
Marsh pennywort		✓			
Marsh valerian	✓	✓			
Marsh violet		✓			
Marsh/fen bedstraw	✓	✓			
Meadow buttercup					✓
Meadow rue		✓			
Meadow saxifrage	✓			✓	
Meadow thistle		✓			
Meadow vetchling	✓				

Meadowsweet	✓	✓			
Milkwort sp.	✓		✓	✓	
Mountain pansy			✓		
Mouse-ear hawkweed			✓	✓	
Narrow leaved water dropwort	✓	✓			
Orchids	✓	✓		✓	
Ox-eye daisy	✓			✓	
Parsley-pierts			✓		
Pepper saxifrage	✓				
Pignut	✓				
Purple Milk-vetch			✓	✓	
Ragged robin	✓	✓			
Red clover					✓
Restharrow				✓	
Ribwort plantain					✓
Rough hawkbit	✓	✓	✓	✓	
Salad burnet	✓			✓	
Saw-wort	✓	✓	✓	✓	
Selfheal					✓
Sheep's bit			✓		
Sheep's-sorrel			✓		
Shepherd's cress			✓		
Small sedges <sup>c</sup>	✓	✓	✓	✓	
Small scabious				✓	
Sneezewort	✓	✓			
Spagnum sp.		✓	✓		
Squinancywort				✓	
Stemless/Dwarf thistle				✓	
Sundew			✓		
Thyme-leaved sandwort				✓	
Thymes			✓		
Tormentil (s)		✓	✓		
Violets			✓		
Water avens	✓	✓			
Water mint	✓	✓			
Western gorse			✓		
Whorled caraway		✓			
Wild angelica		✓			
Wild basil				✓	
Wild strawberry				✓	
Wild Thyme			✓	✓	
Wood anemone	✓		✓		
Wood sage			✓		
Yarrow					✓
Yellow rattle	✓				
Yellow-wort				✓	

<sup>a</sup>Restorable semi-improved grassland should generally host at least 3 of the following grasses: common bent, crested dog's tail, false oat grass, meadow fescue, meadow foxtail, red fescue, sweet vernal grass, tufted hair grass (rarer grasses typical of unimproved grassland also count) and should have less than 30% cover of white clover and rye grass.

<sup>b</sup> Including cross leaved heath *Erica tetralix*, bell heather *Erica cinerea*, ling *Calluna vulgaris*.

<sup>c</sup> Excluding hairy sedge *Carex hirta* .

Indicators should not be confined to field edges. 'Occasional' on the DAFOR scale of relative abundance equates to a minimum cover of 11% or the occurrence of a species in at least 3 random samples from a total of ten assessments<sup>5</sup>. Cheshire grassland axiophytes<sup>28</sup> not listed above and species listed under S13 can be considered as indicators.

**Table 4 Cheshire waxcap grassland species**

<b>Species</b>	<b>Vernacular</b>
<i>Hygrocybe colemanniana</i>	Toasted Waxcap
<i>Hygrocybe fornicata</i>	Earthy Waxcap
<i>Hygrocybe russocoriaceae</i>	Cedarwood Waxcap
<i>Hygrocybe flavipes</i>	Yellow Foot Waxcap
<i>Hygrocybe nitrata</i>	Nitrous Waxcap
<i>Hygrocybe reidii</i>	Honey Waxcap
<i>Hygrocybe pratensis</i> <sup>3</sup>	Meadow Waxcap
<i>Hygrocybe quieta</i>	Oily waxcap
<i>Hygrocybe vitellina</i>	
<i>Hygrocybe coccinea</i>	Scarlet Waxcap
<i>Hygrocybe irrigata</i>	Slimy Waxcap
<i>Hygrocybe insipida</i>	Spangle Waxcap
<i>Hygrocybe glutinipes</i>	Glutinous Waxcap
<i>Hygrocybe ceracea</i>	Butter Waxcap
<i>Hygrocybe acutoconica</i>	Persistent Waxcap
<i>Hygrocybe chlorophana</i>	Golden Waxcap
<i>Hygrocybe laeta</i>	Heath Waxcap
<i>Hygrocybe psittacina</i>	Parrot Waxcap
<i>Hygrocybe virginea</i>	Snowy Waxcap
<i>Hygrocybe conica</i>	Blackening waxcap
+ any other <i>Hygrocybe</i> species	
<b>Other examples of CHEG species which may be commonly encountered</b>	
<i>Clavulinopsis corniculatus</i>	Meadow Coral
<i>Clavulinopsis helvola</i>	Yellow Club
<i>Clavulinopsis fusiformis</i>	Golden Spindles
<i>Clavaria fragilis</i>	White Spindles
<i>Entoloma conferendum</i>	Star Pinkgill
<i>Entoloma serrulatum</i>	Blue Edge Pinkgill

The table does not contain a complete list of *Hygrocybe* species but includes those which have been recorded in Cheshire. If several varieties of a species have been recorded at a site then these should not be counted separately e.g. *Hygrocybe pratensis* var. *pratensis* and *Hygrocybe pratensis* var. *pallida* should only be counted as one species. Where *Hygrocybe calyptriformis*, *Hygrocybe punicea*, *Hygrocybe ovina*, *Hygrocybe ingrata* or *Hygrocybe spadicea* (BAP and British red list) are present the site should qualify as a LWS.

**Table 5**

**Indicator species for wetland – Cheshire list<sup>32</sup>**

Amphibious bistort	Marsh pennywort
Arrowhead (native only)	Marsh valerian
Bittersweet	Marsh woundwort
Blinks	Marsh/fen bedstraw
Bogbean	Marsh-marigold
Bog-mosses ( <i>Sphagnum</i> )	Marsh yellow cress
Brooklime	Meadowsweet
Bur marigold (nodding, trifid),	Pondweeds (native – bog, broadleaved, curled, blunt leaved, small, red)
Bur-reeds	Ragged robin
Celery-leaved buttercup	Reed canary-grass
Clubrushes (grey, common, floating)	Reed sweet-grass
Common butterwort	Reedmace (common and lesser)
Common reed	Rushes (excluding soft/hard rush)
Common skullcap	Sedges
Cottongrass	Spearwort sp.
Cowbane	Speedwells (marsh, pink water, water),
Crowfoot sp.	Spiked water milfoil
Duckweeds (common, ivy leaved, fat, greater)	Spike rushes
Figwort (water)	St John's wort sp.
Flowering rush	Water cress
Fools water cress	Water dropworts
Frogbit	Forget-me-not (water and tufted)
Greater bladderwort	Horsetails (water and marsh)
Gypsywort	Valarian (common, marsh)
Hemp-Agrimony	Water mint(s)
Hornworts (soft, rigid),	Water pepper
Iris sp. (native only)	Water plantains (common, lesser water)
Lesser marshwort	Water purslane
Lesser water parsnip	Water violet
Loosestrife (yellow, purple)	Whorl grass
Marsh arrowgrass	Wild angelica
Marsh cinquefoil	Yellow water lily

**Other emergent/wetland specialist species not appearing on this list may be considered if native**

### 3. Species criteria

The criteria for species will be based on the following considerations:

**Sites should be selected that support or have supported in the past 5 years:**

- **Nationally or globally critically endangered, endangered, vulnerable, or near threatened species according to IUCN guidelines. Or nationally rare or scarce according to non-IUCN designation.**
- **All species and habitats listed on the European Birds Directive and European Habitats directive.**
- **Locally rare or scarce plant species<sup>18,20</sup> i.e. those which occur in:**
  - **≤ 6 sites in the county (rare). Approximates to ≤ 1% of tetrads/monads in Cheshire and should be based upon distribution records less than 20 years old.**
  - **≤ 7-16 sites in the county (scarce). Approximates to ≤ 1-3 % of tetrads/monads in Cheshire and should be based upon distribution records less than 20 years old.**
- **Edge of range species<sup>11</sup>.**
- **Native species fully protected under the Wildlife and Countryside Act 1981 Schedules 5 and 8 (but refer to relevant species class).**
- **UK BAP or Local LBAP species – (but refer to relevant species class as not all BAP species necessarily qualify). Note the UK BAP has now been superseded by the S41 list (section 41 of the 2006 NERC act). The S41 list for England has all the species and habitats on the previous UK BAP which are present in England plus one additional species (hen harrier). As the UK BAP terminology is still widely recognised it has been used in this document and should be considered interchangeable with the S41 list.**
- **Species assemblages deemed to be important.** (The number of species which constitutes a 'locally outstanding assemblage' will be set for each species criterion).
- **≥ 0.5% of the British breeding population of any species.**

**All qualifying population sizes/assemblages are best approximations according to current knowledge, however in many cases the data is poor or out of date. Where there is doubt expert opinion should always be taken into account.**

**The area of the site must contain sufficient habitat to enable the species to be maintained as a minimum viable population<sup>11</sup> (MVP). For animal species this approximates to a minimum of 50 *breeding* individuals (or a key life stage thereof) for the short term avoidance of inbreeding. A population of 500 is considered the MVP for the long term survival of many groups of species<sup>12</sup>. These figures provide a cautionary guideline only as many other factors may influence survival.**

## S1 Butterflies

Sites should be selected that regularly support:

- Probable breeding populations of white letter hairstreak, small pearl bordered fritillary, small heath, wall, grayling or dingy skipper.

Or

- An assemblage of species with a minimum total score of 16 points<sup>22</sup> calculated from table 6.

### Guidance and justification

Sites which qualify for LWS status under criterion **S1** are also likely to qualify under the habitat selection criteria. All qualifying criteria should be recorded on the site citation.

Table 6

List of butterflies in the Cheshire region with their local, national or global significance

Species	Global status IUCN 2011	UK red list status <sup>16</sup> 2010	BAP status 2011	Tetrads in Cheshire (based on 2005-2009)	Points
Speckled Wood				401	1
Green-veined White				384	1
Red Admiral				382	1
Small Tortoiseshell				380	1
Peacock				365	1
Large White				359	1
Meadow Brown				355	1
Small White				332	1
Gatekeeper				332	1
Orange Tip				321	1
Comma				300	1
Holly Blue				205	1
Brimstone				203	2
Small Copper				185	2
Small Skipper				160	2
Large Skipper				156	2
Common Blue				151	2
Wall	Not evaluated	Near threatened	UK BAP	57	20
Purple Hairstreak				57	5
Small Heath	Not	Near	UK BAP	51	20

	evaluated	threatened			
White-letter Hairstreak	Not evaluated	Endangered	UK BAP	43	20
Green Hairstreak				33	5
Ringlet	Not evaluated		LBAP	28	5
Grayling	Least concern	Vulnerable	UK BAP	14	20
Dingy Skipper	Not evaluated	Vulnerable	UK BAP	10	20
Small Pearl-bordered Fritillary	Not evaluated	Near threatened	UK BAP	1	20

## S2 Birds

Sites should be selected that support either:

- Any **regular** probable breeding or over wintering\* bird species listed in table 7.
- Any **regular** over wintering population as listed in table 8.
- Any established colony as listed in table 8.
- At least 10 probable breeding species from tables 7 and 9 (these records can be from a single visit). Where a site is exceptional on a county-wide basis it may be selected with a lower number of breeding species.
- $\geq 0.5\%$  of the British breeding population of any species.

\* Unless listed as breeding only

### Guidance

For birds listed in tables 7 and 8 **regular** probable breeding/over wintering records should generally equate to data from any three years out of the preceding five years. However it is recognised that past records are not always available and where missing the presence of at least **five** additional probable breeding or overwintering species/populations (as described in tables 7, 8 and 9) is required for the site to qualify as a LWS.

Probable breeding evidence<sup>33</sup> includes:

*Pair observed in suitable nesting habitat in breeding season; Permanent territory presumed through registration of territorial behaviour (song etc.) on at least two different days a week or more apart at the same place or many individuals on one day; Courtship and display (judged to be in or near potential breeding habitat - be cautious with wildfowl); Visiting probable nest site; Agitated behaviour or anxiety calls from adults suggesting probable presence of nest or young nearby; Brood patch on adult examined in the hand suggesting incubation; Nest building or excavating nest-hole.*

**Table 7 Rare or scarce bird species in the Cheshire region – probable breeding or\* over wintering**

Species	Global status IUCN 2011	UK Birds of conservation concern <sup>31</sup>	Status 2011	Rare breeding birds 2004-2006 <sup>30</sup> (<20 confirmed breeding pairs in Cheshire)	Scarce breeding birds 2004-2006 <sup>30</sup> (20-100 confirmed breeding pairs in Cheshire)
Avocet	Least concern	Amber	Schedule 1		✓
Bearded tit	Least concern	Amber	Schedule 1	✓	
Bittern	Least concern	Red	UK BAP, Schedule 1	✓	
Black necked grebe	Least concern	Amber	LBAP, Schedule 1	✓	
Common Redstart	Least concern	Amber			✓

Corn bunting	Least concern	Red	UK BAP	✓	
Cuckoo	Least concern	Red	UK BAP	✓	
Dunlin*	Least concern	Red		✓	
Eurasian curlew	Near threatened	Amber	UK BAP	✓	
Gadwall	Least concern	Amber		✓	
Garganey*	Least concern	Amber	Schedule 1	✓	
Golden plover	Least concern	Amber		✓	
Goshawk*	Least concern	Green	Schedule 1	✓	
Hen harrier	Least concern	Red	S41 NERC, Schedule 1	✓	
Lesser spotted woodpecker	Least concern	Red	UK BAP		✓
Little ringed plover	Least concern	Green	Schedule 1	✓	
Long-eared owl	Least concern	Green		✓	
Marsh harrier	Least concern	Amber	Schedule 1	✓	
Marsh tit	Least concern	Red	UK BAP		✓
Merlin	Least concern	Amber	Schedule 1	✓	
Nightjar	Least concern	Red	UK BAP	✓	
Peregrine	Least concern	Green	Schedule 1	✓	
Pied flycatcher	Least concern	Amber			✓
Pochard*	Least concern	Amber		✓	
Red grouse	Least concern	Amber	UK BAP		Estimate of 300 pairs in 2006 following reintroduction programme
Redshank	Least concern	Amber		✓	
Ring ouzel	Least concern	Red	UK BAP		✓
Short-eared owl	Least concern	Amber		✓	
Snipe	Least concern	Amber			✓
Tree pipit	Least concern	Red	UK BAP	✓	
Turtle dove	Least concern	Red	UK BAP	✓	
Twite	Least concern	Red	UK BAP	✓	
Warblers*				Assemblages of 6+ probable breeding species	Assemblages of 6+ probable breeding species
Water rail*	Least concern	Green			✓
Whinchat	Least concern	Amber			✓
Willow tit	Least concern	Red	UK BAP	✓	
Wood warbler	Least concern	Red	UK BAP	✓	
Woodcock*	Least concern	Amber		✓	
Woodlark	Least concern	Amber	Schedule 1	✓	
Yellow wagtail	Least concern	Red	UK BAP		✓

\* Breeding only

**Table 8 Rare, scarce and notable over wintering and colonial bird species in the Cheshire region**

Species	Global Status IUCN 2011	UK Red list Birds of conservation concern	Local status Confirmed breeding tetrads <sup>30</sup>	Status 2011	Comment
Bewick's swan	Least concern	Amber	0		Regular over wintering 5+ individuals
Black tailed godwit	Near threatened	Red	0	UK BAP. Schedule 1.	Passage sites and over wintering/ summering 50+ individuals.
Cormorant spp.	Least concern	Green	6		Established colonies only
Duck species					Regular over wintering sites with 5+ species of dabbling* ducks or 3+ species of diving** ducks
Greater white fronted goose	Least concern	Green	0	UK BAP	Regular over wintering 5+ individuals
Green sandpiper	Least concern	Amber	0		Regular over wintering 3+ individuals
Grey heron	Least concern	Green	641 apparently occupied nests		Established colonies only
Gull species (any groups of any species)					Winter roost sites with 1000+ individuals
Jack snipe	Least concern	Amber	0		Regular over wintering 5+ individuals
Light bellied brent goose (race <i>hrota</i> )	Least concern	Amber	0		Regular over wintering 7+ individuals
Little egret	Least concern	Amber	2		Established colonies only
Pink footed goose	Least concern	Amber	0		Regular over wintering 100+ individuals
Pintail	Least concern	Amber	0		Regular over wintering 50+ individuals
Rook	Least concern	Green	205		Established colonies only (70+ nests)
Sand martin	Least concern	Amber	42		Established colonies only
Swift	Least concern	Amber	119		Established colonies only (20+ pairs)
Teal	Least concern	Amber	2		Regular over wintering 200+ individuals
Whooper swan	Least concern	Amber	0	Schedule 1	Regular over wintering 5+ individuals.
Wigeon	Least concern	Amber	0		Regular over wintering 200+ individuals

\**Dabbling ducks* – shelduck, mandarin, Eurasian wigeon, gadwall, Eurasian teal, mallard, pintail, shoveler. \*\**Diving ducks* – pochard, goldeneye, red-breasted merganser, goosander, tufted duck.

**Table 9 Notable birds in the Cheshire region - probable breeding**

Species	Global Status IUCN 2011	UK Red list Birds of conservation concern	Local status Confirmed breeding tetrads <sup>30</sup>	Status 2011	Comment
Barn owl	Least concern	Amber	142	LBAP. Schedule 1	
Black headed gull	Least concern	Amber	13		
Bullfinch	Least concern	Amber	95	UK BAP	
Common sandpiper	Least concern	Amber	1		
Common tern	Least concern	Amber	0		10+ breeding pairs only
Common whitethroat	Least concern	Amber	282		
Dipper	Least concern	Green	13		
Dunnock	Least concern	Amber	428	UK BAP	Spp.occidentalis is endemic to the British Isles
Firecrest	Least concern	Amber	1	Schedule 1	
Grasshopper warbler	Least concern	Red	10	UK BAP	
Green woodpecker	Least concern	Amber	39		
Grey partridge	Least concern	Red	47	UK BAP	
Grey wagtail	Least concern	Amber	114		
House sparrow	Least concern	Red	559	UK BAP	
Kestrel	Least concern	Amber	183		
Kingfisher	Least concern	Amber	38	Schedule 1	
Lapwing	Least concern	Red	263	UK BAP	
Lesser redpoll	Not evaluated	Red	3	UK BAP	
Linnet	Least concern	Red	125	UK BAP	
Little grebe	Least concern	Amber	61		
Mallard	Least concern	Amber	499		
Meadow pipit	Least concern	Amber	70		
Mistle thrush	Least concern	Amber	380		
Oyster catcher	Least concern	Amber	45		
Reed bunting	Least concern	Amber	171	UK BAP	
Ringed plover	Least concern	Amber	10		
Shelduck	Least concern	Amber	29		
Shoveler	Least concern	Amber	3		
Skylark	Least concern	Red	141	UK BAP	
Song thrush	Least concern	Red	461	UK BAP	
Spotted flycatcher	Least concern	Red	101	UK BAP	
Starling	Least concern	Red	573	UK BAP	
Stock dove	Least concern	Amber	150		
Tree sparrow	Least concern	Red	182	UK BAP	
Tufted duck	Least concern	Amber	63		
Wheatear	Least concern	Amber	9		
Willow warbler	Least concern	Amber	163		
Yellowhammer	Least concern	Red	119	UK BAP	

### S3 Mammals

Sites should be selected that regularly support:

- Likely breeding/hibernating populations of hazel dormouse, otter, Nathusius pipistrelle, lesser horseshoe bat, serotine bat.
- Likely breeding/hibernating populations of at least 2 species of bat.
- Assemblages of mammals from table 10 which score a total of 12 points.

In Wirral sites should be selected that support a breeding badger sett which has been occupied for any three years out of the preceding five years.

Warrington is a regionally key area for water voles, therefore any Warrington site that supports a likely breeding population should be selected.

#### Guidance and justification

Domestic gardens or buildings housing mammals will not be considered for LWS selection unless the site is critical to that species' survival in the borough, or supports exceptional populations<sup>9</sup>.

Temporary bat night roosts and feeding roosts should not be considered. The boundaries of any site selected for mammals should contain key foraging areas and commuting routes to such areas.

In contrast to the majority of Cheshire, Wirral badgers have a small, stable but not expanding population which struggles with fragmented habitat, development and significant levels of illegal persecution. Therefore in Wirral sites should be selected when they support a regular breeding badger sett.

The presence of water vole latrines indicates that there is a likely breeding population.

Table 10

List of mammals in the Cheshire region with their local, national or global significance

Mammal	Score based on local status (Cheshire mammal group)	Global Status IUCN 2011	UK Red list	BAP status 2011	Other
Common pipistrelle bat	2	Least concern		LBAP	European protected species
Soprano pipistrelle bat	2	Least concern		UKBAP	European protected species
Noctule bat	3	Least concern		UKBAP	European protected species
Brown long eared bat	3	Least concern		UK BAP	European protected species
Whiskered bat	3	Least concern		LBAP	European protected species

Brandts bat	3	Least concern		LBAP	European protected species
Daubentons bat	2	Least concern		LBAP	European protected species
Leislars bat	4	Least concern		LBAP	European protected species
Natterers bat	3	Least concern		LBAP	European protected species
Serotine bat	12	Least concern		LBAP	European protected species
Lesser horseshoe bat	12				
Nathusius pipistrelle	12				
Otter	12	Near threatened		UK BAP	European protected species
Hazel dormouse (native wild populations only)	12	Least concern		UK BAP	European protected species
Harvest mouse	4	Least concern		UK BAP	
Water vole	4	Least concern		UK BAP	Wildlife and Countryside Act
Mountain hare	4				
Red deer (not captive populations)	4				
Roe deer	3				
Polecat	3	Least concern		UK BAP	
European hedgehog	3	Least concern		UK BAP	
Brown hare	3	Least concern		UK BAP	
Badger	2	Least concern			Protection of Badgers act 1992 and protected from persecution under WCA 1981
Water shrew	3				
Bank vole	2				
Pygmy shrew	2				
Stoat	2				
Weasel	2				
Badger	2				
Field vole	1				
Wood mouse	1				
House mouse	1				
Common rat	1				
Rabbit	1				
Mole	1				
Common shrew	1				
Fox	1				

#### S4 Dragonflies and damselflies (*Odonata*)

Sites should be selected that regularly support either:

- Probable breeding populations of variable damselfly, common club-tail, downy emerald, golden-ringed dragonfly, white-legged damselfly, beautiful demoiselle, common hawkler, black darter, black tailed skimmer, hairy dragonfly, white-faced darter.

OR

- Species assemblages (probable breeding) scoring 8 points or more from table 11.

#### Guidance and justification

The variable damselfly is 'near threatened' in the UK and the common club tail has a restricted distribution in Cheshire. Both species are listed on the LBAP and sites where either is probably breeding should be selected as a LWS.

All sites still supporting the endangered white faced darter should be selected as LWS, although this species is now thought to be extinct in Cheshire. Any sites supporting 'edge of range' species (white legged damselfly and golden ringed dragonfly) should be selected as LWS. Other notable species for the region include downy emerald, beautiful demoiselle, common hawkler, black darter, black tailed skimmer and hairy dragonfly and where probably breeding sites should be selected as a LWS.

**Table 11**

**List of *Odonata* in the Cheshire region which are of local, national or global significance**

Vernacular	Species	Global status IUCN 2011 (where information available)	UK Status <sup>17</sup> 2008	BAP status 2011	Relative distribution and breeding status value for Cheshire (2006-2010) <sup>29</sup>	Score
Azure damselfly (Azure bluet)	<i>Coenagrion puella</i>		Least concern		1.6	1
Banded demoiselle	<i>Calopteryx splendens</i>		Least concern		3.6	4
Beautiful demoiselle	<i>Calopteryx virgo</i>		Least concern		33.3	10
Black darter	<i>Sympetrum danae</i>		Least concern		11.1	10
Black tailed skimmer	<i>Orthetrum cancellatum</i>		Least concern		7.1	10
Blue tailed	<i>Ischnura</i>		Least		1.8	1

damselfly (Common bluetail)	<i>elegans</i>		concern			
Broad bodied chaser	<i>Libellula depressa</i>		Least concern		3.3	4
Brown hawkler	<i>Aeshna grandis</i>		Least concern		2.2	1
Common blue damselfly (Common bluet)	<i>Enallagma cyathigerum</i>		Least concern		2.5	1
Common club tailed	<i>Gomphus vulgatissimus</i>	Not evaluated	Near threatened	LBAP	25	10
Common darter	<i>Sympetrum striolatum</i>	Least concern	Least concern		1.7	1
Common hawkler	<i>Aeshna juncea</i>		Least concern		11.1	10
Downy emerald	<i>Cordulia aenea</i>	Not evaluated	Least concern	LBAP	50	10
Emerald damselfly (Common spreadwing)	<i>Lestes sponsa</i>		Least concern		5.3	4
Emperor (Blue Emperor)	<i>Anax imperator</i>	Least concern	Least concern		2.3	1
Four spotted chaser	<i>Libellula quadrimaculata</i>		Least concern		2.4	1
Golden-ringed dragonfly (Common goldenring)	<i>Cordulegaster boltonii</i>		Least concern		50	10
Hairy dragonfly (Hairy hawkler)	<i>Brachytron pratense</i>		Least concern		6.7	10
Large red damselfly (Large red damsel)	<i>Pyrhosoma nymphula</i>		Least concern		2.0	1
Migrant hawkler	<i>Aeshna mixta</i>		Least concern		3.4	4
Red-eyed damselfly (Large Red-eye)	<i>Erythromma najas</i>		Least concern		4.5	4
Ruddy darter	<i>Sympetrum sanguineum</i>	Least concern	Least concern		5.3	4
Southern hawkler (Blue hawkler)	<i>Aeshna cyanea</i>		Least concern		2.8	1
Variable damselfly (Variable bluet)	<i>Coenagrion pulchellum</i>	Not evaluated	Near threatened	LBAP	20	10

White faced darter	<i>Leucorrhinia dubia</i>	Least concern	Endangered	LBAP (archive)	Assumed extinct in Cheshire	10
White legged damselfly (blue featherleg)	<i>Platycnemis pennipes</i>	Least concern	Least concern		100	10

## S5 Amphibians

Sites should be selected that regularly support any of the following:

- Populations of Natterjack toad.
- Exceptional/good<sup>27</sup> populations of > 100 individuals palmate newts or toads.
- Good<sup>27</sup> populations of great crested newts (5+ day time count, 10+ night time count)
- Assemblages with four or more (probable breeding) species of amphibian or two or more where palmate newts are present.

In Wirral sites should be selected that support two or more probable breeding species of amphibian.

### Guidance and justification

Great crested newts are common in Cheshire and they are afforded high levels of protection under UK and European legislation. Medium or small populations do not warrant additional protection within the LWS system; however a good population (5+ individuals caught in the day time during 15 minutes netting per 50m water's edge. Or 10+ individuals caught at night)<sup>27</sup> should be selected as a LWS.

The common toad is a UK BAP species and sites with good populations of at least 100<sup>27</sup> individuals should be selected as LWS. The Palmate newt is Cheshire's second rarest<sup>14</sup> amphibian after the Natterjack Toad and sites hosting exceptional populations of at least 100<sup>27</sup> individuals should be selected as LWS. Natterjack toads were present until recently at Red Rocks marsh on the Wirral and any site found to still be supporting this species should be selected as a LWS.

In Wirral the majority of ponds have lost one or more species of amphibian so any site supporting two or more species should be selected.

The boundaries of any site selected for amphibians should contain key foraging areas and commuting routes to such areas.

**Table 12 List of amphibians in the Cheshire region which are of local, national or global significance**

Species	Global status IUCN 2011	UK red list	Local status	BAP status 2011	Other
Natterjack toad	Least concern			UK BAP	European protected species
Common toad	Least concern			UK BAP	
Common frog	Least concern				
Great crested newt	Least concern			UK BAP	European protected species
Palmate newt	Least concern				
Smooth newt	Least concern				

## S6 Reptiles

Sites should be selected that regularly support significant populations of common lizard and provide suitable habitats for breeding, basking and hibernation. All sites supporting populations of grass snakes, adders or slow-worms should be selected as LWS.

### Guidance and justification

Grass snakes, adders and slow worms are infrequent in Cheshire therefore sites which support populations should be considered as LWS. Any site which supports a significant population of common lizards should be selected.

Reptiles tend to favour the following habitats: rough grassland, heathland, moorland, hedgerows, woodland edges, coastal dunes, disused quarries and railway embankments. Grass snakes feed almost entirely on amphibians and are normally present close to areas of fresh water.

**Table 13**

**List of reptiles in the Cheshire region which are of local, national or global significance**

Species	Global Status (IUCN data 2011)	UK Red list	Local status	BAP status
Common lizard	Least concern			UK BAP
Adder	Least concern			UK BAP
Grass snake	Least concern			UK BAP
Slow-worm	Not evaluated			UK BAP

## S7 Fresh water fish

Sites should be selected that regularly support any of the following:

- The European eel, the Allis shad or the Twaite shad
- *Significant populations* of river lamprey or Atlantic salmon.
- *Significant naturally sustaining populations* of brown trout/sea trout.

### Guidance and justification

Any site that supports the European eel, Allis shad or the Twaite shad should be selected as LWS. The European eel is critically endangered worldwide making it likely to be Cheshire's most threatened species. Rivers and still waters are frequently stocked with brown trout so only sites with naturally sustaining populations should be selected.

Sites that support UK red list species (excluding 'least concern') should be selected as LWS.

**Table 14 Fish species in the Cheshire region listed on the UK BAP.**

Species	Global status (IUCN data 2011)	UK Red list	Local status	BAP status
Allis shad	Least concern			UK BAP
Twaite shad	Least concern			UK BAP
European eel	Critically endangered			UK BAP
River lamprey	Least concern			UK BAP
Brown trout/sea trout	Least concern			UK BAP
Atlantic salmon	Least concern			UK BAP

**S8 White clawed crayfish**

**Sites should be selected that regularly support populations of white clawed crayfish.**

**Guidance and justification**

The white clawed crayfish is globally endangered according to the IUCN red data book and it is also a UK BAP species. This rare species was once widespread but has declined rapidly largely due to the introduction of the American Signal crayfish. This alien species carries crayfish disease to which the native crayfish has little immunity. American signal crayfish will also out-compete the native crayfish for food and shelter.

White clawed crayfish are dependent on good quality water and are particularly susceptible to pollution events such as sewage leaks, milk spillages, sheep dip contamination. For this reason in particular sites selected for white clawed crayfish should include a 6 metre riparian zone from the top of the riverbank.

The white clawed crayfish can live in various watercourses including rivers, streams, lakes and canals and survives in small isolated populations mainly in south Cheshire.

## S9 Terrestrial/freshwater invertebrates

Sites should be selected that regularly support either:

- Significant populations of any UK BAP species, or red data book listed species, or national rare/scarce species (present in 1-100 hectads in the UK).
- OR
- Significant assemblages\* of any terrestrial or freshwater invertebrates. (A locally significant bee assemblage is 8+ species of social bumble bee or 4+ species of cuckoo bee. A locally significant assemblage of macro-moths is 350 species which equates to 65% of the current list for VC58<sup>36</sup>)

\*Refer to Lancashire and Cheshire Entomological Society

### Guidance and justification

A large number of species have suffered severe declines nationally and these are listed as UK BAP species (table 15). The BAP list is likely to be incomplete as little research has been undertaken on invertebrate populations particularly when compared to other groups of species.

Consideration should also be given to species which are locally or nationally rare/scarce but may currently have stable populations. A list of conservation designations for UK taxa may be found on the JNCC website using the following link <http://jncc.defra.gov.uk/page-3408>

Expert opinion (e.g. Lancashire and Cheshire Entomological Society) should always be sought when determining what constitutes a significant assemblage of invertebrates.

Butterflies, dragonflies and damselflies have their own selection criteria **S1** and **S4**.

**Table 15 Terrestrial invertebrates in the Cheshire region listed on the UK BAP**

Vernacular	Species	Global status IUCN	UK Red list	Local status	Status
Belted Beauty	<i>Lycia zonaria britannica</i>				UKBAP
Cuckoo bee	<i>Coelioxys mandibularis</i>				UK BAP
Depressed river mussel	<i>Pseudanodonta complanata</i>				UK BAP
Leaf beetle	<i>Bromius obscurus</i>				UK BAP
Lesser silver water beetle	<i>Hydrochara caraboides</i>				UK BAP and WCA
Linyphilid spider	<i>Carolita limnaea</i>				UK BAP
Longhorn	<i>Acmaeops collaris</i>				UK BAP

beetle					
Mining beetle	<i>Colletes cunicularis</i>				UK BAP
Mud snail	<i>Omphiscola glabra</i>				UK BAP
Rove beetle	<i>Lathrobium rufipenne</i>				UK BAP
Sand wasp	<i>Podalonia affinis</i>				UK BAP
Sandhill rustic	<i>Luperina nickerlii gueneei</i>				UK BAP
Small egger	<i>Eriogaster lanestris L.</i>				UK BAP
Ten spot pot beetle	<i>Cryptocephalus decemmacultus</i>				UK BAP
Stag beetle	<i>Lucanus cervus</i>				UK BAP
Thick-legged flower beetle	Thick-legged flower beetle				UK BAP
Peus's Long-back spider	<i>Mecopisthes peusi</i>				UK BAP
Broad Groove-head Spider	<i>Monocephalus castaneipes</i>				UK BAP
Swamp Lookout Spider	<i>Notioscopus sarcinatus</i>				UK BAP
Argent and sable	<i>Rheumaptera hastata</i>				UK BAP
Triangle Hammock Spider	<i>Saaristoa firma</i>				UK BAP
Heath Rustic	<i>Xestia agathina</i>				UK BAP
Ashworth's Rustic	<i>Xestia ashworthii</i>				UK BAP
Neglected Rustic	<i>Xestia castanea</i>				UK BAP
Sword-Grass	<i>Xylena exsoleta</i>				UK BAP

## S10 Bryophytes

Sites supporting significant populations of any notable bryophytes from table 16 should be selected as LWS.

### Guidance and justification

Sites should be selected which host populations of nationally or locally rare, or conservation status bryophytes listed in table 16. The table lists all the notable bryophytes identified in VC 58 up to 2012.

**Table 16**

**List of bryophytes in the Cheshire region which are of local or national significance<sup>42</sup>**

Species	Vernacular	UK Red list	BAP status
<i>Bryum calophyllum</i>	Matted bryum	Nationally rare	UK BAP
<i>Bryum knowltonii</i>	Knowlton's Thread Moss	Nationally scarce	UK BAP
<i>Bryum uliginosum</i>	Ceruous bryum	Nationally rare	UK BAP
<i>Bryum warneum</i>	Sea bryum	Nationally scarce	UK BAP
<i>Cephaloziella nicholsonii</i>	Greater Copperwort	Nationally scarce	UK BAP
<i>Dicranum bergeri</i>	Waved Fork-moss	?	UK BAP
<i>Orthodontium gracile</i>	Slender Thread Moss	Nationally rare	UK BAP
<i>Rhytidiadelphus subpinnatus</i>	Scarce Turf-moss	Nationally rare	UK BAP
<i>Riccia canaliculata</i>	Channelled Crystalwort	Nationally rare	UK BAP
<i>Sphagnum balticum</i>	Baltic Bog-moss	Nationally rare	UK BAP
<i>Tortula cernua</i>	Flamingo moss	Nationally rare	UK BAP
<i>Tortula freibergii</i>	Freiberg's Screw-moss	Nationally scarce	UK BAP
<i>Tortula wilsonii</i>	Wilson's Pottia	Nationally scarce	UK BAP
<i>Weissia multicapsularis</i>	Moss	Nationally rare	UK BAP
<i>Weissia squarrosa</i>	Spreading-leaved beardless-moss	Nationally scarce	UK BAP
<i>Aloina ambigua</i>		Nationally scarce	
<i>Aloina brevirostris</i>		Nationally scarce	
<i>Aloina rigida</i>		Nationally scarce	
<i>Amblyodon dealbatus</i>		Nationally scarce	
<i>Atrichum tenellum</i>		Nationally	

		scarce	
<i>Brachydontium trichodes</i>		Nationally scarce	
<i>Bryum creberrimum</i>		Nationally scarce	
<i>Bryum intermedium</i>		Nationally scarce	
<i>Buxbaumia aphylla</i>		Nationally scarce	
<i>Calypogeia azurea</i>		Nationally scarce	
<i>Calypogeia integristipula</i>		Nationally scarce	
<i>Campylostelium saxicola</i>		Nationally scarce	
<i>Cephalozia macrostachya</i> var. <i>macrostachya</i>		Nationally scarce	
<i>Cephaloziella elachista</i>		Nationally rare	
<i>Cladopodiella francisci</i>		Nationally scarce	
<i>Dicranella crispa</i>		Nationally scarce	
<i>Dicranum polysetum</i>		Nationally scarce	
<i>Dicranum undulatum</i>		Nationally scarce	
<i>Didymodon acutus</i>		Nationally scarce	
<i>Discelium nudum</i>		Nationally scarce	
<i>Distichium inclinatum</i>		Nationally scarce	
<i>Ditrichum pusillum</i>		Nationally scarce	
<i>Drepanocladus sendtneri</i>		Nationally scarce	
<i>Ephemerum sessile</i>		Nationally scarce	
<i>Fissidens fontanus</i>		Nationally scarce	
<i>Fossombronia caespitiformis</i>		Nationally scarce	
<i>Fossombronia foveolata</i>		Nationally scarce	
<i>Fossombronia incurva</i>		Nationally scarce	
<i>Hamatocaulis vernicosus</i>		Nationally scarce	
<i>Henediella stanfordensis</i>		Nationally scarce	
<i>Hygroamblystegium humile</i>		Nationally scarce	
<i>Lophozia capitata</i>		Nationally scarce	
<i>Moerckia flotoviana</i>		Nationally	

		scarce	
<i>Nardia geoscyphus</i>		Nationally scarce	
<i>Philonotis arnellii</i>		Nationally scarce	
<i>Philonotis caespitosa</i>		Nationally scarce	
<i>Physcomitrium sphaericum</i>		Nationally scarce	
<i>Plagiothecium laetum</i>		Nationally scarce	
<i>Platyhypnidium lusitanicum</i>		Nationally scarce	
<i>Pohlia lescuriana</i>		Nationally scarce	
<i>Pterygoneurum ovatum</i>		Nationally scarce	
<i>Racomitrium affine</i>		Nationally scarce	
<i>Riccardia incurvata</i>		Nationally scarce	
<i>Riccia cavernosa</i>		Nationally scarce	
<i>Riccia huebeneriana</i>		Nationally scarce	
<i>Riccia rhenana</i>		Nationally rare	
<i>Ricciocarpos natans</i>		Nationally scarce	
<i>Sphagnum pulchrum</i>		Nationally scarce	
<i>Sphagnum riparium</i>		Nationally scarce	
<i>Tomentypnum nitens</i>		Nationally scarce	
<i>Weissia rostellata</i>		Nationally scarce	

## S11 Lichens

Sites supporting significant populations of any notable lichens from table 17 should be selected as LWS. Where new species are recorded in Cheshire then the more comprehensive UK list should be consulted.

### Guidance and justification

There are several thousand species of lichen recorded in Cheshire however only a small number of these are designated at a national level. Many of the species listed below originate from churchyards including Handley, Acton and Pott Shrigley.

**Table 17 List of lichens in the Cheshire region which are of local, national or global significance<sup>40</sup>**

Species	UK Red list (contains both IUCN and non-IUCN methodology)	BAP/S.41 status/WCA
<i>Acarospora nitrophila</i>	Nationally scarce	
<i>Acarospora umbilicata</i> <i>f.congrediens</i>	Nationally scarce	
<i>Aspicilia contorta</i> subsp. <i>hoffmanniana</i>	Nationally scarce	
<i>Calicium quercinum</i>	Extinct (tbc)	
<i>Caloplaca crenulatella</i>	Nationally scarce	
<i>Caloplaca ferruginea</i>	Nationally scarce	
<i>Candelariella aurella</i> f. <i>smaragdula</i>	Nationally scarce	
<i>Carbonea vorticoso</i>	Nationally scarce	
<i>Cladonia merochlorophaea</i>	Nationally scarce	
<i>Cladonia uncialis</i> ssp. <i>uncialis</i>	Nationally rare	
<i>Ephebe hispidula</i>	Nationally rare	
<i>Fossombronia foveolata</i>		UK BAP and England NERC S.41
<i>Lecania aipospila</i>	Nationally scarce	
<i>Lecania cuprea</i>	Nationally scarce	

<i>Lecanora fuscescens</i>	Extinct (tbc)	
<i>Lecanora handelii</i>	Near threatened	
<i>Lecanora subaurea</i>	Nationally scarce	
<i>Lecanora subcarnea</i>	Nationally scarce	
<i>Lecidella viridans</i>	Data deficient	
<i>Melanelia subargentifera</i>	Critically endangered	
<i>Peltigera lepidophora</i>		WCA schedule 8
<i>Pyrenula nitida</i>		England NERC S.41
<i>Rhizocarpon furfurosum</i>	Near threatened	
<i>Usnea subscabrosa</i>	Vulnerable	

## S12 Fungi

Sites supporting populations of conservation status fungi<sup>34</sup> listed in table 18 should be selected as LWS. Where new species are recorded in Cheshire then the more comprehensive British lists<sup>34</sup> should be consulted.

OR

Sites should be selected where they support 50+ species of woodland fungi recorded on a single visit. Assemblages should contain examples from all the different fungal groups (refer to guidance).

### Guidance and justification

Sites should be selected which host populations of conservation status British Fungi<sup>34</sup>. Conservation status fungi which have been recorded in Cheshire (VC58) are listed in table 18.

**Table 18 Conservation status fungi recorded in Cheshire 1980 - 2012<sup>41</sup>**

Species	Vernacular	British red list	BAP status 2011	Other
<i>Boletopsis perplexa</i>	Black Falsebolete		UK BAP	
<i>Caloscypha fulgens</i>	Golden Cup	Vulnerable/D2		
<i>Cantharellus friesii</i>	Orange/velvet Chanterelle		UK BAP	NERC 2006
<i>Cortinarius violaceus</i>	Violet Webcap	Near threatened		
<i>Gastrum campestre</i>	Field Earthstar	Endangered/B		
<i>Gloeoporus dichrous</i>	<i>Gloeoporus dichrous</i>	Near threatened		
<i>Gyrodon lividus</i>	Alder Bolete	Near threatened		
<i>Hericium erinaceus</i>	Bearded Tooth		UK BAP	NERC 2006
<i>Leucoagaricus barssii</i>	<i>Leucoagaricus barssii</i>	Near threatened		
<i>Lycoperdon ericaeum</i>	Heath Puffball	Extinct (tbc)		
<i>Onygena equina</i>	Horn Stalkball	Near threatened		
<i>Phylloporus pelletieri</i>	Golden-gilled Bolete	Annex	UK BAP	NERC 2006
<i>Polyporus umbellatus</i>	Umbrella Polypore	Near threatened		
<i>Pycnoporus cinnabarinus</i>	Cinnabar Polypore	Extinct (tbc)		

### Good assemblages of woodland fungi<sup>41</sup>

An assemblage of woodland fungi regarded as having conservation value will usually have four groups of fungi represented. These groups are indicative of the execution of important beneficial ecological activities/processes and thus of the self-sustainability of the woodland:

*Ectomycorrhizal fungi* are associated with particular tree species. Their mycelium grows over the surface of a tree's roots enabling an exchange of minerals and carbohydrates with the tree, and providing protection from attack by pathogens. Not all mycorrhizal species produce visible fruitbodies.

*Living wood decay fungi*<sup>38</sup> establish themselves within living trees and help to create crevices and exposed wood which may then host a variety of fauna including invertebrates. They are often visible as brackets on the outside of tree trunks or branches. Affected trees may ultimately die, but this can increase structural diversity in a woodland.

*Dead wood rotting fungi*<sup>38</sup> are found on dead wood, usually lying on the woodland floor. They are able to break down the wood structure enabling other taxa to establish themselves and also facilitating the recycling of nutrients. There is some evidence that these species occur in succession as wood becomes more decayed.

*Ground fungi (soil humus/leaf litter fungi)* are found on the woodland floor breaking down leaf litter and soil humus and facilitating the recycling of nutrients.

The particular fungal species composition will depend to an extent on the vascular plant species composition of the woodland but generally species richness and composition will be greater where:

- there is a greater diversity of trees and shrubs
- there is abundant dead wood of varying dimensions from small twigs to large tree trunks
- there is older woodland, particularly ancient woodland
- there is greater diversity of habitat providing more niches for colonisation by fungi e.g. in larger woodland

There are a number of undesirable fungi which can have a serious and rapid deleterious effect on a woodland e.g. ash dieback *Chalara fraxinea* which, if identified, should be reported to the appropriate authority.

**Table 19 Examples<sup>37,39</sup> of ectomycorrhizal, living wood decay, dead wood decay and ground fungi:**

Vernacular	Species name	Comment
<b>Ectomycorrhizal fungi*</b>		
<b>Under Oak</b>		
Oakbug Milkcap	<i>Lactarius quietus</i>	
Scarletina Bolete	<i>Boletus luridiformis</i>	Can occur with Pine
Death Cap	<i>Amanita phalloides</i>	Can also occur with Beech
<b>Under Birch</b>		
Brown Birch Bolete	<i>Leccinum scabrum</i>	
Fly Agaric	<i>Amanita muscaria</i>	Can also occur with Pine
The Blusher	<i>Amanita rubescens</i>	Can also occur with other species
Birch Milkcap	<i>Lactarius tabidus</i>	Especially with Birch
Woolly Milkcap	<i>Lactarius torminosus</i>	
Tawny Grisette	<i>Amanita fulva</i>	Can also occur with other species
Brown Rollrim	<i>Paxillus involutus</i>	Can also occur with other species
Common Earthball	<i>Scleroderma citrinum</i>	Also Oak and Beech
<b>Under Alder</b>		
Ochre Aldercap	<i>Naucoria escharioides</i>	
Alder Milkcap	<i>Lactarius obscuratus</i>	
(Alder) Rollrim	<i>Paxillus rubicundulus</i>	
<b>Under Beech</b>		
Lilac Bonnet	<i>Mycena pura</i>	Especially with Beech
Beech Milkcap	<i>Lactarius blennius</i>	
Beechwood Sickener	<i>Russula nobilis</i>	
<b>Under Pine/Larch</b>		
Slippery Jack	<i>Suillus luteus</i>	Pine
Larch Bolete	<i>Suillus grevillei</i>	

Sickener	<i>Russula emetica</i>	
<b>Under both Deciduous and Coniferous species</b>		
Ochre Brittlegill	<i>Russula ochroleuca</i>	
Penny Bun or Cep	<i>Boletus edulis</i>	
Purple Brittlegill	<i>Russula atropurpurea</i>	
Poisonpie	<i>Hebeloma crustuliniforme</i>	
Butter Cap	<i>Collybia butyracea</i>	
The Deceiver	<i>Laccaria laccata</i>	
Amethyst Deceiver	<i>Laccaria amethystina</i>	
Chanterelle	<i>Cantharellus cibarius</i>	
<b>Living wood decay fungi</b>		
Birch Polypore	<i>Piptoporus betulinus</i>	Can be seen on dead wood too
	<i>Peniophora quercina</i>	On Oak
Alder bracket	<i>Mensularia radiata</i>	
Oyster Mushroom	<i>Pleurotus ostreatus</i>	Can be seen on dead wood too
Bleeding Broadleaf Crust	<i>Stereum rugosum</i>	Particularly Hazel, Beech, Birch. Can be seen on dead wood too
Hoof Fungus	<i>Fomes fomentarius</i>	Especially on Birch
Honey Fungus	<i>Armillaria sp</i>	Can also be found on or near dead wood
Root Rot	<i>Heterobasidion annosum</i>	Usually on conifers but can also occur on dead broadleaved trees
Southern Bracket	<i>Ganoderma australe</i>	Usually on Beech
Beeswax Bracket	<i>Ganoderma pfeifferi</i>	Usually on Beech but can occur on dead wood too
Shaggy Scalycap	<i>Pholiota squarrosa</i>	Can occur on dead wood too
<b>Dead wood decay fungi</b>		
Hairy Curtain Crust	<i>Stereum hirsutum</i>	
Sulphur Tuft	<i>Hypholoma fasciculare</i>	
Split Porecrust	<i>Schizopora paradoxa</i>	
Elder Whitewash	<i>Hyphodontia sambuci</i>	On dead Elder wood
Candlesnuff Fungus	<i>Xylaria hypoxylon</i>	
Jelly Ear	<i>Auricula auricularia-judae</i>	
King Alfred's Cakes	<i>Daldinia concentrica</i>	On dead Ash wood
Blushing Bracket	<i>Daedaleopsis confragosa</i>	
Turkeytail	<i>Trametes versicolor</i>	Can occur on living wood too
Oak Mazegill	<i>Daedalea quercina</i>	
Smoky Bracket	<i>Bjerkandera adusta</i>	
Stump Puffball	<i>Lycoperdon pyriforme</i>	
Deer Shield	<i>Pluteus cervinus</i>	
Velvet Shank	<i>Flammulina velutipes</i>	
Common Bonnet	<i>Mycena galericulata</i>	
Glistening Inkcap	<i>Coprinellus micaceus</i>	
Oysterling sp.	<i>Crepidotus variabilis/cesatii</i>	
Bleeding Oak Crust	<i>Stereum gausapatum</i>	
Scarlet Elf Cup	<i>Sarcoscypha austriaca</i>	
Coral Spot	<i>Nectria cinnabarina</i>	

Yellow Brain	<i>Tremella mesenterica</i>	
Orange spot	<i>Dacrymyces stillatus</i>	
Birch/Beech/Hazel Woodwart	<i>(Annulo)Hypoxylon sp.</i>	
Lumpy Bracket	<i>Trametes gibbosa</i>	
Waxy Crust	<i>Vuilleminia comedens</i>	
Common Rustgill	<i>Gymnopilus penetrans</i>	
<b>Ground fungi (Soil humus/leaf litter fungi)</b>		
Stinkhorn	<i>Phallus impudicus</i>	
Collared Earthstar	<i>Geastrum triplex</i>	
Horsehair Parachute	<i>Marasmius androsaceus</i>	
Collared Parachute	<i>Marasmius rotula</i>	
Milking Bonnet	<i>Mycena galopus</i>	
Clouded Funnel	<i>Clitocybe nebularis</i>	
Slender club	<i>Macrotyphula juncea</i>	

\* Ash, Sycamore, Yew and Elm tend not to form visible mycorrhizal relationships with fungal species

## S13 Vascular plants

Sites should be selected that regularly support:

- Populations of any species listed in table 20<sup>18</sup>.
- Significant or viable populations of any species listed in table 21<sup>18</sup>.

### Guidance and justification

Many sites that host rare or scarce vascular plants will also qualify for LWS selection under the habitat criteria. This is particularly true when considering assemblages of vascular plants.

Sites should be selected which host populations of nationally or locally rare, or conservation status plants listed in table 20. Any site which hosts significant or viable populations of plants which are scarce in Cheshire (table 21) should be considered for selection as a LWS. A significant or viable population is one that could be considered self-sustaining in the medium term (this will require a subjective judgement to be made taking into consideration the population size and the likely future management of the site).

**Table 20 Rare and conservation status plants in the Cheshire region<sup>18</sup>**

Species	Global status IUCN	UK Red list <sup>19</sup> 2005	Kay's classification <sup>18</sup>	BAP status	1 km Squares
<i>Luronium natans</i>			Internationally rare	UK BAP	1
<i>Asplenium trichomanes</i> ssp <i>pachyrachis</i>		Near threatened	Nationally rare		4
<i>Baldellia ranunculoides</i>		Near threatened	Nationally rare		4
<i>Calamagrostis stricta</i>		Vulnerable	Nationally rare		1
<i>Mentha pulegium</i>		Endangered	Nationally rare	UK BAP	3
<i>Rubus wolley-dodii</i>		Threatened	Nationally rare		1
<i>Adiantum capillus-veneris</i>			Nationally scarce		1
<i>Carex elongata</i>			Nationally scarce		1
<i>Cicuta virosa</i>			Nationally scarce		37
<i>Coincya monensis</i>			Nationally scarce	LBAP	2
<i>Elatine hexandra</i>			Nationally scarce		1
<i>Equisetum variegatum</i>			Nationally scarce		2
<i>Equisetum x meridionale</i>			Nationally scarce	LBAP	3
<i>Euphorbia portlandica</i>			Nationally scarce		3
<i>Fritillaria meleagris</i>		Vulnerable	Nationally scarce		?
<i>Fumaria purpurea</i>			Nationally scarce		Rare casual
<i>Gentiana pneumonanthe</i>			Nationally scarce		1
<i>Hieracium vagense</i>			Nationally scarce		1
<i>Hippophae rhamnoides</i>			Nationally scarce		1 (but widely planted –

					native population probably confined to one site)
<i>Hordelymus europaeus</i>			Nationally scarce		2-3
<i>Impatiens noli-tangere</i>			Nationally scarce		2
<i>Lepidium latifolium</i>			Nationally scarce		2
<i>Limonium celticum</i> ssp <i>britannicum</i>			Nationally scarce	BAP	1
<i>Limosella aquatica</i>			Nationally scarce		5
<i>Medicago sativa</i> ssp <i>falcata</i>			Nationally scarce		1
<i>Puccinellia rupestris</i>			Nationally scarce		1
<i>Ribes alpinum</i>			Nationally scarce		1
<i>Silene gallica</i>		Endangered	Nationally scarce		Casual
<i>Thelypteris palustris</i>			Nationally scarce		5
<i>Vaccinium x intermedium</i>			Nationally scarce		2
<i>Verbascum lychnitis</i>			Nationally scarce (possibly not native in Cheshire)		1
<i>Verbascum virgatum</i>			Nationally scarce		Casual
<i>Vicia lutea</i>		Near threatened	Nationally scarce (possibly not native in Cheshire)		2
<i>Allium oleraceum</i>		Vulnerable	Locally rare		3
<i>Allium scorodoprasum</i>			Locally rare		2
<i>Anacamptis pyramidalis</i>			Locally rare		5
<i>Andromeda polifolia</i>			Locally rare		6
<i>Arabis hirsuta</i>			Locally rare		2
<i>Asplenium marinum</i>			Locally rare		2
<i>Atriplex laciniata</i>			Locally rare		2
<i>Brachypodium pinnatum</i>			Locally rare		2
<i>Bromopsis erecta</i>			Locally rare		2
<i>Bromus commutatus</i>			Locally rare		14
<i>Bromus hordeaceus</i> ssp <i>thominei</i>			Locally rare		1
<i>Bromus racemosus</i>			Locally rare		3
<i>Bromus secalinus</i>			Locally rare		16
<i>Calystegia sepium</i> ssp. <i>Roseata</i>			Locally rare		5
<i>Carex acuta</i>			Locally rare		4
<i>Carex hostiana</i>			Locally rare		¾
<i>Carex lasiocarpa</i>			Locally rare		1
<i>Carex limosa</i>			Locally rare		1
<i>Carex muricata</i> ssp <i>pairae</i>			Locally rare		1
<i>Carex muricata</i> ssp <i>lamprocarpa</i>			Locally rare		?
<i>Carex viridula</i> ssp <i>viridula</i>			Locally rare		1
<i>Carlina vulgaris</i>			Locally rare		Extinct?
<i>Centaureum pulchellum</i>			Locally rare		1
<i>Cerastium arvense</i>			Locally rare		3
<i>Chenopodium bonus-henricus</i>		Vulnerable	Locally rare		1

<i>Circaea x intermedia</i>			Locally rare		3
<i>Cirsium dissectum</i>			Locally rare		1
<i>Cirsium heterophyllum</i>			Locally rare		1
<i>Clinopodium ascendens</i>			Locally rare		3
<i>Crambe maritima</i>			Locally rare		1
<i>Crithmum maritimum</i>			Locally rare		2
<i>Cynoglossum officinale</i>			Locally rare		½
<i>Dactylorhiza incarnata</i>			Locally rare		?
<i>Daphne laureola</i>			Locally rare		3
<i>Dipsacus pilosus</i>			Locally rare		5
<i>Drosera intermedia</i>			Locally rare		1
<i>Eleocharis multicaulis</i>			Locally rare		2
<i>Eleocharis quinqueflora</i>			Locally rare		2
<i>Eleocharis uniglumis</i>			Locally rare		1
<i>Eleogeton fluitans</i>			Locally rare		6
<i>Epipactis palustris</i>			Locally rare		3
<i>Equisetum hyemale</i>			Locally rare		1
<i>Erodium lebelii</i>			Locally rare		2
<i>Eryngium maritimum</i>			Locally rare		3
<i>Euphorbia exigua</i>		Near threatened	Locally rare		1
<i>Festuca altissima</i>			Locally rare		1
<i>Festuca rubra ssp juncea</i>			Locally rare		2
<i>Filago minima</i>			Locally rare		2
<i>Filago vulgaris</i>		Near threatened	Locally rare		3
<i>Gagea lutea</i>			Locally rare		1
<i>Glaucium flavum</i>			Locally rare		1
<i>Hippuris vulgaris</i>			Locally rare		2
<i>Huperzia selago</i>			Locally rare		1
<i>Hyoscyamus niger</i>		Vulnerable	Locally rare		casual
<i>Hypericum elodes</i>			Locally rare		2
<i>Hypopitys monotropa</i>		Endangered	Locally rare		1
<i>Juncus compressus</i>		Near threatened	Locally rare		2?
<i>Lathyrus nissolia</i>			Locally rare		4
<i>Limonium vulgare</i>			Locally rare		1
<i>Linum bienne</i>			Locally rare		3
<i>Lycopodium clavatum</i>			Locally rare		1
<i>Meum athamanticum</i>		Near threatened	Locally rare		1
<i>Myosurus minimus</i>		Vulnerable	Locally rare		3
<i>Myrica gale</i>			Locally rare		5
<i>Myriophyllum alterniflorum</i>			Locally rare		4
<i>Nuphar pumila/x spenneriana</i>			Locally rare		1
<i>Oenanthe fistulosa</i>		Vulnerable	Locally rare	UK BAP	Many
<i>Orobanche hederæ</i>			Locally rare		1
<i>Paris quadrifolia</i>			Locally rare		1
<i>Persicaria minor</i>		Vulnerable	Locally rare		3
<i>Phegopteris connectilis</i>			Locally rare		3
<i>Pilosella x stolonifera</i>			Locally rare		1
<i>Platanthera chlorantha</i>		Near threatened	Locally rare		2
<i>Polygonum oxyspermum ssp raii</i>			Locally rare		?

<i>Polygonum rurivagum</i>			Locally rare		3
<i>Populus nigra ssp betulifolia</i>			Locally rare	LBAP	?
<i>Potamogeton alpinus</i>			Locally rare		2
<i>Potamogeton compressus</i>			Locally rare	UK BAP	?
<i>Potamogeton lucens</i>			Locally rare		2
<i>Potamogeton pusillus</i>			Locally rare		4
<i>Potamogeton trichoides</i>			Locally rare		?
<i>Pyrola minor</i>			Locally rare		1
<i>Pyrola rotundifolia ssp maritima</i>			Locally rare		1
<i>Ranunculus baudotii</i>			Locally rare		1
<i>Ranunculus circinatus</i>			Locally rare		3
<i>Ranunculus fluitans</i>			Locally rare (EU Annex 1 habitat)	UK BAP	?
<i>Ranunculus hederaceus</i>			Locally rare	LBAP	?
<i>Rhynchospora alba</i>			Locally rare		2
<i>Rosa agrestis</i>		Near threatened	Locally rare		1
<i>Rosa micrantha</i>			Locally rare		4
<i>Rosa mollis</i>			Locally rare		3
<i>Rosa x hibernica</i>			Locally rare		2
<i>Rosa x margerisonii</i>			Locally rare		1
<i>Rubus chamaemorus</i>			Locally rare		1
<i>Rumex longifolius</i>			Locally rare		1
<i>Rumex alpinus</i>		Near threatened	Locally rare (possibly not native in Cheshire)		3
<i>Ruppia maritima</i>			Locally rare		?
<i>Sagina nodosa</i>			Locally rare		4
<i>Salix triandra</i>			Locally rare		4
<i>Salsola kali</i>		Vulnerable	Locally rare	UK BAP	3
<i>Salvia verbenaca</i>			Locally rare		1
<i>Saxifraga tridactylites</i>			Locally rare		3
<i>Schoenoplectus triqueter</i>			Locally rare	UK BAP	?
<i>Scleranthus annuus</i>		Endangered	Locally rare		4
<i>Scutellaria minor</i>			Locally rare		5
<i>Sedum anglicum</i>			Locally rare		1
<i>Serratula tinctoria</i>			Locally rare		4
<i>Silene uniflora</i>			Locally rare		3
<i>Sorbus torminalis</i>			Locally rare		4
<i>Spergula arvensis</i>		Vulnerable	Locally rare		Many
<i>Spergularia rupicola</i>			Locally rare		2
<i>Stachys arvensis</i>		Near threatened	Locally rare		Many
<i>Teesdalia nudicaulis</i>		Near threatened	Locally rare		3
<i>Thalictrum minus</i>			Locally rare		2
<i>Thymus polytrichus ssp britannicus</i>			Locally rare		3
<i>Trifolium ornithopodioides</i>			Locally rare		1
<i>Utricularia minor</i>			Locally rare		2
<i>Utricularia vulgaris</i>			Locally rare		3
<i>Vicia lathyroides</i>			Locally rare		4
<i>Vicia sylvatica</i>			Locally rare		3
<i>Viola canina ssp canina</i>		Near threatened	Locally rare		2

<i>Vulpia fasciculata</i>			Locally rare		3
<i>Wahlenbergia hederacea</i>		Near threatened	Locally rare		4
<i>xAgropogon littoralis</i>			Locally rare		1
<i>xFestulpia hubbardii</i>			Locally rare		1

**Table 21 Locally scarce plant species in Cheshire (present in 4-16 x 1 km<sup>2</sup> sites)<sup>18</sup>**

<i>Alchemilla glabra</i>	<i>Carex extensa</i>	<i>Erigeron acer</i>	<i>Narcissus pseudonarcissus</i> ssp	<i>Sagina maritima</i>
<i>Alopecurus aequalis</i>	<i>Carex laevigata</i>	<i>Erophila glabrescens</i>	<i>pseudonarcissus</i>	<i>Samolus valerandii</i>
<i>Allium vineale</i>	<i>Carex lasiocarpa</i>	<i>Erophila majuscula</i>	<i>Narthecium ossifragum</i>	<i>Sanicula europaea</i>
<i>Ammophila arenaria</i>	<i>Carex pallescens</i>	<i>Euonymus europaeus</i>	<i>Neottia ovata</i>	<i>Saxifraga granulata</i>
<i>Anagallis tenella</i>	<i>Carex pulcaris</i>	<i>Fumaria bastardii</i>	<i>Oenanthe lachenalii</i>	<i>Schoenoplectus lacustris</i>
<i>Anthriscus caucalis</i>	<i>Carex spicata</i>	<i>Fumaria capreolata</i>	<i>Ononis repens</i>	<i>Schoenoplectus tabernaemontani</i>
<i>Apium graveolens</i>	<i>Carex strigosa</i>	<i>Galium mollugo</i> ssp <i>erectum</i>	<i>Ononis spinosa</i>	<i>Scirpus sylvaticus</i>
<i>Apium inundatum</i>	<i>Carex vesicaria</i>	<i>Galium uliginosum</i>	<i>Ophrys apifera</i>	<i>Sison amomum</i>
<i>Arctium lappa</i>	<i>Catabrosa aquatica</i>	<i>Gentianaella amarella</i>	<i>Orchis mascula</i>	<i>Spartina anglica</i>
<i>Armeria maritima</i>	<i>Catapodium marinum</i>	<i>Geranium sanguineum</i>	<i>Orobanche minor</i>	<i>Spergularia media</i>
<i>Artemisia absinthium</i>	<i>Catapodium rigidum</i>	<i>Geum rivale</i>	<i>Osmunda regalis</i>	<i>Spergularia rubra</i>
<i>Asplenium ceterach</i>	<i>Centaurea scabiosa</i>	<i>Gymnadenia conopsea</i>	<i>Parapholis strigosa</i>	<i>Spirodella polyrhiza</i>
<i>Atriplex glabriuscula</i>	<i>Ceratophyllum demersum</i>	<i>Helictotrichon pubescens</i>	<i>Phleum arenarium</i>	<i>Stellaria nemorum</i>
<i>Atriplex littoralis</i>	<i>Ceratophyllum submersum</i>	<i>Hordeum secalinum</i>	<i>Picris echioides</i>	<i>Stellaria pallida</i>
<i>Berberis vulgaris</i>	<i>Chaenorhinum minus</i>	<i>Hottonia palustris</i>	<i>Poa angustifolia</i>	<i>Suaeda maritima</i>
<i>Botrychium lunaria</i>	<i>Chenopodium ficifolium</i>	<i>Hydrocharis morsus-ranae</i>	<i>Polygonatum multiflorum</i>	<i>Thalictrum flavum</i>
<i>Beta vulgaris</i> ssp <i>maritima</i>	<i>Chenopodium polyspermum</i>	<i>Hypericum hirsutum</i>	<i>Polypodium interjectum</i>	<i>Tilia cordata</i>
<i>Brassica nigra</i>	<i>Chrysosplenium alternifolium</i>	<i>Inula conyzae</i>	<i>Polypodium x mantoniae</i>	<i>Trifolium fragiferum</i>
<i>Cakile maritima</i>	<i>Cladium mariscus</i>	<i>Iris foetidissima</i>	<i>Polystichum aculeatum</i>	<i>Trifolium micranthum</i>
<i>Calamagrostis canescens</i>	<i>Clematis vitalba</i>	<i>Juncus ambiguus</i>	<i>Polystichum setiferum</i>	<i>Trifolium striatum</i>
<i>Calamagrostis epigejos</i>	<i>Clinopodium vulgare</i>	<i>Juncus gerardii</i>	<i>Potamogeton polygonifolius</i>	<i>Triglochin maritimum</i>
<i>Callitriche hermaphroditica</i>	<i>Cochlearia anglica</i>	<i>Juncus maritimus</i>	<i>Ranunculus lingua</i>	<i>Umbilicus rupestris</i>
<i>Callitriche obtusangula</i>	<i>Crepis paludosa</i>	<i>Juncus subnodulosus</i>	<i>Ranunculus peltatus</i>	<i>Vaccinium vitis-idaea</i>
<i>Callitriche platycarpa</i>	<i>Cystopteris fragilis</i>	<i>Lathraea squamaria</i>	<i>Raphanus raphanistrum</i> ssp <i>maritimus</i>	<i>Valeriana dioica</i>
<i>Campanula trachelium</i>	<i>Dactylorhiza maculata</i>	<i>Lavatera arborea</i>	<i>Rhamnus cathartica</i>	<i>Valerianella locusta</i>
<i>Carduus nutans</i>	<i>Dactylorhiza purpurella</i>	<i>Lepidium campestre</i>	<i>Rhinanthus minor</i> ssp <i>stenophyllus</i>	<i>Veronica polita</i>
<i>Carduus tenuiflorus</i>	<i>Drosera rotundifolia</i>	<i>Lepidium heterophyllum</i>	<i>Rosa caesia</i> ssp <i>caesia</i>	<i>Viola lutea</i>
<i>Carex arenaria</i>	<i>Dryopteris affinis</i> ssp <i>affinis</i>	<i>Leymus arenarius</i>	<i>Rosa caesia</i> ssp <i>vosagiaca</i>	<i>Viscum album</i>
<i>Carex binervis</i>	<i>Dryopteris affinis</i> ssp <i>cambrensis</i>	<i>Littorella uniflora</i>	<i>Rosa pimpinellifolia</i>	<i>Viola reichenbachiana</i>
<i>Carex distans</i>	<i>Echium vulgare</i>	<i>Lythrum portula</i>	<i>Rosa rubiginosa</i>	<i>Zannichellia palustris</i>
<i>Carex disticha</i>	<i>Eleocharis acicularis</i>	<i>Melampyrum pratense</i>	<i>Rubus caesius</i>	<i>Hyacinthoides non-scriptus</i> <b>Extensive areas only</b>
<i>Carex divulsa</i> ssp <i>divulsa</i>	<i>Elytrigia atherica</i>	<i>Myosotis ramosissima</i>	<i>Rumex crispus</i> ssp <i>littoreus</i>	
<i>Carex elata</i>	<i>Elytrigia juncea</i>	<i>Myosotis secunda</i>	<i>Rumex maritimus</i>	

## 4. References

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## 5. Appendices

### 5.1 LWS survey form

		
<b>Local Wildlife Site Description and Management Form</b>		
<b>Site name:</b>	<b>Site code:</b>	<b>Grid reference:</b>
<b>Date(s) of visit:</b>	<b>Surveyor(s)</b>	<b>Data submitted to rECOrd?</b>
<b>Land owner/tenant</b>		
<i>Include name, address and contact number/email for owner and/or tenant/agent. Where there is more than one owner, indicate ownership boundaries clearly on site map.</i>		
<b>Selection Criteria</b>		
<i>List all criteria that apply. Give brief justification here or in target notes.</i>		
<b>Site Characteristics</b>		
<i>Topography: undulating; irregular; slopes; aspects etc.</i>	<i>Any public access to site?</i>	
<i>Hydrology/Geomorphology/Soils(if known): wet, flushes, streams, outcrops, mineral, peat, clay etc.</i>	<i>Surrounding area information: urban, semi-rural, rural, intensively farmed etc.</i>	
<b>Site Summary</b>		
<i>Give BRIEF description/summary of the site. Include information on most important habitats, important or dominant species and other important aspects of the site. May update existing citation.</i>		
<b>Additional information</b>		
<i>e.g. species lists, species diversity, notable or indicator species (approximate NVC communities may be suggested), suggested boundary changes (mark on map), recommendations for future surveys. List any target notes with species information (e.g. indicators, invasives, species lists). All botanical species information should be recorded with DAFOR score where possible.</i>		

<b>Condition assessment</b>	
Overall impression of the condition of site. Good, fair or poor? Give reasons.	
<b>Social Issues</b>	
<b>Issue</b>	<b>Comment where applicable</b>
Litter/fly tipping/pollution	
Vandalism/anti-social use	
Recreational damage	
Other	
<b>Grassland/Heathland</b>	
<b>Issue</b>	<b>Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.</b>
Grazing (animal sp.) - Any suggestion of over/under grazing?	
Poaching	
Scrub encroachment (% cover, include young plants)	
Mowing	
Ridge and furrow/anthills	
Re-seeding/fertiliser application? Record % of white clover/rye grass.	
Undesirables (% cover e.g. bracken, thistles, nettles, docks, ragwort, invasives/ non-natives – list sp.)	
Bilberry/heathers/western gorse (% cover)	
Other	
<b>Woodland</b>	
<b>Issue</b>	<b>Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.</b>
Tree cover (estimate % cover where possible)	
Invasives/non-natives (list sp. and approx. frequency)	
Coppicing/felling	
Grazing (livestock and/or deer, give details)	
Pheasant rearing	
Regeneration of locally native tree species?	
Fallen/standing dead wood	
Fencing	
Other	

<b>Wetland</b>	
<b>Issue</b>	<b>Comment where applicable. Complex sites may need to be assessed in compartments/fields – annotate map.</b>
<i>Invasives/non-natives (list sp. and estimate % cover)</i>	
<i>Scrub encroachment (% cover, include young plants)</i>	
<i>Any good populations of wetland flora/fauna?</i>	
<i>Suggestion of eutrophication e.g. algal blooms?</i>	
<i>Other</i>	
<b>Management plan / stewardship agreement / any management suggestions?</b>	
<i>Comment where known</i>	

## 5.2 Checklist for Single Data List SDL ref 160 (previously NI 197)

	<b>Measure</b>	<b>Yes</b>	<b>No</b>	<b>Not known</b>
1.	Have the conservation features for which the site has been selected been clearly documented?			
2.	Is there documented evidence of a management plan/ management scheme/advisory document which is sufficiently targeted to maintain or enhance the above features?			
3.	Are the management requirements set out in the document being met sufficiently in order to maintain the above features? This should be assessed at 5 year intervals (minimum). Record 'not known' if interval is greater than 5 years.			
4.	Has the Local Sites Partnership verified the above evidence?			

For a site to score positive for ref 160 all four measures listed above MUST be YES<sup>43</sup>.

## 2 Benefits and Site Selection

### Introduction

- 2.1 This section sets out the background to the need for renewable energy, describes the international, national and regional targets for its increased use, and explains the benefits of the proposed wind farm. The site selection process and project design evolution undertaken for the proposed wind farm are also presented.

### Need for Renewable Energy

- 2.2 Renewable energy can be defined as “those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass” (PPS 22). The UK is particularly fortunate in having abundant natural resources and indeed has a significant proportion of Europe's wind resource being the windiest country in Europe (British Wind Energy Association (BWEA)). The principle reasons to exploit this resource are set out below.

*(i) Addressing climate change*

- 2.3 Burning fossil fuels is responsible for around 60% of the world's greenhouse gas emissions (World Resources Institute) and is widely considered to be a major contributing factor to climate change and global warming. Using renewable energy sources including wind power offsets these greenhouse gas emissions and can therefore help address the effects of climate change. Already wind turbines in the UK are replacing the emissions of well over one and a half million tonnes of carbon dioxide (CO<sub>2</sub>) each year (BWEA).

- 2.4 The Stern Review on the Economics of Climate Change states that the benefit of strong, early action against global warming considerably outweighs the costs of building renewable energy sources such as wind turbines. Evidence suggests that ignoring global warming and climate change will eventually damage economic growth and that it will be difficult, if not impossible, to reverse the effects. Lord Stern suggests that “tackling climate change with a pro-growth strategy” is imperative and the “earlier effective action is taken, the less costly it will be” (Stern, 2006).

- 2.5 Against this background, the UK Government has put in place a number of policies (and legally binding targets) both to reduce greenhouse gas emissions and further increase the proportion of the UK's energy that comes from renewable sources.

*(ii) Increasing energy supply security*

- 2.6 The UK currently benefits from a diverse electricity generation mix; including gas, coal, nuclear and renewables. This diverse generation mix reduces the UK's dependency on a single fuel type and helps maintain a secure supply of electricity, however much of the fuel used is imported from other, (often politically unstable) parts of the world. Increasing the use of indigenous sources of energy such as the wind will help the UK become more energy self-sufficient and so further improve the security of supply.

- 2.7 Looking further to the future, during the next two decades the UK will also need substantial new investment in electricity generation capacity to replace closing coal, oil and nuclear power stations and to meet expected growth in electricity demand. The UK is likely to need around 25 GW of new electricity generation capacity by 2025,

equivalent to more than 30% of today's existing capacity (The Energy Challenge, Energy Review Report, 2006). New renewable energy projects are expected to make up a substantial proportion of this new capacity needed and will therefore be vital in ensuring generation keeps pace with demand.

### ***UK Government Policy and Targets***

- 2.8 The UK Government sees climate change as the greatest long-term challenge today and has, through its Climate Change Act 2008, set a legally binding target to reduce UK carbon dioxide emissions by at least 34% by 2020, and at least 80% by 2050 compared to 1990 levels (Climate Change Act 2008, (2020 Target, Credit Limit and Definitions) Order 2009).
- 2.9 The Committee on Climate Change provides independent advice to the UK Government on building a low-carbon economy. Its inaugural report, published in December 2008, states that renewable energy generation could make a significant contribution to power sector decarbonisation, both globally and in the UK. Wind generation could make a significant contribution to total global electricity generation, and be a major source of electricity in the UK. The Committee suggest that 30% of electricity generation could come from wind power by the year 2020.
- 2.10 In terms of renewable energy policy, the UK Government is required to meet a target of 15% of energy from renewable sources by 2020, in order to meet the overall EU target to source 20% of the EU's energy from renewable sources by 2020 as specified under the 2009 EU Renewable Energy Directive.
- 2.11 The latest development of UK energy policy has come forward with the publication of the Renewable Energy Strategy (RES) in July 2009 alongside the UK Low Carbon Transition Plan. The UK Government had been working towards a UK 2020 target of 20% of electricity coming from renewable sources, the adopted scenario in the RES is that this figure is now to be raised dramatically. The Government has signed up to the EU requirement that 15% of all energy consumed in the UK should be from renewable sources by 2020, but as the RES points out this also covers fuel and heating – i.e. all energy sources and not just electricity. In the light of the difficulties in providing significant elements of fuel and heating from renewables by 2020, the proportion of electricity supply that will have to come from renewables to balance this out will need to be raised substantially, to 30% or more. Onshore wind and offshore wind are expected to provide about 64% of all the electricity from renewable sources by 2020, made up of 29% onshore and 35% offshore.
- 2.12 One of the key features set out in the RES is that instead of looking to 2020 as the next target date, the EU Directive requires that every two years each member country has to submit details of its performance on the targets against indicative levels that have to be met to keep the country on its trajectory to meet the 2020 figure. Thus instead of looking 11 years ahead, there will be benchmark targets as early as 2011-2012, and further steps along the way, all of which are expected to be met. Given that the UK starts out from the position that it is already well behind the prospect of meeting the 2010 target of just 10% of electricity from renewables, the need for a rapid escalation of renewable electricity and especially onshore wind in the coming months and years is quite clear.
- 2.13 The principal instrument for increasing the deployment of renewable energy is the Renewables Obligation. This piece of legislation was first introduced in 2002 and has been amended a number of times since, most recently through the 2007 Energy Bill. This requires electricity utilities to source a growing proportion of the electricity they

supply from renewable sources, the current targets being 9.1% in 2008/09, increasing to 15.4% by 2015/16 and (provided sufficient new renewable generation comes on line) to 20% by 2020. It is likely that further increases in the targets will be implemented in due course, to give effect to the UK Renewable Energy Strategy.

- 2.14 In addition to measures aimed at increasing the proportion of renewable energy, policies have also been introduced to increase efficiency and reduce demand. These include the Climate Change Levy and the Carbon Reduction Commitment (CRC).
- 2.15 The Climate Change Levy, which came into force in April 2001, is a tax on energy use in industry, commerce and the public sector in order to encourage non-domestic electricity users to become more energy efficient and so reduce carbon emissions.
- 2.16 The CRC is an innovative climate change and energy saving scheme for the UK, it is also a central part of the UK's strategy for controlling carbon dioxide (CO<sub>2</sub>) emissions. The government expect the CRC to create a shift in awareness in large organisations especially at senior level, and to drive changes in behaviour and infrastructure (Department for Environment, Food and Rural Affairs (Defra)). It aims to reduce carbon emissions in large non-energy intensive organisations (who are not subject to the EU Emissions Trading Scheme that applies to energy-intensive consumers) by 1.2 million tonnes of carbon per year by 2020 (Carbon Trust).
- 2.17 In July 2006 the UK Government published The Energy Challenge - Energy Review Report. The report recognises that renewable energy, as a source of low-carbon, indigenous electricity generation, is central to reducing emissions and maintaining the reliability of the UK's energy supplies at a time when indigenous fossil fuels are declining more rapidly than expected. Annex D of the Energy Review is a Renewables Statement of Need detailing the Government's current policy towards the development of renewables and the important role they have to play in helping the UK meet its energy policy goals. The Renewables Statement of Need comments:
- 2.18 *'We remain committed to the important role renewables have to play in helping the UK meet its energy policy goals.'*
- 2.19 *'New renewable projects may not always appear to convey any particular local benefit, but they provide crucial national benefits. Individual renewable projects are part of a growing proportion of low-carbon generation that provides benefits shared by all communities both through reduced emissions and more diverse supplies of energy, which helps the reliability of our supplies. This factor is a material consideration to which all participants in the planning system should give significant weight when considering renewable proposals. These wider benefits are not always immediately visible to the specific locality in which the project is sited. However, the benefits to society and the wider economy as a whole are significant and this must be reflected in the weight given to these considerations by decision makers in reaching their decisions.'*
- 2.20 This statement of need was then re-iterated within the Energy White paper 'Meeting the Energy Challenge' published in May 2007.

### **Local Renewable Energy Policy and Targets**

- 2.21 As discussed in Section 4 - Planning Policy, the planning policy framework for the Cheshire and Chester West is comprised of the North West of England Regional Spatial Strategy (RSS), and the saved policies of the Cheshire County Council Structure Plan and Vale Royal Local Plan First Review Alteration.

- 2.22 Policy EM17 ‘Renewable Energy’ of the North West of England Regional Spatial Strategy – aims to maximise improvements in terms of energy efficiency and increase the renewable energy capacity. Strategies include to promote and encourage the use of renewable energy resources in the region. Renewable energy targets for the region aim for a 15% contribution to overall energy generation by 2015 and 20% by 2020.
- 2.23 Policy BE21 of the Vale Royal Local Plan states that the “wider benefits of renewable energy developments...will be a material consideration which will be given significant weight in determining planning applications.”

### **Summary**

- 2.24 The case for renewable energy electricity generation has been made at the international, national and regional levels of government. It has been acknowledged at all levels that onshore wind farms will be necessary to ensure that the UK Government is able to meet its renewable energies targets.
- 2.25 Peel Wind Farms (Frodsham) Limited (hereafter referred to as Peel) is therefore committed to developing wind farms of various sizes throughout the UK. The proposed wind farm would make an important contribution to renewable energy objectives and bring a range of benefits as discussed below.

### **Benefits of the Proposed Wind Farm**

- 2.26 National Planning Policy Statement for Renewable Energy (PPS22) confirms as one of its key principles that the wider environmental and economic benefits of all proposals for renewable energy projects, whatever their scale, are material considerations that should be given significant weight in determining whether proposals should be granted planning permission.
- 2.27 An assessment of the predicted wind resource on site, combined with operating details of potential candidate turbines for the proposed wind farm indicate that the wind farm could generate 60 megawatt hours (MWh) of electricity per year. This is equivalent to the average annual electricity needs of approximately 28,500 homes.
- 2.28 When generating electricity the wind turbines would offset the generation of a similar amount of electricity that would otherwise be generated by conventional power stations. While the displacement or offset figure would change as the generation mix changes, the proposed wind farm would with the current UK generation mix offset the production of between 67,800 tonnes and 55,188 tonnes<sup>1</sup> of carbon dioxide per year.
- 2.29 The carbon dioxide offset would make an important contribution towards the government target to reduce carbon dioxide emissions by 20% of 1990 levels by 2020 and 80% by 2050. The wind farm would also offset emissions of the other greenhouse gases from conventional power stations; in particular coal fired generating plants. These gases, including sulphur dioxide and oxides of nitrogen, cause environmental problems such as acid rain.
- 2.30 Onshore wind farms, particularly those close to areas of electricity demand, provide an important contribution towards making the UK more energy self-sufficient. If

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<sup>1</sup>Assumes wind power displaces between 430 g and 350 g CO<sub>2</sub>/kWh. This is representative of the current UK generating plant mix but may change over the life of any project at Frodsham Canal Deposit Grounds.

constructed, the proposed wind farm would help improve this self-sufficiency and make a valuable contribution to the UK's energy security..

## Site Selection

### *Site Selection Process*

- 2.31 Peel works to deliver wind farms projects throughout the UK. Peel carries out the identification and ultimately the development of appropriate wind farm sites. This section describes the site selection process used by Peel to identify sites potentially suitable for wind energy development.
- 2.32 Peel employs a criteria based approach to selecting sites for detailed review and EIA. This 'in-house' methodology broadly reflects the requirements of PPS 22 which states that planning authorities should use a criteria based approach when considering renewable energy proposals, but obviously has a much more commercial focus and phased approach.
- 2.33 A basic set of criteria is used in Phase 1 to identify out general constraints and establish whether potential sites are appropriate to take forward for more detailed assessment. The criteria are as follows:
- A. Predicted wind resource (using NOABL database);
  - B. Proximity to a local electricity grid connection point (desk-top survey);
  - C. Presence of national landscape designations (desk-top survey); and
  - D. Proximity to dwellings (using general 500m stand-off distance).
- 2.34 The second phase involves the assessment of a range of technical, environmental, planning and commercial considerations. The criteria considered at the second stage include:
- 1. Capacity of the site for wind turbines (using industry-standard spacing);
  - 2. Preliminary energy assessment based on likely number of wind turbines and any available wind data;
  - 3. Likely grid capacity (based on desk-top review);
  - 4. Access to the site – in particular for wind turbine components (based on site inspection);
  - 5. Local policy designations (from inspection of extant local plans);
  - 6. Archaeological and cultural heritage features (where identified on OS data);
  - 7. Likely affects on safeguarded / licensed civil airports, National Air Traffic Services and MOD radar facilities (based on preliminary enquiry responses);
  - 8. Cumulative impact (where applicable); and
  - 9. Extant Planning guidance.

An explanation of how these criteria are taken into account is set out below.

### *Initial Site Selection Criteria*

#### *A. Predicted wind resource*

- 2.35 The likely wind resource that is available to the wind turbines is one of the key considerations when assessing the commercial viability of a wind energy project. The amount of electricity generated is directly related to the profile of the wind resource and if the wind speed changes so does the electricity produced. The amount of electricity generated from the wind turbines in turn has a direct affect on the wider environmental benefits of the project – in particular pollution savings. In the initial phases of assessment this data is obtained from the NOABL database. The limitations of this database are known, hence a range of potential wind speeds are offered by NOABL when responding to a query.

#### *B. Proximity to a local electricity grid connection point*

- 2.36 Wind farms are ordinarily connected to the electricity network at a voltage of 33, 66 or 132 kV. These networks are managed by local distribution network operators (DNO). The requirements for electricity network connection equipment and infrastructure are related to the connection voltage, the size of the wind farm, its distance to the nearest connection point and whether an overhead line or underground connection ‘solution’ is preferred. The costs of this equipment and infrastructure can have a significant effect on the commercial viability of the scheme.

#### *C. Presence of national landscape designations*

- 2.37 PPS22 and PPS7 require that development proposals in nationally designated landscapes will not be permitted unless impacts are outweighed by the environmental, social and economic benefits. Based on the current track record of proposals in such locations Peel does not currently pursue new wind energy projects within nationally designated landscapes.

#### *D. Proximity of dwellings*

- 2.38 Preliminary distances are allowed for between wind turbines and local dwellings. This is to ensure both the visual and noise amenity of local residents are reflected at the outset. In the first instance a distance of 500m is used in the absence of information about whether properties would be defined as being occupied by a financially involved person for the purposes of ETSU R 97 – see Section 9 – Noise and Vibration.

### *Second Stage Assessment*

#### *1. Capacity of the site for wind turbines*

- 2.39 The site capacity is a critical commercial factor due to economies of scale. If the site is considered to have met the criteria in the first phase process a draft wind turbine layout will be designed using commercially available software to indicate number of wind turbines that the site could potentially accommodate. This initial design process takes into account the presence of site features such as habitat types, presence of public rights of way, services and microwave communication links. Ambient background noise information is not usually available at this stage but a good estimate of the likely numbers of turbines can be gained.

#### *2. Preliminary energy assessment based on likely number of wind turbines and available wind data*

- 2.40 Further to the production of a draft wind turbine layout in (1) above, a basic energy assessment will be carried out to establish to try and provide more certainty about the

commercial viability of the project. An energy assessment will be carried out using a range of candidate turbine types and incorporating site information such as basic topography. There are several such tools available to the industry (e.g. Carbon Trust's wind energy calculator).

### *3. Likely grid capacity*

- 2.41 Although the site may be close to an electricity sub-station or power line, there may not be sufficient capacity in the infrastructure to accommodate the electricity from a wind farm. An early stage grid assessment will consider the technical parameters of the infrastructure and raise any likely capacity issues. Capacity issues could have significant effects on the potential to connect a wind farm, the timing of when the wind farm could be delivered and/or the costs involved. Options for overhead and underground cabling solutions are explored at this stage, with Peel's preference being for underground cabling.

### *4. Access*

- 2.42 An appropriate access point for the delivery of wind turbines is crucial. Site entrance(s) need to be of a suitable size and gradient to allow unobstructed access. The blades in particular – given their length - need to be assessed in the context of road capacity at an early stage. For critical junctions on the proposed access route (identified by on-site inspection, a 'swept-path' analysis may be conducted.

### *5. Local landscape*

- 2.43 Peel assesses proposals outside of nationally designated landscapes on their merits, taking into account:
- Landscape character studies; and
  - The proximity of the site to nationally designated landscapes.
- 2.44 Landscape character assessments and capacity studies can provide useful information relating to the potential for an area to accommodate tall structures such as wind turbines and where differences of opinion as to site capacity may be an issue. A site close to a nationally designated landscape would be considered in the context of likely impacts and landscape advice.

### *6. Nature conservation considerations*

- 2.45 Peel would not usually consider sites within an area subject to European or International designations, but acknowledges that development within any ecologically designated area could be appropriate - depending on the nature conservation interest - if no significant adverse effects are likely. In circumstances where sites are close to such designations, Peel will seek to obtain ecological advice early in the development process, often prior to the commencement of full EIA.

### *7. Cultural heritage and archaeology*

- 2.46 Using local authority resources, Peel identifies listed buildings, registered parks and gardens and scheduled ancient monuments. If the wind farm might adversely impact on these cultural heritage features specialist advice would be sought early in the development process. Important archaeology has the potential to be affected by a wind farm, but features can either be preserved through wind farm design or mitigated by an appropriate archaeology strategy for excavation.

*8. Likely affects on safeguarded civil airports, National Air Traffic Services (NATS) and MOD radar facilities*

- 2.47 The potential interaction between wind farm development and aviation interests (civil or military) is well documented and there are a number of established procedures in place for obtaining early feedback. Peel undertakes consultation with MOD, CAA and NATS early in the development process. In the event that potential issues are raised Peel will seek the advice of an Aviation Advisor.

*9. Cumulative impact*

- 2.48 Through the use of renewable energy monitoring information websites e.g. British Wind Energy Association, RESTATS and local authority information, a picture of existing and proposed wind farms is put together for the area. A general picture of the number, scale and extent of existing wind farms is established and is taken into consideration.

*10. Planning guidance*

- 2.49 National policy guidance on renewable energy and other relevant topics (e.g. flood risk) together with relevant extant development plan policies are considered when assessing the potential for wind farm sites.
- 2.50 Peel's site selection approach reflects the guidance in PPS 22 by seeking to balance environmental, economic and social benefits with environmental and social impacts. Minimising impacts is taken further through consideration of likely scale and design.

*11. Findings*

- 2.51 Peel's site search procedures demonstrate that many areas of land are not suitable or available at the first and second phases due to technical or planning constraints. In other circumstances further detailed assessment of constraints such as archaeological features or communications links can reduce the potential number of turbines a site can accommodate leading to a site becoming commercially unviable.

***Site Selection for the Proposed Wind Farm***

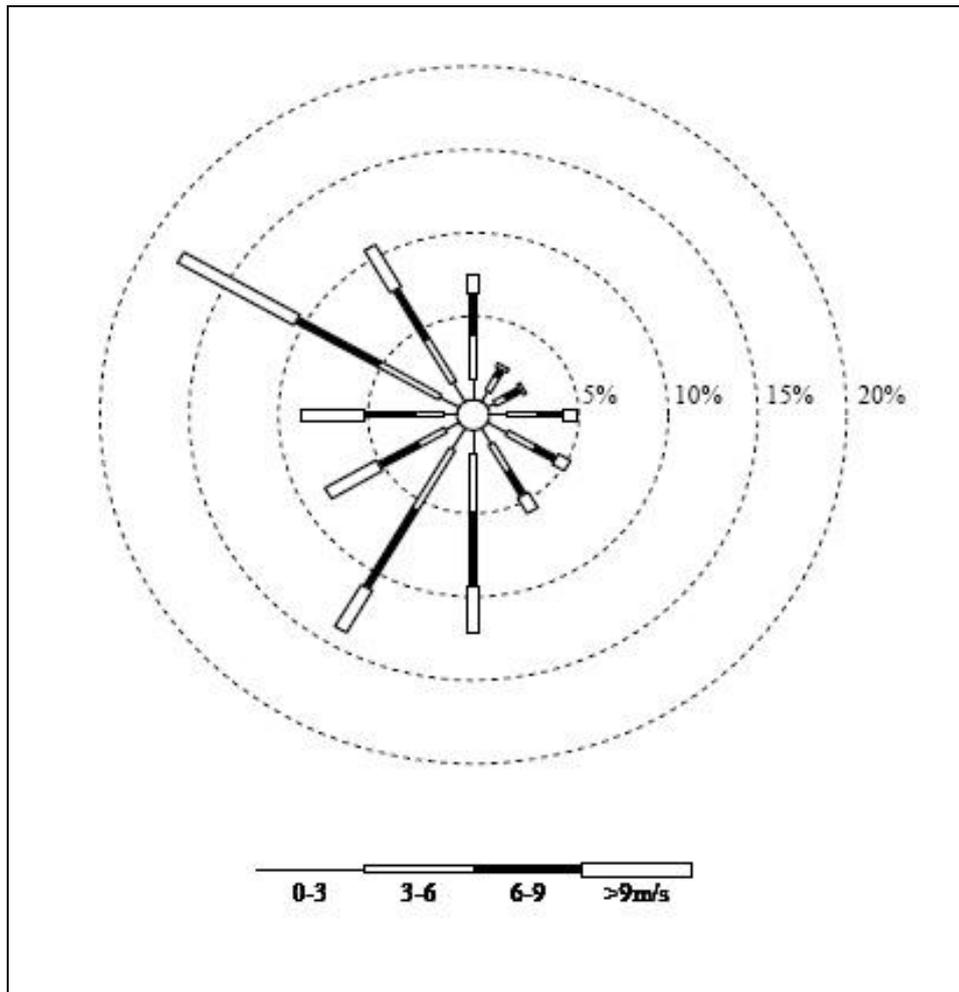
- 2.52 This section describes how the Peel site selection and assessment criteria apply to the proposed wind farm site at Frodsham more specifically.

*Initial Site Selection Criteria*

*A. Predicted wind resource*

- 2.53 Commercial viability is, dependant on sufficient wind speeds and wind resource is therefore potentially a constraint on site location.
- 2.54 The wind resource is shown on Figure 2.1. The information is based on onsite wind data has been collected for 2 years, (2004 and 2005). Peel's specialist consultants Garrad Hassan & Partners Ltd have predicted the long-term mean wind speed at the site to be 7.1 m/s at a hub height of 80 m. This means the site is suitable for a commercially viable wind farm.

**Figure 2.1 Predicted Long Term Annual Wind Rose Recorded by the Onsite Anemometry Mast at 80m Above Ground Level.**



*B. Proximity to a local electricity grid connection point*

2.55 The following electricity cables cross the land to the south of the site:

- 2 No. 132 kV owned by Scottish Power
- 1 No. 11 kV owned by Scottish Power
- 1 No. 400 kV owned by National Grid.

It is intended that the proposed wind farm would connect directly into the 132 kV network at the existing Ince Grid substation.

*C. Presence of national landscape designations*

2.56 The proposed site is not covered by national landscape designations. It does however lie within Regional Landscape Character Area 60 – The Mersey Valley (Countryside Agency (Natural England) Countryside Character Initiative – Countryside Character Vol 2, North West). This designation was not considered a major constraint for the proposed wind farm.

*D. Proximity of dwellings*

- 2.57 The closest town to the site is Frodsham, located 0.53 km (measured from the nearest turbine to the edge of the settlement). Proximity to Helsby, Elton and Ince is 1.12 km, 1.86 km and 2.42 km respectively. Further to the identification of the site using the site selection process set out above, it was established that the site had capacity to accommodate a wind farm.
- 2.58 Peel uses buffers of 500 m around individual dwellings at the pre-EIA stage. Peel experience is that in this context, 500 m is a reasonable starting point distance between any wind turbine and the nearest dwelling for ensuring that the amenity of residents is protected, however it does not preclude siting turbines inside this radius.

*Second Stage Assessment**1. Capacity of the site for wind turbines*

- 2.59 The proposed wind farm site comprises the Frodsham Canal Deposit Ground and land to the immediate south, large areas of agriculturally improved pasture, active settlement lagoons and dry reedbeds. There are no occupied dwellings within the site and the closest buildings are used for commercial storage and other farming uses. There are hedges and ditches within the site and a public footpath running through part of the site.

*2. Detailed energy assessment based on likely number of wind turbines and wind data*

- 2.60 Further to the drafting of an indicative turbine layout, an energy assessment was carried out. The energy production anticipated to be generated from the proposed wind farm was used to assess the commercial viability of the site. The environmental benefits likely to result from the wind farm installation were also assessed in the same manner.

*3. Likely grid capacity*

- 2.61 As part of the second stage assessment the local Distribution Network Operator (DNO) was contacted and a review of their program documents was carried out. The result of this assessment indicated that there is sufficient capacity in the local distribution network to accommodate a wind farm in the proposed location. This compares with an increasing lack of grid capacity in more remote locations, where this is a growing constraint for wind farm developments.

*4. Access*

- 2.62 A site visit was carried out and established that the highway network surrounding the site already accommodated a number of HGV movements associated with nearby industry. It was established that there were several routes that were potentially suitable for the delivery of wind farm components and materials, including making use of the existing canal berth on the adjoining Manchester Ship Canal.

*5. Land availability*

- 2.63 The majority of the site is currently owned by the Manchester Ship Canal Company, part of the Peel Group of companies. In addition, landowners to the south of the site were approached by Peel who confirmed agreement to a wind farm on their property.

### *6. Local landscape consideration*

- 2.64 At a more local scale, the Cheshire Landscape Character Assessment - Consultation Draft November 2007 includes the proposed site within DM1: Frodsham Marsh Character Area, which is adjoined to the west by MFSM1: Ince Banks Character Area.
- 2.65 In addition the Vale Royal Borough Council SPD 4 landscape sensitivity and sensitivity and wind turbine development (Adopted September 2007) states that “the site is identified as having a high sensitivity to the location (reclaimed salt marsh) of a group of 13 or more Wind Turbines Ref SPD4. It is noted that development may influence the character of an adjacent character area, as well as the area in which the proposal lies.”
- 2.66 The proposed site includes significantly contrasting land-uses on the margins of Frodsham Marsh, being dominated by both urban, and in particular, heavy industrial developments. The Helsby – Hooton railway, M56 motorway, prominent high voltage cables and pylons, together with numerous other roads, tracks and overhead cables combine to further reinforce the industrial character.
- 2.67 Early site visits established that the site was set in a flat landscape with human made influences evident in the local area including INEOS Chlor Vinyls, QUINN Glass UK, Stanlow Refinery and GrowHow UK Limited and existing high voltage power lines.

### *7. Nature conservation considerations*

- 2.68 The Mersey Estuary is a designated Site of Special Scientific Interest (SSSI) and is an internationally important site for wildfowl due to its large areas of intertidal sand and mudflats. The Mersey Estuary is also a designated Ramsar Site and Special Protection Area (SPA) due to its nationally significant bird assemblages.
- 2.69 Due to its close proximity to these designated areas detailed ornithological studies were commissioned early in the development process to gain a thorough understanding of the bird usage of the site and resulted in detailed design modifications as discussed below.

### *8. Archaeology and cultural heritage*

- 2.70 A review of listed buildings and historic parks and gardens showed that there were no receptors in the immediate vicinity of the site. As with the majority of potential wind farm sites in England, listed buildings exist within the wider area –283 within 5 km of the proposed wind farm site. Impacts on these features and on archaeological features on site have been carried out as part of the EIA (see Section 16- Archaeology).

### *9. Likely affects on safeguarded/ licensed civil airports, National Air Traffic Services and MOD radar facilities*

- 2.71 The Civil Aviation Authority (the UK regulator for aviation) has been consulted regarding the proposed wind farm development. Following their recommendation the following aeronautical sites have been consulted:
- Liverpool Airport PLC;
  - Manchester Airport PLC; and
  - Chester Hawarden Airport.
- 2.72 Unlike the above airport operators, NATS En Route Plc (NERL) has no responsibility for safeguarding airport technical facilities, but is responsible for the safe movement of

flight for aircraft operating in controlled airspace in the UK. Following initial concerns that the proposed Frodsham Wind Farm may interfere with the operational infrastructure of NERL, further consultation was undertaken with NERL to determine a likely solution. The consenting arm of NERL – NSL- has been retained by Peel to investigate potential technical solutions.

#### *10. Cumulative Impacts*

2.73 Existing and proposed projects in the area were also considered as part of the site selection process. Whilst there are no other wind farms, the following cumulative developments were considered applicable:

- The Mersey Gateway Project;
- Ince Resources Recovery Park;
- Ineos Chlor, Energy from Waste (also known as Runcorn Incinerator);
- High Bay Regional Distribution Center; and
- King Street Twin Cross Country Parallel Pipelines.

The potential cumulative impacts were considered likely to be acceptable dependent upon more detailed EIA and in particular specialist landscape advice.

#### *11. Planning Guidance*

2.74 The identification of the proposed wind farm site was considered to adhere to the broad principles of PPS22 - Renewable Energy, subject to detailed EIA. It is noted at key principle (i) that renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily.

### **Project Design Evolution and Alternative Site Layouts**

2.75 This section describes the evolution of the project design and presents the alternative layouts considered and design workshop process.

#### ***Wind Farm Design Evolution – Consideration Design and Scale***

2.76 It is essential that the siting of wind turbines utilise the wind resource effectively whilst taking into consideration the environmental constraints associated with the potential wind farm site.

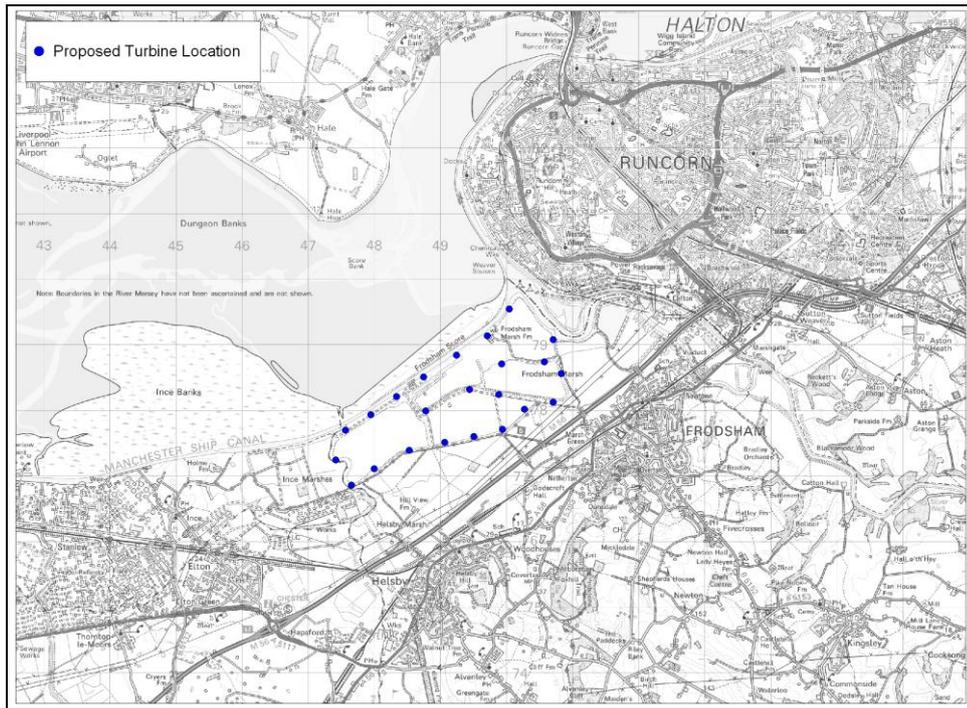
2.77 The proposed wind farm site at Frodsham Canal Deposit Grounds was identified on the basis of the site selection process as described above as well as the results obtained from a met mast that was placed on Frodsham Marsh in January 2004. Measuring wind speed and temperature, the site exhibited the required wind speeds and duration to make the siting of a wind farm economically viable. Adequate spacing is required between turbines to allow the wind to “recover” its energy once it has passed the first turbine. It also ensures that any turbulence behind turbines has dissipated so as not to interfere with the energy capture of downwind turbines. If sufficient spacing is not allowed for within the design, wind turbines in downwind locations will experience poorer wind resource, reducing the overall green electricity output of the wind farm. The proposed design at Frodsham utilises 5 rotor spacing parallel to the predominant

wind direction and 3 rotor spacing in a perpendicular direction in order to maximise the wind resource of the site.

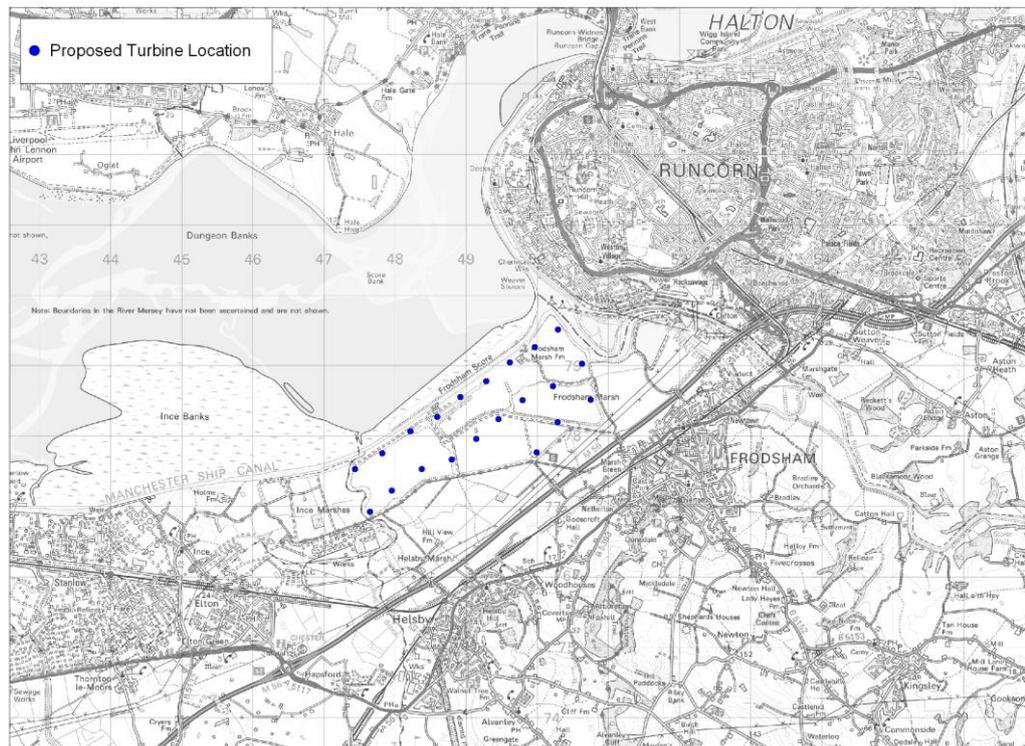
- 2.78 Turbine design also influences energy capture with taller turbines with larger rotor blades enabling greater electricity production. The power available from a wind turbine increases very rapidly with wind speed: a doubling of wind speed results in as much as an eight-fold increase in power. As wind speeds increase with height above the ground, taller tower heights can make a significant difference to power production. Similarly the length of the rotor blades is also important – doubling the rotor diameter of the wind turbine can produce a four-fold increase in power.
- 2.79 The detailed design of the proposed wind farm has evolved over the last 12 months as further information about the constraints and features relating to the site have been gathered and the EIA progressed. A range of technical, environmental and land use considerations have influenced both the final layout of the wind farm and the project scale in terms of height and number of turbines proposed. Design workshops have taken place attended by relevant ES consultants and the design evolution has been informed by advice from RSK Environment Ltd, RSK Carter Ecological Ltd, RSK STATS GeoConsult Limited, GVA Grimley Ltd, Scott Wilson / Buildings & Infrastructure, Hammond LLP and Garrad Hassan & Partners Ltd.
- 2.80 Figures 2.2 to 2.6 show the different wind turbine design layouts produced at various stages of the project. Figure 2.7 illustrates the final design.

#### *Design 1*

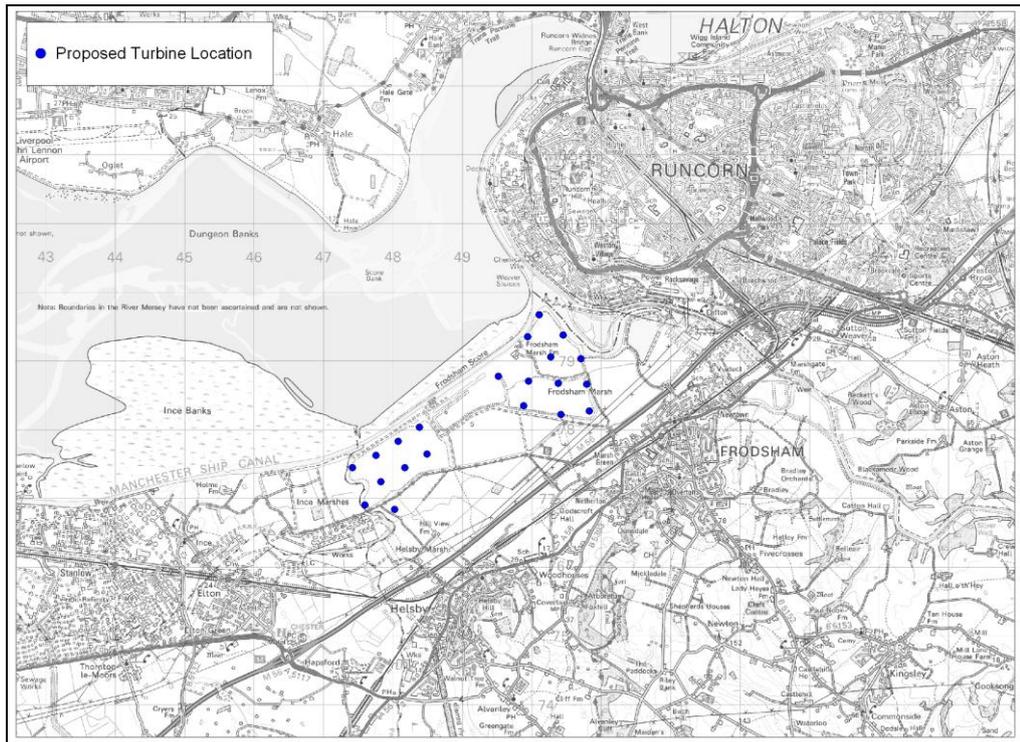
- 2.81 Design 1 depicted 23 turbines located on top of the canal deposit cell bunds as it was assumed that this would offer a better foundation option for turbines than adjacent land. This initial configuration was also intended to minimise disruption to existing tenants on the land, (Figure 2.2).
- 2.82 Only those features apparent from the Ordnance Survey 1:25,000 map were treated as a 'constraint'; this meant that the power lines were the main design influence on the layout, with factors such as telecommunications links, site ecology, planning policy etc. being discounted.
- 2.83 A rough criteria of turbine tip height + 20 metres was used to depict an offset distance from the power lines. A generic turbine spacing of 540m x 360m was chosen but this was not linked to prevailing wind direction at the site (indicated by met mast data). Within land owned by Peel this represented the initial 'maximum' capacity of the site, which at that time did not involve land owned by third parties.

**Figure 2.2: Design 1***Design 2*

- 2.84 Design 2 was developed prior to any detailed site-specific surveys being completed and proposed 21, 2.5-3 megawatt turbines with a rotor diameter of 90 m and a tower height of up to 80 m (tip height of up to 125 m). The layout was designed taking into account turbine spacing, distance from existing Shell pipeline infrastructure, disruption to radio links and proximity to nearby properties, (Figure 2.3). It was based on an approximate turbine spacing of six times the rotor diameter (540 m) in the prevailing wind direction i.e. north westerly and four times the rotor diameter (360 m) in the non prevailing wind direction (south west to north east) direction. Turbines were located close to field boundaries on arable land to minimise disruption to agricultural practices.
- 2.85 Based on this initial design layout, a number of surveys and data gathering activities were commissioned. These included:
- Assessment of wind data from the onsite 50 m met mast;
  - Wind resource modelling based on two years data;
  - Desk-based and geophysical investigations into ground conditions;
  - Desk based grid study;
  - A preliminary landscape assessment, and
  - A winter bird survey, breeding bird and passage bird survey.

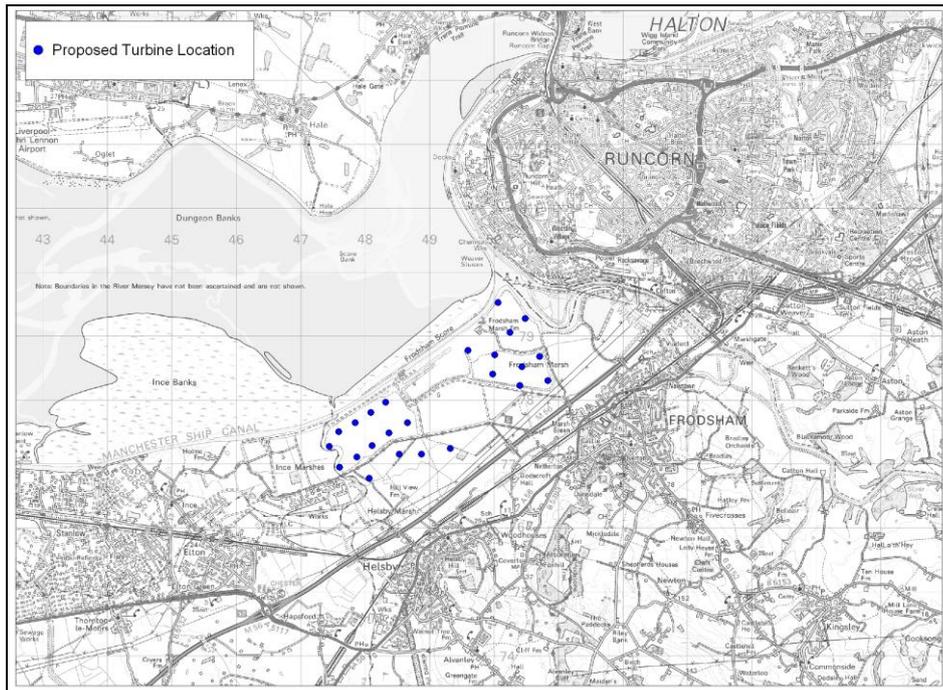
**Figure 2.3: Design 2***Design 3*

- 2.86 During 2008/2009 ornithological surveys it became evident that significant numbers of birds were feeding, roosting and moving through the area. The majority of birds present were associated with the main lagoon (indicated by the orange dot in Figure 2.4). In light of bird movements over the proposed development site the turbines were re-configured to provide a layout less likely to result in significant ornithological impacts.
- 2.87 Design 3 is based on 21, 2.5-3 megawatt (MW) wind turbines with a rotor diameter of 90 m.
- 2.88 A Scoping Report was prepared based on Design 3 and issued to the consenting authority, the Department of Energy and Climate Change (DECC) in November 2009. The points raised during the scoping process were taken forward and used to inform the ongoing design process.

**Figure 2.4: Design 3***Design 4*

- 2.89 Design 4 shown in Figure 2.5 is based on 24, 3.MW wind turbines with the same rotor diameter as Design 1 and 2 turbines. Design 3 involves the addition of 3 extra turbines to the south of the site. The capacity of the proposed project was re-engineered to increase the technical viability of the project but also to ensure that this project made a significant contribution to the UK renewable energy targets set for 2020.
- 2.90 Design 4 was subject to discussion at a design workshop. Wireframe testing was carried out using computer software to assess the design from a number of viewpoints, seeking to establish a more balanced and visually permeable arrangement as judged from a range of potential viewpoints.
- 2.91 Minor siting amendments were made to Design 4 seeking to establish a more balanced and visually permeable arrangement as judged from a range of potential viewpoints. In addition concerns were raised from an ornithological perspective that one of the new turbines was encroaching onto the preferred bird free corridor.

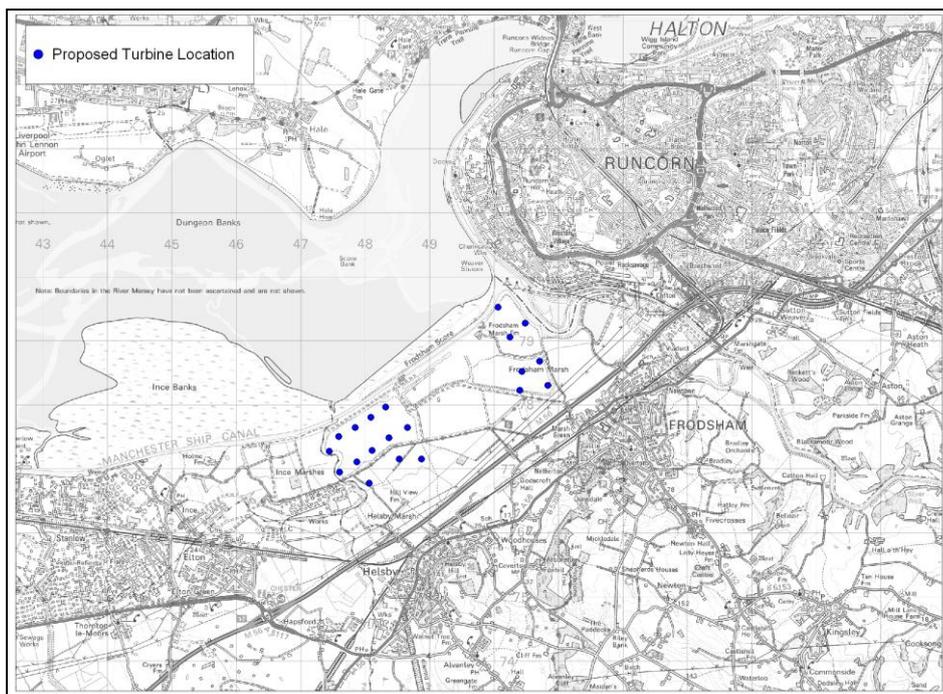
**Figure 2.5: Design 4 – 24 turbines**



*Design 5*

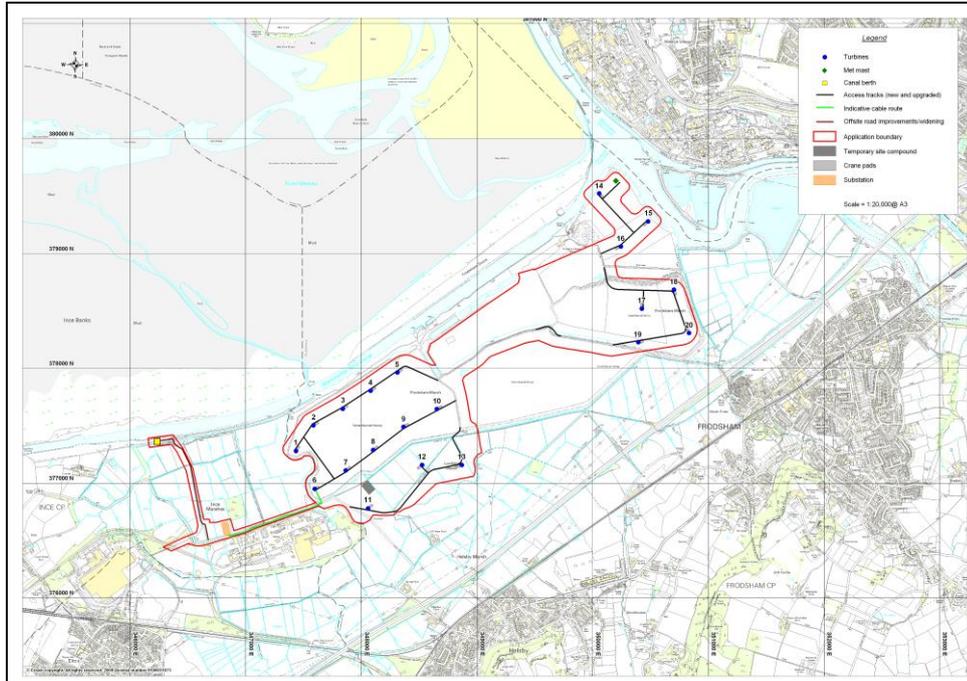
2.92 Following further landscape impact assessments and a detailed ornithological impact assessment a consensus was reached that 4 turbines needed to be removed to minimise the potential collision risk on birds, based on the current habitats onsite. A 20 turbine development was deemed to be more acceptable from both a visual and ornithological perspective (Figure 2.6).

**Figure 2.6: Design 5 – 20 turbines**



- 2.93 In summary, the project evolution resulted in an overall change in the scheme from an initial design of 23 turbines to a final design comprising 20 turbines with a tip height of 125 m. The final layout was established further to a re-assessment of the constraints identified through the EIA process.
- 2.94 Figure 2.7 shows the final design of the proposed Frodsham Wind Farm whilst features influencing the design are described below:

**Figure 2.7: Final design**



*Appropriate spacing between turbines to maximise energy capture*

- 2.95 The spacing provided in the design between turbines is a minimum of 450 m in the predominant wind direction and 270 m in the non-prevailing wind direction. This spacing ensures sufficient distance between turbines to maximise energy capture whilst minimising the overall spatial extent of the wind energy project.

*Nature conservation*

- 2.96 The wind farm has been designed taking into account Natural England guidance and advice from RSK Carter Ecological Ltd with regard to the potential impact on the Mersey Estuary SPA, Ramsar site. Appropriate buffers have been maintained between habitat features used specifically by birds, as well as bats and badgers and the wind turbines.

*Telemetry links*

- 2.97 Further to communications consultation with Ofcom and other service providers, JRC raised concerns about potential interference with their client's infrastructure. An initial assessment of impacts upon this infrastructure has been carried out and discussed with the links operator, which resulted in an appropriate buffer distance of 75-145 m being identified. No turbines have been located within this buffer in order to ensure impacts on radio links are not experienced by operators.

*Existing land uses within the site*

- 2.98 The eastern cluster of turbines is located on agriculturally improved pasture, whilst the western cluster is currently dry reedbeds. Access routes have either utilised existing tracks where possible or have otherwise been sited as close to field boundaries as possible. Access tracks, wind turbines and the temporary site compound have been sited so as to minimise land take and impacts on agricultural practices as far as practicable taking into account other environmental factors. .

*Landscape and visual effects*

- 2.99 The wind turbine layout has been designed so as to appear as a balanced feature in the countryside. The design has taken into account advice from RSK Environment Ltd as concluded in Section 11- Landscape and Visual.

*Existing human-made features in the locality*

- 2.100 Existing human made features are evident within the proposed site and also in the surrounding area. The proposed wind farm and ancillary elements including the proposed substation have been sited within and adjacent to existing man made features such as the existing active Frodsham Canal Deposit Grounds and the approved substation for the proposed Ince Resource Recovery Park, which will minimise the perception of increased human activity during both construction and operational phases.

*Distance between turbines and nearby dwellings*

- 2.101 The project has been designed in consultation with RSK Environment Ltd to ensure noise levels at nearest residences remain within the limits set out in the report ETSU R-97 'The Assessment and Rating of Noise from Wind Farms' as advised in PPS22 – Renewable Energy.

*Hydrological features*

- 2.102 Hydrological features within the site include ditches, groundwater abstraction locations and ponds. Turbines have been sited so as to avoid or minimise impact on these features further to advice from RSK STATS GeoConsult Limited and RSK Carter Ecological Ltd.

*Rights of Way*

- 2.103 Given that several rights of way pass through the site, the design ensures that they are not “oversailed” by any wind turbine blades, and interaction between construction and operational traffic and members of the public is minimised wherever possible by creating alternative access tracks.
- 2.104 A description of the proposed wind farm is presented in Section 3 – Project Description.

*Utilities – gas mains and underground electricity cables*

- 2.105 Due to the industrial processes and land uses surrounding the Mersey Estuary, there is an established utility infrastructure of gas mains and underground electricity cables, which surrounds the proposed wind farm site. An assessment of impacts upon this infrastructure was carried out which resulted in an appropriate buffer distance of 150 m and 120 m being identified. No turbines have been located within this buffer in order to ensure impacts on gas mains and underground electricity cables are minimised.

*Utilities – electricity overhead lines*

- 2.106 National Grid's policy 'Overhead Line Separation from Wind Turbines', September 2008 introduced a requirement, which sought to ensure that all new wind turbine proposals are constructed at a distance of more than five times their rotor diameter away from any overhead line.
- 2.107 However, National Grid has confirmed via correspondence with RSK Environment Ltd that they now operate on the basis of three times rotor blade diameter, based on the results of a recent research project. The rotor blades are 90 m in diameter, and hence by National Grid's statement an overhead line should be a minimum of 270 m from the nearest turbine.
- 2.108 Turbine T20 lies closest to National Grid's line at a distance of approximately 243 m, which is within National Grid's limits of tolerance

*Private – gas pipelines*

- 2.109 The proposed wind farm is located close to the established Stanlow Refinery. The wind farm has thus been designed with reference to UKOPA, Requirements for the siting of Wind Turbines close to pipelines containing hazardous fluids, and Standard Conditions for Work in Proximity to Shell UK Ltd. and Shell Chemicals Ltd. Pipelines (No ENG/P/M20/05/03).
- 2.110 An assessment of impacts upon this infrastructure was carried out which resulted in an appropriate buffer distance of 140 m being identified. No turbines have been located within this buffer in order to ensure impacts on Shell pipelines are minimised.

## Alternative Project Design

*Turbine delivery route*

- 2.111 As discussed in Section 3 Project Description, turbine components will most probably be shipped from Europe to Liverpool Dock and brought to site via the Manchester Ship Canal. If for any reason transportation of the turbine components via the Manchester Ship Canal is not possible, it will be necessary to transport the turbine components by road.
- 2.112 This would entail all vehicles accessing the site via the following route:
- M56 Eastbound or Westbound;
  - A5117 towards Stanlow;
  - Turn right into Pool Lane; and
  - At second roundabout, turn right onto private road.
- 2.113 The route is judged to be of a suitable standard to accommodate the exceptional loads if necessary with no amendments to the existing highway arrangement. However, traffic would have to be stopped to allow the exceptional loads to traverse the roundabout closest to GrowHow against the normal flow of traffic.
- 2.114 Another alternative route for turbine components is from M53 J9 via the Oil Sites Road. This route is attractive from a pure highway perspective and would require that components be delivered to Ellesmere Port. Permission would be required to use this

road as it is privately owned and access is restricted. However, it has been considered as it is a potential route and presents less highway issues.

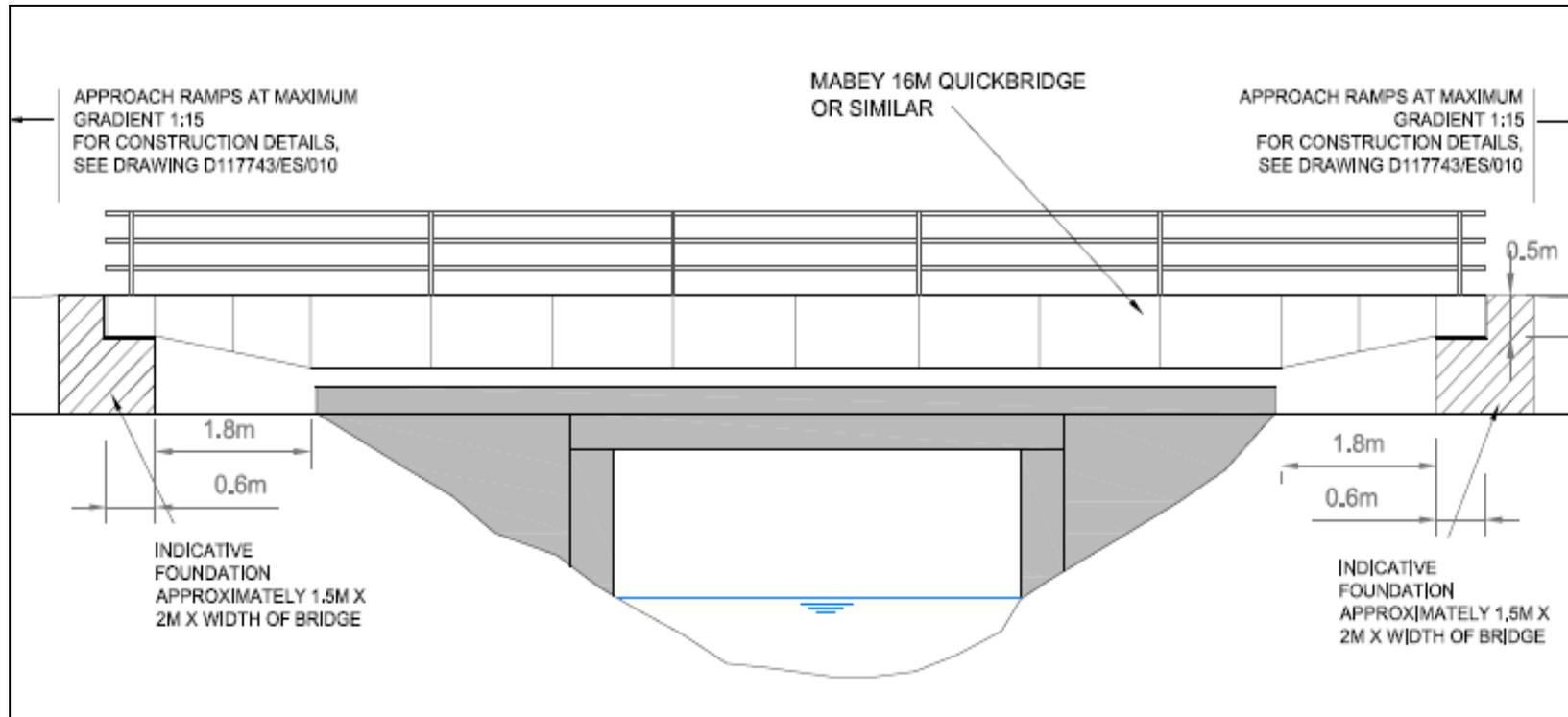
### ***Turbine Foundations***

- 2.115 The two broad piling options that are typically considered for turbine foundations are either driven (displacement) or bored / augered piles. Whilst in favourable conditions bored / augered piles have the advantage of being able to achieve the greatest embedment depths and therefore accommodate greater loads, they are typically the most expensive option where ground conditions allow.
- 2.116 Furthermore, as the equipment tends to be heavier than with driven piles, and also has the need to deploy casings and other stabilising measures, bored / augered piles were not deemed appropriate for this site.
- 2.117 With this in mind driven (displacement) piling is the preferred option for the proposed Frodsham Wind Farm site as discussed in Section 3 of this ES.

### ***Watercourse Crossings***

- 2.118 The existing bridge over Hool Pool Gutter will need to be strengthened to allow for exceptional loads. This will require either a permanent or temporary solution. For the purpose of this ES a permanent solution has been assumed (See Section 3) whilst the alternative temporary solution involving the provision of a “Bailey” bridge and associated foundations for the duration of the works only is discussed below (Figure 2.8):
- 2.119 The following works are envisaged:
- Existing safety railings to be removed;
  - 16 m span Mabey “QuickBridge” or similar to be mounted above existing structure with temporary foundations a minimum of 2 m from the existing structure;
  - Approach ramps to be provided at maximum 1:15 gradient;
  - Structure and ramps to be removed at end of works;
  - Existing safety railing to be reinstalled; and
  - Removal of foundations installed for QuickBridge, or at least removal to a depth of 600 mm below road level.

**Figure 2.8 Hool Pool Gutter – Temporary Bridge Proposal**



### ***Associated Infrastructure***

- 2.120 Peel are also considering utilising the existing canal berth on the Manchester Ship Canal for receipt of large turbine components. The need for associated offsite infrastructure works including proposed modifications/strengthening works to the existing canal berth on the Manchester Ship Canal and local road improvements/upgrades from the dock to the proposed wind farm site will depend upon timescales associated with construction of the Ince Marshes Resource Recovery Park, which has secured planning permission to upgrade the dock facilities.
- 2.121 For the purpose of this ES it is assumed that the wind farm is constructed before the Ince Resource Recovery Park is constructed (See Section 3) whilst if the wind farm is constructed after the Ince Resource Recovery Park, then the following works are envisaged:
- Provision of over-run areas on highway corners where required;
  - Upgrading of the existing Marsh Lane access track from Ince Resource Recovery Park to the main site boundary. Work will involve filling in all the potholes, providing a uniform minimum width of 4.5 m and overlaying the existing track with a nominal thickness of stone to provide a smooth running surface; and
  - Trimming of trees and vegetation during turbine delivery along Marsh Lane over a length of approximately 1.5 km to allow for minimum 5 m wide unobstructed corridor.

### **Do Nothing Scenario**

- 2.122 In accordance with best practice a “do nothing scenario” was considered. Under these circumstances the existing site would continue to be used by the Manchester Ship Canal Company as an active deposit ground separated by earth bunds, which may be reinforced (heightened) to allow the site to continue to be used for the deposition of dredgings from the Manchester Ship Canal, once the active cell (cell 6) is full.
- 2.123 Concern was raised by several statutory and non statutory consultees during the course of the current project, as to the potential impact resulting from the eventual loss of wet habitat, currently provided by the active cell 6 on the ornithological interest of the site. However it should be noted that the current use of the site by the Manchester Ship Canal Company is a licensable activity and as such, such eventual loss of habitat is outside the remit of this Environmental Statement.
- 2.124 Consideration was also given to the potential implications of a 50% development scenario. i.e. whereby only one cluster was constructed comprising of approximately 10 turbines. However Peel have confirmed that such a scenario would not be commercially viable.

## 13 Ornithology

### Introduction

- 13.1. This section considers the likely impacts of the proposed Frodsham Wind Farm on birds. The project is described in Section 3 (Project Description).
- 13.2. It is widely accepted that construction and operation of wind turbines can have significant impacts on birds, but the impacts can be variable and depend on a range of factors including the specification of the development, the topography of the surrounding land, the habitats affected and the number and species of birds present on the proposed site<sup>1</sup>. There are also a range of potential impacts; direct and indirect, associated with wind turbines. This section considers the likely effects of the proposed Frodsham Wind Farm on the avifauna of the site and the wider area.
- 13.3. This section has been prepared by RSK Carter Ecological.

### *The Proposed Frodsham Wind Farm*

- 13.4. The site of the proposed Frodsham Wind Farm comprises the Frodsham Canal Deposit Grounds and is hereafter referred to as ‘the site’ as shown in Figure 13.1.
- 13.5. The proposals are for the construction and operation of 20 turbines and associated infrastructure; including access tracks, buried cables, a substation, and one meteorological mast. The wind turbines are arranged in two, linked clusters separated by approximately 1.8 km. The exact type of turbine to be used on the site has not been confirmed, but for the purpose of this assessment it has been assumed that Vestas V90 (3 MW) turbines will be used. The Vestas V90 turbine has a hub height of 80m and blade lengths of 45 m giving a tip height of 125m.
- 13.6. The Frodsham Canal Deposit Grounds are divided into a series of ‘cells’. The western turbine-cluster is made up of 13 turbines with 10 of these turbines located in Cell 4 and a further three to be located on agricultural land to the south of this area. The eastern cluster is made up of seven turbines and is located in the eastern part of Cell 5 (four turbines) and Cell 1 (three turbines) located around Frodsham Marsh Farm. The area between the two clusters is called Cell 3 and Cell 6 and there will be no construction activity or operational turbines within these cells.
- 13.7. The habitats on the site and wider area have been described in full in Section 12 (Terrestrial Ecology).

## Legislation and Policy Context

### *National and International*

- 13.8. In the United Kingdom there is a range of national and international legislation that are relevant to wind farm developments and nature conservation; and these are listed below:

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<sup>1</sup> Drewitt, A.L. & Langston, R.H.W. 2006. *Assessing the Impacts of Wind Farms on Birds*. IBIS 148: 29-42

- The Berne Convention on Conservation of European Wildlife and Natural Habitats 1979;
- The Bonn Convention on Conservation of Migratory Species of Wild Animals 1979;
- The EC Directive on Conservation of Wild Birds 1979;
- The Wildlife and Countryside Act 1981 (as amended);
- The Convention on Biological Diversity 1992;
- The EC Directive on Conservation of Natural Habitats and of Wild Fauna and Flora 1992;
- The Conservation (Natural Habitats, & c.) Regulations 1994, and the Conservation (Natural Habitats, & c.) (Amendment) Regulations 2007;
- The Environmental Protection Act 1990; and
- The Countryside and Rights of Way Act 2000.

### ***Local Planning Policies***

13.9. Local planning policies are described in Section 4 (Planning and Energy Policy).

## **Methodology**

### ***Introduction***

13.10. The assessment of the potential impacts of the proposals on birds broadly follows the Guidelines for Ecological Impact Assessment published by the Institute of Ecology and Environmental Management (IEEM 2006). The approach set out in this section has been used to assist in the identification and assessment of the general impacts of the construction and operation of the proposed Frodsham Wind Farm. It involves the following key stages:

- Desk-study and consultation with key parties to define the scope of the assessment and to acquire background data to focus the field surveys;
- Identification of the ecological receptors likely to be affected and determination of their ecological value;
- Identification of the potential impacts to these ecological resources and assessment of whether they will have any significant impacts on their integrity or conservation status;
- Incorporation and evaluation of ecological enhancement and mitigation measures to reduce or avoid impacts and compensation measures for residual significant impacts; and
- Assessment of the overall significance of ecological impacts arising from the proposals.

### ***Scoping***

13.11. A Scoping Report (Appendix 5.2) was produced in November 2009, for the proposed Frodsham Wind Farm. The report contained a summary of ornithological surveys completed and included a copy of the wintering bird report (Technical Appendix 13.1).

The report also set out the scope of the assessment studies and responses were sought from various statutory and non-statutory consultees.

- 13.12. Further consultation with Natural England and the Royal Society for the Protection of Birds was completed to discuss and agree the approach to data collection, survey effort and assessment methodology.

### ***Background Information***

- 13.13. Background ornithological information was sought from freely available sources as well as local and national record centres. All records were sought from the site and within the area that might potentially be affected by the proposed development. The background information has been used to inform the ornithological context of the site and to quantify the baseline 'local' population of wintering, passage and breeding birds against which the predicted collisions have been assessed. There is no fixed meaning of local population level however in this context it is defined as those birds that use the site and immediate surroundings and thus might be affected by the proposed development.

### ***Field Surveys***

- 13.14. In addition to the scoping exercise and gathering of background information, the ornithological surveys described below have been completed since November 2008 to further inform the baseline conditions.

#### *Vantage Point Surveys*

- 13.15. A preliminary site visit was completed in October 2008 to identify the location and number of vantage points required to comprehensively survey the site and to gain a robust data set to inform a collision risk assessment. Vantage points were selected to allow observers to record all avian activity across the site. The vantage point observations were based on guidelines published by Scottish Natural Heritage<sup>2</sup>.
- 13.16. Three vantage points were selected in 2008/09. The selection of these vantage points was based on the original layout of the turbines as at the beginning of the project. This layout showed turbines located widely across the whole of the site including Cell 6, which preliminary assessment showed to be the focus of the majority of winter bird activity. The vantage points for the surveys completed in 2008/09 (winter) and 2009 (breeding and passage) focused survey effort around Cell 6. Ideally, surveys should be conducted looking into the site, however due to topographical constraints and the Manchester Ship Canal, the best vantage points were inside the site looking out. There was no evidence to suggest that the presence of the observers caused significant disturbance to birds or alteration to regular flight paths. The location of the 2008 and 2009 vantage points are shown the supplementary bird reports (Technical Appendices 13.1 and 13.2). Observations were undertaken from all vantage points simultaneously and observers were in regular contact with each other (via mobile phone) to ensure the quality of data collection (e.g. reduction in double counting).
- 13.17. In October 2009 the layout of the proposed wind farm was designed as two linked clusters of turbines. Four vantage points were selected for a second year of winter bird vantage point surveys. This allowed for comprehensive survey coverage of the two

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<sup>2</sup> SNH. 2005. *Survey Methods to Assess the Impacts of Proposed On Shore Wind Farm on Bird Communities*.

turbine clusters and the wider site. Surveys were completed in October, November and December 2009. Surveys will also be undertaken from these vantage in January, February and March 2010. The results of these surveys will be presented in an Ornithological Addendum to this section of the ES. The addendum will be issued on completion of the 2010 surveys. The locations of, and the areas covered by these vantage points are shown in Figure 13.1.

- 13.18. The change in the number of vantage points from 2008/09 to 2009/10 is as a result of the change in the layout of the turbines. The current layout of the turbines was influenced by the results of the 2008/09 surveys and resulted in the incorporation of a safe flight channel across Cell 3, (See Section 2, Figure 2.4). The surveys completed in winter 2009 further informed the design layout with three turbines being removed; two from the western part of Cell 5 and one from Cell 2. The iterations to the design layout are discussed in Section 2.
- 13.19. Vantage point surveys aim to identify flight-paths and activity of all species on the site and also allow regularly used flight lines to be identified. Special attention was given to particular at-risk species or species of particular conservation concern; e.g. swans, geese, ducks, raptors and wading birds.
- 13.20. The following information was collected during each vantage point survey:
- Species;
  - Number of birds;
  - Age and Sex (if known);
  - Activity;
  - Flight Direction; and
  - Flight height.
- 13.21. The surveys were completed by field ornithologists with experience in vantage point surveys. However, to reduce observer error, associated with recording subjective information, the flight heights were recorded in bands.
- 13.22. Twenty-eight visits to the site were made since November 2008. Additional surveys will be carried out in January – March 2010 to complete a second full winter vantage point survey. All surveys were timed to coincide with the high tide, as this is the period of highest bird activity on the site. However start and finish times of the surveys were stratified to cover a range of tidal cycles; e.g. low to high tide and high to low.
- 13.23. Details of the survey dates, times, tide information and weather conditions for the surveys completed from November 2008 to September 2009 are given in Technical Appendices 13.1 and 13.2. The results of the surveys completed from October to December 2009 have been analysed for the purpose of this section but have not been presented in a report. The details of the dates, times, tides and weather conditions of the surveys completed in winter 2009 are given in Table 13.1 below.

**Table 13.1: Details of Winter Bird Survey 2009-2010**

Visit	Date	Survey Time	High Tide and Height (m)	Weather Conditions
Visit 1	08/10/09	08:30 to 15:30	13:38 9.2	Occasional showers and cool. North-westerly wind, Force 3
Visit 2	22/10/09	08:00 to 16:00	14:30 8.9	Sunny intervals but cold. South-easterly wind, Force 3
Visit 3	05/11/09	08:00 to 15:00	12:41 9.5	Overcast with heavy showers. Westerly wind, Force 4
Visit 4	19/11/09	08:00 to 15:00	12:30 8.9	Overcast but dry. South-westerly wind, Force 7
Visit 5	03/12/09	08:00 to 13:00	11:43 9.6	Persistent rain and cold. North-westerly wind, Force 5
Visit 6	17/12/09	09:00 to 13:30	11:47 9.2	Cold but dry and sunny. North-easterly wind, Force 3

- 13.24. Two, three hour blocks of observation were completed at each vantage point on each survey visit. Between 30 minutes and an hour break was taken between each block to reduce observer fatigue and thereby reduce observer error.
- 13.25. In 2008-2009, each of the three vantage points were observed for 60 hours of winter bird survey, 36 hours of breeding bird survey, and 36 hours of summer/passage bird survey.
- 13.26. During winter bird surveys in 2009 (October – December), there were four vantage points, each of which was observed for 36 hours, with a further total 36 hours observation per vantage point to be completed in January, February and March 2010.
- 13.27. In total the site has been covered by 540 hours of vantage point observations, consisting of 324 hours of winter observation and 108 each of breeding and summer/passage observations.

#### *Night Surveys*

- 13.28. Night surveys have been completed once per month since November 2008 resulting in a total of 14 surveys. Surveys were, where possible, timed to coincide with the high tide and were completed for a period of between 4 and 6 hours from dusk or in the hours before dawn. Each survey consisted of a site walkover by two ornithologists who recorded all species seen or heard during the survey. Night vision binoculars were also used to assist in identification, to at least family level, though species were generally identified by call. Where significant flight activity was encountered, an estimation of flight height and direction was made.

#### *Breeding Birds*

- 13.29. The survey methodology was based on the Breeding Bird Survey (BBS) methodology devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the

Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC), (Gilbert et al. 1998).

- 13.30. Three visits were undertaken between late-March and early-July, with each visit four weeks apart. On each visit, an identical route (transect) was walked incorporating all areas suitable for breeding birds.
- 13.31. All surveys were undertaken early in the morning at least one hour after sunrise to coincide with the period of peak bird activity. All birds seen or heard were recorded onto base maps along with notes of behaviour that may indicate breeding. The details of the surveys are given in the Breeding and Passage Bird Report (Technical Appendix 13.2).
- 13.32. Three breeding bird walkover surveys were completed in 2009, covering all areas of the site. Where incidental records of breeding activity were recorded during other ornithological or ecological surveys, the information was incorporated.

### ***Assessment Methodology***

#### *Identification of Impacts*

- 13.33. Potential impacts have been identified through scoping, consultation, previous experience of similar projects and information provided in the project description as detailed in Section 3.
- 13.34. The potential impacts of the project on birds are considered to be:
- Habitat loss or reduction in habitat quality, both temporarily during construction and permanently during operation;
  - Collision mortality through direct collision with the turbine structures;
  - Displacement from breeding, roosting and feeding habitats because of disturbance (construction and operation);
  - “Barrier effect”; and
  - Shadow flicker.
- 13.35. The barrier effect is the potential for a turbine, or a group of turbines, to alter migration flyways or local flight paths of birds by acting as a barrier to the flight path. This potential effect is of concern because of the possibility of increased energy expenditure when birds have to fly further in order to avoid the turbines<sup>3</sup>.
- 13.36. When the sun shines through the moving rotors of a wind turbine, it produces moving shadows on the surface. The resulting “shadow flicker” has the potential to disturb birds. The effects of shadow flicker are not fully understood and are poorly researched. It is possible that the shadow cast by the turbines may result in a negative impact by disturbing birds that are feeding, roosting or breeding within the shadow flicker zone. The shadow flicker zone is considered to be ten times the rotor diameter and will be at its greatest in the winter months when the sun is at its lowest angle.

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<sup>3</sup> Drewitt, A.L. & Langston, R.H.W. 2006. *Assessing the Impacts of Wind Farms on Birds*. IBIS 148: 29-42

*Assessment of Impacts – Principles*

- 13.37. Having identified the possible impacts the first stage of the approach to ecological aspects of EIA described in IEEM (2006) is termed ‘determining value’. It involves the description and evaluation of the ecological receptors that occur on the site or within the likely range of influence of the proposed activities. IEEM (2006) places the emphasis on identifying different aspects of ecological value, e.g. designation, biodiversity value, potential value, social value, economic value and legal protection. These values are applied to the receptors within a defined geographical context using the following categories:
- International (*i.e.* Europe);
  - UK and national (England);
  - Regional (North West);
  - County (Cheshire);
  - District (Frodsham); and
  - Local or site.
- 13.38. The guidelines also stress consideration of the likelihood that: ‘a change/activity will occur as predicted and also the degree of confidence in the assessment of the impact on ecological structure and function’.
- 13.39. Likelihood is then specified in the following terms:
- Certain (95% probability or higher);
  - Probable (50-94% probability);
  - Unlikely (5-49% probability); or
  - Extremely unlikely (less than 5% probability).
- 13.40. In an ES, it is hard not to use these words in their ordinary English senses, and we have not attempted to avoid it; where the special meanings are particularly intended in the text these terms (e.g. probable, unlikely etc.) are enclosed in single quotation marks. In Table 13.9 they always have the special meanings.
- 13.41. Following evaluation of the value of the receptor, the guidelines address the prediction of the adversity of the impacts (positive or negative not neglecting the former) and the magnitude of the impacts - broadly the level of severity of their influence - on a descriptive and as far as possible quantitative basis, having regard to the following considerations.
- *Extent*. This refers to the size of the area which is subject to a predicted impact. This is described on a quantitative basis wherever possible;
  - *Duration*. This refers to the time for which the impact is expected to last prior to recovery or replacement of the resource or feature;
  - *Reversibility*. Impacts are categorised as either
    - Reversible, when recovery is possible through natural or spontaneous regeneration, or through the implementation of mitigation measures; or
    - Irreversible, when no recovery is possible within a reasonable timescale or there is not an intention to reverse the impact.

- *Timing and Frequency.* Some impacts may only be significant if they coincide with critical life-stages or seasons e.g. the bird nesting season. This may be avoided through careful scheduling of the relevant activities. The frequency of an activity, and therefore the resulting impacts, need to be considered as this influences the significance of the impact.
- 13.42. The risk of collision mortality has been predicted using the SNH/BWEA approach and this is discussed in more detail in Paragraph 13.49.
- 13.43. In this section the significance of residual impacts are discussed, i.e. the significance of the impact that is predicted to remain after implementation of committed mitigation measures.
- 13.44. The approach to ecological aspects of EIA stipulated described in IEEM (2006) requires that significance should be assessed on an identified receptors biodiversity value, potential value, social value, economic value and legal protection. There are two key aspects to the approach; first, what constitutes a significant ecological impact is determined in relation to the concept of ‘integrity’ (defined below) and second the impact is always described in relation to a geographical context using the geographical descriptors discussed in Paragraph 13.37 (usually it will also be qualified by a statement of likelihood).
- 13.45. Thus, an impact is described as significant if it affects the integrity of an ecological receptor, integrity being defined as:
- ‘...the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified’<sup>4</sup>.
- 13.46. The impact is then significant at the level where the ecological receptor has value, e.g. national for a SSSI. An impact that does not affect the integrity of a receptor may still be significant at some geographical level below that at which the receptor was deemed to be valuable, e.g. loss of common birds may not affect the integrity of an SPA valued at international level, but it may still be a significant impact at the local level.

#### *Determination of Geographical Value of Ornithological Receptors*

- 13.47. The valuation of the ornithological receptors was determined following the methods outlined above with additional consideration given to legal, population and conservation status of individual species. Factors to be considered when determining the value of the bird species using the site included the following:
- Legal protection (e.g. species listed on Schedule 1 of the *Wildlife and Countryside Act 1981*);
  - Species occurring in internationally or nationally important numbers. The criteria for assessing the international importance of wetlands have been agreed by the Contracting Parties to the Ramsar Convention on Wetlands of International Importance. Under criterion 6, a wetland is considered internationally important if it regularly holds at least 1% of the individuals in a population of one species or subspecies of waterbird. A wetland in Britain is considered nationally important if it regularly holds 1% or more of the estimated British population of one species or subspecies of waterbird. The 1% thresholds for British and international

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<sup>4</sup> From OPDM Circular 06/2005 and Defra Circular 01/2005 Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System.

populations for species which occur at Frodsham are listed below; they are taken from the latest Wetland Bird Survey Report <sup>5</sup>.

**Table 13.2: International and National Thresholds**

Common Name	Scientific Name	1% threshold for national importance	1% threshold for international importance
Common Shelduck	<i>Tadorna tadorna</i>	782	3,000
Eurasian Teal	<i>Anas crecca</i>	1,920	5,000
Great Cormorant	<i>Phalacrocorax carbo</i>	230	1,200
Ringed Plover	<i>Charadrius hiaticula</i>	330	730
European Golden Plover	<i>Pluvialis apricaria</i>	4,000	9,300
Northern Lapwing	<i>Vanellus vanellus</i>	6,200	20,000
Dunlin	<i>Calidris alpina</i>	5,600	13,300
Black-tailed Godwit	<i>Limosa limosa</i>	150	470
Common Greenshank	<i>Tringa nebularia</i>	6 (50)*	2,300
Lesser Black-backed Gull	<i>Larus fuscus</i>	500	5,500
Herring Gull	<i>Larus argentatus</i>	4,500	5,900
* Where 1% of the British wintering population is less than 50 birds, 50 is normally used as a minimum qualifying level for national importance.			

#### Birds of Conservation Concern;

13.48. Leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of 247 bird species regularly found in Britain and produced an updated Birds of Conservation Concern 3: the population status of birds in the UK, Channel Islands and the Isle of Man (Eaton et al, 2009)<sup>6</sup>. Birds are placed into one of three lists - red, amber or green and although these listings offer no further legal protection, they are meant to help guide conservation action for individual species.

○ Red List Species;

These are species of high conservation concern. They are Globally Threatened according to IUCN criteria, and include:

- Those whose population or range has declined rapidly in recent years; and
- Those that have declined historically and not shown a substantial recent recovery.

○ Amber List Species;

<sup>5</sup> Holt, C.A *et al.* (2009). Waterbirds in the UK 2007/08: The Wetland Bird Survey. BTO/WWT/RSPB/JNCC, Thetford.

<sup>6</sup> Eaton *et al.* 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp 296-341. 2009

These are species of medium conservation concern. They have an unfavourable conservation status in Europe, and include

- Those whose population or range has declined moderately in recent years;
  - Those whose population has declined historically but made a substantial recent recovery;
  - Rare breeders; and
  - Those with internationally important or localised populations.
- Green List Species.

These are the remaining species with stable or increasing populations and that are presently not of conservation concern.

### *Collision Risk Assessment*

- 13.49. Collision risk modelling has been undertaken to further inform the likelihood of potential adverse effects on bird populations occurring. The collision risk model used in this assessment is the one developed by SNH and BWEA (Percival et al. 1999<sup>7</sup>, Band et al. 2005<sup>8</sup>). Details of the model are given in these two publications. The model runs as a two-stage process. Firstly the risk is calculated making the assumption that flight patterns are unaffected by the presence of the wind turbines i.e. that no avoidance action is taken. This is essentially a mechanistic calculation, with the collision risk calculated as the product of (i) the probability of a bird flying through the rotor swept area, and (ii) the probability of a bird colliding if it does so. This probability is then multiplied by the estimated numbers of bird movements through the wind farm rotors at the risk height (i.e. the height of the rotating rotor blades) in order to estimate the theoretical numbers at risk of collision if they take no avoiding action. For the purpose of this assessment the ‘at risk’ height has been taken as all birds observed flying at heights between 25 and 125 m.
- 13.50. The second stage of the collision risk analysis incorporates the probability that the birds, rather than flying blindly into the turbines, will actually take a degree of avoiding action. This avoidance rate is assumed to be 95% for all species occurring on the site with the exception of Common Kestrel, which have an assumed avoidance rate of 85%. The model then predicts the likely number of annual collisions of each particular species. The number of predicted collisions is then assessed against the total local population to ascertain the level or significance of any impacts. Local population levels have been calculated using data provided by Cheshire and Wirral Ornithological Society (CAWOS). International and national population levels are taken from published sources. In this context, the magnitude of the effect has been determined as a percentage of a bird’s population at the relevant geographic level. Thus mortality over 1% may be locally significant but may not be significant in a wider context.

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<sup>7</sup> Percival, S. M., B. Band, and T. Leeming. 1999. Assessing the ornithological effects of wind farms: developing a standard methodology. Proceedings of the 21st British Wind Energy Association Conference:161-166.

<sup>8</sup> Band, W. et al. 2005. Developing Field and Analytical Methods to Assess Avian Collision Risk at Wind Farms. In De Lucas, M., Janss, G. and Ferrer, M., eds. *Birds and Wind Power*. [REDACTED]

*Collision Risk Model Input Data*

- 13.51. The collision risk model requires data relating to the species of birds occurring at the proposed wind farm, and to data on the type and specification of the proposed turbines. The input data is described below:

Bird size and flight speed;

- 13.52. The biometric data used in the collision risk model has been taken from various sources. Most of the data on bird body size were taken from Cramp (1998)<sup>9</sup>, and flight speeds from Campbell and Lack (1985)<sup>10</sup>. Where data was not available for body size it was taken from Jonsson (1992) and is marked with an (\*) in the table below. Flight speeds for Northern Shoveler, Little Stint and Ruff were researched and are referenced accordingly. This data is summarised in Table 13.3 below.

**Table 13.3: Bird Biometric Data**

Common Name	Flight Speed (m/sec)	Average Body Length (m)	Average Wing Span (m)
Mute Swan	16.20	1.525	2.23
Pink-footed Goose	17.88	0.675	1.525
Canada Goose	16.70	0.95	1.675
Common Shelduck	15.40	0.625	1.215
Eurasian Teal	19.70	0.36	0.61
Mallard	18.50	0.575	0.895
Northern Shoveler	17.88 <sup>11</sup>	0.505 *	0.77 *
Tufted Duck	21.10	0.435	0.73
Great Cormorant	15.20	0.9	1.45
Grey Heron	11.20	0.94	1.85
Common Buzzard	13.30	0.54	1.205
Common Kestrel	10.10	0.335	0.755
Eurasian Hobby	11.30	0.33	0.87
Peregrine	12.10	0.42	1.025
Eurasian Oystercatcher	13.00	0.425	0.83
European Golden Plover	17.90	0.275	0.715
Grey Plover	17.90	0.285 *	0.77 *
Northern Lapwing	11.90	0.295	0.845
Red Knot	20.10	0.24 *	0.505 *

<sup>9</sup> Cramp, S. 1998. Handbook of the Birds of Europe, the Middle East and North Africa. CD-ROM. Oxford University Press, Oxford.

<sup>10</sup> Campbell, B., and E. Lack. 1985. A dictionary of birds. T. and A.D. Poyser.

<sup>11</sup> Retallic and Barker (2008). *Wingshooter's Guide to Idaho Upland Birds and Waterfowl*, 2<sup>nd</sup> Edition. Wilderness Adventures Press Inc., Belgrade.

Common Name	Flight Speed (m/sec)	Average Body Length (m)	Average Wing Span (m)
Little Stint	15.30 <sup>12</sup>	0.13 *	0.295 *
Dunlin	15.30	0.18	0.405
Ruff	19.44 <sup>13</sup>	0.29 *	0.52 *
Common Snipe	17.10	0.26	0.455
Black-tailed Godwit	18.30	0.42	0.76
Eurasian Curlew	16.30	0.55	0.9
Common Redshank	12.30	0.28	0.5

#### Bird Flight Activity and Flight Height;

- 13.53. Data on bird flight activity through the proposed Frodsham Wind Farm and on the proportion of those birds flying at rotor height were taken from the field surveys completed by RSK in 2008 and 2009. Further studies are being completed in January – March 2010 and the results of these surveys will be reported accordingly.

#### Wind Farm Parameters;

- 13.54. The current proposals are for the construction and operation of 20 turbines on the proposed Frodsham Wind Farm, each of which would have a 90 m rotor diameter and up to an 80 m tower (125 m to blade tip). The assessment presented in this section has used the technical specification for the Vestas V90 (3 MW) machine as this or a similar type of machine will be used at the site. The technical specifications used in the collision risk model are shown below.

**Table 13.4: Wind Farm and Turbine Information**

Model Input Variable	Input Value	Comments
Number of Turbines	20	7 turbines proposed for the East Cluster, 13 turbines proposed for the West Cluster
Rotor Diameter	90 m	Information provided by Vestas
Rotor Speed	9.6 – 17 rpm	Data used to work calculate rotation period. As speed is variable highest value was used.
Number of blades	3	-
Maximum Chord	3.152 m	Information provided by Vestas
Depth	2 m	Information for Vestas 90 not made available. 2 m used on other studies with comparable sized turbines.
Pitch	Variable 0 – 90 degrees	90 degrees used in the collision risk model as this will be pitch at optimum generation and will present the greatest surface area of blade and thus increase likelihood of collision.

<sup>12</sup> No data available – flight speed for Dunlin used.

<sup>13</sup> OAG Munster, O.A.G. (1998). *Mass of Ruff Philomachus pugnax wintering in West Africa*. International Wader Studies 10: 435-440.

Model Input Variable	Input Value	Comments
Swept Area	6362 m <sup>2</sup>	Information provided by Vestas
Proposed Frodsham Wind Farm Area (including 500m buffer around turbines)	East Cluster - 3,489,000 m <sup>2</sup> West Cluster - 3,628,000 m <sup>2</sup>	Information provided by GIS Team

#### Seasonality of Bird Activity; and

- 13.55. For the purpose of this assessment, the model has been run separately for each cluster of turbines and on the data gathered for the winter bird season and the breeding and passage season to more accurately reflect (i) the seasonality in avian activity across the site, and (ii) the variation in avian activity within each cluster of turbines. The predicted number of collisions from both the east and west clusters have been combined for each season.

#### Avoidance Rates.

- 13.56. As discussed above, an important stage of the collision risk model is to incorporate an avoidance rate to take into account the fact that birds take a degree of avoiding action when approaching structures such as wind turbines. Current recommended SNH guidance is to apply a 95% avoidance rate as a precautionary value where specific values from studies at existing wind farms are not available. No additional data is available to reasonably justify using a higher avoidance rate value for this assessment; and therefore, the 95% avoidance rate has been used throughout the modelling process. It should be noted however that the 95% avoidance rate is considered very precautionary and is itself not supported by any empirical data. Most post-construction studies of wind farms show an observed avoidance rate higher than 95%.
- 13.57. Anecdotal evidence suggests that Common Kestrel exhibit poor avoidance behaviour and so an avoidance rate of 85% has been used for this species.

## Baseline Conditions

### *Scoping*

- 13.58. Scoping responses relating to ornithology were received from the following organisations:
- Department of Energy and Climate Change;
  - Cheshire West and Chester Council;
  - Natural England;
  - Royal Society for the Protection of Birds; and
  - Cheshire and Wirral Ornithological Society.
- 13.59. All issues and concerns raised within these responses have been noted and are considered and discussed in full in this section.

## **Background Information**

### *Ornithological Context of the Site - SPA/Ramsar/SSSI Qualifying Species*

#### *Mersey Estuary SPA Qualifying Species*

- 13.60. The Mersey Estuary qualifies under **Article 4.1** of the Directive (79/409/EEC) by regularly supporting nationally important numbers of wintering European Golden Plover and under **Article 4.2** of the Directive (79/409/EEC) by supporting wintering and passage populations of Common Shelduck, Eurasian Wigeon, Eurasian Teal, Northern Pintail, Great Crested Grebe, Ringed Plover, European Golden Plover, Grey Plover, Northern Lapwing, Dunlin, Black-tailed Godwit, Eurasian Curlew and Common Redshank at levels of European importance and by regularly supporting at least 20,000 waterfowl.

#### *Mersey Estuary Ramsar Qualifying Species*

- 13.61. The Mersey Estuary Ramsar qualifies under Ramsar criterion 5 with an internationally important assemblage of wintering waterfowl and also under Ramsar criterion 6 with populations of Common Shelduck, Eurasian Teal, Northern Pintail, Dunlin, Black-tailed Godwit and Common Redshank populations at levels of international importance. Nationally important assemblages of Eurasian Wigeon, Ringed Plover, Eurasian Curlew, Spotted Redshank and Common Greenshank are also listed on the Ramsar citation.

#### *Mersey Estuary SSSI*

- 13.62. The Mersey Estuary SSSI is cited as an internationally important site for wildfowl consisting of large areas of intertidal sand and mudflats. The birds feed on the rich invertebrate fauna of the intertidal sediments as well as plants and seeds from the salt-marsh and adjacent agricultural land. In 1980–81 the estuary had the highest monthly count of wildfowl of any British site; 57,700 birds. The most important species over the period 1978–83 were Northern Pintail (17% of the total western European population), Eurasian Teal (12%), Common Shelduck (7%) and Eurasian Wigeon (2%). In 1982–83 the estuary had the 16th highest monthly count of waders of any British site, at 26,593 birds. The most important species over the period 1978–83 was Dunlin (1%). However, nationally important numbers of Eurasian Curlew, Common Redshank and European Golden Plover were also recorded.
- 13.63. The SSSI citation also mentions the Manchester Ship Canal, which forms part of the southern boundary of the SSSI and the northern boundary of the proposed development. The canal separates a series of pools from the main estuary and the citation states that these pools, together with Hale Marsh, are important roosting sites for wildfowl and waders at high tide.

#### *Cheshire and Wirral Ornithological Society (CAWOS)*

- 13.64. Data was returned by CAWOS for ornithological records at the development site and the wider area. A comprehensive data set covering the period 2001 to 2008 was returned by CAWOS relating to many thousands of records. The data was summarised to cover the development site only and the period 2004 to 2008. The data provided by CAWOS has been used to inform the local bird populations of each species by taking a mean of the peak annual (or seasonal) count. Breeding population levels for Frodsham have been taken from a mean of 2006 data as contained in the Cheshire Bird Report published by CAWOS and have been supplemented by surveys on the site. These population levels have been used to assess the significance of the collisions predicted by the collision risk model at the local level.

13.65. Populations of national and international significance recorded by CAWOS members are shown in Table 13.5 below.

**Table 13.5: CAWOS Summarised data showing populations of birds occurring at Frodsham\***

Common Name	Latin Name	Year	Month	Peak Counts
Common Shelduck	<i>Tadorna tadorna</i>	2007	Feb	1926
Eurasian Teal	<i>Anas crecca</i>	2004	Jan	3450
Great Cormorant	<i>Phalacrocorax carbo</i>	2007	Sep	300
Ringed Plover	<i>Charadrius hiaticula</i>	2004	Sep	400
		2006	Sep	700
		2007	Aug	475
		2008	Aug	450
European Golden Plover	<i>Pluvialis apricaria</i>	2004	Dec	5000
		2005	Jan-Feb	2500
			Oct-Dec	3000
		2007	Jan-Mar	3500
			Nov-Dec	3600
		2008	Jan-Mar	2800
Nov-Dec	3500			
Northern Lapwing	<i>Vanellus vanellus</i>	2006	Jan	5000
			Dec	5800
		2008	Jan	8000
			Feb	5500
Dunlin	<i>Calidris alpina</i>	2004	Aug	20000
			Oct	10000
			Nov	10000
			Dec	8000
		2007	Jan	9000
			Feb	12000
			Mar	7000
			Sep	6000
	Oct	12000		
	Nov	8000		

Common Name	Latin Name	Year	Month	Peak Counts
			Dec	15000
		2008	Jan	8000
			Feb	10000
			Nov	9000
			Dec	5600
Black-tailed Godwit	<i>Limosa limosa</i>	2004	May	1000
		2005	Jul	383
		2006	Jul	1100
			Aug	1250
		2007	Jul	600
Common Greenshank	<i>Tringa nebularia</i>	2005	Aug	10
Lesser Black-backed Gull	<i>Larus fuscus</i>	2004	Jan	500
Herring Gull	<i>Larus argentatus</i>	2004	Jan	5000
*Nationally (Blue) or Internationally (Red) Important Numbers				

- 13.66. Table 13.5 shows that the site supports internationally important numbers of Dunlin and Black-tailed Godwit. Nine species; Common Shelduck, Eurasian Teal, Great Cormorant, Ringed Plover, European Golden Plover, Northern Lapwing, Common Greenshank, Lesser Black-backed Gull and Herring Gull, have previously occurred on the site in nationally important numbers. Both species recorded in internationally important numbers; Dunlin and Black-tailed Godwit, are listed on the SPA citation. Four species recorded in nationally important numbers; Common Shelduck, Ringed Plover, European Golden Plover and Northern Lapwing are also listed on the SPA citation. With the exception of Ringed Plover all of these species are noted as occurring in significant numbers during the winter periods; Ringed Plover occurs in important numbers at Frodsham in autumn passage.
- 13.67. Records of breeding birds were also included in the data provided by CAWOS. The habitats present on the site support a diverse and varied assemblage of breeding passerine species. The main 'at risk' species breeding on the site is Northern Lapwing. The number of breeding pairs historically occurring on the whole site are summarised in Table 13.6 below.

**Table 13.6: Summary of number of breeding pair (bp) of Northern Lapwing recorded at Frodsham from 2004 - 2008**

Common Name	Latin Name	Year	Month	Peak Counts
Northern Lapwing	<i>Vanellus vanellus</i>	2004	Breeding	100 bp
		2005	Breeding	100 bp
		2006	Breeding	40 bp
		2007	Breeding	No data
		2008	Breeding	30-40 bp

- 13.68. These results show that the breeding population of Northern Lapwing on the site has been in steady decline since 2005, mirroring the national decline of this species.

*Wetland Birds Survey (WeBS)*

- 13.69. The Wetlands Bird Survey is a national census survey organised in the most part by local co-ordinators on behalf of the British Trust for Ornithology (BTO), Wildfowl and Wetlands Trust (WWT), Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC). Data was requested specific to the site; however, Frodsham has not been subject to many WeBS visits. Data was available from the late 1990s; however, this was not requested as this is considered to be out of date. Additional data was available for a part survey of the site in 2008. Again this was not requested from the BTO due to the incompleteness of the data set and because of the quality of the data made available by CAWOS.
- 13.70. Data has been used from the combined WeBS reports published by the BTO, WWT, RSPB and JNCC to contextualise the local avifauna (Frodsham) in terms of the sites importance within the Mersey Estuary.

*Winter Bird Surveys (November 2008 to March 2009)*

- 13.71. Vantage and winter activity surveys were completed by RSK from November 2008 to March 2009. The full report of these surveys is included in the Technical Appendices. No species were recorded in internationally significant numbers and only three species recorded exceeded the threshold for national significance; European Golden Plover Dunlin and Black-tailed Godwit. The peak counts for these species are shown in Table 13.7.

**Table 13.7: Important Peak Counts Recorded October 2008 – March 2009 (figures in brackets indicates tide height)**

Species	November		December		January		February		March	
	1 (8.9)	2 (8.42)	1 (7.86)	2 (8.56)	1 (9.28)	2 (9.23)	1 (9.87)	2 (8.2)	1 (9.94)	2 (7.65)
European Golden Plover	2100	3289	1760	1730	483	750	1250	861	195	187
Dunlin	5800	925	503	80	10500	500	10500	70	825	2
Black-tailed Godwit	219	83	79	-	102	103	26	52	94	172

- 13.72. Twelve Mersey Estuary SPA/Ramsar qualifying species were recorded in 2008/09. These were Common Shelduck, Eurasian Wigeon, Eurasian Teal, Northern Pintail, Great Crested Grebe, Ringed Plover, European Golden Plover, Grey Plover, Northern Lapwing, Dunlin, Eurasian Curlew and Common Redshank. Peak numbers of European Golden Plover exceeded the 5 yr mean peak Mersey Estuary population. Peak numbers of Northern Lapwing represented over 40 % of the total SPA/Ramsar mean population and Grey Plover, Dunlin, Black-tailed Godwit and Eurasian Curlew peak numbers represented between 22% and 27 % of their Mersey Estuary populations.
- 13.73. The remaining SPA qualifying species were recorded in numbers considered to be not significant. The majority of the SPA/Ramsar qualifying species recorded were concentrated in the active deposit ground; Cell 6 or feeding/roosting in the north-west corner of Cell 5.

### *Bird Movements*

- 13.74. The main movements of birds over the proposed Frodsham Wind Farm area were between the Mersey Estuary and Weaver Bend to and from the lagoon at Cell 6. The most frequent direction of flights from the Mersey Estuary, were south over Cell 3 to Cell 6 and the grazed fields at Cell 5. There were also regular movements of birds returning to the Mersey Estuary flying north over Cell 3. Birds were also recorded moving regularly north and south between Cells 5 and 6 to feed and roost and also to avoid predators.
- 13.75. North-westerly movements of birds over the site were not particularly frequent but the large flocks of Dunlin, and one significant movement of Grey Plover, which often roosted on the lagoon at Cell 6 at high tide, generally departed out of the active lagoon at the north-west corner of Cell 6 and then headed back to the Mersey Estuary over Cell 3. Some bird species, such as Common Shelduck and Great Cormorant, were frequently observed flying out of the lagoon to the west and north-west and returning in an easterly or north-easterly direction; again over Cell 3.
- 13.76. Regular movements of birds were noted flying south-west over the site from the Weaver Bend to Cells 5 and 6. The majority of these movements were within a 500m buffer around the proposed Frodsham Wind Farm but were not actually within the area swept by the blades of the proposed turbines.
- 13.77. Movements beyond the southern boundary of Cell 6 were limited. The exception to this was some movements of Northern Lapwing that were recorded feeding in the arable fields adjacent to the M56 motorway. This movement of Northern Lapwing was recorded early in the winter season soon after the fields were ploughed.
- 13.78. Disturbance of birds feeding and roosting on and around the lagoon at Cell 6 was mainly caused by raptors such as Peregrine Falcon and Merlin passing through the area and low flying light aircraft or helicopters. This often resulted in large flocks of birds taking flight. These flocks generally flew up high and circled within the confines of the lagoon. The large feeding and roosting flocks of European Golden Plover and Northern Lapwing together with smaller numbers of Dunlin, Eurasian Curlew and Common Redshank that fed and roosted in the north-west corner of Cell 5 suffered similar disturbance events. These flocks would circle around the north-west corner of Cell 5, within Cell 2 as well as moving over the bund to Cell 6 with smaller movements observed within the proposed eastern cluster of turbines in Cell 5 and over Cell 1 by Frodsham Marsh Farm.
- 13.79. Significant numbers of birds were observed feeding, roosting and moving through the entire site. Most birds present were associated with the lagoon and sludge areas of Cell

6 with the wildfowl feeding and loafing on and around the open water at the eastern end of the lagoon, and waders feeding and roosting on the exposed and sparsely vegetated mud, mainly in the western half of Cell 6. The wetter area in the north-west corner of the grazed grass fields of Cell 5 also attracted large flocks of waders, notably European Golden Plover and Northern Lapwing. Both these species were also recorded in smaller number in the fields of Cell 1 adjacent to Frodsham Marsh Farm.

- 13.80. Movements of birds over the site were frequent with significant numbers moving between the Mersey Estuary over Cell 3 to Cell 6 at and around high tide.

### *Flight Heights*

- 13.81. A bird movement is defined as a single movement of a bird across the survey area. Thus ten bird movements may relate to a single bird observed flying across the site ten times or a flock of ten birds flying across the site once.
- 13.82. 35,737 bird movements were recorded between 75 and 100m with 32,521 recorded between 50 and 74m. Regular but less frequent movements were recorded at heights lower than this. These movements represent all bird movements across the site and the total number of birds recorded flying through the area of the proposed turbines was a fraction of the total number of flight movements recorded. The high numbers of birds recorded at the higher altitudes is due to the regular disturbance of the large flocks of waders present on the north-west corner of Cell 5 and in Cell 6, which tended to fly up to higher altitudes and circle until danger had passed.
- 13.83. European Golden Plover and Northern Lapwing were the species that most frequently flew at heights over 50m and this flight activity was usually recorded when these species were disturbed from Cells 5 and 6, frequently by Peregrine Falcon or Merlin. The birds would fly up high before circling around and returning to where they were roosting or feeding. On occasions these flocks of European Golden Plover and Northern Lapwing also contained other wader species including Grey Plover, Dunlin, Black-tailed Godwit and Common Redshank.
- 13.84. Species frequently flying over the site at heights between 10m and 49m included Common Shelduck, Great Cormorant, European Golden Plover, Northern Lapwing, Dunlin, Eurasian Curlew and Common Redshank.
- 13.85. Northern Lapwing, Dunlin, Eurasian Curlew and Common Redshank were all observed flying over the site at heights of less than 10m. Dunlin movements were directly linked with high tide on the Mersey Estuary and significant numbers flew in low over Cell 3 to rest and feed on Cell 6, and occasionally Cell 5. These birds then departed low over Cell 3 and back to the Mersey Estuary as the tide receded. The other species frequently made short distance movements at low levels between Cell 5, where they often fed, and Cell 6, where they appeared to prefer to roost.
- 13.86. Full details of bird movements are included in the species reports in the Technical Appendices.
- 13.87. Only birds flying between 25 and 125m, through the potential blade-envelope of the proposed Frodsham Wind Farm, are considered in the collision risk assessment. Birds flying at an altitude below 25m or above 125m would not be at risk of colliding with the turbine blades.

### *Tidal Influence*

- 13.88. All surveys were timed to coincide with the high tide, as this is the period of highest bird activity on the site. However, start and finish times of the surveys were varied to cover a range of tidal cycles; e.g. low to high tide and high to low.
- 13.89. Large flocks of Dunlin were recorded flying over the site over Cell 3 to roost on Cell 6 within this period immediately before high tide as well as hundreds of European Golden Plover, Grey Plover, Northern Lapwing, Eurasian Curlew and Common Redshank. Almost all these birds flew directly from the Mersey Estuary to Cell 6, and to a lesser extent the north-west corner of Cell 5, where birds roosted or fed. Significant movements of birds moving on the site to roost generally only occurred when the tide was over 9.3m in height; however some larger movements were recorded on tides of 9.0 – 9.2m if there was a strong on-shore wind increasing the amplitude of the tide. Birds were pushed off their known roosting sites on the south shore of the Mersey Estuary SPA and would roost at Frodsham. These movements are very predictable and regular and therefore peak roosting activity on the site would normally be expected to occur on only four to six days per calendar month.
- 13.90. Soon after high tide on the Mersey Estuary many of the waders present on either Cell 5 or Cell 6 quickly departed back to the estuary. The Dunlin, which were present on two occasions in peak numbers of over 10,000, almost always quickly returned back to the Mersey Estuary in one large movement between 30 minutes to an hour post peak high tide.

### *Summary of 2008/09 Winter Bird Surveys*

- 13.91. Surveys of the area of the proposed Frodsham Wind Farm recorded 53 species of birds including the following notable birds and bird assemblages.
- Three species, European Golden Plover, Dunlin and Black-tailed Godwit, occurring in nationally important numbers;
  - Eight *Schedule 1* species: Greater Scaup, Common Goldeneye, Merlin, Peregrine Falcon, Grey Plover, Black-tailed Godwit, Fieldfare and Redwing although only Black-tailed Godwit was recorded in significant numbers.;
  - Species listed on the UKBAP, Red list and Amber list species of conservation concern were recorded but only Dunlin and Black-tailed Godwit in significant numbers; and
  - Mersey Estuary SPA/Ramsar qualifying species included peak numbers of European Golden Plover that exceeded the 5yr mean peak Mersey Estuary population. Peak numbers of Northern Lapwing represented over 40% of the total SPA/Ramsar mean population and Grey Plover, Dunlin, Black-tailed Godwit and Eurasian Curlew peak numbers represented between 22 and 27% of their Mersey Estuary populations.

### *Breeding and Passage Surveys 2008/09*

- 13.92. The full results of the breeding and passage bird survey are contained in the Breeding and Passage Bird Report (Technical Appendix 13.2) and a brief summary is included below.

- 13.93. The site of the proposed Frodsham Wind Farm has diverse habitats and supports a large and diverse assemblage of breeding and passage bird species - 94 bird species were recorded.

### *Breeding Birds*

- 13.94. Of the 94 species, 54 may nest within the boundaries of the proposed Frodsham Wind Farm. Thirty-four species were confirmed as breeding on the site, fourteen probably breed on the site and six species possibly breed on the site.

#### Schedule 1 Species;

- 13.95. Although eleven Schedule 1 species were recorded, none are thought to breed within the site. Peregrine Falcon breeds locally (RSK observations), and adults were occasionally seen hunting over the site during the breeding season. There is habitat suitable for two other species, Black-necked Grebe and Little Plover, and though they might nest here, there was no indication of breeding effort.

#### UKBAP Species;

- 13.96. Five UKBAP species, Northern Lapwing, Sky Lark, Yellow Wagtail, Common Linnet and Reed Bunting were confirmed as breeding on the site. Four UKBAP species, Common Cuckoo, Hedge Accentor, Song Thrush and Grasshopper Warbler, were regularly recorded and probably breed, and two UKBAP species, Common Starling and Yellowhammer, possibly breed on the site.

- 13.97. Northern Lapwing (15-20 pairs) successfully bred on the vegetated north-western part of Cell 6 and also probably bred in the grazed grassland of Cell 5.

- 13.98. Skylark (>10 pairs) and Yellow Wagtail (1-2 pairs) held territories and bred in the grazed and arable fields, including the fields around Frodsham Marsh Farm and Cell 5. Skylark, and possibly Yellow Wagtail, also bred on the vegetated north-western part of Cell 6. Common Linnet (<10 pairs) and Reed Bunting (<10 pairs) bred in areas of scrub and reed bed present in and around Cells 3, 4, 5 and 6 and adjacent to the River Weaver.

- 13.99. Although breeding was not confirmed, Hedge Accentor (common), Song Thrush (<5 pairs) and Grasshopper Warbler (possibly 2 pairs) were regularly recorded, particularly in the scrub and dense vegetation in and around Cells 3, 4, 5 and 6 and near the River Weaver. Male and female Common Cuckoo were regularly recorded during the breeding season and are likely to have parasitised nests of Reed Warblers breeding in the Phragmites reeds around Cell 4 and 6.

- 13.100. Large flocks of adult and immature Common Starling (over 100 birds) were recorded late in the breeding season feeding in the rough- and grazed-grass fields and birds possibly nested in holes in some of the more mature trees scattered around the site or in the Frodsham Marsh Farm buildings. Yellowhammer (1 pair) were occasionally seen in and around the arable fields to the south of Cell 6 and possibly bred in hedgerows or scrub.

#### Red List Species; and

- 13.101. Six Red List species, Skylark, Song Thrush, Grasshopper Warbler, Common Starling, Common Linnet and Yellowhammer, were recorded as confirmed, probably or possibly breeding. These species are also UKBAP species and are discussed above.

Amber List Species.

- 13.102. Seventeen Amber List species were recorded as confirmed, probably or potentially breeding within the proposed Frodsham Wind Farm area. Northern Lapwing, Yellow Wagtail, Hedge Accentor and Reed Bunting are also UKBAP species and have been discussed previously.
- 13.103. Common Shelduck (<5 pairs), Gadwall (1 pair), Tufted Duck (1-2 pairs), Ringed Plover 2-4 pairs), Sand Martin (40-50 pairs), Barn Swallow (2-3 pairs), Meadow Pipit (common) and European Stonechat (1-2 pairs) were all confirmed as breeding on or adjacent to the proposed Frodsham Wind Farm site. Common Shelduck bred in holes in the sandy banks of the bund along the north-western edge of Cell 6. A family group of Gadwall was observed on the shooting pools to the west of Frodsham Marsh Farm, and family groups of Tufted Duck were observed on the lagoon at Cell 6 and on the small pool to the north-west of Cell 6. Ringed Plover successfully bred on the vegetated north-western part of Cell 6. A Sand Martin colony was located to the north-east of Frodsham Marsh Farm, in the sandy southern bank of the south Manchester Ship Canal. Barn Swallow nested in the farm buildings and Meadow Pipit were regularly recorded from grassland and arable fields present across the site and in the vegetated north-western part of Cell 6. European Stonechat families were noted in scrub along the southern edges of Cells 4 and 6.
- 13.104. Eurasian Oystercatcher (1 pair), Mistle Thrush (1-2 pairs) and Willow Warbler (<5 pairs) probably bred within the proposed Frodsham Wind Farm area. Eurasian Oystercatcher appeared to be sitting on a nest on the vegetated north-western part of Cell 6 but no fledged young were ever observed. Mistle Thrush were occasionally recorded in the larger and more mature trees around the site where nesting could have occurred. Willow Warbler were heard singing in trees and scrub around Cells 4, 5 and 6 and probably bred.
- 13.105. Common Kestrel and House Martin were regularly observed throughout the breeding season and possibly bred. Common Kestrel were often seen hunting over the grazed and rough grassland of Cells 3 and 5 and may have bred in the farm buildings. House Martin were observed feeding over the site and may have also nested in the farm buildings.
- 13.106. Northern Lapwing were confirmed as breeding on the site and it was estimated that between 15 and 20 breeding pairs were present across the whole of the site with the majority of birds breeding in Cells 5 and 6. The number of breeding pairs recorded in 2009 reflects the steady downward trend of breeding Northern Lapwing as noted in the data returned by CAWOS.

Passage BirdsGeneral

- 13.107. Evidence of migration through the site was evident during spring (April to June) and autumn (July to September). Most movements involved common species in low numbers, which regularly move north from continental Europe to the UK to breed before returning south in the autumn. Early spring passage also included wildfowl and wader species moving from wintering grounds in the UK to breeding sites in Northern Europe. These, and non-breeding birds, were recorded as they returned to the UK in early autumn.

Significant Species.

- 13.108. Eleven Schedule 1 species were recorded during the surveys and as none are thought to breed within the proposed Frodsham Wind Farm area all apparently use the site during migration.
- 13.109. Raptors were regularly observed hunting around the site, especially between July and September when breeding birds are dispersing nationally. A single Eurasian Marsh Harrier was recorded in September, hunting over the reed beds of Cell 4 and a Hen Harrier was observed hunting over Cell 5 during the August survey. Up to two Merlin were recorded hunting around Cells 3, 5 and 6 in April and September. Adult and juvenile Peregrine Falcons were regularly seen hunting over the site during the migration periods and are likely to be birds that have dispersed from local and regional breeding sites.
- 13.110. Black-necked Grebe were recorded during the surveys in August and September. Both adult and juvenile birds were recorded on the lagoon in Cell 6 and these birds are assumed to be individuals that will have dispersed from local and/or regional breeding sites. Grey Plover, Ruff, Black-tailed Godwit and Whimbrel were all recorded within Cell 6 during the passage periods, either on or around the lagoon. These species are relatively common passage migrants throughout the UK but do indicate that the site is regularly used as a stop-off for feeding and roosting passage waders. A flock of over 500 Black-tailed Godwit was incidentally recorded during other ecological surveys by RSK Carter Ecological, and is of international importance.
- 13.111. Of the other birds recorded during the passage periods, only post-breeding flocks of hirundines, Common Starling, Common Linnet and European Goldfinch could be considered as significant. Hirundines (Common Swift, Barn Swallow and Sand and House Martin) began to form large post-breeding flocks in August, with a mixed flocks of nearly 1000 birds observed feeding over and around Cell 6 during the second August visit. Common Starling flocks were approaching 500 birds by the end of September and flocks of over 200 adult and juvenile Common Linnet and European Goldfinch were frequently observed during August and September in the scrub areas of Cell 3 and around the western bund of Cell 5.

*Breeding and Passage Bird Flight Movements*

- 13.112. Movements of large numbers of birds were not as frequent as during the winter months. During the breeding season, most bird movements involved short distance flights of birds moving between breeding and feeding areas. The numbers of birds moving through the area increased during the passage months when wildfowl, raptors, waders, gulls and hirundines were regularly recorded over the site, mainly associated with the lagoon at Cell 6.
- 13.113. The main movements of birds over the proposed Frodsham Wind Farm area were between the Mersey Estuary and Weaver Bend to and from the lagoon at Cell 6 with the most frequent direction of flights being south over Cell 3 and the western edge of Cell 5. There were also frequent movements of birds flying north from Cell 6 and over Cell 3 back to the Mersey Estuary. Birds were regularly observed arriving into the lagoon from the east and departing to the west, over Cell 4.
- 13.114. North-westerly and south-easterly movements of birds over the site were not particularly frequent but the larger flocks of Ringed Plover and Dunlin, which roosted and fed on the lagoon at Cell 6 at high tide, generally arrived and departed out of the lagoon at the north-west corner and then headed back to the Mersey Estuary over Cell 3. Some bird species, such as Common Shelduck, Great Cormorant, Northern

Lapwing and gulls, were frequently observed arriving into the lagoon from the east or north-east and flying out of the lagoon to the west and north-west.

- 13.115. Northern Lapwing were regularly observed flying south-west over and from Cell 5 from the Weaver Bend to Cell 6.
- 13.116. Very few birds were observed flying beyond the southern bund of Cell 6 and over towards the arable fields adjacent to the M56 motorway; the exception being occasional small flocks of Northern Lapwing.
- 13.117. Disturbance of birds feeding and roosting on and around the lagoon at Cell 6, mainly caused by raptors such as Peregrine Falcon and Merlin passing through the area, often resulted in large flocks of birds taking flight. These flocks generally flew up high and circled within the confines of the lagoon at Cell 6.
- 13.118. European Golden Plover, Northern Lapwing and Black-tailed Godwit were the species that most frequently flew at heights over 50m. As previously mentioned this was mainly when these species were disturbed from Cell 6, frequently by Peregrine Falcon or Merlin, and flew up high before circling around within Cell 6 and returning to where they were roosting or feeding.
- 13.119. Species frequently flying over the site at heights between 10 and 49 m included Common Shelduck, Eurasian Teal, Tufted Duck, Great Cormorant, raptors, Northern Lapwing, Dunlin, Eurasian Curlew, gulls and hirundines. These species regularly flew back and forth over the site at these heights directly between the Mersey Estuary/Weaver Bend area and Cell 5 or 6.
- 13.120. Common Shelduck, Mallard, Great Cormorant, raptors, Ringed Plover, Dunlin, Black-tailed Godwit and hirundines were all observed flying over the site at heights of less than 10 m. Dunlin and Ringed Plover movements were directly linked with high tide on the Mersey Estuary and significant numbers flew in low over Cell 3 to roost and feed on Cell 6. These birds then departed along the same flight path back to the Mersey Estuary as the tide receded. Of the other species, raptors were notable during passage periods with eight species observed hunting at low across the site. Large flocks of hirundines (Common Swift, Barn Swallow, Sand Martin and House Martin) were recorded feeding over Cell 6 and to a lesser extent Cell 5. These flocks were notable in late summer with numbers often exceeding 500 birds.
- 13.121. Indicative flight paths from the winter 2008/09 and breeding and passage surveys 2009 are shown on Figure 13.2.

### *Tidal Effects*

- 13.122. As the tide on the Mersey rose between low tide and high tide the larger flocks of mainly waders left the Mersey Estuary and flew to roost and feed on the lagoon at Cell 6 before frequently departing the lagoon and returning to the estuary within an hour after high tide. This frequency of movement was similar to that observed in the winter with birds roosting at Cell 6 on tides greater than 9.3m.
- 13.123. The frequency of movements and overall numbers of birds observed flying over the site were at their lowest as the tide was receding on the Mersey Estuary.

### ***Winter Bird Surveys 2009/2010***

- 13.124. The following is a brief summary of the results of the winter bird vantage point survey completed from October to December 2009. The full results will be presented in an

addendum to this section to be submitted on completion of the full survey effort in March 2010. The results of the vantage point surveys have been analysed in full and are presented in more detail in the collision risk assessment in Paragraph 13.5.3.

- 13.125. The species composition of the winter bird assemblage present across the site was very similar to that recorded in 2008/09. Activity followed the same patterns as previously recorded with feeding and roosting of species of conservation concern limited in the most part to the north western part of Cell 5 and Cell 6. Numbers of birds present were also similar to last winters surveys. However, numbers of birds did not start to increase significantly until late November. The peak counts of species recorded are shown in Table 13.8 below;

**Table 13.8: Peak Numbers of Birds Recorded Winter 2009**

Common Name	Latin Name	Peak Count	Visit
Eurasian Teal	<i>Anas crecca</i>	300	December V1
Tufted Duck	<i>Aythya fuligula</i>	82	October V2
European Golden Plover	<i>Pluvialis apricaria</i>	2,800	December V1
Northern Lapwing	<i>Vanellus vanellus</i>	3,500	December V1
Dunlin	<i>Calidris alba</i>	27,500	December V1

- 13.126. The numbers of birds recorded in the last visit of December were higher than expected and this was due to the very cold weather which froze the lagoon and mud of Cell 6. Feeding activity was very high in the north-west corner of Cell 5; with approximately 2,000 European Golden Plover and similar numbers of Northern Lapwing being present in this area for the duration of the survey. This corner of Cell 5 is very wet and birds were concentrated around two pools of water and the wetter margins and were recorded generally loafing with little feeding behaviour being observed. No significant roosting movement of Dunlin was observed from the Mersey Estuary to Cell 6 even though this would have been expected given the forecasted height of the tide.
- 13.127. Movements of birds again followed similar flight lines to those recorded in 2008/09. Many short and low flights between Cell 5 and Cell 6, with many higher internal flights in both cells were observed. Internal flights over Cell 5 resulted in birds spending time in both turbine and turbine free flight space; however much of these predator-avoiding internal flights also occurred between Cells 5 and 6 and over Cell 3; i.e. in turbine free airspace.
- 13.128. The large number of Dunlin recorded on the first vantage point survey in December flew in to the site from the Mersey Estuary over Cell 3 and back to the estuary the same way. They arrived in a number of smaller flocks of between 1,000 and 3,000 birds and congregated in to two flocks within Cell 6. The birds left Cell 6 and flew back to the estuary in one movement.
- 13.129. A movement of approximately 9,000 Dunlin was recorded over the north-east corner of Cell 4 on one of the November surveys. These birds however flew out of the site between 10m and 25m and as such this movement would not be at risk from turbines. This flight line has only been observed once, and it probably an anomaly caused by

very strong head-winds. The Dunlin leaving the site would have needed to fly directly in to this head-wind to use the preferred flight path over Cell 3.

- 13.130. Activity of non-wading bird species was generally low. Raptor species present included; Eurasian Sparrowhawk, Common Buzzard, Common Kestrel and Peregrine Falcon.

### *Night Surveys*

- 13.131. Night surveys have been completed in all months of the year since November 2008. These surveys have also been timed to coincide with different tidal cycles; however, the majority of the surveys have been carried out around high tides as this is the time of greatest known activity on the site.
- 13.132. The surveys have recorded limited nocturnal flights. It is considered that the site is not used as a night time roosting location for large numbers of wading birds and at no point have flocks in similar size to those recorded during the day been recorded at night. The only significant roost was recorded in 2008 and concerned a roost of 500 Great Black-backed Gulls. A roost of this size exceeds the threshold for national importance. These birds were recorded flying in to Cell 6 from the south (over the M56 motorway) and roosted on the lagoon. They were observed the following day leaving the site over Cell 3 moving slowly across this area to the Mersey Estuary. These birds were not recorded flying through areas where it is proposed to site turbines. Small numbers of European Golden Plover, Northern Lapwing and Dunlin were heard during the nocturnal surveys but only in very low numbers. Most wading birds present after dusk were not observed flying around the site. Most waders observed flying in to the site to roost at high tide did so following the regular flight path across Cell 3. However, numbers flying in to Cell 6 at night were only a fraction of those recorded at the daytime high tide roost.
- 13.133. Based on the night surveys carried out, nocturnal bird activity is minimal on the site and is not considered any further.

### *Valuation of Ornithological Receptors*

- 13.134. Based on the parameters set out in Paragraphs 13.47 to 13.48 and using the information provided in the baseline (Paragraphs 13.58 to 13.135) the ornithological receptors present on the site are assessed as being of the following value:
- Breeding Birds (combined assemblage) – County;
  - Passage Birds (combined assemblage) – International; and
  - Wintering Birds –
    - European Golden Plover (National);
    - Northern Lapwing (National); and
    - Dunlin (International).
- 13.135. International is the highest value and so the winter bird assemblage on the site is valued at this highest level.

## **Impact Assessment**

13.136. The assessment of impacts as a result of construction (noise, disturbance and habitat loss) and operation (reduction in habitat quality caused by noise, displacement and barrier effect) are presented in Table 13.9. In this table the impacts and mitigation are detailed and the residual impact is presented. Ecological mitigation is detailed in Section 12; however the specific mitigation for ornithological receptors is dealt with in greater detail in Paragraphs 13.175 to 13.179. Table 13.9 does not include the collision risk impacts which are detailed in Paragraphs 13.49 to 13.57. The impacts on the SPA and SPA qualifying species are considered in Paragraphs 13.164 to 13.174.

### ***Construction Phase***

13.137. Construction phase impacts are presented in Table 13.9.

### ***Operational Phase***

13.138. Operational phase impacts are presented in Table 13.9. Predicated increases in mortality as a result of collision with operational turbines and resultant effects on bird populations are considered in the collision risk assessment in Paragraphs 13.49 to 13.57.

**Table 13.9A: Impact Assessment – Construction**

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
Breeding Birds (Passerines) in Cell 3 County	Pre-construction development of ecological mitigation area giving rise to habitat loss and disturbance of breeding bird activity	Likely to be significant negative impact on receptor of county importance	Destructive works to be timed to avoid peak passerine breeding bird season (April to July).	Likely to be no significant negative impacts as a result of destructive works due to avoidance of peak breeding bird season.  Habitat complex will incorporate all habitat types present in Cell 3 and increase other types of habitats lost on site. It is certain that the development of the habitat complex in Cell 3 will result in a significant long term positive impact for breeding passerine species.
Breeding Birds (Passerines) County	Construction activities giving rise to disturbance and noise	Likely to be significant negative impact on receptor of county importance if construction activity is not managed correctly	Construction programme has been designed to minimise impacts associated with this activity (e.g. reduction simultaneous piling activities). Works will localised due to the nature of the project  A Construction Environmental Management Plan (CEMP) will be put in to place to deal with site personnel and vehicle movements, site spillages etc  Additional mitigation will create habitat complex in Cell 3 which will increase available breeding habitat on the site and this area will remain <i>relatively undisturbed</i> during construction	It is likely that there will be some negative impacts on the local breeding bird population but this is considered to be not significant given the temporary construction period and the control and mitigation measures to be implemented

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
Breeding Birds (Northern Lapwing) County	Construction giving rise to disturbance and noise	Likely to be locally significant and negative in absence of control measures and mitigation	<p>All construction works in Cell 1 and Cell 5 to avoid peak nesting activity in April and May. All turbine bases and a buffer of 100m within Cells 1 and 5 to be checked pre-construction for nesting Northern Lapwing and if nests are found no construction until eggs have hatched. Northern Lapwing chicks are precocial and will therefore be able to move from the construction area once hatched</p> <p>Mitigation habitat complex contains habitats suitable for nesting Northern Lapwing and will not be subject to significant noise or visual disturbance during construction</p>	Probable to be neutral and not significant

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
Breeding Birds (combined assemblage) County	Construction giving rise loss of breeding habitat	<p>Certain to be significant and negative impact on receptor of County importance in absence of mitigation</p> <p>2.15 hectares of grassland will be lost to turbine bases and access tracks in Cells 1 and 5, and 2.1 hectares of dry reed bed will be lost to turbine bases and access tracks in Cell 4.</p>	<p>Mitigation habitat complex in Cell 3 is creating more habitat than is lost and this is shown on Figure 13.5. The mitigation reed bed will be wet and therefore of higher habitat quality than the dry reed bed in Cell 4. Wet and dry grasslands will be ideally suitable for feeding and nesting Northern Lapwing and this area will be managed for wildlife and birds.</p> <p>Lay down areas will be restored on completion of construction.</p>	Probable to be a positive long-term significant impact on a receptor of County importance.
Passage Birds International/National	Construction giving rise to disturbance and noise	Unlikely to be negative or significant impact	No proposed mitigation – areas of highest passage activity are free from construction activity. Increase in noise in Cell 6 is not considered to be significant. Passage birds will continue to be able to use the site for feeding and roosting while on migration.	Unlikely to be negative or significant impact

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
Passage Birds International/National	Construction giving rise to loss of habitats	No net loss of important habitats for passage birds will result during construction.	None	Certain to be no negative impacts on passage birds
Wintering Birds International/National	Construction giving rise to disturbance and noise	Likely to be significant negative impact on wintering birds in absence of mitigation.	Construction to be timed to avoid peak winter period (October to March)	Certain to be no negative impact on winter birds through avoidance of winter bird season
Wintering Birds International/National	Construction giving rise to habitat loss	Probable to be no significant negative impact on wintering birds as no net loss to significant areas of wintering habitat	Creation of mitigation habitat complex in Cell 3 will result in net gain in wintering feeding and roosting habitats (grassland and wader scrape)	Some loss to suitable but not preferred feeding and roosting habitats in Cells 1 and 5. All significant areas of winter bird activity (Cell 5 west, Cell 2 and Cell 6) to be retained and free of turbines  Increase in areas of suitable wintering feeding and roosting habitat in mitigation area in Cell 3  Probable to be a significant positive long term impact on wintering birds

**Table 13.10B: Impact Assessment – Operation**

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
Breeding Birds (Northern Lapwing) County	Operation giving rise to displacement of breeding birds	Probable significant negative impact on proportion of breeding Northern Lapwing	<p>Iterations in project have resulted in large areas of suitable breeding habitat in Cell 5 remaining turbine free</p> <p>Creation of habitat complex in Cell 3 includes large areas of wet and dry grassland and a wader scrape (with sparsely vegetated island) will provide ideal breeding opportunities for this species</p> <p>Pre construction surveys in Cells 1 and 5 to check for active nests. Nests will monitored to allow chicks to hatch before construction starts</p>	<p>Birds breeding on this site are subject to high levels of disturbance and are habituated to an existing built environment</p> <p>Mitigation habitats in Cell 3 will offer suitable habitat for breeding Northern Lapwing</p> <p>Breeding population thought to be between 15 and 20 breeding pairs across the whole of the site</p> <p>Worst case is that between 3 and 7 breeding pairs will be lost from Cells 1 and 5 which would be a significant impact on the local breeding population. If mitigation habitats in Cell 3 are used by breeding Northern Lapwing the residual impact of the scheme may result in a long term positive impact by increasing the breeding population of this species</p>

Description and Importance of Affected Feature	Proposed Activity Giving Rise to Key Impact	Characterisation of Unmitigated Impact	Mitigation	Significance and Likelihood of Residual Impacts
All Species present on the site International/National/County	Operation giving rise to barrier effect	In the absence of mitigation the barrier effect could result in a significant long term negative impact on all species present on the site.	At all stages the project design and turbine layout have been influenced by the results of the combined bird surveys. This has resulted in iterations to the turbine layout to avoid major flight lines and areas of highest bird activity. All major flight lines are in turbine free areas including the mitigation area in Cell 3. A proposed turbine to the north of Cell 6 was also removed from the scheme to reduce any potential barrier effect to birds flying in to roost and feed in Cell 6 from the Mersey Estuary	<p>Despite iterations to the project taking in to account major flight lines and areas of important bird habitat the proposed Frodsham Wind Farm may result in changes to flight behaviour of some birds accessing the site. However any change in flight behaviour should not result in long distance flights to avoid the turbines (e.g. sufficient to cause a detrimental increase in energy demands)</p> <p>Most flight lines are still available and there is a large turbine free flight corridor too and from important feeding and roosting areas on the site and wider area.</p> <p>It is considered probable that there will be no long term negative impacts on bird movements during the operation of the proposed Frodsham Wind Farm.</p>
All Species present on the site International/National/County	Operation giving rise to shadow flicker	Impact can not be mitigated	None	Possible to result in negative impact on roosting and feeding birds across the site. The significance of this impact is unknown. It is however considered likely that birds regularly using the site will become habituated to shadow flicker and any possible negative impact will reduce over the life-time of the project.

**Collision Risk Assessment**

- 13.139. The collision risk assessment model has been completed for all species recorded flying through the proposed Frodsham Wind Farm. The results of the collision risk model are presented in tables and show the predicted number of annual collisions that would have occurred during the surveyed period. These results have been used to predict the number of potential annual collisions that may result from the operation of the proposed Frodsham Wind Farm. The results are presented separately for the breeding/passage and winter seasons to reflect the seasonality of bird usage of the site and to enable a more robust assessment of potential seasonal impacts.
- 13.140. The data for the winter surveys 2008/09 and 2009/10 are shown on the same table. The predicted number of collisions is much higher in 2009/10 and this is thought to be as a result of the very cold temperatures recorded in December. The 2009/10 results for the collision risk model have been used to discuss the possible impacts of the proposed Frodsham Wind Farm. A highly precautionary approach in the assessment of collision risk has been taken, by not averaging out the results of the two winter surveys, but to present and discuss the 'worst case' results.
- 13.141. For all species a 95 % avoidance rate has been used when calculating predicted annual collisions. The only exception to this is Common Kestrel which has poorer avoidance rates.
- 13.142. The predicted number of annual collisions is considered to be significant if the resultant effect is greater than 1% of the total local population.

**Breeding and Passage Birds 2009**

- 13.143. Table 13.10 shows the results of the collision risk model for all birds passing through the proposed Frodsham Wind Farm area during the breeding and passage bird vantage point surveys completed in 2009.

**Table 13.11: Breeding and Passage 2009 (April – September)**

Common Name	Population	Source	Avoidance	Annual Collisions	% of local population	Potentially Significant
Mute Swan	43	CAWOS - 5 year mean (2004 - 2008)	95%	0.10	0.23	-
Common Shelduck	73	CAWOS - Mean 2006 Breeding and Passage – Frodsham	95%	0.28	0.38	-
Mallard	200	CAWOS - 5 year mean (2004 - 2008)	95%	0.06	0.30	-
Northern Shoveler	40	CAWOS - 4 year mean (2005 - 2008)	95%	0.03	0.07	-
Tufted Duck	87	CAWOS - 5 year mean (2004 - 2008)	95%	0.2	0.22	-
Great Cormorant	226	CAWOS - Peak August 2006 Frodsham Cell 6	95%	1.26	0.55	-

Common Name	Population	Source	Avoidance	Annual Collisions	% of local population	Potentially Significant
Grey Heron	24	CAWOS - 5 year mean (2004 - 2008)	95%	0.06	0.25	-
Common Buzzard	7	CAWOS - 5 year mean (2004 - 2008)	95%	0.02	0.28	-
Common Kestrel	10	CAWOS - 5 year mean (2004 - 2008)	85%	0.2	2.00	✓
Eurasian Hobby	1	CAWOS - 5 year mean (2004 - 2008)	95%	0.04	4.00	✓
Eurasian Oystercatcher	57	CAWOS - 5 year mean (2004 - 2008)	95%	0.08	0.14	-
Northern Lapwing	337	CAWOS - Mean for Breeding and Passage Season 2006	95%	7.97	2.36	✓
Little Stint	13	CAWOS - 5 year mean (2004 - 2008)	95%	0.02	0.15	-
Dunlin	383	CAWOS - Mean for Breeding and Passage Season 2006	95%	1.38	0.36	-
Black-tailed Godwit	866	CAWOS - 5 year mean (2004 - 2008)	95%	0.54	0.06	-
Eurasian Curlew	17	CAWOS - Mean for Breeding and Passage Season 2006	95%	0.09	0.53	-

### *Winter Birds*

- 13.144. Table 13.11 shows the results of the collision risk model for all birds passing through the proposed Frodsham Wind Farm area during the winter bird vantage point surveys completed in 2008/09 and 2009/10.

**Table 13.12: Winter Birds**

Common Name	Population	Source	Avoidance	Collisions Winter 2008/09	Collisions Winter 2009/10	% of local population <sup>14</sup>	Potentially Significant
Mute Swan	43	CAWOS - 5 year mean (2004 - 2008)	95%	-	0.01	0.02	-
Pink-footed Goose	39	CAWOS - 4 year mean (2004 - 2007)	95%	-	0.17	0.42	-
Great Cormorant	183	CAWOS - 5 year mean (2004 - 2008)	95%	0.01	0.02	0.01	-
Common Buzzard	7	CAWOS - 5 year mean (2004 - 2008)	95%	-	0.17	2.42	✓
Common Kestrel	10	CAWOS - 5 year mean (2004 - 2008)	85%	-	0.47	4.70	✓
Peregrine	2	CAWOS - 5 year mean (2004 - 2008)	95%	-	0.07	3.50	✓
European Golden Plover	3,920	CAWOS - 5 year mean (2004 - 2008)	95%	41.56	225.6	5.75	✓
Grey Plover	105	CAWOS - 5 year mean (2004 - 2008)	95%	0.52	-	0.495238	-
Northern Lapwing	5,360	CAWOS - 5 year mean (2004 - 2008)	95%	45.58	350.23	6.53	✓
Red Knot	213	CAWOS - 5 year mean (2004 - 2008)	95%	0.53	-	0.248826	-
Dunlin	9,400	CAWOS - 5 year mean (2004 - 2008)	95%	0.11	16.03	0.17	-
Ruff	18	CAWOS - 5 year mean (2004 - 2008)	95%	0.05	-	0.277778	-
Common Snipe	87	CAWOS - 5 year mean (2004 - 2008)	95%	0.08	0.02	0.02	-
Black-tailed Godwit	889	CAWOS - 5 year mean (2004 - 2008)	95%	0.02	-	0.002250	-
Eurasian Curlew	480	CAWOS - 5 year mean (2004 - 2008)	95%	0.17	3.66	0.76	-
Common Redshank	243	CAWOS - 4 year mean (2005 - 2008)	95%	0.03	0.02	0.00	-

<sup>14</sup> 2009/10 predicted collisions used where available. If species were not recorded in 2009/10 winter bird surveys the significance of predicted impact on the local population is based on 2008/09 predicted collisions

- 13.145. Further surveys will be completed in January, February and March 2010 after which the collision risk model will be re-run.

#### *Discussion of Collision Risk Assessment*

- 13.146. The results of the collision risk model indicate that there could be a significant increase in mortality of the local breeding populations of three species - Common Kestrel, Eurasian Hobby and Northern Lapwing. The model also indicated that there could be a significant increase in mortality of the local wintering populations of five species – Common Buzzard, Common Kestrel, Peregrine, Eurasian Golden Plover and Northern Lapwing.

#### *Raptors*

- 13.147. The model indicates that predicted number of annual collisions could result in a significant impact on the local raptor population both during the breeding/passage and winter seasons. Predicted collisions rates are in fact very low however when comparing this against very low local population levels of raptors (e.g. compared to wintering wader populations) the values of impact significance on the local population are very misleading. Therefore the approach has been taken to quantify and express the predicted mortality of raptors over the lifetime of the project. The actual impact on raptor species would be negligible and not significant at the local level.
- 13.148. Common Buzzard was only recorded flying through the proposed Frodsham Wind Farm (turbine) area in winter 2009/10. The main area of activity of this species was over Cell 3 and along Frodsham Score and the Manchester Ship Canal. The combined predicted number of annual collisions for both clusters is 0.17 collisions per year. This equates to a one collision every 5.8 years. The local Common Buzzard population is considered to be stable (CAWOS) and this species does not breed on the site, although it is present in the summer months. The magnitude of the predicted mortality is not considered to be significant in terms of this species' conservation status.
- 13.149. Common Kestrel were recorded on the site in all months of the year. The majority of hunting behaviour was observed in Cell 3, Cell 6 and on and around the cell bunds. These areas will be free of turbines, but at-risk flights were recorded in Cells 1 and 5. Anecdotal evidence suggests that Common Kestrel can be significantly affected by turbines as a result of either low avoidance rate or perhaps because this species investigates the nacelles as potential breeding sites which would bring them close to turbine blades. The predicted number of annual collisions across all seasons and including both clusters of turbines is 0.49 birds per year or one collision every two years. The local population is considered to be 10 birds (CAWOS mean data) including two locally breeding pairs. The turbines in both the east and west cluster are not in preferred feeding habitat for this species, though there is ideal hunting in the turbine-free areas. To reduce the likelihood of this species investigating the nacelles for nesting, alternative nest sites will be provided by two pole-mounted Common Kestrel boxes in the mitigation area in Cell 3. With the provision of large areas of turbine-free hunting habitat and two purpose-built nesting boxes the impacts of the proposals on Common Kestrel are not likely to be significant.
- 13.150. Eurasian Hobby occurs annually on both spring and autumn passage and the size of the local population has been determined using CAWOS data. Although this species is recorded annually on both spring and autumn passage, with multiple single records on autumn migration, the mean peak population is only one bird per year. The predicted number of annual collisions for this species is 0.04 per year or one collision every 25 years. Eurasian Hobby does not breed on the site and is classed as a rare county breeding species in the Cheshire Bird Report 2006. It is therefore considered that the

scheme will not have any impact on breeding populations of this species. Given the low number of predicted annual collisions, it is also considered unlikely that the scheme will have a significant negative impact on migrating Eurasian Hobby. One collision every 25 years will not adversely affect the conservation status of Eurasian Hobby in the United Kingdom.

- 13.151. Peregrine are known to breed locally with one or two pairs nesting on structures along the Manchester Ship Canal and River Weaver. Predicted annual collisions per year total 0.07 collisions and this equates to one collision every 14 years. This species hunts on the large concentrations of wintering waders that collect on Cell 6. The development of the ecological mitigation area in Cell 3 should encourage wading species to concentrate in this turbine free area, which would attract Peregrines away from the proposed turbine clusters. Should the predicted collisions based on a highly precautionary 95% avoidance rate occur, it is possible that there will only be one collision of this species during the lifetime of the project. The impacts of collision on Peregrine Falcon are therefore not considered to be significant.

### *Waders*

- 13.152. The results of the collision risk assessment model as shown in Tables 13.10 and Table 13.11 predicts significant impacts on the local population of two wading bird species only; Eurasian Golden Plover and Northern Lapwing. Adverse impacts are predicted for both species during the winter months when they concentrate at the site in significant numbers. Only Northern Lapwing breed at the site and smaller adverse impacts are predicted for the breeding population.

### **Winter**

- 13.153. Populations of Eurasian Golden Plover occurring on the site exceed the threshold set for populations of national importance. The peak numbers of Northern Lapwing do not exceed the 20,000 threshold set for internationally important populations. Recorded populations (CAWOS data) did however exceed 6,200 birds which is the threshold set for populations of national importance. Other species of waders do feed and roost with the large flocks of European Golden Plover and Northern Lapwing. These include Dunlin, Eurasian Curlew and Common Redshank, but the predicted collision rates for these species are not considered to be locally significant.
- 13.154. The general pattern of winter activity is for all wader species to concentrate within Cell 6 but also to feed and roost in the wet grassland in the north-west corner of Cell 5. Dunlin have been recorded feeding in the grassland areas of Cell 5 but in much lower numbers than are recorded roosting in Cell 6. Regular flight paths have been observed between Cell 5 and Cell 6 and these flight paths are, due to the latest layout iteration, in turbine free areas. The relatively high numbers of predicted collisions are due to large numbers of birds concentrating in the north-west corner of Cell 5 in December 2009. This shift in behaviour from that observed in 2008/09 is thought to be a result of the very cold temperatures in December 2009, forcing the birds onto dry land, as the active cell was frozen. The predicted number of collisions of European Golden Plover and Northern Lapwing are a result of internal flights usually caused by Peregrine Falcon and Merlin. The wading birds would all fly up in a combined flock and circle around the whole of Cell 5 and 6 and also over to Cell 1; resulting in high flight activity in areas of proposed turbines. The other species; Dunlin, Eurasian Curlew and Common Redshank would generally fly directly to Cell 6 and wait for the predator risk to pass resulting in lower and therefore not significant predicted annual collisions.
- 13.155. The predicted number of collisions based on using the data from October to December 2009 is considerably greater than for the previous year. In fact predicted collisions

from the 2008/2009 surveys were only slightly significant for European Golden Plover (1.2 % of local population) and not significant for Northern Lapwing (0.9 % of local population). The results from 2009 surveys will be supplemented by information from surveys in January, February and March 2010.

- 13.156. The final turbine layout has been influenced strongly by the results of all of the bird surveys, and turbine locations have been modified to account for regular flight paths (Cell 3) and main areas of activity (Cell 5). Significant areas of preferred feeding and roosting habitats will remain and will be free of turbines. It is anticipated that because of differing behaviours of wintering birds (gregariousness, feeding patterns, social behaviour) that a certain degree of habituation to and avoidance of the turbines will occur. The birds are present for a long period of the year, and will learn where the turbines are located and avoidance rates would be expected to increase. Birds will still be able to feed and roost in all areas of preferred habitat, except some areas in Cell 1 where fewer birds have been recorded. Cell 6 is free of turbines, as is the flight channel across Cell 3 (access to and from Cell 6 to the Mersey Estuary) and the main area for feeding and roosting in Cell 5. In the future if predators do startle concentrations of waders in Cell 5 they have a large escape area in which to fly that will not take them close to turbines. This large 205 ha area is shown in Figure 13.3.
- 13.157. The 95% rate of avoidance is highly precautionary and it may be that actual avoidance rates for European Golden Plover and Northern Lapwing are much higher than this.
- 13.158. The collision risk model has predicted a significant impact on the local populations of European Golden Plover and Northern Lapwing. However, this does not take account of the following factors;
- Model used flight activity rates which were primarily from high tide periods which are known to be the period of highest activity on the site. This may have resulted in an over estimation of actual flight activity rates throughout the whole tidal period;
  - The amount of ideal habitat remaining on the site;
  - The increase in ideal habitat in the mitigation area of Cell 3 ;
  - The amount of turbine free space around these habitat areas
  - An assumed actual avoidance rate higher than 95%; and
  - A predicted change in escape flights away from the turbines.
- 13.159. It is therefore considered based on the above factors the magnitude of any impact on wintering local populations of European Golden Plover and Northern Lapwing will be much lower and probably not significant in the long term.
- 13.160. A flock of 9,000 Dunlin were recorded flying over Cell 4 on one occasion. These birds were exiting the roosting site in Cell 6 and returning to feeding locations in the Mersey Estuary. The birds were observed flying at approximately 10-20 meters above ground level and were forced by strong winds to fly across the area of the proposed western cluster of turbines. If conditions similar to this occur post-construction, the likely collision risk with turbines in Cell 4 is considered to be minimal because the wind speed that resulted in this unusual flight path is greater than the safe operating wind speed of the turbines and so the blades would be static.

### **Breeding**

- 13.161. Northern Lapwing breed in grassland in Cells 1 and 5 and in the absence of mitigation, the long term impacts of displacement from breeding areas would have a probable

negative impact on this species. Research on the effects of displacement have been recently published, Pearce-Higgins et al (2009)<sup>15</sup>, and it is probable that some breeding displacement will occur on site as a result of the operational wind turbines. It is however considered that the magnitude and extent of displacement will not be as significant as identified by Pearce-Higgins et al (2009) as the Frodsham site is already subject to disturbance and is located in an area of existing industry. If displacement occurs, it is reasonable to assume that flight activity within the turbine clusters will also reduce, resulting in a reduction in the predicted number of collisions during the breeding and passage season. To mitigate for the loss of access to breeding areas caused by displacement, ideal breeding habitat for Northern Lapwing will be created in Cell 3.

- 13.162. The local breeding population of Northern Lapwing is considered to be between 15 and 20 breeding pairs. If the habitat in Cell 3 is not used by breeding Northern Lapwing potentially operation displacement may result in the loss of 3- 7 breeding pairs of Northern Lapwing from the site. This would result in a significant impact on the local breeding population of this species. The mitigation habitats in Cell 3 will be created in advance of construction and should therefore be established and suitable to mitigate any displaced breeding pairs. It is anticipated that if the mitigation in Cell 3 is successful, the scheme may result in an increase to the local breeding population.

### ***Decommissioning Phase***

- 13.163. It is anticipated that the impacts of decommissioning will be similar to construction – i.e. noise and disturbance caused by dismantling the turbines. Noise impacts are expected to be less than for construction, because piling will not be undertaken and the access tracks will remain. Decommissioning will take place outside of the winter bird season (October – March) and will therefore avoid the period of highest bird activity. Residual impacts of decommissioning are certain to be not significant, as the result of turbine removal will return the site to its present state. Turbine bases, access tracks and the canal berth will remain in situ. However, all impacts associated with habitat loss for these structures have been mitigated for in the creation of the habitat complex in Cell 3. It is certain that there will be no long negative residual impacts associated with this scheme post decommissioning.

### ***Impacts on SAC and SPA Qualifying Species***

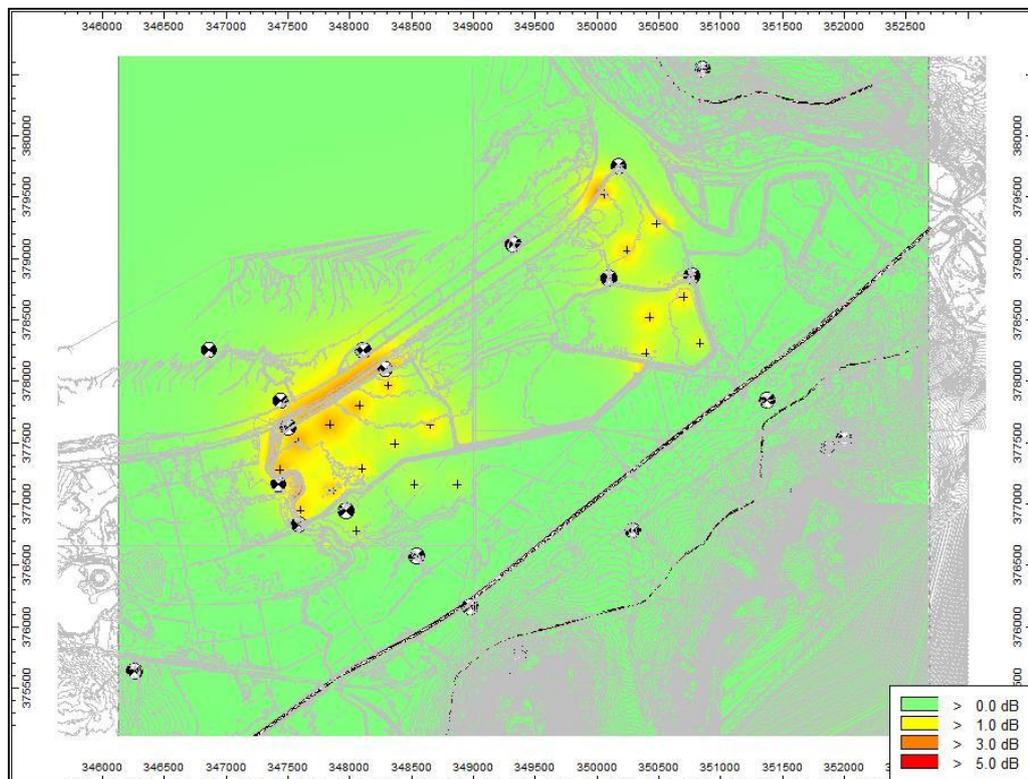
- 13.164. It has already been identified within this section that the site of the proposed Frodsham Wind Farm is in close proximity to the Mersey Estuary SPA and Ramsar site. The site supports a number of SPA qualifying species. Dunlin and Black-tailed Godwit are regularly recorded on the site in internationally important numbers and Common Shelduck, Eurasian Teal, Ringed Plover and European Golden Plover are also regularly recorded on the site in nationally important numbers. The predicted impacts of the proposed Frodsham Wind Farm on the bird populations occurring at the site have been fully assessed in this section and are considered to be not significant.
- 13.165. Construction is timed for the summer when the important bird activity on the Mersey Estuary is at its lowest level. Designation is in the most part due to important wintering populations of qualifying species as well as an important combined wintering assemblage. Construction impacts are considered to be not significant on either the SPA or qualifying species.

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<sup>15</sup> Pearce-Higgins *et al.* 2009. *The distributions of breeding birds around upland wind farms*. Journal of Applied Ecology. 2009

- 13.166. Post construction there will be large areas of preferred bird habitat on the site that will remain free of turbines and in addition a large area of mitigation habitat will also be created. Flight lines remain that will allow birds to access the site and return to the Mersey Estuary SPA without coming in to contact with turbines. It is considered that operational impacts will be not significant on SPA qualifying species.
- 13.167. Bird movements are predominantly east – west within the Mersey Estuary SPA and are linked with the cycle of the tide. As has been previously mentioned, large numbers of birds roost on Cell 6 when tides are greater than 9.2 m, when the estuary is inundated by the rising tide. Normal flight lines (east-west) within the estuary will not be impeded by the turbines at Frodsham, and therefore normal daily and or annual migratory flights within the SPA will not be affected. It is concluded that the turbines will not result in any significant long term impact on bird movements within the SPA.
- 13.168. Disturbance during the operational phase of the proposed Frodsham Wind Farm is considered to be minimal. Contours of predicted noise (Figure 13.6) do not show any significant increase in background noise within the SPA.

**Figure 13.6: Predicted Noise**



- 13.169. The noise generated by turbines is fairly stable, to which birds, especially wintering aggregations, readily become habituated. There may be occasions where blades are feathered or a wind vortex causes a startling noise, but this is unlikely to result in any significant negative impact to birds.
- 13.170. The effect of shadow flicker on birds is not fully understood, and there is little research on the subject. The shadow flicker zone (Figure 13.7) is predicted to fall in an arc to the north of the proposed Frodsham Wind Farm and at its worst is predicted to be 900 metres (ten times the rotor diameter).

**Figure 13.7: Shadow Flicker Zone**

- 13.171. This will result in shadow flicker falling on to the Mersey Estuary SPA. The shadow flicker zone will be largest in the winter when the sun is at its lowest angle. The areas of the SPA on which the shadow flicker will fall are Weaver Bend and the large grassland area of the Ince Bank. Weaver Bend has large areas of exposed mud at low tide and birds have been recorded feeding on this area. This area is not known to support a significant winter roost. The grassland at Ince Bank regularly supports nationally important numbers of Whooper Swans in the winter. However, the muddy, tidal areas off the Ince Bank that are very important for significant numbers of feeding and roosting wildfowl and waders will not be affected by shadow flicker.
- 13.172. Shadow flicker would result in a regular event to which birds do habituate, though the absence of any research it is difficult to predict the actual impact. However, it is certain that the shadow flicker zone will not fall on areas of significant winter activity; i.e. feeding and roosting locations of important winter bird populations.
- 13.173. Therefore, shadow flicker is considered to be a probable impact on a small and not significant population of birds and it is thought that this impact will not result in a significant long term negative impact on the SPA or a significant number of qualifying species.
- 13.174. As discussed in Paragraph 13.180, post construction monitoring will take place in Years 1, 2, 3 and 5 post construction and part of this study will take account of any actual impact caused by shadow flicker. It is proposed that the results of this study will be published to further inform the potential impacts caused by shadow flicker.

## Mitigation Measures

### *Construction Phase*

13.175. To reduce the likelihood of Common Kestrel investigating the nacelles for nesting, alternative nest sites will be provided by two pole-mounted Common Kestrel boxes in the mitigation area in Cell 3. With the provision of large areas of turbine-free hunting habitat and two purpose-built nesting boxes the impacts of the proposals on Common Kestrel are not likely to be significant.

#### **Cell 3 Habitat Mitigation Area**

13.176. The creation of an ecological mitigation area in Cell 3 has been discussed in Section 12 and is shown in Figure 13.4. This habitat unit will be designed for all affected ecological receptors on the site but will provide much of the mitigation for the ornithological receptors. The proposals are designed to mitigate for the direct loss of breeding bird habitats, mitigate for any reduced habitat quality for wintering, breeding and passage birds caused by disturbance during the operation of the proposed Frodsham Wind Farm. Whilst collision risk can not be mitigated for it is predicted that the mitigation measures and creation of ideal habitat areas for wintering, breeding and passage birds will reduce the likely collision by attracting bird species to turbine free areas. The habitats in the Cell 3 mitigation area will be designed and managed to maximise their suitability for wintering, breeding and passage birds and will be constructed and allowed to establish prior to the construction phase of the proposed Frodsham Wind Farm. The habitats proposed and subsequent ornithological benefits are summarised below.

- Scrub/tall ruderal vegetation and rough grassland bunds will be created around the outside of this cell. This will result in ideal breeding habitat for warblers including Grasshopper Warbler and Sedge Warbler as well as other common passerine species and ideal foraging habitat for Common Kestrel;
- Wet and dry grassland to the east of the site adjoining existing areas of sheep-grazed grassland will result in ideal breeding habitat for Northern Lapwing, Sky Lark and Yellow Wagtail. This area would also be ideal for feeding and roosting wintering and passage wading bird species;
- A large wader scrape with island adjacent to the grassland areas will support nesting Northern Lapwing as well as Eurasian Teal, Mallard, Gadwall and Tufted Duck. The island in the wader scrape will be kept free of vegetation and should be an ideal breeding habitat for Ringed Plover and Northern Lapwing (habitat very similar to Cell 6); and
- Wet reed beds are ideal habitats for breeding birds and the proposal is to develop over 10 ha of wet reed bed. This is expected to have a significant positive long term impact on the breeding passerine assemblage of the site. Species expected to use this habitat area include Reed Warbler, Sedge Warbler and Reed Bunting. Reed beds are also suitable breeding habitats for other common and ubiquitous passerine species. The reed bed area will also be a suitable roosting location for hirundines on autumn passage and possibly Common Starling in the winter. Eurasian Hobby would be able to use this area in spring and autumn passage as an ideal foraging habitat, hunting for flying insects and hirundine species.

13.177. An indicative detailed layout of this area is given in Figure 13.5.

- 13.178. The above information is indicative of the mitigation proposals for the Cell 3 mitigation area and these will be subject to further agreement with the LPA. It is anticipated that the final design, layout and management of this area will be agreed at a later date.

### ***Operational Phase***

- 13.179. The results from the 2008-2009 bird surveys have been used to inform the design and turbine layout which has changed significantly from the original layout to maintain main flight paths and keep areas of high avian activity free of turbines. Operational impacts of medium – long term habitat loss have been mitigated for through the construction of the habitat complex in Cell 3. Collision risk can not be mitigated for further and the habitat complex in Cell 3 should reduce predicted collisions by attracting birds to areas of ideal habitat that are turbine free.

### ***Decommissioning Phase***

- 13.180. See Paragraph 13.163. Mitigation measures will be similar as for construction; works to be timed to avoid peak bird activity (winter). Similar control measures will be put in to place to reduce noise and visual disturbance of breeding birds and a Construction Environmental Management Plan (CEMP) will be developed to control all aspects of decommissioning to ensure all ecological receptors, including birds, are not adversely affected by this stage of the project.

### ***Post Construction Monitoring***

- 13.181. Post construction monitoring will take place in Years 1, 2, 3 and 5 and will include vantage point surveys and carcass searches. The aim of this monitoring will be to show actual avoidance rates and impacts on bird populations occurring at the site against the impacts predicted in the collision risk model. The protocol for this monitoring and carcass searching will be agreed with Natural England and The Royal Society for the Protection of Birds.

## **Residual Impacts**

### ***Construction Phase***

- 13.182. These are presented in Table 13.9

### ***Operational Phase***

- 13.183. These are presented in Table 13.9.

### ***Decommissioning Phase***

- 13.184. See Paragraph 13.163.

## Cumulative Impacts

- 13.185. The following five developments have been identified that could potentially give rise to in cumulative impacts in combination with the proposed Frodsham Wind Farm:
- The Mersey Gateway Project;
  - Ince Resource Recovery Park;
  - INEOS Chlor, Energy from Waste Facility;
  - High Bay Regional Distribution Centre; and
  - King Street Energy Twin Cross Country Parallel Pipeline.
- 13.186. Full details of these schemes are provided in Section 17 and illustrated in Figure 17.1.
- 13.187. No cumulative impacts are anticipated on avifauna from the Mersey Gateway Project, INEOS Chlor Energy from Waste or the High Bay Distribution Centre. These developments are located a significant distance away from the proposed Frodsham Wind Farm.
- 13.188. The Mersey Gateway Project is located to the east of the existing Runcorn Bridge and therefore it is anticipated that no significant visual or noise impacts will affect any ornithological receptors at the site of the proposed Frodsham Wind Farm.
- 13.189. The INEOS Chlor Energy from Waste Facility is unlikely to affect any ornithological receptors as this project is proposed to be constructed within an area of existing built development. The built development will also screen any construction and operational impacts of this facility from the proposed Frodsham Wind Farm.
- 13.190. The King Street Energy Twin Cross Country Parallel Pipeline is situated between 0.5 km and 1 km to the south of the proposed Frodsham Wind Farm and runs adjacent to the M56 motorway. The ES for the Kings Street Energy Twin Cross Country Parallel Pipeline reports that impacts related to breeding birds will essentially be related to the temporary loss of habitat that is utilised by breeding species. The ES reports that it is likely that birds will simply be displaced into suitable habitat that is found extensively in the wider local area, and it is considered that impacts to breeding birds will be of a minor adverse to negligible significance. In the long-term, these habitats would be restored and there would therefore be no adverse impact in the long-term. Cumulative impacts may occur should the projects be constructed at the same time resulting in potential increased localised disturbance to breeding birds. However, any short term impacts associated with Kings Street Energy Twin Cross Country Parallel Pipeline are unlikely to give rise to significant in combination effects with the proposed Frodsham Wind Farm.
- 13.191. High Bay Regional Distribution Centre is proposed to be built near Widnes and is a considerable distance from the site of the proposed Frodsham Wind Farm. It is therefore considered certain that there will be no cumulative impacts associated with this scheme.
- 13.192. The closest proposed development to the proposed Frodsham Wind Farm is the Ince Resource Recovery Park. The impacts of this scheme in the absence of mitigation on both wintering and breeding birds were assessed as being negative but only of minor significance. The scheme will result in a loss of some breeding and wintering roosting or feeding habitat for a similar range of species recorded at Frodsham. Post mitigation, the residual impacts of this scheme were assessed as having a long term positive impact on both breeding and wintering birds.

13.193. In conclusion, it is considered that there will be no significant negative cumulative impacts on ornithology.

**Section 13 Figures:**

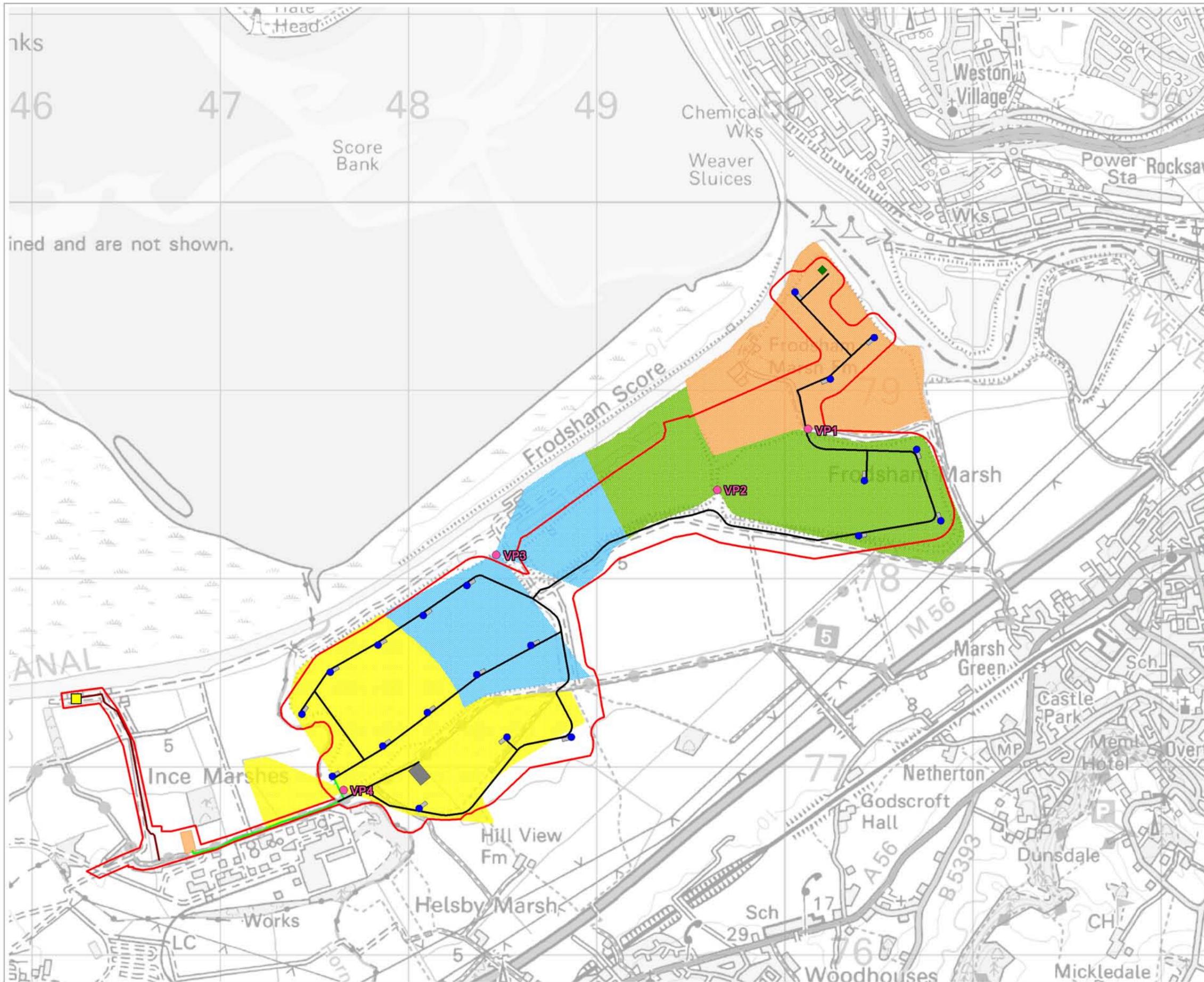
Figure 13.1: View Shed from Viewpoint

Figure 13.2: Direction and Frequency of Bird Movements around Frodsham Lagoon during Winter (2008/2009), Breeding and Passage (2009) Bird Surveys

Figure 13.3: Important Bird Area (Free of Turbines)

Figure 13.4: Area of proposed Ecological Mitigation in Cell 3

Figure 13.5: Proposed Mitigation Plan for Cell 3



- Turbine
- ◆ Met mast
- Canal berth
- Access tracks (new and upgraded)
- Indicative cable route
- Offsite road improvements / widening
- Application boundary
- Temporary site compound
- Crane pads
- Substation
- Viewpoint
- View shed from viewpoint 1
- View shed from viewpoint 2
- View shed from viewpoint 3
- View shed from viewpoint 4



Rev	Date	Description	Drn	Chk	App
00	15.01.10	Bird Survey	OM	RG	MG

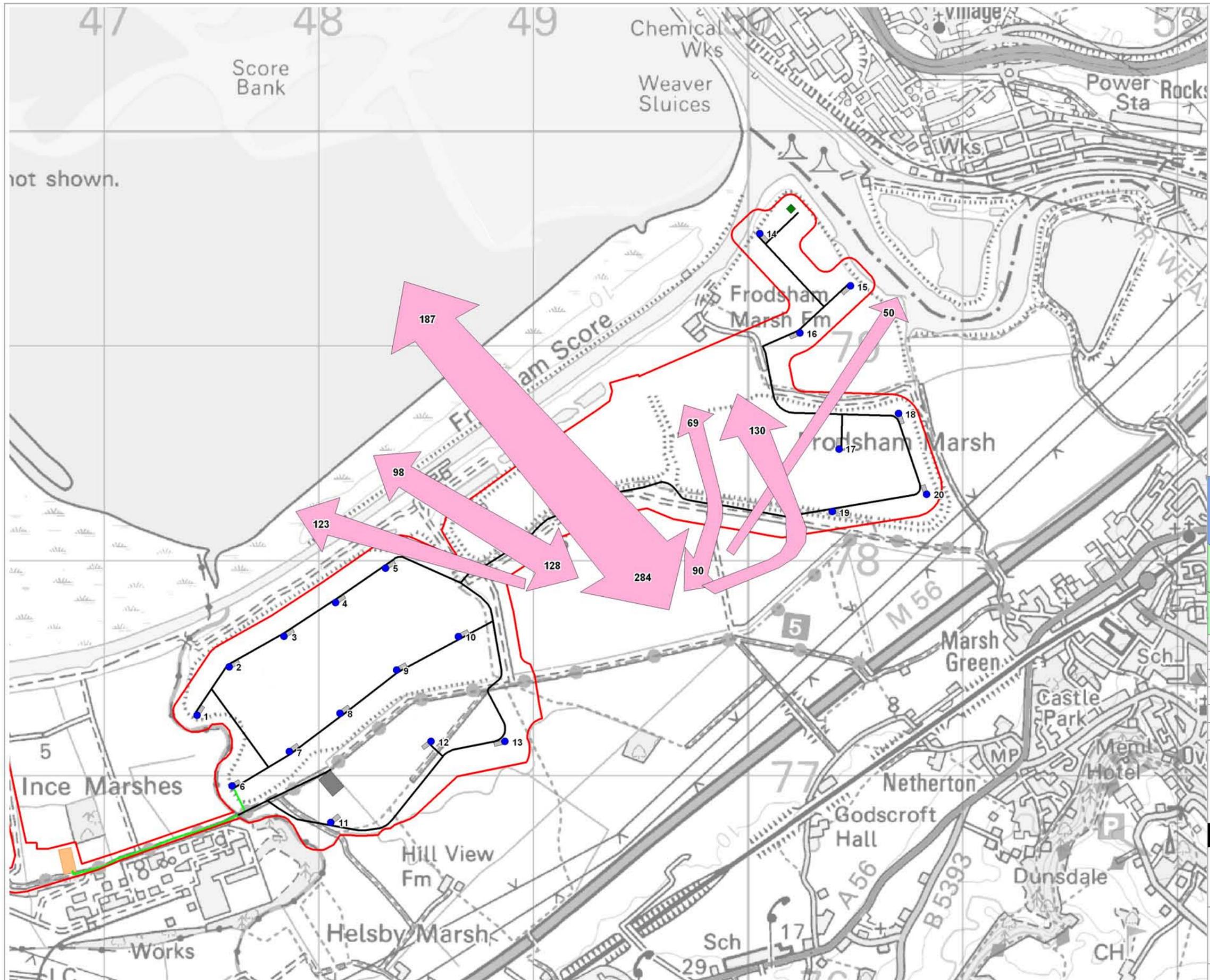


Frodsham Wind Farm



Figure 13.1  
View Shed from Viewpoint

SCALE: 1:20,000 @ A3



- Turbine
- ◆ Met mast
- Access tracks (new and upgraded)
- Indicative cable route
- Application boundary
- Temporary site compound
- Crane pads
- Substation
- ↔ Direction of movement (width indicative of frequency of movements)



Rev	Date	Description	Drm	Chk	App
00	25.01.10	Winter, Breeding and Passage Bird Surveys	RG	OM	SW

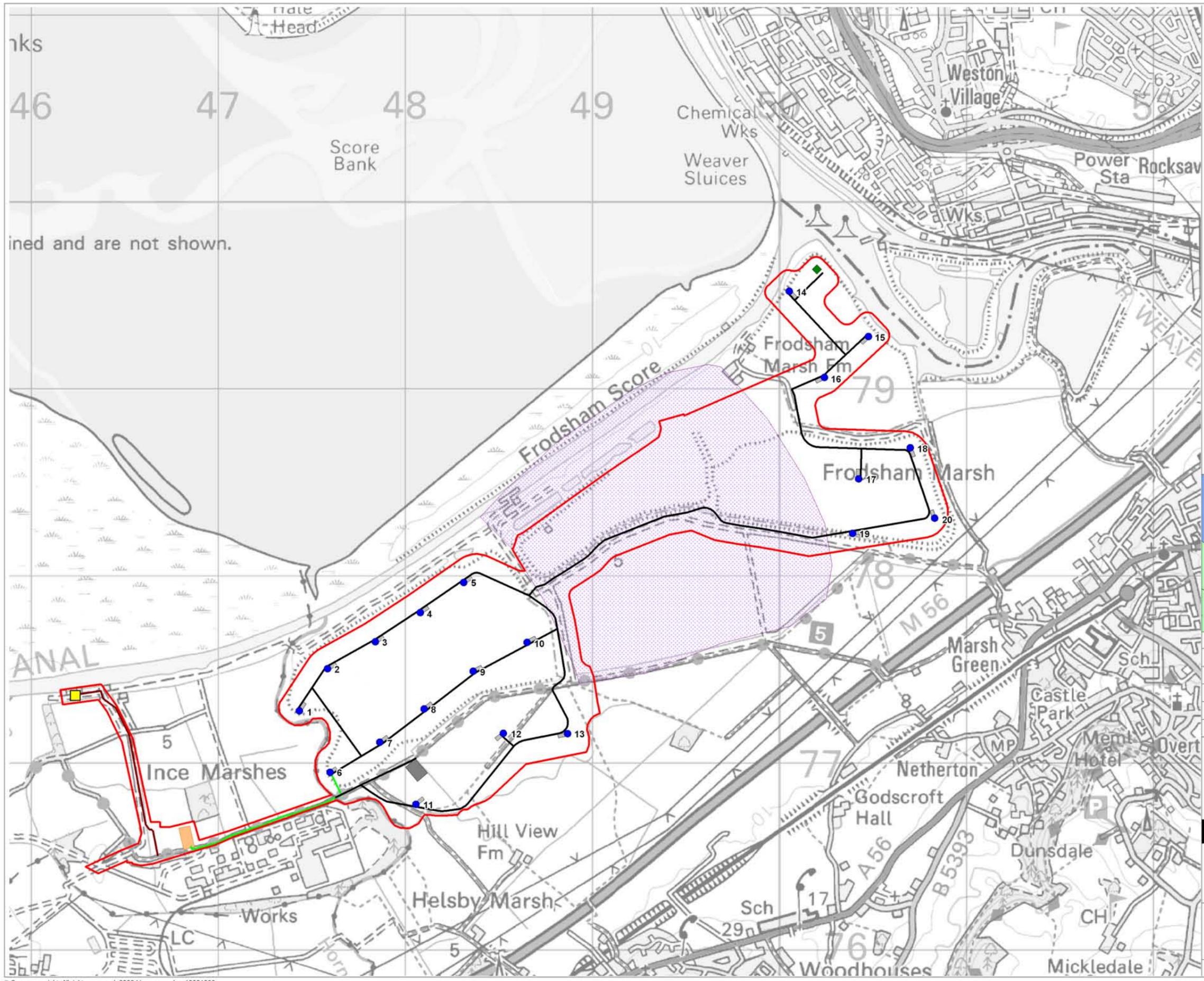


Frodsham Wind Farm




CARTER ECOLOGICAL

Figure 13.2  
 Direction and Frequency of Bird Movements around Frodsham Lagoon during Winter (2008/2009), Breeding and Passage (2009) Bird Surveys  
 SCALE: 1:17,500 @ A3



- Turbine
- ◆ Met mast
- Canal berth
- Access tracks (new and upgraded)
- Indicative cable route
- Offsite road improvements / widening
- Application boundary
- Temporary site compound
- Crane pads
- Substation
- Important bird area (205 Ha)

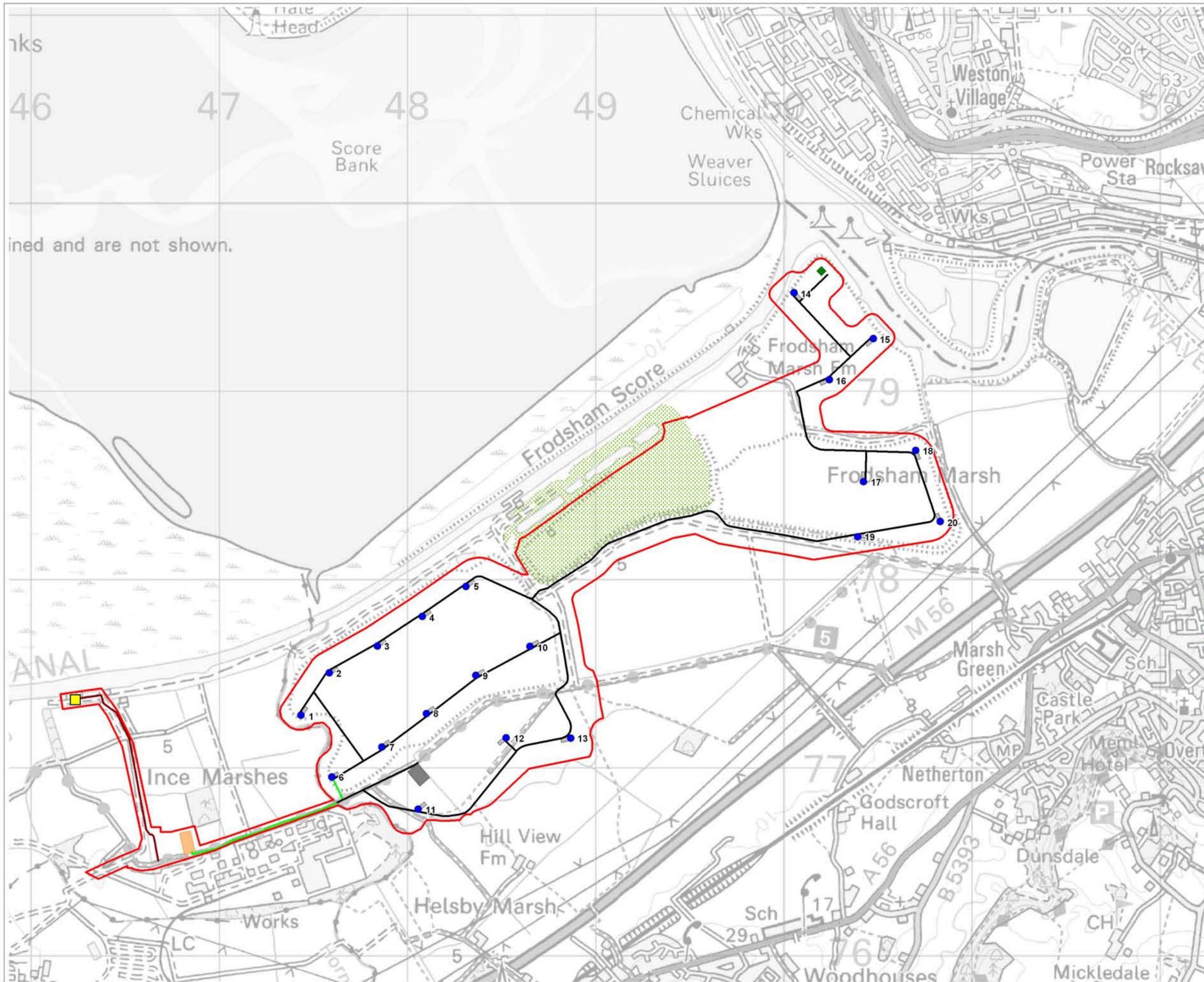


Rev	Date	Description	Drm	Chk	App
00	25.01.10	Winter, Breeding and Passage Bird Surveys	RG	OM	SW



Figure 13.3  
Important Bird Area (Free of Turbines)

SCALE: 1:20,000 @ A3



- Turbine
- ◆ Met mast
- Canal berth
- Access tracks (new and upgraded)
- Indicative cable route
- Offsite road improvements / widening
- Application boundary
- Temporary site compound
- Crane pads
- Substation
- Area of proposed ecological mitigation in Cell 3



Rev	Date	Description	Drn	Chk	App
00	12.01.10	Proposed Mitigation	OM	RG	MG

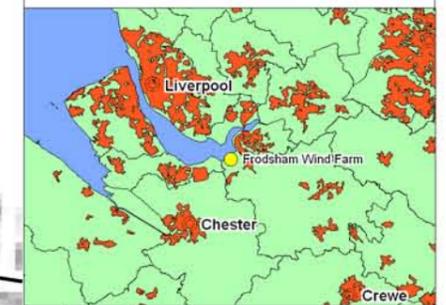


Frodsham Wind Farm

Figure 13.4  
Area of Proposed Ecological Mitigation in Cell 3  
SCALE: 1:20,000 @ A3



- Turbine
- Application boundary
- Crane pads
- Scrub (including scattered Hawthorn) (7.88 Ha)
- Grassland - grazed (14.53 Ha)
- Wet grassland - grazed (5.59 Ha)
- Phragmites reed bed - wet (10.72 Ha)
- Pond (8.29 Ha)
- Connecting ditches (280 m)
- Island (0.9 Ha)
- ◐ Viewpoint



Rev	Date	Description	Drn	Chk	App
00	12.01.10	Proposed Mitigation	OM	RG	MG



**Frodsham Wind Farm**

CARTER ECOLOGICAL

Figure 13.5  
Proposed Mitigation Plan for Cell 3

SCALE: 1:5,000 @ A3

## EC Directive 79/409 on the Conservation of Wild Birds Special Protection Area (SPA)

**Name:** Mersey Estuary

**Unitary Authority/County:** Cheshire; Halton; Liverpool; and Wirral.

**Site description:** The Mersey Estuary is on the Irish Sea coast of north-west England. The SPA encompasses all or parts of Mersey Estuary SSSI and New Ferry SSSI. It is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand and mudflats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of waterfowl. During the winter, the site is of major importance for duck and waders. The site is also important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.

**Size of SPA:** The SPA covers an area of 5,023.35 ha.

### Qualifying species:

The site qualifies under **article 4.1** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:

Annex 1 species	Count and season	Period	% of GB population
Golden plover <i>Pluvialis apricaria</i>	3,040 individuals - wintering	5 year peak mean 1993/94 - 1997/98	1.2%

The site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex I) in any season:

Migratory species	Count and season	Period	% of subspecies/population
Redshank <i>Tringa totanus</i>	4,513 individuals - passage	5 year peak mean 1993 - 1997	3.5% <i>britannica</i>
Shelduck <i>Tadorna tadorna</i>	6,476 individuals - wintering	5 year peak mean 1993/94 - 1997/98	2.2% Northwestern Europe (breeding)
Teal <i>Anas crecca</i>	11,723 individuals - wintering	5 year peak mean 1993/94 - 1997/98	2.9% Northwestern Europe (non-breeding)
Pintail <i>Anas acuta</i>	1,169 individuals - wintering	5 year peak mean 1993/94 - 1997/98	1.9% Northwestern Europe (non-breeding)
Dunlin <i>Calidris alpina alpina</i>	48,789 individuals - wintering	5 year peak mean 1993/94 - 1997/98	3.7% <i>alpina</i> , Western Europe (non-breeding)
Black-tailed godwit <i>Limosa limosa islandica</i>	976 individuals - wintering	5 year peak mean 1993/94 - 1997/98	2.8% <i>islandica</i>
Redshank <i>Tringa totanus</i>	4,993 individuals - wintering	5 year peak mean 1993/94 - 1997/98	3.8% <i>britannica</i>

Bird counts from: Wetland Bird Survey (WeBS) database.

**Assemblage qualification:**

The site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) in any season:

In the non-breeding season, the area regularly supports 104,599 individual waterbirds (5 year peak mean 1993/94 - 1997/98), including great crested grebe *Podiceps cristatus*, shelduck *Tadorna tadorna*, wigeon *Anas penelope*, teal *Anas crecca*, pintail *Anas acuta*, ringed plover *Charadrius hiaticula*, golden plover *Pluvialis apricaria*, grey plover *Pluvialis squatarola*, lapwing *Vanellus vanellus*, dunlin *Calidris alpina alpina*, black-tailed godwit *Limosa limosa islandica*, curlew *Numenius arquata* and redshank *Tringa totanus*.

**Non-qualifying species of interest:** Bewick's swan *Cygnus columbianus bewickii*, whooper swan *Cygnus cygnus*, merlin *Falco columbarius*, peregrine *Falco peregrinus*, ruff *Philomachus pugnax*, bar-tailed godwit *Limosa lapponica* and short-eared owl *Asio flammeus* (all Annex I species) occur in non-breeding numbers of less than European importance (less than 1% of the GB population).

**Status of SPA:**

- 1) The Mersey Estuary was classified as a Special Protection Area on 20 December 1995.
- 2) An extension to the Mersey Estuary SPA, to include New Ferry SSSI, was classified on 23 June 2004.

# Cheshire West and Chester Council Landscape Sensitivity Study and Guidance on Wind and Solar Photovoltaic Developments



**Final Report  
March 2016**

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Supporting Technical Appendix on [Sensitivity to Wind Energy](#) (separately bound)

Supporting Technical Appendix on [Sensitivity to Solar PV Development](#) (separately bound)

## 5. Sensitivity to Solar Photovoltaic Development

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### Types of solar photovoltaic development

- 5.1 The study considers ground mounted solar photovoltaic (PV) energy developments comprising a number of solar panels arranged in lines and secured on frames attached to the ground. These are known as solar arrays or solar farms. The study does not consider small scale microgeneration solar systems that are usually integrated into buildings.
- 5.2 Solar PV developments included in this study are those considered most likely to come forward in CWaC. A review of planning applications and permissions over the past five years or so gives an indication of likely size of solar PV arrays as summarised in paragraph 1.11.
- 5.3 The following solar PV arrays are considered in this study:
- Very small solar farm: <1ha (<2.5acres)
  - Small solar farm: 1ha-6ha (2.5acres-15acres)
  - Medium solar farm: 6ha-15ha (15acres-37acres)
  - Large solar farm: 15ha-25ha (37acres- 63acres)
  - Very large solar farm: >25ha (>63acres)
- 5.4 Solar panels are typically in the order of 1m x 1.6m, inclined to between 20<sup>0</sup>-30<sup>0</sup> with the lower part approximately 60-80cm from ground level and the higher part up to 3m from the ground. Distance between the rows of panels is between 4-6m to avoid overshadowing. Associated development includes several inverter stations and switchgear structures approximately 4.5m long x 2.5m wide x 2.5m high. Frames and panels are usually brought to site ready-made.

### Assessment criteria

- 5.5 Similar criteria as those defined to assess sensitivity to wind energy (in Section 4) have been defined to assess sensitivity to solar PV development, using the 2016 Landscape Strategy as the basis for the assessment. Again, the criteria closely reflect the key characteristics, sensitivities, qualities and value of each LCT and LCA as described in the Strategy.
- 5.6 The criteria for assessing sensitivity to solar PV developments differ slightly to those defined to assess sensitivity to wind energy, to reflect differences in the particular way that ground-mounted solar PV developments can affect the landscape. For example, perceptions of remoteness and movement in the landscape are not a consideration with solar farms where there are no moving parts. Furthermore, it may be possible to screen solar arrays whereas even the smallest wind turbines are likely to be noticeable or prominent in some views. Some of the key landscape effects of solar PV developments are:

- Undulating, rolling or steeply sloping landforms, and prominent skylines and ridges are likely to be more visually sensitive, especially where there are receptors looking up from lower ground;
- Being angled towards the sun, solar arrays have a front and a back view where there could be visual impacts from glint and glare within an arc of view greater than that simply experienced by north-facing receptors;
- Flat landscapes will be sensitive where they are open and exposed, with extensive visibility, especially where there are receptors looking down from higher ground;
- Smaller solar arrays could be acceptable in a small scale, intricate landscape where there are human-scale landscape features such as hedgerows and trees which can form strong boundary features reducing a zone of theoretical visibility (ZTV) to zero;
- Mitigation could include the planting of new hedgerows and trees that could provide a screen to reduce adverse effects of solar arrays;
- Large solar farms are unlikely to be appropriate in a small scale intricate landscape where they may appear out of scale and where traditional landscape features may have to be removed;
- Associated development such as new access tracks, inverter stations and switchgear structures can necessitate the removal of landscape features such as trees, hedgerows, orchards and ponds;
- Solar arrays and associated infrastructure can bring a perception of human influence in landscapes currently devoid of built development;
- Associated security measures such as fencing and lighting can result in additional effects.

5.7 A matrix was developed with a standardised set of criteria to represent the key characteristic features of each LCA as recorded in the 2016 Landscape Strategy. The key characteristics most likely to be affected by wind energy development are recorded under the same five headings as used in the wind energy assessment described in Section 4, as follows:

- Natural & physical attributes
- Cultural, heritage & historic attributes
- Built development & settlement pattern
- Perceptual & visual attributes
- Qualitative attributes

5.8 The characteristics recorded are defined in **Table 4** below:

**Table 4: Definition of Criteria for Assessing Sensitivity to Solar PV Development**

<b>NATURAL &amp; PHYSICAL LANDSCAPE CRITERIA</b>	
Landform	The shape, elevation and change in relief of the physical landscape, ranging from simple and consistent, such as the flat pastoral plain, to more rugged and dramatic such as rocky sandstone cliffs and outcrops, or steep valley sides.
Land cover pattern	The pattern of land uses within a landscape, from the continuous monoculture of large parts of the plain or plantation forests, to mosaic assemblages of small fields, hedgerows, ponds and woodlands. Landscape pattern is closely related to scale.
Scale of field pattern & landscape features	The relative scale of land cover patterns of fields, hedgerows and trees, and other human-scale features in the landscape such as traditional agricultural buildings and sandstone walls. Landscape scale is closely related to visibility and the extent of views, and how the landscape is experienced.
Enclosure	The way in which landforms enclose the landscape, or open out into other landscapes.
<b>CULTURAL, HERITAGE &amp; HISTORIC CRITERIA</b>	
Historic assets	Historic landscape character including the presence and influence of nationally designated or locally significant heritage assets on the landscape, for example Listed Buildings, Registered Parks and Gardens, historic field systems and features such as ridge and furrow, field ponds and unimproved land (but not buried archaeology).
Recreation	Evidence of recreational uses where landscape is important to its enjoyment, such as public rights of way (including long-distance routes), outdoor visitor facilities, and landscape-based tourist attractions.
<b>BUILT DEVELOPMENT &amp; SETTLEMENT PATTERN CRITERIA</b>	
Built development	The relative presence or absence of built development in the landscape, or in adjacent landscapes where they affect character, including industrial or commercial buildings and infrastructure, transport routes and power lines, brownfield land, and vertical structures such as communications masts, pylons and chimneys.
Settlement	The pattern, scale and relative density of settlement, from unsettled or small scale, low density, strongly rural dispersed pattern of scattered villages, farms and cottages, to large scale, high density urban areas on the edge of an LCA where 20 <sup>th</sup> century residential development has a significant effect on its character.
<b>PERCEPTUAL &amp; VISUAL CRITERIA</b>	
Skylines	Visual horizons can be simple i.e. relatively flat and featureless and not prominent, or more prominent and distinctive and/or complex with woodland, trees and other features. Undeveloped skylines are more sensitive than skylines where development is prominent, even if located in adjacent character areas.
Views and landmarks	Can include views from popular viewpoints, or views to landmark cultural buildings such as churches, and natural features such as ridges and hills, either within the same character area or beyond.
Intervisibility	Depending largely on enclosure, landscapes may be visible across a wide area, or may be secluded and difficult to see from beyond the area.
Visual receptors	The presence of visual receptors is indicated by settlement and by the popularity of areas used for recreational purposes, including public rights of way and the network of roads, canals and other transport corridors with large numbers of potential receptors.
<b>QUALITATIVE CRITERIA</b>	
Scenic quality	The natural beauty and scenic quality of the landscape, which may or not be recognised by landscape designation, for example Area of Special County Value (ASCV).
Distinctiveness	The extent to which a landscape is representative of the Cheshire West and Chester landscape, or contributes to a local sense of place.
Rarity	The relative frequency of a landscape's general type, within Cheshire West and Chester.

- 5.9 The same five-point scale is used against which each landscape character area is assessed in terms of sensitivity to solar PV energy as used to assess wind energy development. The five-point scale represents a gradual continuum (rather than a rigid scale with fixed points) from *low*, *low-moderate*, *moderate*, *moderate-high* and *high*, using the 2016 Landscape Strategy, fieldwork and professional judgement to decide the placement on the scale, and overall sensitivity.
- 5.10 Completed matrices for all 53 LCAs are provided within a separate **Supporting Technical Appendix** to this main report.
- 5.11 **Table 5** summarises the sensitivity of each LCA. This is also reproduced in the Supporting Technical Appendix on Sensitivity to Solar PV Development.
- 5.12 As described in paragraph 3.11, overall sensitivity (using the same five-point scale) of each landscape character type to the different sizes of solar arrays considered in the assessment is decided upon, using professional judgement. The assessment made is summarised in tables and discussed in terms of overall landscape character type sensitivity, referring to specific character area sensitivity where applicable and sensitivity to the different solar arrays considered in the assessment.
- 5.13 The landscape sensitivity assessments for each of the sixteen landscape character types (LCT) are given after Table 5. The assessments for each LCT follow the following format:
- A map illustrates the general location of the landscape character type and each landscape character area within the type;
  - A summary table indicates key sensitivities of the LCT to key characteristics, recorded under the five headings from the 2016 Landscape Strategy;
  - A table provides the sensitivity assessment for each landscape character area within the LCT together with the overall LCT assessment rating for each of the different sizes of solar farm considered in the study;
  - A table provides analysis of the LCT sensitivity with reference to landscape character areas and the different sizes of solar farms considered in the study.

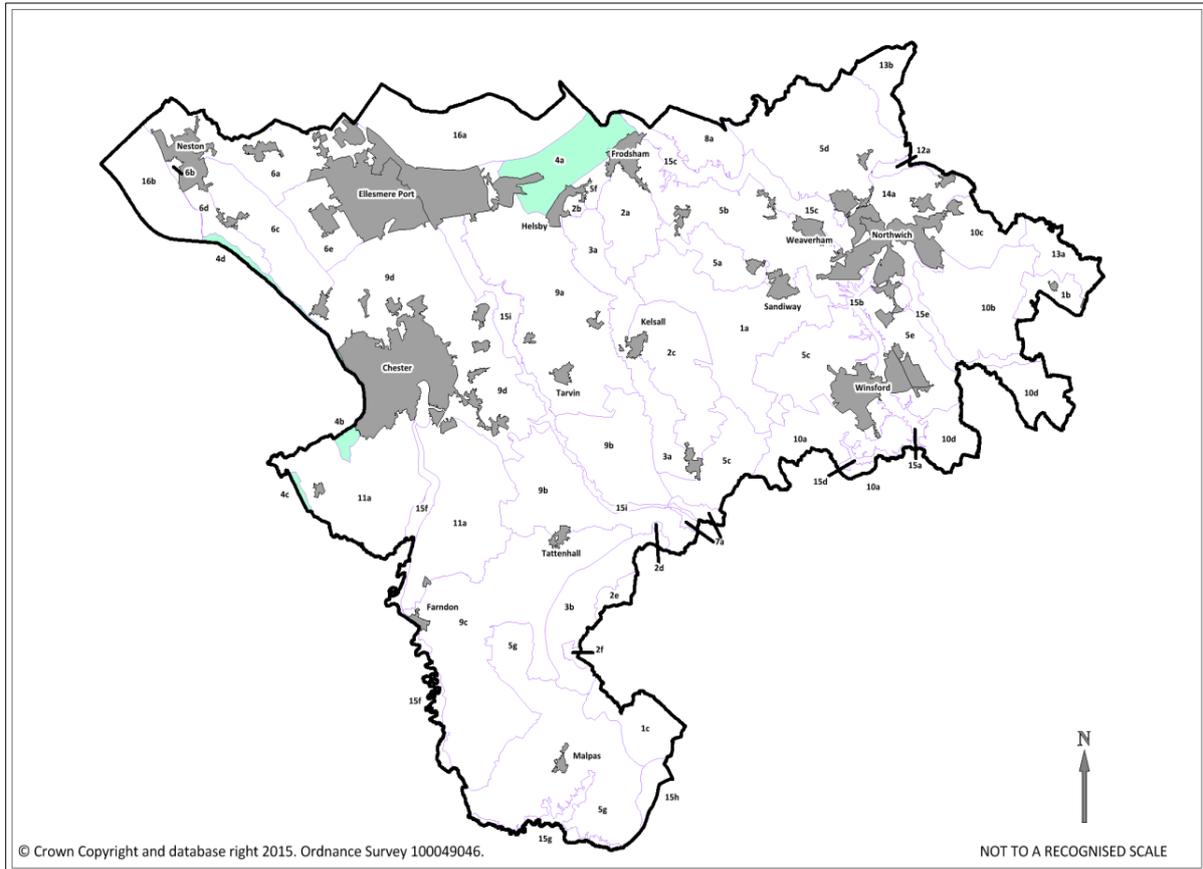
**Table 5: Summary of Sensitivity of Landscape Character Areas to Solar Photovoltaic Development**

Landscape Character Types and Landscape Character Areas within the Landscape Strategy 2016	Landscape Sensitivity Criteria															OVERALL ASSESSMENT
	Natural & Physical				Cultural, Heritage & Historic		Built Development & Settlement Pattern		Perceptual & Visual				Qualitative			
	Landform	Land cover	Field pattern scale & landscape features	Enclosure	Historic assets	Recreation	Built development	Settlement	Skylines	Views & landmarks	Intervisibility	Visual receptors	Scenic quality	Distinctiveness	Rarity	
<b>LCT 1: Woodland, Heaths, Meres and Mosses</b>																
LCA 1a: Delamere	M	H	M-H	L-M	M	M-H	M-H	M-H	L-M	L-M	L-M	M	M-H	M-H	M-H	M-H
LCA 1b: Allostock	L	H	M	M	L	M	L-M	H	L-M	L-M	L-M	M	M	M	M-H	M
LCA 1c: Bickley	L-M	M	M-H	L-M	L	M	M-H	H	M	L-M	M	M	M	M-H	M-H	M
<b>LCT 2: Sandstone Ridge</b>																
LCA 2a: Frodsham	H	M-H	M	M-H	M-H	M-H	L-M	H	H	H	H	M-H	H	H	M-H	H
LCA 2b: Helsby Hill	H	M-H	M	M-H	H	M-H	H	H	H	H	H	H	H	H	M-H	H
LCA 2c: Eddisbury	H	M-H	M-H	M-H	H	M-H	L-M	H	H	H	H	H	H	H	M-H	H
LCA 2d: Beeston Crag	H	M	M	M-H	H	H	H	H	H	H	H	M-H	H	H	H	H
LCA 2e: Higher Burwardsley	H	M-H	M	M-H	M	M-H	M-H	H	H	H	H	M-L	H	H	M-H	H
LCA 2f: Larkton Hill/Hether Wood	H	M	M	M	M-H	M-H	H	H	H	H	H	M-H	H	H	M-H	H
<b>LCT 3: Sandstone Fringe</b>																
LCA 3a: Helsby to Tarporley	M	M	M-H	M	M	M	L-M	M-H	M	M-H	M-H	M	M-H	M-H	M	M-H

Landscape Character Types and Landscape Character Areas within the Landscape Strategy 2016	Landscape Sensitivity Criteria															OVERALL ASSESSMENT
	Natural & Physical				Cultural, Heritage & Historic		Built Development & Settlement Pattern		Perceptual & Visual				Qualitative			
	Landform	Land cover	Field pattern scale & landscape features	Enclosure	Historic assets	Recreation	Built development	Settlement	Skylines	Views & landmarks	Intervisibility	Visual receptors	Scenic quality	Distinctiveness	Rarity	
LCA 3b: Beeston to Duckington	M-H	M-H	M-H	M-H	M-H	M	M-H	M-H	M	M-H	M-H	M	M-H	M-H	M	M-H
<b>LCT 4: Drained Marsh</b>																
LCA 4a: Frodsham, Helsby and Lordship Marshes	L	L-M	L-M	H	L-M	M	L-M	H	L-M	M-H	M	M-H	L	M-H	M-H	M-H
LCA 4b: The Lache Eyes	L	L	L-M	H	L	L-M	L-M	H	L-M	M	M	L	L-M	M	M-H	M
LCA 4c: Dodleston Drained Marsh	L	L	L-M	H	L	L	H	H	L-M	M	M	L	L-M	M	M-H	M
LCA 4d: Burton & Shotwick Drained Marsh	L	M	L-M	H	L	M-H	L-M	H	L-M	M	L-M	L-M	L-M	M	M-H	L-M
<b>LCT 5: Undulating Enclosed Farmland</b>																
LCA 5a: Norley	M-H	M-H	M-H	L-M	L-M	M	M-H	M-H	L-M	M	M	L-M	M-H	M	M	M-H
LCA 5b: Frodsham to Northwich	L-M	L-M	M-H	M	L-M	M	L-M	M-H	L-M	M-H	M	M	M	M	M	M
LCA 5c: Eaton, Marton & Over	M	L-M	M-H	M	M-H	M	M	M-H	L-M	M	M	M	M	M	M	M

# SENSITIVITY TO SOLAR PV DEVELOPMENT

## LCT 4: DRAINED MARSH



There are 4 Landscape Character Areas within LCT 4:  
 LCA 4a: *Frodsham, Helsby and Lordship Marshes*; LCA 4b: *The Lache Eyes*; LCA 4c: *Dodleston Drained Marsh*; LCA 4d: *Burton & Shotwick Drained Marsh*

LCT 4 SENSITIVITY OF KEY CHARACTERISTICS TO SOLAR PV DEVELOPMENT	
Sensitivity Attributes	Summary of Sensitivity
<b>Natural &amp; Physical</b>	<ul style="list-style-type: none"> <li>• The open, exposed landscape of the drained marsh is highly sensitive to solar PV development in principle;</li> <li>• However, the simple uniformity of landform and land cover, and its medium to large scale pattern with only occasional landscape features means there is some potential for solar PV development.</li> </ul>
<b>Cultural, Heritage &amp; Historic</b>	<ul style="list-style-type: none"> <li>• There are few significant historic assets with generally low sensitivity;</li> <li>• Generally a low level of recreational use although LCA 4d: <i>Burton &amp; Shotwick Drained Marsh</i> is more sensitive with recreational fishing ponds and visitors to the RSPB Burton Mere wetlands reserve.</li> </ul>
<b>Built Development &amp; Settlement Pattern</b>	<ul style="list-style-type: none"> <li>• The influence of built development within adjacent landscapes reduces the perception of naturalness and reduces sensitivity;</li> <li>• The mostly small scale, low density, dispersed settlement pattern is highly sensitive to solar PV development that would be out of scale and further increase the perception of human influence.</li> </ul>

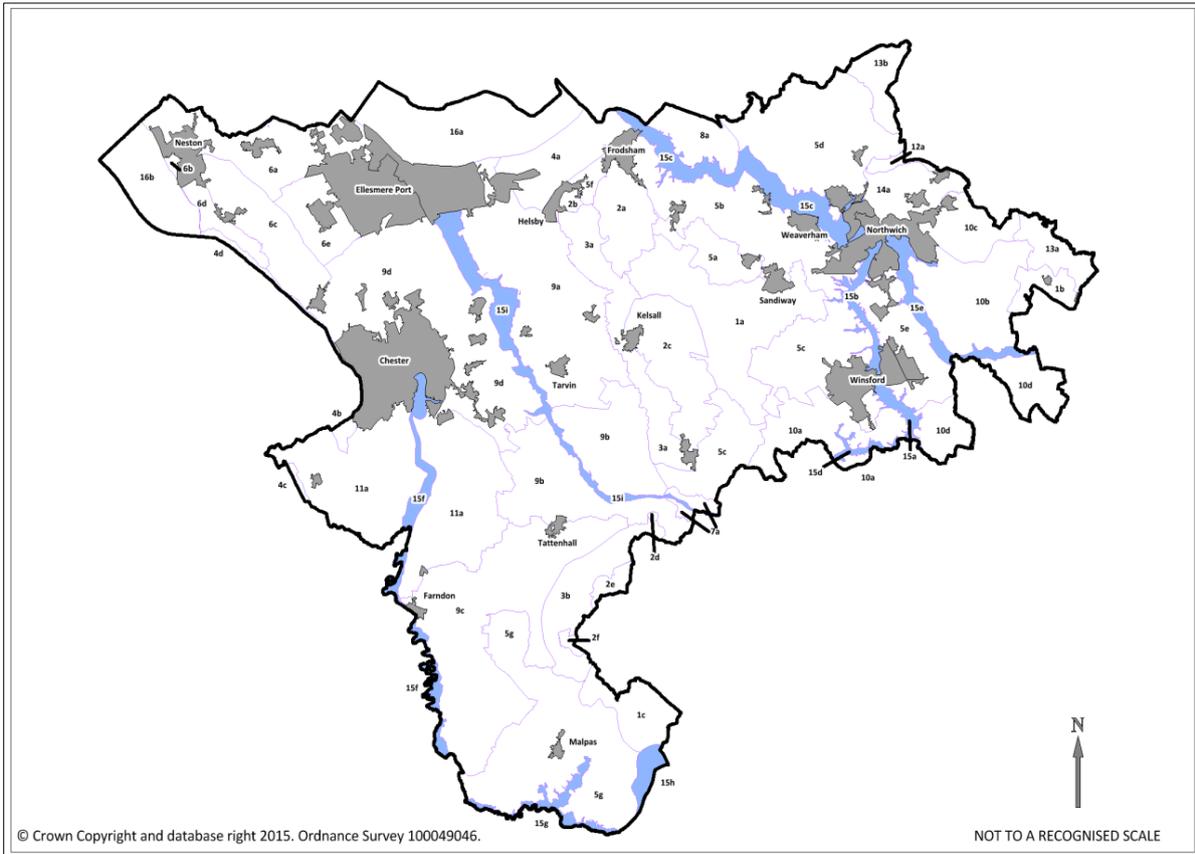
LCT 4 SENSITIVITY OF KEY CHARACTERISTICS TO SOLAR PV DEVELOPMENT	
Sensitivity Attributes	Summary of Sensitivity
Perceptual & Visual	<ul style="list-style-type: none"> <li>Skylines are not prominent, with generally only locally significant views, limited intervisibility and visual receptors reducing sensitivity. However there are sensitive views down to LCA 4a: <i>Frodsham, Helsby and Lordship Marshes</i> from important viewpoints on the sandstone ridge.</li> </ul>
Qualitative	<ul style="list-style-type: none"> <li>Low to medium scenic quality with some distinctiveness reduces sensitivity, but the drained marsh is a less common landscape in CWaC the character of which could be adversely affected by solar PV development.</li> </ul>

LCT 4 SOLAR PV SENSITIVITY ASSESSMENT						
LCA SENSITIVITY		LCT 4 SENSITIVITY				
LCA	Sensitivity	Very Small Solar Farm <1ha [<2.5acres]	Small Solar Farm 1-6ha [2.5-15 acres]	Medium Solar Farm 6-15ha [15-37 acres]	Large Solar Farm 15-25ha [37-63 acres]	Very Large Solar Farm >25ha [>63acres]
4a	M-H	L-M	L-M	M	M-H	H
4b	M					
4c	M					
4d	L-M					

LCT 4 SOLAR PV SENSITIVITY ANALYSIS
<ul style="list-style-type: none"> <li>LCT 4 is particularly sensitive to a medium, large or very large solar farm that would be overly dominant within the relatively small LCAs within this LCT;</li> <li>A medium, large or very large solar farm could potentially fit into the largest LCA 4a: <i>Frodsham, Helsby and Lordship Marshes</i> but being south-facing it would impact on important viewpoints from <i>Frodsham Sandstone Ridge</i> and <i>Helsby Hill</i> northwards over the Mersey estuary.</li> <li>The greatest potential for solar PV development within LCT 4 is for a very small solar farm, and potentially a solar array at the smaller end of the 'small solar farm' category, where sensitive views are limited and where there is some existing field pattern that could be retained, such as in LCA 4d: <i>Burton &amp; Shotwick Drained Marsh</i>;</li> <li>Any small scale solar PV development in LCA 4d should consider mitigation opportunities to restore hedgerows in accordance with the landscape management strategy in the 2016 Landscape Strategy, and to help screen the development if its essentially open character is also conserved;</li> <li>Even a small scale solar PV development would be contrary to the landscape management strategy in the 2016 Landscape Strategy which is to conserve the open, undeveloped character of the drained marshland within LCAs 4a, 4b &amp; 4c.</li> </ul>

# SENSITIVITY TO SOLAR PV DEVELOPMENT

## LCT 15: RIVER VALLEYS



There are 9 Landscape Character Areas within LCT 15:

- LCA 15a: *Upper Weaver Valley*; LCA 15b: *Mid Weaver Valley*; LCA 15c: *Lower Weaver Valley*;
- LCA 15d: *Ash Brook Valley*; LCA 15e: *Dane Valley*; LCA 15f: *Dee Valley*; LCA 15g: *Wych Valley*;
- LCA 15h: *Grindley Valley*; LCA 15i: *Gowy Valley*

LCT 15 SENSITIVITY OF KEY CHARACTERISTICS TO SOLAR PV DEVELOPMENT	
Sensitivity Attributes	Summary of Sensitivity
<b>Natural &amp; Physical</b>	<ul style="list-style-type: none"> <li>Generally steep valley sides with much variety in land cover including human scale landscape features, making this LCT particularly sensitive to solar PV development in principle;</li> <li>However, there are areas of lower sensitivity where valleys are wider, flatter and scale is larger with fewer landscape features.</li> </ul>
<b>Cultural, Heritage &amp; Historic</b>	<ul style="list-style-type: none"> <li>The presence of historic assets varies greatly throughout the landscape making this LCT more or less sensitive to solar PV development in principle;</li> <li>Recreational use also varies throughout the landscape.</li> </ul>
<b>Built Development &amp; Settlement Pattern</b>	<ul style="list-style-type: none"> <li>Existing built development and prominent structures give some areas lower sensitivity, but other areas are highly sensitive where built development is limited or absent;</li> <li>The river valleys are mostly unsettled or with a small scale, low density, dispersed settlement pattern which is highly sensitive to solar PV development that would be out of scale and increase the perception of human influence.</li> </ul>

LCT 15 SENSITIVITY OF KEY CHARACTERISTICS TO SOLAR PV DEVELOPMENT	
Sensitivity Attributes	Summary of Sensitivity
Perceptual & Visual	<ul style="list-style-type: none"> <li>• Skylines are prominent and distinctive with little or no development and thus highly sensitive to visible structures including solar PV development, although intervisibility, views and visual receptors are generally limited, with reduced sensitivity.</li> </ul>
Qualitative	<ul style="list-style-type: none"> <li>• Distinctive valleys mostly of high scenic quality, especially the <i>Upper, Mid and Lower Weaver Valley</i> and the <i>Wych Valley</i> designated as Areas of Special County Value (ASCV), with high sensitivity to the principle of solar PV development.</li> </ul>

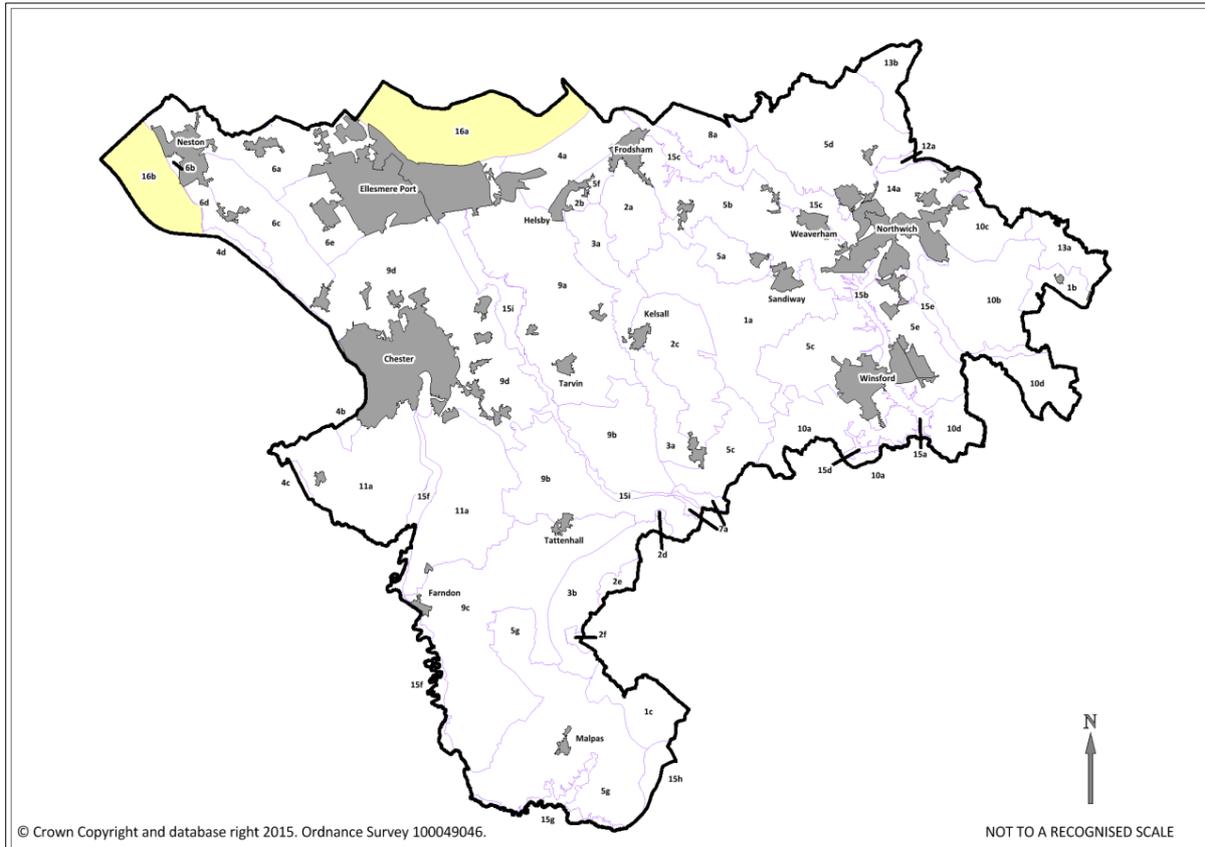
LCT 15 SOLAR PV SENSITIVITY ASSESSMENT						
LCA SENSITIVITY		LCT 15 SENSITIVITY				
LCA	Sensitivity	Very Small Solar Farm <1ha [<2.5acres]	Small Solar Farm 1-6ha [2.5-15 acres]	Medium Solar Farm 6-15ha [15-37 acres]	Large Solar Farm 15-25ha [37-63 acres]	Very Large Solar Farm >25ha [>63acres]
15a	H	M	M-H	H	H	H
15b	H					
15c	H					
15d	H					
15e	M-H					
15f	M-H					
15g	H					
15h	M					
15i	M					

LCT 15 SOLAR PV SENSITIVITY ANALYSIS
<ul style="list-style-type: none"> <li>• The steep sided river valleys are highly sensitive to solar PV development that would potentially be conspicuous from within the valleys, detracting from their intimate hidden character. There is more potential in LCAs 15h: <i>Grindley Valley</i> and LCA 15i: <i>Gowy Valley</i> which are wider and flatter;</li> <li>• The river valleys are predominantly unsettled or with a small scale, low density, dispersed settlement pattern which is highly sensitive to solar PV development that would be out of scale and increase the perception of human influence within the undeveloped floodplains;</li> <li>• Some of the river valleys are distinctive and of high scenic quality, especially the <i>Upper, Mid and Lower Weaver Valley</i> and the <i>Wych Valley</i> designated as Areas of Special County Value (ASCV), with high sensitivity;</li> <li>• LCT 15 is particularly sensitive to a medium, large or very large solar farm that would be out of scale with the medium to small scale field pattern, that may involve the removal of traditional landscape features and that may bring a perception of human influence in a landscape with limited built development and man-made structures and perceived naturalness;</li> <li>• The greatest potential for solar PV development within LCT 15 is for a very small solar farm, and potentially a solar array at the smaller end of the 'small solar farm' category, where the valley is flatter and wider and where existing boundary features and woodland are retained to help screen the development;</li> </ul>

- Even a very small or small solar farm could be contrary to landscape management strategies in the 2016 Landscape Strategy to conserve the pastoral character of the landscape and to conserve and enhance the riverside environs, particularly the tree and riparian vegetation cover, and the special ecological community;
- Any small scale solar PV development should conserve the ancient clough woodlands, unimproved grassland and wetland habitats, in accordance with another landscape management strategy in the 2016 Landscape Strategy;
- Any small scale solar PV development should consider mitigation opportunities to increase woodland cover and restore traditional field systems in accordance with a landscape management strategy in the 2016 Landscape Strategy, and to help screen the development;
- Any small scale solar PV development should avoid creating adverse visual impact to sensitive views, in particular views from higher ground on the sandstone ridge and open views across the valleys;
- Any solar farm should avoid the highest quality land within the ASCV.

# SENSITIVITY TO SOLAR PV DEVELOPMENT

## LCT 16: MUDFLATS & SALTMARSH



There are 2 Landscape Character Areas within LCT 16:  
 LCA 16a: *Stanlow and Ince Banks*; LCA 16b: *Dee Estuary*

LCT 16 SENSITIVITY OF KEY CHARACTERISTICS TO SOLAR PV DEVELOPMENT	
Sensitivity Attributes	Summary of Sensitivity
<b>Natural &amp; Physical</b>	<ul style="list-style-type: none"> <li>• These flat, uniform, simple, large scale landscapes are in general of low sensitivity to solar PV development in principle, but their open, exposed character makes them highly sensitive.</li> </ul>
<b>Cultural, Heritage &amp; Historic</b>	<ul style="list-style-type: none"> <li>• Historic assets are few or of little significance;</li> <li>• Little or no recreational use, limiting sensitivity.</li> </ul>
<b>Built Development &amp; Settlement Pattern</b>	<ul style="list-style-type: none"> <li>• Lack of any built development on the mudflats and saltmarsh but their character is heavily influenced by frequent development and large industrial structures in adjacent landscapes;</li> <li>• Devoid of any settlement, with high sensitivity.</li> </ul>
<b>Perceptual &amp; Visual</b>	<ul style="list-style-type: none"> <li>• Flat low lying areas with no prominent skyline, although there is extensive visibility and important views across the flats and estuary; LCA 16a: <i>Stanlow and Ince Banks</i> is seen in panoramic views from the sandstone ridge at Frodsham and Helsby.</li> </ul>
<b>Qualitative</b>	<ul style="list-style-type: none"> <li>• High scenic quality, rarity and distinctiveness make this LCT highly sensitive to the principle of solar PV development.</li> </ul>

LCT 16 SOLAR PV SENSITIVITY ASSESSMENT						
LCA SENSITIVITY		LCT 16 SENSITIVITY				
LCA	Sensitivity	Very Small Solar Farm <1ha [<2.5acres]	Small Solar Farm 1-6ha [2.5-15 acres]	Medium Solar Farm 6-15ha [15-37 acres]	Large Solar Farm 15-25ha [37-63 acres]	Very Large Solar Farm >25ha [>63acres]
16a	H	H	H	H	H	H
16b	H	H	H	H	H	H

LCT 16 SOLAR PV SENSITIVITY ANALYSIS	
<ul style="list-style-type: none"> <li>• LCT 16 is sensitive to any form of solar farm development. These are rare, distinctive landscapes within CWaC with high scenic quality;</li> <li>• Even a very small solar farm on the open exposed mudflats and marsh would be conspicuous and is likely to adversely affect key views from highly sensitive visual receptors due to the extensive visibility;</li> <li>• Furthermore, the mudflats and marsh are unsettled and thus highly sensitivity to the principle of solar PV development that would reduce the perception of naturalness.</li> </ul>	

### Summary of sensitivity to ground mounted solar PV development

6.12 **Table 7** summarises overall sensitivity of each of the sixteen landscape character types to ground mounted solar PV development:

**Table 7: Summary of overall sensitivity of landscape character types to solar photovoltaic development**

Landscape Character Type	Very Small Solar Farm [ $<1\text{ha}$ or $<2.5\text{acres}$ ]	Small Solar Farm [1-6ha or 2.5-15acres]	Medium Solar Farm [6-15ha or 15-37acres]	Large Solar Farm [15-25ha or 37-63acres]	Very Large Solar Farm [ $>25\text{ha}$ or $>63\text{acres}$ ]
LCT 1: Woodland, Heaths, Meres & Mosses	M	M-H	H	H	H
LCT 2: Sandstone Ridge	M-H	H	H	H	H
LCT 3: Sandstone Fringe	M-H	M-H	H	H	H
LCT 4: Drained Marsh	L-M	L-M	M	M-H	H
LCT 5: Undulating Enclosed Farmland	M	M-H	M-H	H	H
LCT 6: Enclosed Farmland	L-M	L-M	M	M-H	H
LCT 7: Rolling Farmland	M-H	H	H	H	H
LCT 8: Heathy Farmland and Woodland	M-H	H	H	H	H
LCT 9: Cheshire Plain West	M	M-H	H	H	H
LCT 10: Cheshire Plain East	L-M	M	M-H	H	H
LCT 11: Estate Farmland	M-H	M-H	H	H	H
LCT 12: Mere Basin	M	M-H	H	H	H
LCT 13: Lowland Farmland and Mosses	L-M	L-M	M	M-H	H
LCT 14: Salt Heritage Landscape	L-M	L-M	M	M-H	H
LCT 15: River Valleys	M	M-H	H	H	H
LCT 16: Mudflats & Saltmarsh	H	H	H	H	H

### Discussion on sensitivity of LCTs in CWaC to ground mounted solar PV development

6.13 The assessment has shown that landscape character sensitivity significantly limits the potential for a medium solar farm (6ha-15ha), a large solar farm (15ha-25ha) or a very large solar farm ( $>25\text{ha}$ ) within the borough. The key characteristics of the CWaC landscape that are sensitive to this scale of solar PV development have been identified as the following:

- Undulating, rolling or steeply sloping landforms, and prominent skylines such as the sandstone ridge, that are more visually sensitive;
- Open, exposed landscapes such as the Cheshire Plain, even flat or gently undulating landscapes where there are views from nearby high ground such as the sandstone ridge, including panoramic and long distance views from important viewpoints and landmark features such as the hillforts;
- The small scale field pattern of hedgerows, trees and other human-scale landscape features such as traditional agricultural buildings, where large solar farms would be out of scale and over-dominant or could necessitate the removal of sensitive features;
- Limited built development and small scale, low density rural dispersed settlement pattern with a perceived naturalness;
- Recognised scenic quality, including extensive Areas of Special County Value (ASCV);
- Historic landscape character including the presence and influence of nationally designated or locally significant heritage assets;
- Landscapes that are distinctive and representative of CWaC with a particular 'sense of place' such as the sandstone ridge and pastoral plain.

6.14 The assessment has identified that there may be some potential for a medium or a large solar farm in locations that are:

- Flat or gently undulating;
- With a large scale field pattern with few landscape features;
- Already influenced by built development and prominent infrastructure;
- Not prominent with undistinctive skylines;
- Topographically enclosed and self-contained with limited intervisibility with adjacent landscapes;
- More common landscapes within CWaC, with low scenic quality;
- Less naturalistic.

6.15 There is most potential in the borough for a very small solar farm (less than 1 hectare or less than 2.5 acres) or a small solar farm (1-6 hectares or 2.5-15 acres) that would potentially be in scale with the landscape, in particular the small scale field patterns of hedgerows, trees and other human-scale landscape features. Strong boundary features can also mitigate the visual impact of smaller solar arrays by helping to screen them. However, there is still the potential for solar farms of this scale to cause significant adverse effects to key landscape characteristics within a LCA, particularly those that are visually sensitive or where visual sensitivity extends beyond the LCA over a wider area.

6.16 There are no areas within Cheshire West and Chester rated as 'low sensitivity', where key landscape characteristics and qualities would be considered sufficiently robust to be able to accommodate even a very small solar farm development without adverse effects on any key characteristics.

- 6.17 Where a range of sensitivity is given within a landscape character type, for example L-M (low-moderate) within the small solar farm category, there is likely to be lower sensitivity to the smaller size of solar farm within the category i.e. 1 hectare (2.5 acres), and moderate sensitivity to the larger size of solar farm within the category i.e. 6 hectares (15 acres).
- 6.18 Similarly, where a range of M-H (moderate-high) sensitivity is given within a landscape character type, for example within the medium solar farm category, there is likely to be moderate sensitivity to the smaller size of solar farm within the category i.e. 6 hectares (15 acres), and higher sensitivity to the larger size of solar farm within the category i.e. 15 hectares (37 acres).
- 6.19 Even an area rated as 'low-moderate' sensitivity will comprise some key characteristics that are sensitive to development that might cause significant adverse effect. For example, although LCA 13a: *Peover Lowland Farmland and Mosses* has an overall sensitivity rating of 'low-moderate', it is clear from the relevant matrix in the supporting technical appendix, as summarised in Table 5, that the medium to small scale field pattern with frequent landscape-scale features, and the low to medium scale settlement density with little modern development are of higher sensitivity. Any proposal for ground mounted solar PV development within LCA 13a should show how these sensitive characteristics have been taken into account in its siting, layout and design.
- 6.20 In this particular example, the wider LCT 13: *Lowland Farmland and Mosses* is particularly sensitive to a large solar farm (moderate-high sensitivity) and a very large solar farm (high sensitivity) where these key characteristics and qualities of the landscape are likely to be adversely affected by this type of development.

## Appendix B: General Design Guidance Principles for Wind Energy and Ground Mounted Solar PV Development

Proposals for wind energy and ground mounted solar PV development in the borough should reflect differences between the landscape character areas (LCA) described in the 2016 Landscape Strategy by adhering to the design guidance provided for each LCA. Proposals for these types of development within Cheshire West and Chester borough should also follow a number of general design principles in order to minimise landscape impacts, as set out below:

### Location

New wind energy and ground mounted solar PV development should:

- Relate to the scale of existing elements within the landscape;
- Be sensitively located and detailed to make a positive contribution to the character and appearance of an area, such that landscape character and local distinctiveness is conserved, restored or enhanced;
- Respond to the location and characteristics of the site by including details that incorporate, as far as possible, existing site levels, local topography, landscape features such as watercourses, hedgerows, trees, orchards and woodland, field patterns, buildings and landmarks. Alterations to these features should be minimised;
- Respond to the location by respecting, complimenting and retaining continuity with existing built form, pattern, scale, massing, height, density and materials. New development should not overshadow or otherwise threaten the setting of existing traditional buildings such as dairy barns;
- Respond to the location by respecting the setting of nationally designated heritage assets (buildings and features on Heritage England's National Heritage List for England) and other heritage assets of local significance;
- Be of high quality in terms of siting, layout and design to conserve, restore or enhance local distinctiveness and sense of place;
- Respond to the location by respecting and reflecting existing landscape setting. New development should be integrated into the landscape by careful siting, for example avoiding brows of hills and skylines;
- Maintain the distinction between rural and urban areas by incorporating sensitive location and design that does not lead to urbanising the countryside, for example by avoiding the insensitive design and accumulation of suburban style detailing such as fences, lighting etc.;
- Refer to Conservation Area appraisals, Village Design Statements, Neighbourhood Plans and other relevant local documents;
- Avoid (directly or adversely affecting the setting of) Areas of Special County Value (ASCV);
- Avoid areas identified as Key Settlement Gaps i.e. sensitive open areas between settlements where development could affect the sense of openness and lead to coalescence of settlement.

As well as considering the above factors, proposals for medium scale and larger scale wind energy development should only be located within an “area of least constraint” as identified in the Cheshire West & Chester Low Carbon and Renewable Energy Study, 2012.

### **Boundary Treatment**

- New development proposals should include a clear description of how existing boundaries would be protected and retained, for example hedgerows and hedgerow trees;
- New development should take full account of its relationship with its surroundings and ensure that it is well integrated into the landscape. This may include strong woodland buffers, hedgerows and tree planting on the development boundary as appropriate to ensure development provides a green interface with the countryside;
- New buffer planting should complement the Mersey Forest and provide opportunities for recreation;
- Appropriate boundary treatments should be used around new development, for example native hedgerows or sandstone walls, to conserve, restore or enhance the local vernacular built style (close board fencing or other solid fencing is unlikely to be an appropriate boundary treatment along boundaries facing open countryside, public rights of way or public open spaces).

### **Views**

- New development should respond to the location by taking full account of views into, out of and across the site. The siting and treatment of new development is particularly important where visible from important features and viewpoints such as hillforts, neighbouring properties, public areas such as roads and rights of way, and where visible from a wide area;
- Careful siting, layout and design could help reduce the visual impact of new development;
- New development should avoid prominent skyline locations such as ridgelines or brows of hills, or prominent slopes;
- Visual impact of intrusive or prominent built features can be reduced by appropriate native broadleaf planting to filter views or for screening solar farms, but inappropriate planting (for example conifers) can itself be prominent and uncharacteristic leading to adverse visual impact;
- New development should not block or obstruct views out, in particular sensitive views of landmark features (such as church spires and hillforts) or to distant hills (including the Clwydian Hills in north Wales, the Shropshire Hills or the Pennines) or the local sandstone ridge, as seen from highways, footpaths, bridleways, public open spaces or other public areas within the settlement;
- Lighting should be carefully selected to minimise glare and light pollution.

### **Landscape Conservation / Enhancement / Management**

- Key landscape characteristics and features of a landscape character area should be retained and new development should contribute to the appropriate conservation and enhancement of these features and the public’s enjoyment of them;
- Existing land use and management should continue beneath and around turbines and solar panels;

- New planting appropriate to a landscape character area should be considered to help screening and to sensitively incorporate new development into the landscape;
- Design layout should incorporate a high quality landscape framework that includes the establishment of green infrastructure such as linear buffer strips, creating a diverse network of informal open spaces and continuous wildlife corridors within and around the site;
- Existing hedgerows should be retained and restored, for example by gapping-up. Where opportunities exist, new hedgerows and hedgerow trees should be planted to restore former field patterns;
- Traditional agricultural field patterns and boundaries should be retained and managed where these are characteristic of the landscape;
- Areas and features of nature conservation value and interest should be retained and incorporated into new development, for example field ponds (a particular feature of the CWaC landscape) or areas of unimproved grassland/pasture. Where opportunities exist new areas and features should be created, for example by extending areas of semi-natural rough grassland, indigenous woodland or heathland habitat in areas where this would have no detriment to anything else (e.g. archaeological sites);
- Features of archaeological or historical significance, for example ridge and furrow, should be retained;
- New development should not affect the sense of tranquillity of an area where this is identified as a key characteristic.

### Accessibility

- New development should reinforce or create a network of routes and allow for further connections. The connections may be selective, for example to allow for pedestrians, cyclists or equestrians but not vehicular movement;
- New development proposals should clearly show connections to or extending an existing movement network, vehicular or non-vehicular, in particular public rights of way.

### Wind Turbine / Wind Farm Design

Guidance on the design of wind turbines and windfarms can be found in a number of documents<sup>21</sup> and from within the wind industry itself. Guidance varies depending on the size of turbines, their design and siting, and potential landscape and visual impacts. Micro wind turbines which are attached to buildings and vertical axis turbines (more often specially tailored to create a design statement for individual sites) are not considered in this study.

**Smaller scale free-standing horizontal axis turbines between approximately 10m-30m in height** (to blade tip) are commonly available in a variety of styles, designs and colours. Choice of turbine is a key factor in the potential landscape and visual suitability of small turbines at any site, especially where cumulative effects may occur (see below). Careful

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<sup>21</sup> For example:

‘Micro renewables and the natural heritage. Revised guidance’ (2016), Scottish Natural Heritage  
 ‘Siting and Design of Small Scale Wind Turbines of between 15 and 50 metres in height’ (2012), Scottish Natural Heritage;  
 ‘Siting and Designing Windfarms in the Landscape’ (2009), Scottish Natural Heritage.

- The proportion of blade length to tower height, and overall height to blade tip can significantly affect the appearance of a turbine in the landscape;
- A single colour of turbine is generally preferable, avoiding graded colours at the base; a light grey colour generally achieves the best balance between reducing visibility and visual impacts when seen against the sky (although this works less well when viewed against a darker background);
- Paint reflection should be minimised by using matt or light-absorbent finishes;
- Features in the landscape act as scale indicators that can accentuate the scale of larger turbines;
- The presence of other large structures in the landscape can reduce sensitivity to large turbines, however wind turbines and associated infrastructure can create an over-complex visual image in association with other large infrastructure such as electricity pylons and transmission lines;
- In general, the fewer turbines and the simpler the layout on an even landform, the easier it is to create a positive feature - visually balanced, simple and consistent in image as it is viewed from various directions. This is most easily achieved by a simple line upon level ground;
- A regular shape, such as a double line, a triangle, or a grid can appear appropriate within a wide open and level space where there is a regular landscape pattern, such as within large scale agricultural fields. However, as you move through the landscape and see it from different directions and elevations, views of the grid change and reveal a variable effect;
- Irregular layouts can be more appropriate in landscapes of variable elevation and pattern. However, irregular forms pose a greater challenge in terms of achieving a simple image, as the turbines will interact in varying ways with each other as well as with the underlying landscape;
- The siting and design of large turbines should take into consideration existing focal features in the landscape, such as ridges and hillforts, in order to minimise visual conflicts and avoid compromising the value of existing foci;
- In some urban fringe landscapes, larger turbines with slower rotation of blades may be preferable to smaller turbines with faster speeds. However, there will always be a need to relate the size of the turbines to the local context, taking account of the existing buildings and foci.

### **Cumulative Effects**

The combined effects of a number of wind turbines or solar arrays can create cumulative effects i.e. additional changes to the landscape and people's perceptions of it that could eventually change the character of the landscape. Currently there are few wind turbines or solar farms in CWaC but the potentially high level of visibility and other potential impacts as the numbers increase means that cumulative effects are more likely. This is an evolving area of practice and considerable effort has recently been devoted to addressing cumulative landscape and visual effects in guidance, specifically on wind farms<sup>22</sup>. More general

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<sup>22</sup> Assessing the Cumulative Impact of On Shore Wind Energy Developments (2012), Scottish Natural Heritage

guidance is provided in the 'Guidelines for Landscape and Visual Impact Assessment', 2013<sup>23</sup>.

New development proposals should take into account the additional changes to landscape and visual amenity caused by the proposed development in conjunction with other similar existing developments (either built or under construction) and those approved (but not built) and those at application stage, and the combined effect.

Landscape and visual impact assessment of new development proposals should include assessment of cumulative landscape and visual effects that can have an impact particularly on the following:

- The physical fabric of the landscape, such as hedgerows and woodland;
- Landscape character, where effects may combine to such an extent that they create a different landscape character type dominated by the developments. Such change need not be adverse; some degraded or derelict landscapes could be enhanced as a result of such change in landscape character;
- Landscapes recognised as having a particular value or function, such as Areas of Special County Value (ASCV) and Key Settlement Gaps, for example;
- Views, including combined visibility of two or more developments from a viewpoint, either "in-combination" (where the developments are seen within the same arc of vision at the same time) or "in-succession" (where the observer has to turn to see the various developments). The assessment should define the area within which the cumulative effects will be visible;
- Views, including sequential visibility where different developments are seen by moving from one viewpoint to another, for example when traveling along a road, railway, river/canal or footpath, etc. The assessment should define the length of each route along which there will be cumulative sequential effects.

### **Cumulative Effects Specific to Wind Energy Development**

Key considerations when proposing wind energy development in addition to existing turbines are as follows (this list is not exhaustive and reference should be made to up to date guidance):

- Differing blade movement speeds should be minimised;
- Turbine form, colour and scale in terms of ratio of tower height to rotor blade diameter, and overall height and appearance should be similar to avoid local landscape 'clutter';
- Development pattern should result in a similarity of design and visually balanced and coherent image within an area that limits visual confusion;
- To achieve simple visual relationship with the skyline, avoiding variable height, spacing and overlapping ('stacking') of turbines.

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<sup>23</sup> Guidelines for Landscape and Visual Impact Assessment, Third Edition, 2013; Landscape Institute and Institute for Environmental Management and Assessment.

Figure 2: Landscape Character Types and Areas within CWaC (from 2016 Landscape Strategy, Figure 1)

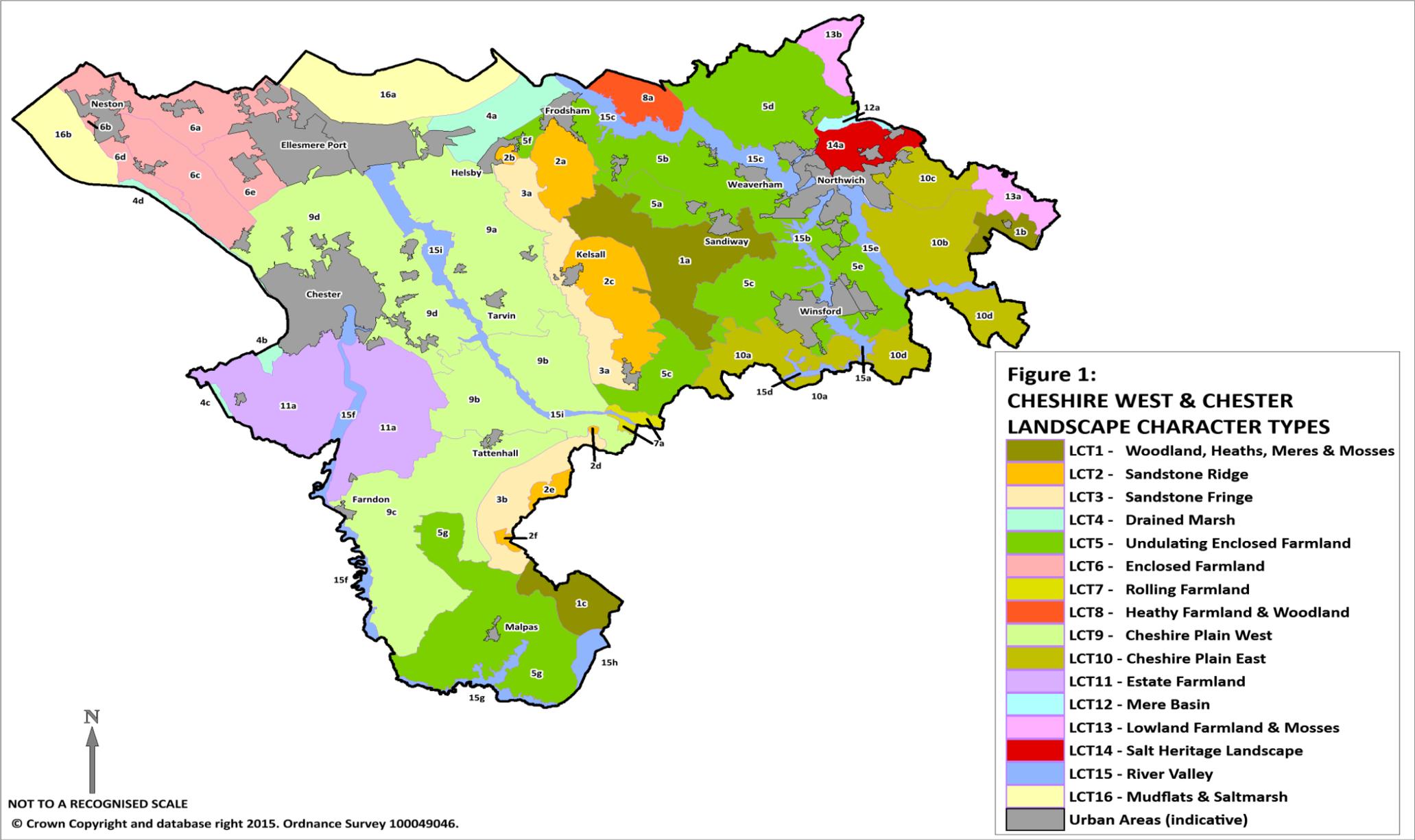
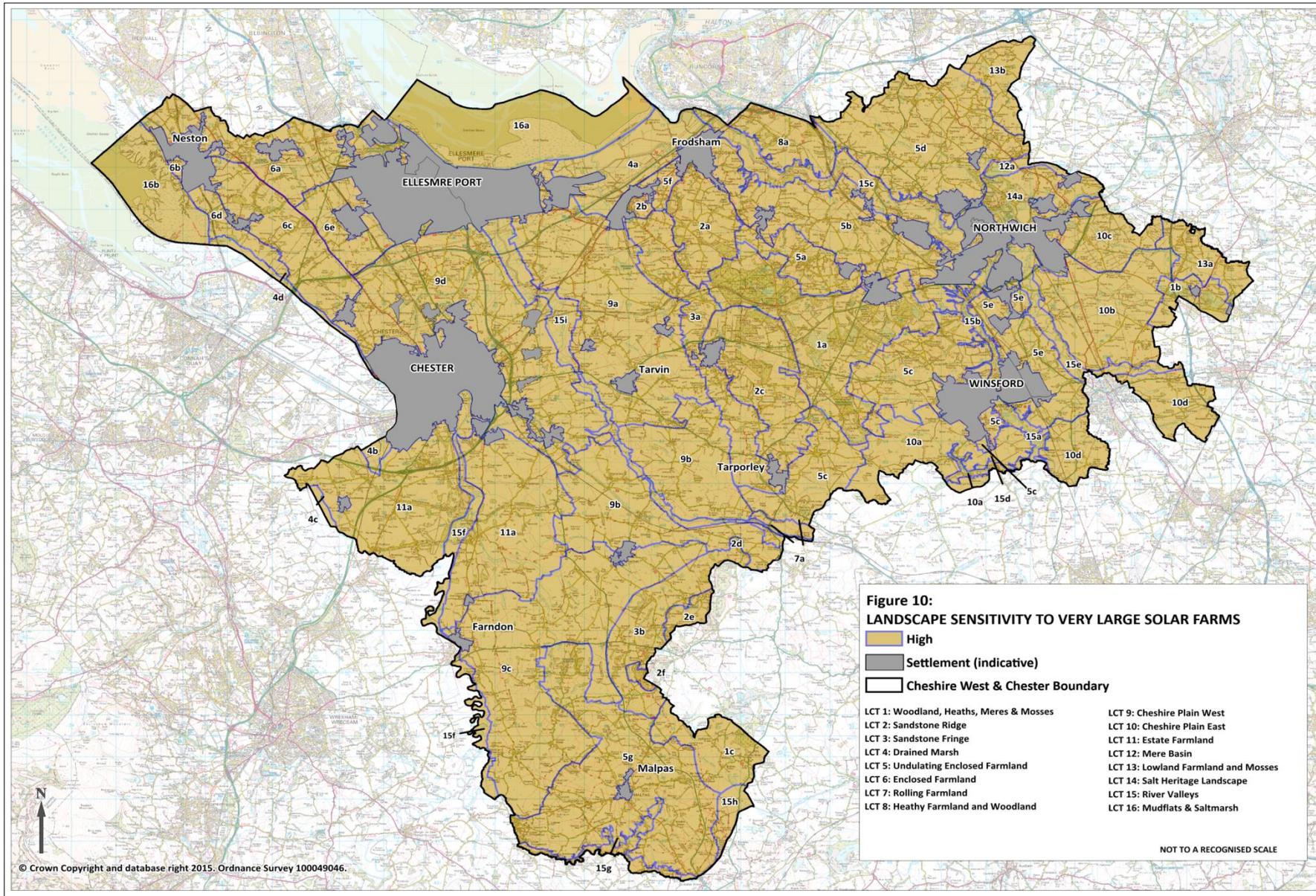


Figure 10: Landscape Sensitivity to Very Large Solar Farms



## **Natural England's Landscape Designation Programme**

**Update June 2025**

### **Supplementary Information: Frequently Asked Questions**

#### **Q1. What is a National Landscape / Area of Outstanding Natural Beauty (AONB)?**

An Area of Outstanding Natural Beauty (AONB) is land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty.

AONBs have recently been rebranded as National Landscapes and are now commonly known as such, however, the legislation has not been amended so when referring to the legislation, they are still referred to as AONB. This document will refer to these areas as National Landscapes except where the question is in relation to the legislation.

#### **Q2. What is Natural England's role regarding the designation of National Landscapes /AONBs?**

Natural England is Government's Statutory Advisor on landscapes in England, with wide ranging landscape duties and powers, including in relation to landscape designations. Natural England has the power, under S.82 of the *Countryside and Rights of Way (CRoW) Act 2000*, to consider whether to assess and designate AONB or vary the boundary of existing ones. Natural England will prioritise proposals by considering if:

- evidence suggests the land might meet the natural beauty criterion
- there's local authority agreement that designation is appropriate
- it has the available resource to evaluate the proposal
- it's more important than other corporate priorities

Whilst there may be certain parts of the designation process with which partners and stakeholders can assist, the statutory designation process, in England, cannot be completed by any organisation other than Natural England.

#### **Q3. What decision has Natural England made regarding its Landscape Designation Programme?**

Given the pressures on public finances, Defra has had to make difficult decisions about funding. It was not affordable to continue Defra funding to Natural England to continue

the new National Landscapes designations programme in 25/26. Consequently, the funding for this work is limited, and Natural England have had to make the decision to stop work on some of the planned programme.

Natural England had previously announced, in June 2021, a programme of four landscape designation projects, including two new potential National Landscapes (known at the time as AONB) in the Yorkshire Wolds and Cheshire Sandstone Ridge, and two extensions to existing National Landscapes, in the Surrey Hills and Chilterns.

Natural England will be continuing with the potential new Yorkshire Wolds National Landscape project and potential extension to the Surrey Hills National Landscape. The Surrey Hills and Yorkshire Wolds work is further advanced, and in both cases an extensive statutory (and public) consultation has taken place, meaning the proposed areas for designation are well established in the public domain. It was therefore considered, in order to make best use of the public funds available, to progress the two most advanced projects to completion.

This has unfortunately meant stopping work on the Chilterns National Landscape boundary extension project, and the potential new National Landscape in Cheshire. These projects had not yet reached the stage of sharing proposed areas for statutory (and public) consultation.

**Q4. How will this decision impact Natural England's work on protected landscapes going forward?**

We will consider any future landscape designations work in line with our new Strategy in due course. We fully recognise the continuing importance and required focus of National Landscapes in enhancing access to landscapes and supporting domestic and global targets, such as the Environment Act and 30by30 biodiversity commitments. We are continuing support for the Protected Landscapes Partnership, the National Landscapes Association and the individual National Landscapes in this regard.

**Q5. For the stopped projects, will the evidence which has been collated as part of the work to date be shared so others can use it?**

Natural England recognises the value of the work which has been completed to date for both of these projects. Each has reached a stage where much of the technical assessment has been completed. Some of this evidence base may be relevant to LPA's in developing local plans and determining applications. Natural England hopes to publish

the relevant information on NE's 'Access to Evidence' page in due course, so the evidence base which has been gathered can be shared.

**Q6. Does NE not have to proceed to designate these areas given the stage they have reached?**

Whilst Natural England is disappointed not to continue the projects, we are under no obligation to designate these landscapes. When considering proposals Natural England must also consider available resource to evaluate the proposal and other corporate priorities. Although the technical reports have been concluded, there are still a number of stages to go in the designation process for both of these projects, including a statutory (and public) consultation. In order to make best use of limited public funds the difficult decision has been made to stop work on these projects.

**Q7. Do Local Planning Authorities (LPAs) have to consult on development proposals in the Chilterns and Cheshire Sandstone Ridge proposal areas?**

No, LPAs do not have to consult Natural England on development proposals in these areas. Furthermore, LPAs are not legally required to consult Natural England on development proposals within or affecting existing AONBs under the Town and Country Planning (Development Management Procedure) Order. In both instances it is for LPAs to determine whether to consult with Natural England.

However, in consideration of the evidence gathered to date for the purpose of assessing these areas, Natural England noted, and would continue to note that, Natural England considers the Cheshire Sandstone Ridge and the Chilterns to be a valued landscape under paragraph 187 of the National Planning Policy Framework. An assessment of the landscape and visual impacts of the proposal on this area should therefore be undertaken, with opportunities taken to avoid or minimise impacts on the landscape and secure enhancement opportunities. Any development should reflect or enhance the intrinsic character and natural beauty of the area and be in line with relevant development plan policies.

**Q8. How should the areas identified for consideration as National Landscape, but not now being taken forward, be taken into account in the Planning process?**

Natural England is stopping work on the formal designation of these areas, but the landscape designation technical assessments have been completed. As noted above, during the assessment of the candidate areas Natural England made reference to these

areas in its advice on Local Plan consultations and planning application consultations. Natural England acknowledged that we consider these areas to be valuable landscapes for planning purposes and that LPAs may give weight to this as a material consideration in determining applications and making planning policies that relate to the candidate areas. This position remains unaltered by the decision on re-prioritisation of the designation programme due to resource.

However, the areas are not National Landscapes, have no legal designated status and policies specifically applicable to statutory designated landscapes will not be applicable. Ultimately, it is for LPAs to determine the material consideration and weight to be given to them in each case.

As noted above, NE hopes to publish the landscape designation technical assessments on its 'Access to Evidence' Page which will enable LPAs to use that information in accordance with the terms of the Open Government Licence.

The existing boundary for the Chilterns National Landscape is unaffected and remains in place.

[REDACTED]

---

**From:**  
**Sent:**  
**To:**

[REDACTED]  
19 September 2025 11:21

**Subject:**

[REDACTED]  
Following up after Frodsham Solar - DCO Application (Emergency Flood Warning Plan) RS

Hi All,

Please see the meeting notes below:

- **Flood Risk Management and Evacuation Planning:**

[REDACTED] discussed the operational approach to remote site operation, flood warning systems, evacuation procedures, and the integration of trusted information sources, with commitments to update plans and coordinate with emergency services.

[REDACTED] explained that the solar farm is primarily operated remotely, with a control room near the substation and only occasional visits by technicians or engineers for scheduled maintenance. This operational model minimises the number of people on site during potential flood events, reducing evacuation needs and risk to personnel.

[REDACTED] confirmed that the organisation will sign up to Environment Agency (EA) flood warnings, and that these alerts will inform decisions about site access and maintenance scheduling. The team also discussed supplementing the flood evacuation plan with information from local council highways and fire incident pages for real-time updates during incidents.

- o **Evacuation Procedures and Trusted Sources:** The plan should clearly identify who might be on site, with the importance of pre-prepared knowledge and referencing best practices from other high-risk sites. The plan will include references to EA, council highways, and fire service information sources, and will be updated to reflect operational hours and contact points for emergency response.
- o **Coordination with Emergency Services:** [REDACTED] Cheshire Fire and Rescue, including emergency access and hydrant point information. [REDACTED] operational advice and rescue in flood events would fall under the remit of Cheshire Fire, with the emergency planning team providing tactical support.

[REDACTED] recommended regular debriefs after incidents to review and improve emergency plans, offering to share a skeleton debrief form.

[REDACTED] agreed to consider including this in the plan and to ensure that dates are in place to reflect changing flood risks over time.

- **Bridge and Infrastructure Resilience in Flood Events:**

[REDACTED] discussed the structural resilience of bridges and cabling on site, focusing on ensuring operational continuity during Mersey tidal flood events and the need for engineering reports to demonstrate bridge stability and cable protection.

[REDACTED] raised concerns about bridges being designed to withstand Mersey tidal flood events, specifically the risk of bridges being [REDACTED] confirmed that the structural team is addressing these concerns by considering anchoring and abutment setbacks in the detailed bridge design.

[REDACTED] emphasised the need for cabling within bridges to remain operational during floods, suggesting that cables should be protected within conduits inside the bridge deck rather than being externally mounted, to prevent damage if the bridge is affected by floodwaters.

[REDACTED] clarified that while the site should remain operational during floods, full operational capacity during extreme events may not be required by policy. The team agreed to provide additional information and reassurance regarding bridge and cabling resilience, with further review by flood specialists and emergency planners.

[REDACTED] described the inclusion of raised transformer units as safe refuge areas above the flood risk zone, designed with a 600mm freeboard above the Mersey tidal defended event, to provide temporary safety for anyone inadvertently on site during a flood.

- **Battery Safety and Emergency Response Preparedness:**

[REDACTED] discussed battery energy storage safety, first aid provision, and emergency response protocols, confirming that safety management plans are in place and that the site is equipped for remote monitoring and rapid incident response.

[REDACTED] explained that a battery safety management plan has been developed in consultation with the Fire and Rescue service, with a dedicated battery safety expert advising on design and operational safety, including separation distances and compliance with relevant guidelines.

- **Remote Monitoring and Incident Detection:** The site will be monitored via a SCADA system, enabling real-time detection of technical faults or fire incidents, with immediate reporting to operators to facilitate rapid response and minimise risk to personnel.

[REDACTED] highlighted the importance of having first aiders on site during maintenance activities and ensuring that staff are trained to raise alarms and contact emergency services promptly in the event of an incident. [REDACTED] confirmed that health and safety standards are prioritised, with maintenance scheduled to avoid high-risk periods.

- **Battery Storage Flood and Fire Risk** [REDACTED] the project's approach to battery energy storage, stating that all requested measures to prevent leaks and manage fire risk during floods have been addressed by the project team.

- **Construction and Decommissioning Phase Flood Risk:**

[REDACTED] discussed flood risk management during the construction and decommissioning phases, confirming that the flood warning and evacuation plan will apply

and that present-day flood risks during these phases are significantly lower than during operation.

[REDACTED] explained that during construction, the risk and depth of flooding are much lower than in the operational phase, with only small areas at risk and low hazard levels. The flood warning and evacuation plan will still apply, but the likelihood of significant flooding is reduced.

## Follow-up tasks:

- **Flood Risk and Evacuation Plan Updates:** Supplement the flood warning and evacuation plan and operational management plan with localised information sources such as Cheshire West highways and Cheshire Fire incident pages, and ensure these are listed as trusted [REDACTED]
- **Operational Hours Documentation:** Add the operational hours for site attendance into the flood evacuation plan to clarify when the site is manned. [REDACTED]
- **Safe Refuge Area Design Standards:** Check with Cheshire Fire whether the safe refuge areas are fit for purpose [REDACTED]
- **Bridge Structural Integrity Information:** Provide information on the detailed bridge design, specifically regarding anchoring and structural soundness in the event of a Mersey tidal flood, to address concerns about bridges being dislodged [REDACTED]
- **Debrief Form Sharing:** Send a skeleton debrief form used after incidents to the team for potential inclusion as an appendix in the evacuation plan. [REDACTED] Form sent complete.

**FRODSHAM WIND FARM PLANNING  
CONDITION DISCHARGE  
PLANNING CONDITION 29 - PUBLIC  
RIGHTS OF WAY**

*Frodsham Wind Farm Limited*

*Updated (Final)*



# **Frodsham Wind Farm Planning Condition Discharge**

## **Planning Condition 29 - Public Rights of Way**

**Prepared for**  
Peel Energy Limited  
Peel Dome  
The Trafford Centre  
Manchester  
M17 8PL

**Prepared by**  
Parsons Brinckerhoff  
Amber Court  
William Armstrong Drive  
Newcastle-upon-Tyne  
NE4 6AS  
0191 226 2000





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**1 INTRODUCTION**

- 1.1.1 Frodsham Wind Farm was consented under Section 36 of the Electricity Act 1989. The scheme consists of 19 wind turbines, each not exceeding a height of 125 metres to tip height and associated infrastructure. 58 conditions were presented with the planning permission, of which condition 29 states the following:

*Safety of Users of Right of Way*

*No construction work associated with the development shall take place on the Site until a scheme to ensure the safety of users of a public right of way(s) on the Site (by appropriate signage, temporary diversions or temporary closure) has been submitted to and approved in writing by the LPA. The Development shall be carried out in accordance with the approved details unless otherwise varied in writing by agreement with the LPA.*

*Reason: To ensure that the construction of the development does not endanger those using public rights of way across the Site.*

- 1.1.2 During construction of the scheme, a number of site access tracks will cross / utilise existing Public Rights of Way (PRoW). As a result, the construction traffic on the access tracks pose a danger to the public using the route, therefore it is important that this risk is managed appropriately.
- 1.1.3 This report proposes a method to ensure the safety of the users of the PRoW on the site during the construction period and the ongoing operational period of the wind farm.

## 2 PROPOSED METHOD FOR MANAGING INTERACTION BETWEEN PUBLIC RIGHTS OF WAY USERS AND CONSTRUCTION ACTIVITIES

### 2.1 Description of the Development

2.1.1 Frodsham Wind Farm is located on Manchester Ship Canal Company deposit grounds, agricultural land and grazing marsh. The site is bounded by The Manchester Ship Canal to the north, the River Weaver and Weaver Navigation to the north east, the M56 to the south and the approved Ince Resource Recovery Park to the west.

2.1.2 The wind farm comprises 19 turbines of 125m maximum tip height. The following list details the infrastructure consented for the construction and operation of the wind farm:

- Site entrance;
- Wind turbine foundations (19 No.);
- Permanent meteorological mast (1 No.);
- Crane hardstandings (20 No.);
- Temporary construction compound (1 No.);
- Substations (2 No.);
- Canal berth (1 No.)
- Access tracks from the site entrance to the site infrastructure listed above;
- Access ramp from Lordship Lane up to Cross Lane; and
- Bridge over Hoolpool Gutter.

2.1.3 A site layout plan is included in **Appendix 1** to this report.

### 2.2 Public Rights of Way on Site

2.2.1 Footpaths and restricted byways information is held by Cheshire West and Chester Council. Ten restricted byways and one public footpath cross the proposed site. These current public rights of way are acknowledged as being in a poor condition, comprising a number of potholes, and frequently flooded.

2.2.2 In addition National Cycle Route (NCR) No.5, which runs from Reading to Holyhead, crosses the proposed site. It enters the site near Marsh Green, Frodsham towards the east; it then follows the route of the restricted byway through the site, passes along the southern boundary of Ince Marshes, through Ince and then heads south towards Elton.

2.2.3 No bridleways cross the site.

2.2.4 A plan illustrating the location of the PRoW within the site boundary is included in **Appendix 2** to this report.

**2.3 Detailed Description of Proposed Methods**

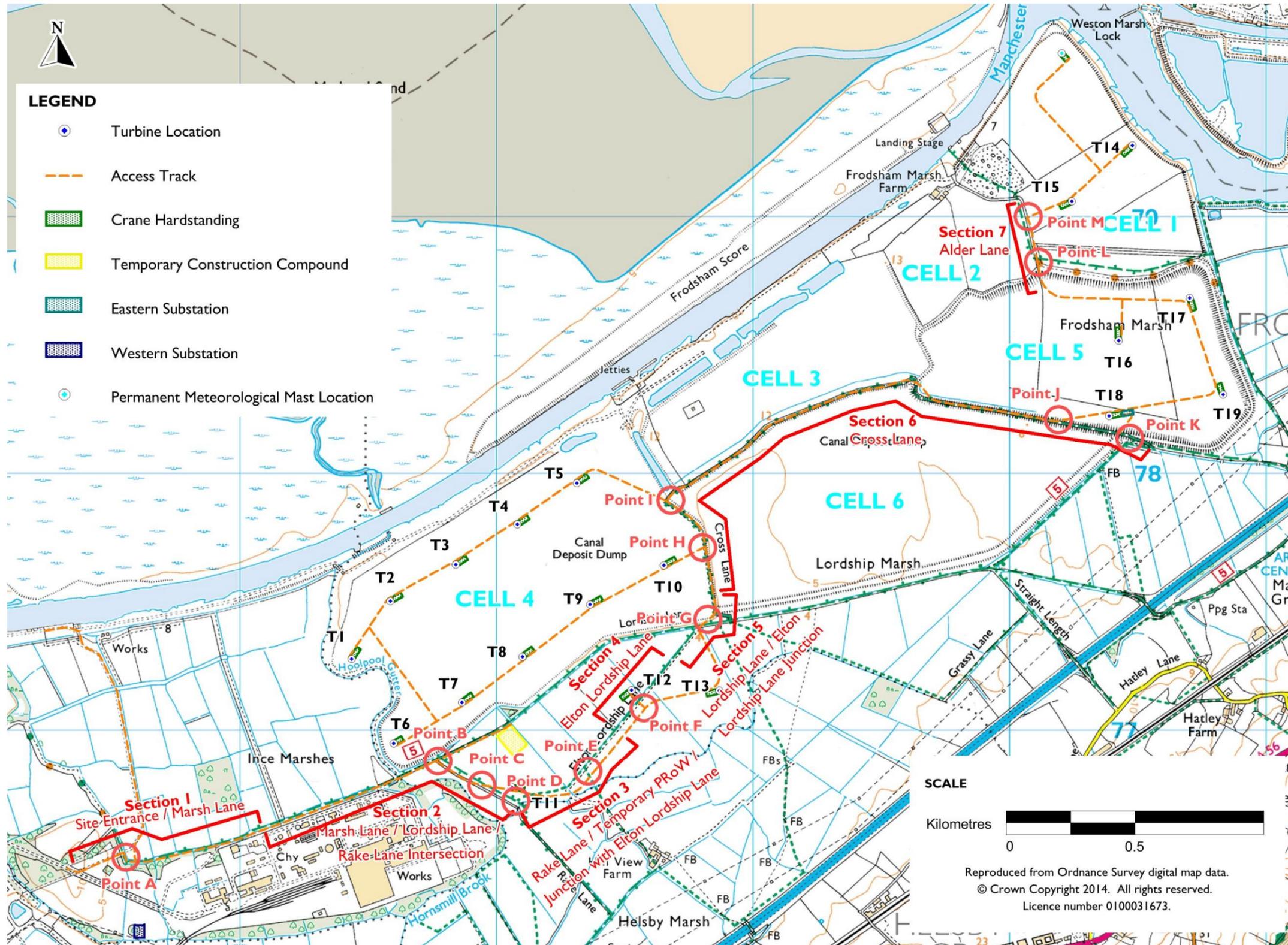
2.3.1 For the figures in this report, the following key details how features of the proposal are represented:

	Existing PRoW route (some will be used as an alternative route for closed PRoW)
	Track upgrades to be undertaken
	Proposed PRoW route (some of which are specified as temporary during construction)
	New site access tracks required
	Temporary fencing (see Section 3.2)
	Temporary basic fencing (see Section 3.3)
	Temporary Gates labelled on drawings and specified in figures

2.3.2 Unless otherwise specified, 3m temporary gates, temporary fencing and temporary surfacing is specified in Section 3 of this report.

2.3.3 The following Figure 1 illustrates the seven sections where the PRoW interacts with the site access/construction routes resulting in necessary moderations to protect the public for the duration of the works. Individual sections requiring modifications that have been identified in Figure 1 are subsequently detailed in this report.

Figure 1 – Master Plan of Site



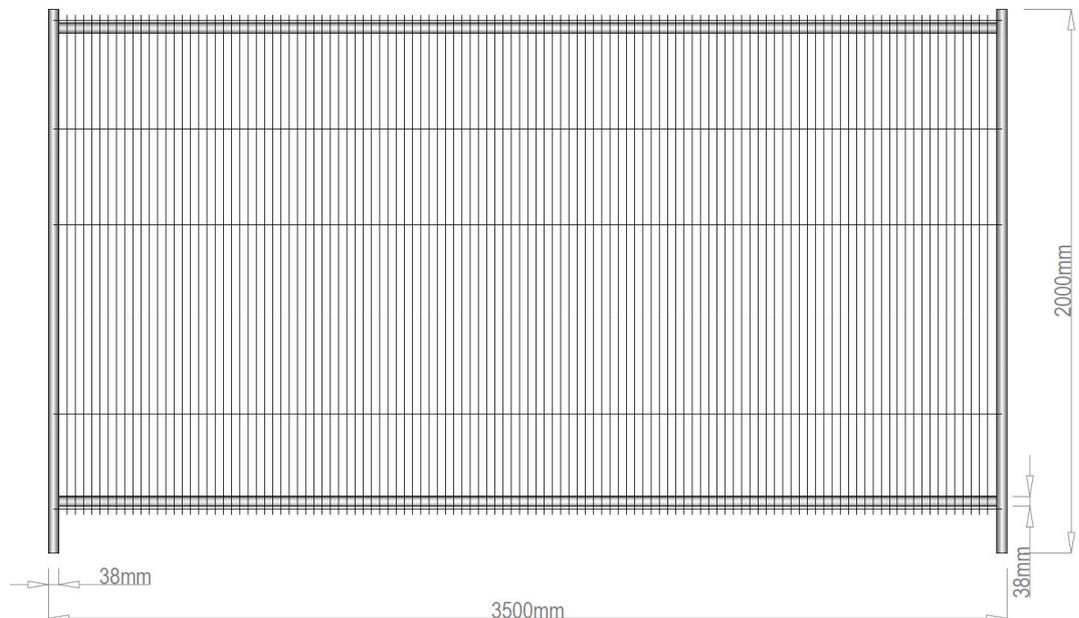
**3 PROPOSED CONSTRUCTION DETAILS**

3.1.1 The following section details the proposed design and specification for the fencing and gates to be installed at Frodsham Wind Farm to control the interface between PRow users and construction traffic, and the matting to be used on the cycle path / footpath diversions.

**3.2 Indicative Temporary Fencing**

3.2.1 The temporary fencing is envisaged to be anti-climb site fencing, with each panel being approximately 3,500mm wide by 2,000mm high. The panels will be supported by concrete feet at the base and will be clamped together approximately half way up each side of the panels for stability and security. Figure 2 below illustrates the preliminary design for fencing.

**Figure 2: Temporary Fencing (or similar)**



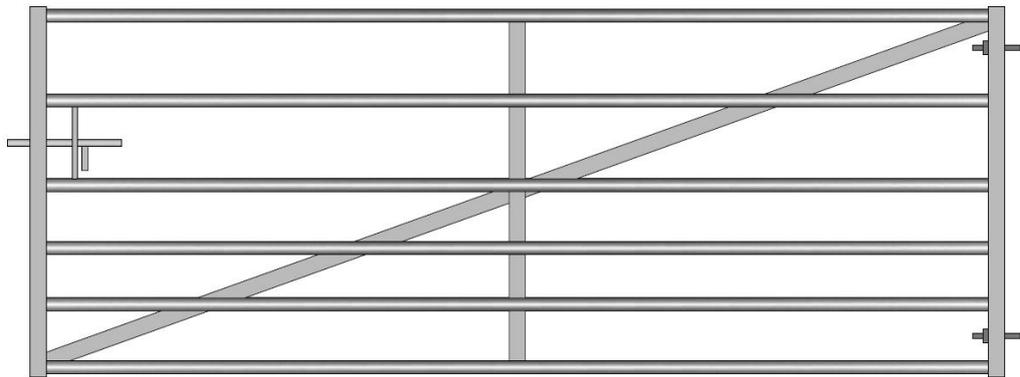
**3.3 Temporary Fencing (Basic)**

3.3.1 This fencing is to be used to keep PRow users on the correct diverted route and will comprise of plastic supports with basic interconnections (eg. tape or rope).

**3.4 Indicative Temporary Footpath (3m) Gates**

3.4.1 The temporary PRow gates are assumed to be anti-climb and c. 3,000mm wide and c. 2,000mm high consisting of a stainless steel mesh. Appropriate signs will be mounted on the gates to inform the public of restricted access and diverted routes. Figure 3 below illustrates a preliminary design for the 3m wide gate for pedestrian access.

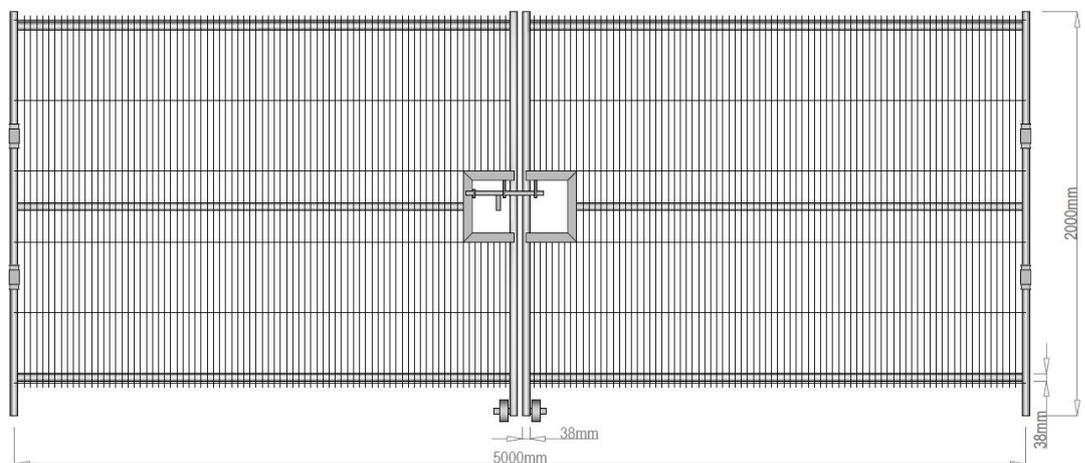
**Figure 3: Pedestrian gate (or similar)**



### 3.5 Indicative Temporary 5m Gates

- 3.5.1 The 5m temporary access gate is envisaged to be a double gate, anti-climb, stainless steel mesh, which could be approximately 5,000mm wide and 2,000mm high. Each gate will be appropriately signed so that the public is informed of access restrictions and diversions. The preliminary design of the proposed gate is illustrated in the Figure 4 below.
- 3.5.2 Other suitably sized gates may be used at each location of a similar design to that shown in Figure 4, to span the width of the track in the location where it is to be located.

**Figure 4: 5m Gate (or similar)**

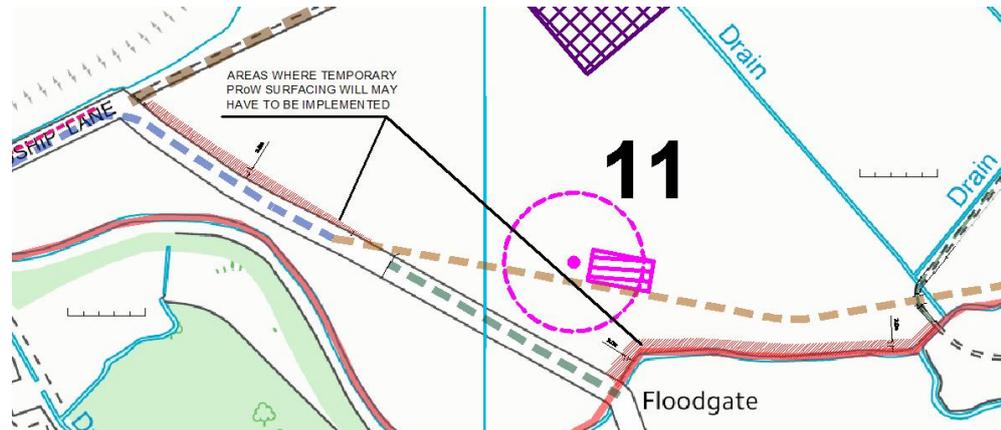


### 3.6 Indicative Temporary PRoW Surfacing

- 3.6.1 The temporary footpath surface will be non-invasive matting made from a low grade (due to small loading pressures) polyethylene mesh (or similar). The matting will be approximately 3m wide when installed on site.
- 3.6.2 The temporary surface will be placed over areas where a PRoW is not already present and is only a temporary installation for PRoW diversion during the construction period.

- 3.6.3 This will be laid directly onto the ground to provide ground protection and allow for access during particularly wet and muddy conditions. The mesh is relatively fast to install/remove and provides a high-slip resistance during wet conditions.
- 3.6.4 The areas in which the temporary surfacing is to be used is shown in Figure 5 below.

**Figure 5 – Sections Requiring Temporary Surfacing**



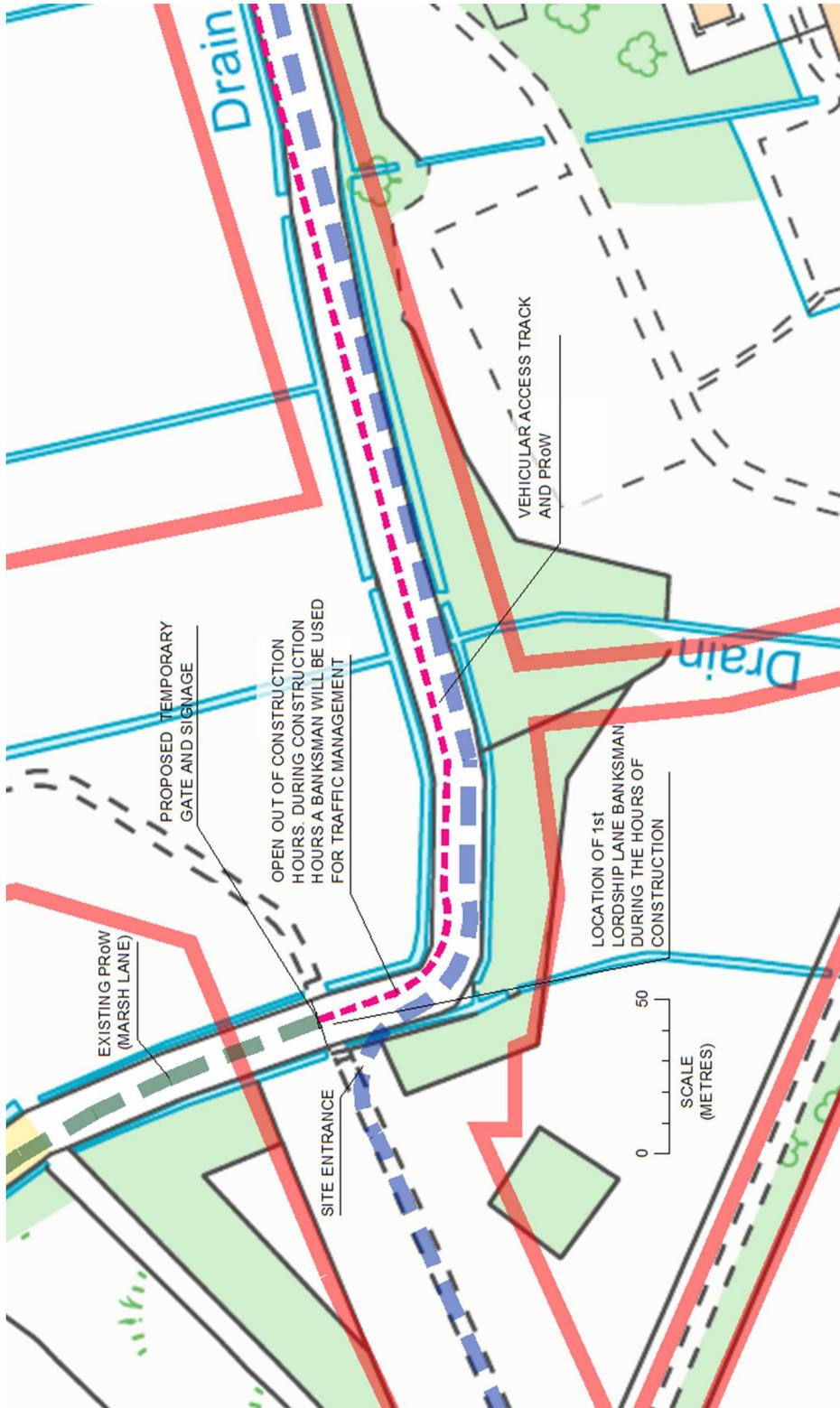
**4 SECTION 1: SITE ENTRANCE / MARSH LANE****4.1 Proposed Method**

4.1.1 A short distance from the site entrance the wind farm access track makes a 90 degree right hand turn onto Marsh Lane/Lordship Lane. Marsh Lane is a restricted byway and part of the NCR No. 5, both of which continue onto Lordship Lane.

4.1.2 The following is proposed:

- **Point A** - A temporary gate (see Section 3.4) will be installed across Marsh Lane, North of the site entrance, with appropriate signage to inform the public of construction traffic operating along Marsh Lane towards Lordship Lane, and to advise of how to proceed. In addition, signage will be installed to warn construction traffic drivers of the upcoming crossing point with the PRow and to exercise caution.
- During construction hours and for the entire duration of the construction period, pedestrians and horses will be prohibited access along Marsh Lane towards Lordship Lane (between **Point A** and **Point B**); specifically between the site entrance and the junction with Rake Lane. Cyclists will still be able to access the route during construction hours.
- A banksman will be stationed at the site entrance (**Point A**) during the hours of construction. A second banksman will be located at the junction between Marsh Lane / Lordship Lane and Rake Lane (**Point B**). Together, the two banksmen will control construction vehicle movements and PRow users to allow for safe passage along the track between **Point A** and **Point B**.
- The banksmen will control traffic using the following method:
  - On arrival of cyclists, they would be stopped by the banksmen. Using radio communication the two banksmen will hold construction traffic at either end of the closed section;
  - Cyclists along the restricted byway will then be allowed to pass through the section as soon as the section is clear of construction traffic;
  - Once the closed section is clear of PRow users, the banksmen will release construction traffic.
- Outside construction hours, the gate will be opened to allow free use of Marsh Lane by all PRow users. The signage will inform PRow users of the construction hours. The times and dates of these restrictions will also be published online. The opening / closure times will be down to the discretion of FWFL.

**Figure 6 – Section 1: Marsh Lane / Lordship Lane**



**4.2 Proposed Signage**

4.2.1 The information in this section refers to Figure 7 below, and some sign examples have been provided in Section 13.

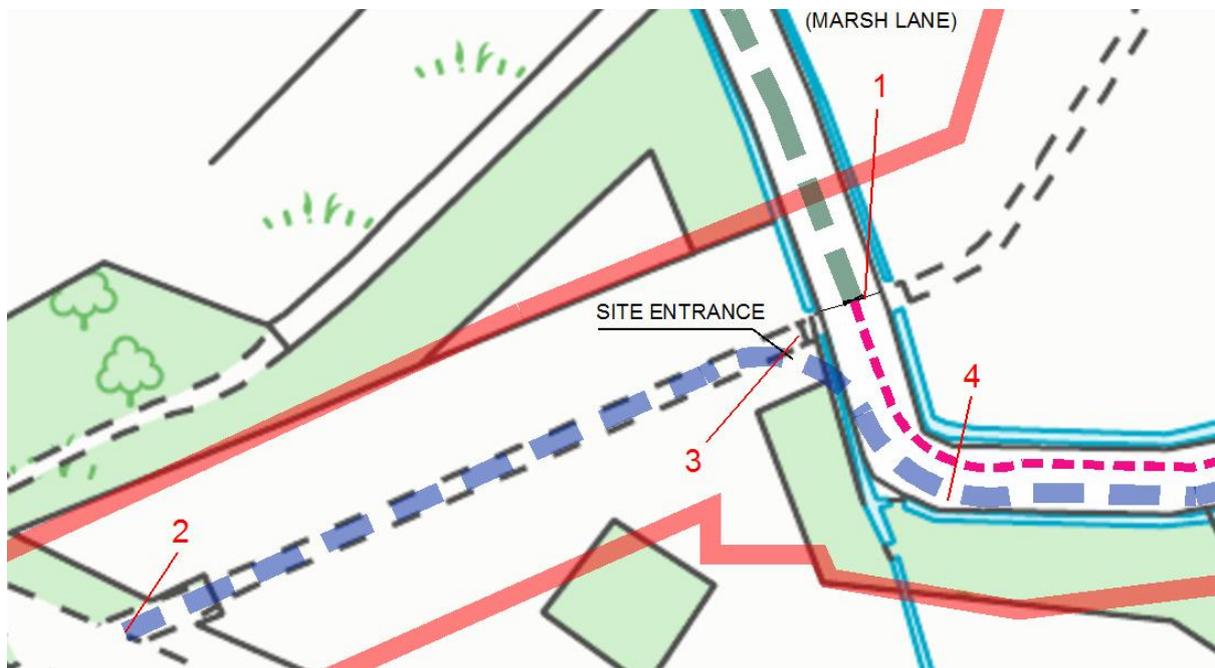
4.2.2 Location 1: Temporary PRoW gate – At the location of this gate two-way signage will be installed to inform the PRoW users of the restrictions that apply to PRoW users on foot and on horses, diversion and times and dates of which these apply; the other side of the sign will inform the public that they are leaving the construction area. The gate will also warn PRoW users of the site access track in use. There will be a sign to inform PRoW users that there is a banksman operating at the junction, and will inform the PRoW users (cyclists only) of the process to be adopted for a safe passage.

4.2.3 Location 2: Site entrance - Signage to inform construction vehicles drivers to exercise caution due to PRoW. Signage will inform of diversions and site safety. Signage will also warn of an upcoming banksman in the road.

4.2.4 Location 3: Site entrance to Marsh Lane – Signage to inform construction vehicles drivers to exercise caution due to PRoW. Signage will inform of diversions and site safety. Signage will also warn of an upcoming banksman in the road.

4.2.5 Location 4: Road sign – Signage to inform construction vehicles drivers to exercise caution due to PRoW. Signage will inform of diversions and site safety. Signage will also warn of an upcoming banksman in the road.

**Figure 7 – Section 1 Signage**



**5 SECTION 2: MARSH LANE / LORDSHIP LANE / RAKE LANE INTERSECTION****5.1 Proposed Method**

5.1.1 Shortly after the Hoolpool Gutter crossing, the wind farm access track makes a 90 degree right hand turn from Marsh Lane (at the integration with Lordship Lane) onto Rake Lane (**Point B**). Both Marsh Lane and Rake Lane are restricted byways and Marsh Lane is part of the NCR No. 5.

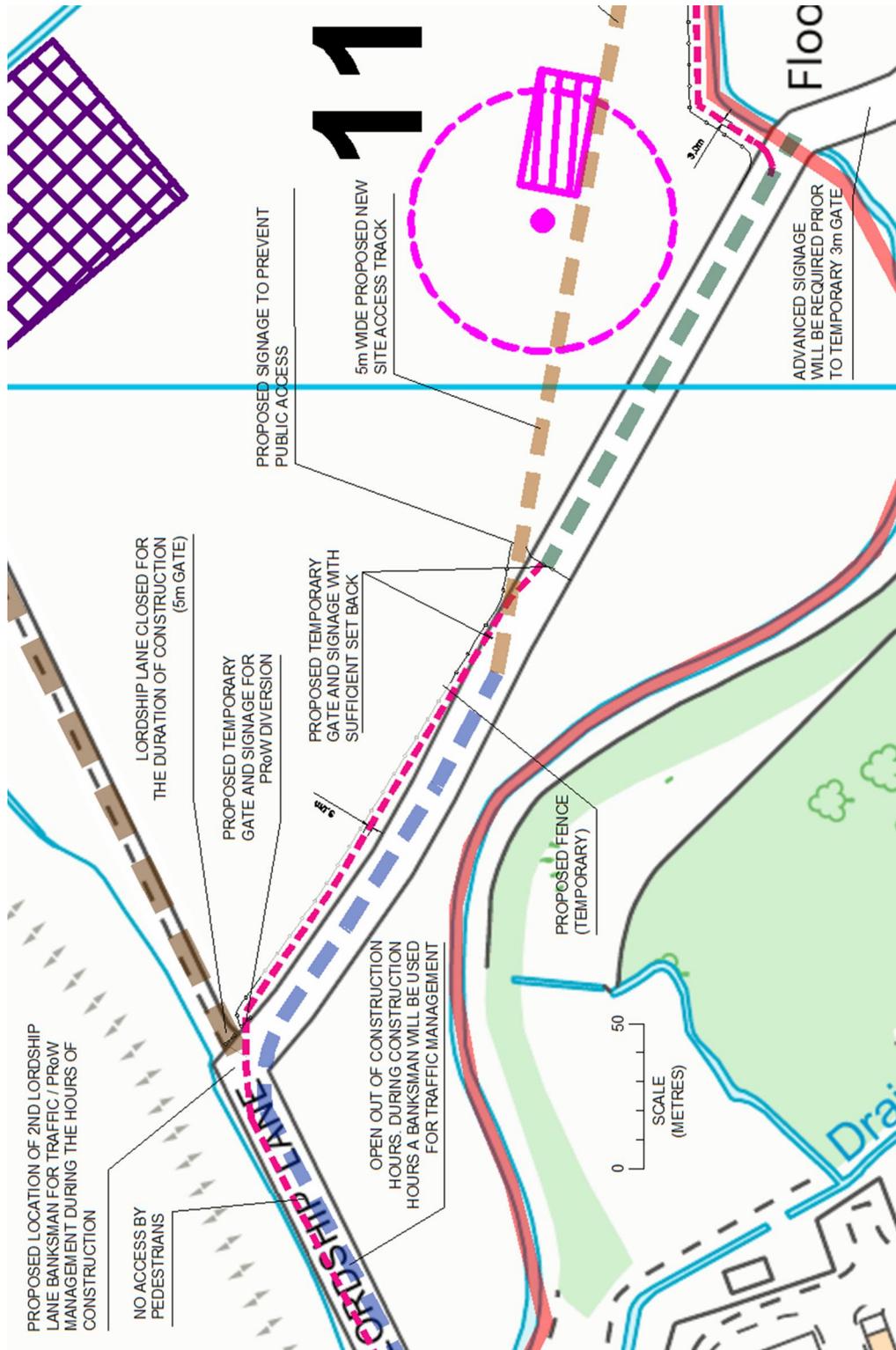
5.1.2 The following is proposed:

- The section of Lordship Lane east of the junction with Rake Lane (between **Point B** and **Point G**) will be closed for the entire duration of the construction works to allow for resurfacing and for use by construction traffic (non material amendment pending). A temporary 5m gate (see Section 3.5) is proposed at the entry point to Lordship Lane (**Point B**) to prevent public access. As a result, the public will be diverted from the entrance to Lordship Lane (from Marsh Lane) on to Rake Lane for the duration of the construction works.
- Access by pedestrians and horses along the specified section of Marsh Lane to/from Rake Lane will be prohibited during construction hours for the full duration of the construction period. Access will be granted to pedestrians outside these hours. Cyclists will have access at all times. The opening / closure times for pedestrians will be down to the discretion of FWFL.
- As previously mentioned in Section 1 above, a banksman (known as the 2<sup>nd</sup> banksman) will be stationed at the intersection of Marsh Lane / Lordship Lane / Rake Lane (**Point B**) during the hours of construction. The former banksman identified in Section 1 will be located at the site entrance (**Point A**). Together, the two banksmen will control construction vehicle movements and the permitted PRow users to allow for safe passage along the track. The 1<sup>st</sup> and 2<sup>nd</sup> banksmen locations are identified in Figures 6 and 7 respectively.
- The two banksmen will control traffic using the following method:
  - On arrival of cyclists, they would be stopped by the banksmen. Using radio communication the two banksmen will hold construction traffic at either end of the closed section;
  - Cyclists will then be allowed to pass through the section as soon as the section is clear of construction traffic;
  - Once the closed section is clear of PRow users, the banksmen will release construction traffic.

5.1.3 As a c. 175m section of Rake Lane will be used as the access track to Turbine 11 and beyond (between **Point B** and **Point C**), a temporary gate (see Section 3.4) will be installed at the intersection between Marsh Lane, Lordship Lane and Rake Lane (**Point B**) (south of the closed section mentioned above) that will divert PRow users to an approximate 3m wide temporary track (see in Section 3.6) parallel to Rake Lane (between **Point B** and **Point C**). Therefore, cyclists using NCR No. 5 will be diverted from the c.175m section of Rake Lane utilised for access and along this temporary track. This is illustrated in Figure 8 below. Alternatively, the temporary PRow track may be run in the field margin down the west of Rake Lane for the same section. The temporary access track will maintain a physical separation between users of this section of the PRow and the adjacent field through installation of a temporary fence structure (see Sections 3.2 and 3.3) on the east side of the track. The west side of the track currently maintains this separation via an existing fence / hedge.

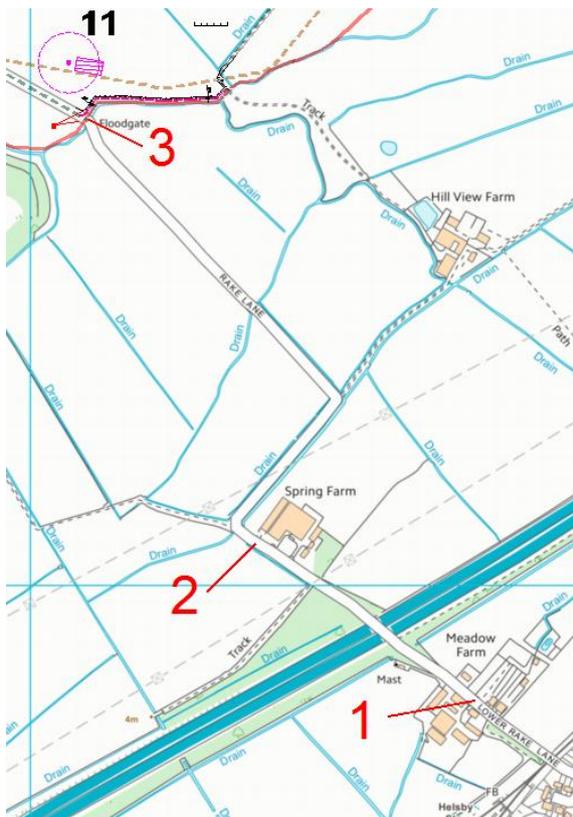
- 5.1.4 There will be appropriate signage to inform the public of construction traffic operating along Marsh Lane / Rake Lane, and to advise of how to proceed and restrictions during construction / outside of construction hours. Furthermore, there will be signage to inform PRow users that Lordship Lane will be closed at the junction for the duration of the construction works.
- 5.1.5 This temporarily diverted route will cross a site access track at **Point C** that will link Rake Lane to T11, as shown in Figure 8 below. At this crossing, the temporary PRow track will have gates set either side of the site access track to create a separation. These gates will have a minimum setback distance of 1.5m from the site access track to allow for visibility / avoidance of site traffic. There will be appropriate signage (see Section 13) to warn PRow users to be aware of construction traffic when crossing the site access track. In addition, signage will be installed to warn construction traffic drivers of the upcoming crossing point with the PRow and to exercise caution. There will be clear signage installed at the entrance to the T11 access track from Rake Lane to discourage / prevent the public from accessing the construction site.
- 5.1.6 At **Point C**, to the south of the access track connecting T11 to Rake Lane, the temporary track integrates back into Rake Lane. Rake Lane will be temporarily fenced off at this point to discourage / prevent members of the public from progressing further north on Rake Lane towards the junction with Lordship Lane. This Rake Lane barrier will contain a 3m temporary gate (Section 3.4). As access is not permitted by public vehicles during construction hours, advanced signage will be required to alert users before getting to the closed gate. This is illustrated in Section 13 below.
- 5.1.7 Rake Lane, approximately 160m south of the T11 access track (at **Point D**), will connect to another temporary track that will link Rake Lane to Elton Lordship Lane (between **Point D** and **Point G**). Appropriate signage and fencing will be implemented to make PRow users aware of the diversion and provide directions. Further details of the temporary PRow track that connects Rake Lane with Elton Lordship Lane is provided in the subsequent section.

Figure 8 – Section 2: Lordship Lane / Rake Lane intersection



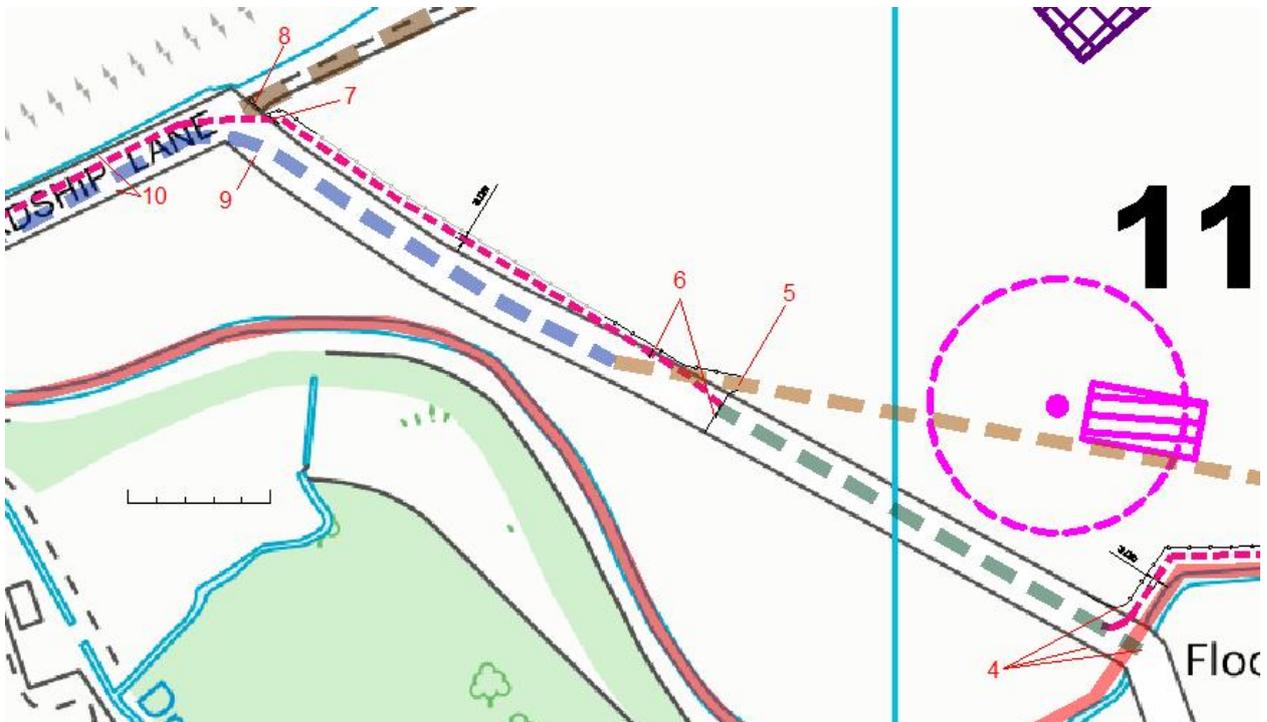
**5.2 Proposed Signage**

- 5.2.1 The information in this section refers to Figures 9 and 10 below, and some sign examples have been provided in Section 13.
- 5.2.2 Location 1: Start of Rake Lane – Advanced signage to inform users of road closures, PRow restrictions, and times/dates of temporary closures. This will give vehicle users enough warning to be able to turn around if access is not available.
- 5.2.3 Location 2 – Further advanced signage to inform users of road closures, PRow restrictions, and times/dates of temporary closures.
- 5.2.4 Location 3 – Entrance to Site Boundary – There will be notifications/warnings of entering construction site boundary, closure dates/times and diverted routes.
- 5.2.5 Location 4 – Diversion direction signs and notification signs to inform public of the temporary alterations. This will include times and dates of alterations and closures.
- 5.2.6 Location 5: Site access gate – Gates are to be appropriately signed that clearly show PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Additionally these gates will make users of the site access track aware that there is a PRow crossing point and the implementation of a 5mph max speed limit. The gate will also have a notification to the site traffic of a banksman located at the Marsh Lane/Rake Lane/ Lordship Lane Junction.
- 5.2.7 Location 6: 3m gate – There will be notification of the construction site and caution of the use by site vehicles. Clear signage will be implemented to illustrate opening times/dates of the track/gate. (Similar to the information provided in the advanced signage.) It will be clear that there is no access for motorised vehicles or pedestrians during the hours of construction. Both gates will require signage that clearly displays to the public that there is a site vehicle crossing and to exercise caution. The signs will also make clear that this is a diverted route and indicate which is the correct path for PRow users to follow.
- 5.2.8 Location 7: PRow temporary gate – Gate will require signage to inform the PRow users of the restrictions, diversion and the times and dates of which these apply. The gate will also warn users of the site access track in use. There will be a sign to inform users that there is a banksman operating at the junction, and will inform the users of the process to be undertaken for a safe passage.
- 5.2.9 Location 8: Temporary gate – There will be clear signage to inform PRow users that Lordship Lane is closed for the duration of construction and no access is available to the public. This will be clearly signed to discourage / prevent access outside of construction hours when the banksman is not present.
- 5.2.10 Location 9: Signage for Site traffic – This sign will inform the site traffic that there is a banksman operating at the junction and the vehicle may be held by the banksman.
- 5.2.11 Location 10: Road signage – Signs to inform PRow users and site vehicles of the construction activities and to exercise caution. The sign will also inform traffic of an upcoming banksman.



Left: *Figure 9 – Advanced Section 2 Signage.*

Below: *Figure 10 – Section 2 Signage*



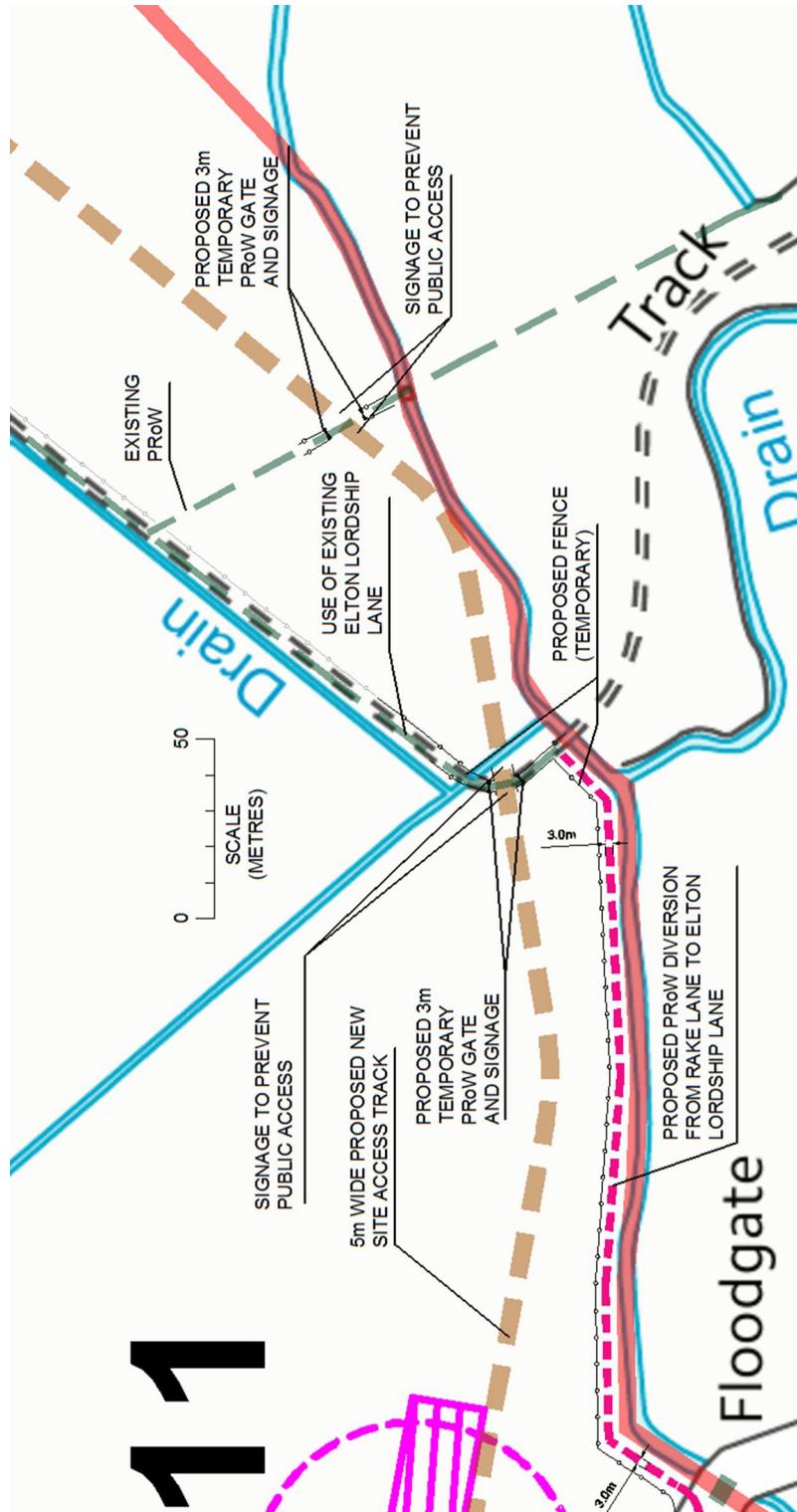
**6 SECTION 3: RAKE LANE / TEMPORARY PROW / JUNCTION WITH ELTON LORDSHIP LANE****6.1 Proposed Method**

6.1.1 Rake Lane is a restricted byway and has a public footpath that extends from Rake Lane to Elton Lordship Lane.

6.1.2 The following is proposed:

- A temporary PRow track will link Rake Lane with Elton Lordship Lane (between **Point D** and **Point G**). This temporary PRow will follow the northern edge of the water course (between **Point D** and **Point E**), connecting to an existing track and Elton Lordship Lane at the east of the track with Rake Lane at the west of the temporary track (please see Figure 11 below). Clear signage will be installed at the junctions with both Rake Lane (**Point D**) and Elton Lordship Lane (**Point G**) with the proposed temporary PRow to direct foot traffic and cyclists along the 3m wide footpath / cycle route (see Section 3.6). This route will not be for use by public vehicular traffic.
- A temporary fence (see Sections 3.2 and 3.3) will be installed along the length of this section where it is not bounded by a water course or drain; the type of fencing proposed is shown in Figure 11.
- A proposed site access track crosses the existing track that integrates into Elton Lordship Lane (**Point E**); this crossing is approximately 15m north of the connection to the proposed temporary PRow that links the track to Rake Lane, as shown in Figure 11 below. Temporary gates (see Section 3.4) will be installed on Elton Lordship Lane both sides of the crossing point of the wind farm access track, which will make the PRow users aware of the access track. A suitable setback of the gates from the access track will be implemented. Additionally, signage will be installed on the access track at this crossing to discourage / prevent public access.
- Appropriate signage will be installed to direct the public through the diverted route and reduce the risk of unintended access to restricted site areas (at **Point E**). The details are in the following section.
- Orientated in a North/South direction, there is an existing PRow connecting Elton Lordship Lane to Hill View Farm, which can be seen in Figure 11 below. As this PRow will be intersected by an access track connecting T11 to T12 & T13, temporary fencing and temporary gates will be required to separate the two tracks. The tracks will have appropriate signage as detailed in Section 6.2.

**Figure 11 – Section 3: Temporary connection of Rake Lane with Elton Lordship Lane**



**6.2 Proposed Signage**

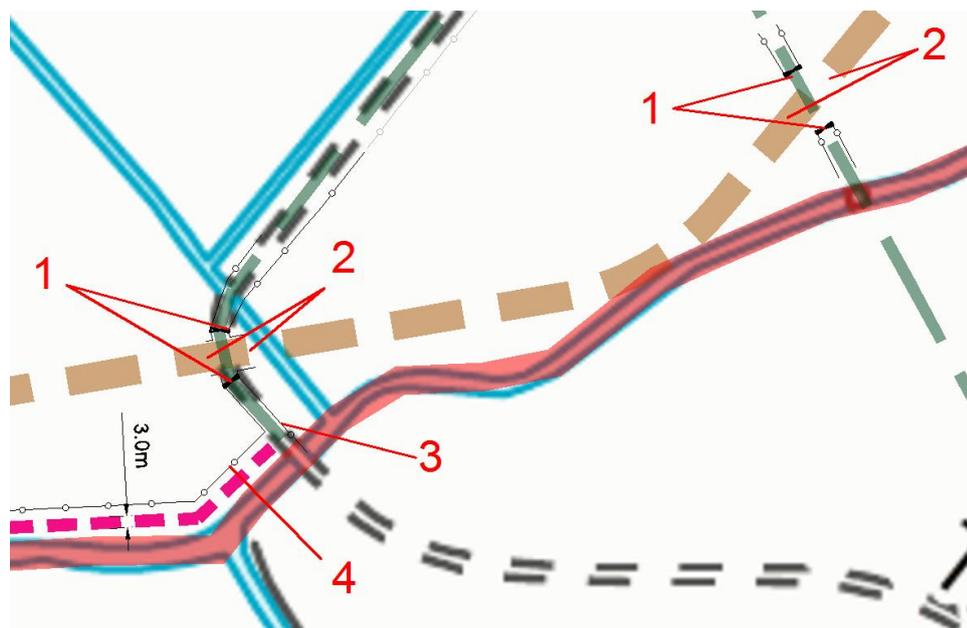
6.2.1 The information in this section refers to Figure 12 below, and some sign examples have been provided in Section 13.

6.2.2 Location 1: PRoW Temporary Gates – Both gates will require signage that clearly displays to the public that there is a site vehicle crossing and to exercise caution. The signs will also make clear that this is a diverted route from Lordship Lane and indicate the correct path for the PRoW users to follow.

6.2.3 Location 2: Site access – The crossing is to be appropriately signed that clearly shows to the PRoW users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Additionally these signs will make users of the site access track aware that there is a pedestrian crossing and the implementation of a 5mph max speed limit through this section.

6.2.4 Location 3 and 4: Diversion Notice - Both areas will have signage to direct PRoW users.

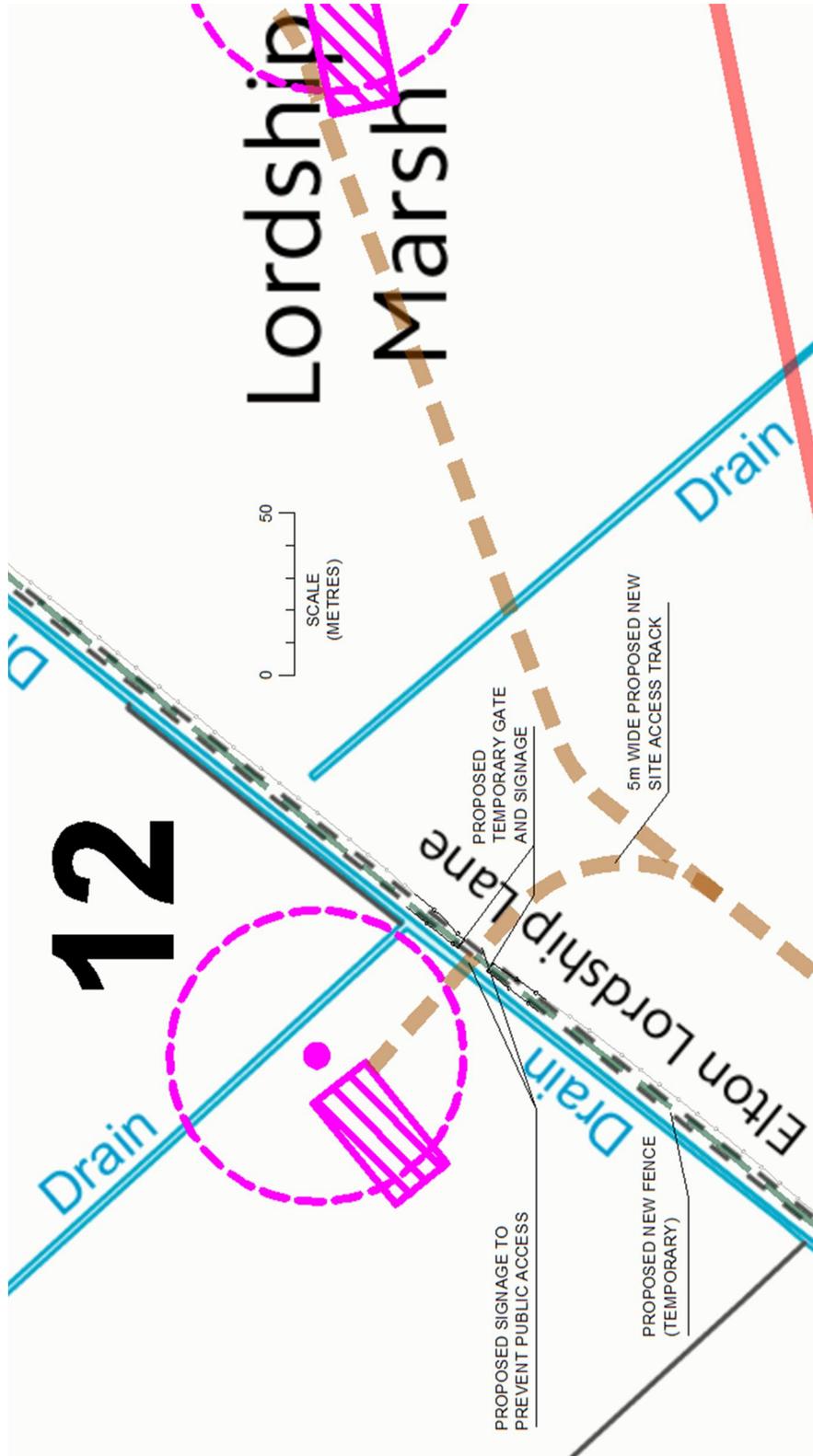
**Figure 12 – Section 3 Signage**



**7 SECTION 4: ELTON LORDSHIP LANE****7.1 Proposed Method**

- 7.1.1 Elton Lordship Lane is a restricted byway in the north-eastern section of the lane and a public footpath for the south-western section. The lane will be used as a PRow diversion from the closed section of Lordship Lane during the construction phase. As the route passes through the construction site and is in close proximity to the location of T12, temporary fencing (see Sections 3.2 and 3.3) will be installed along the south side of the lane (between **Point E** and **Point G**) to maintain a physical separation of PRow users from the construction site and traffic (there is already a physical separation from the north in the form of a drain). See Figure 13 below for type of fencing proposed.
- 7.1.2 Elton Lordship Lane is intersected by a site access track to T12 at **Point F**. At this intersection, temporary gates (see Section 3.4) and signage will be implemented to allow for safe passage across the access track during the construction phase, as illustrated in Figure 13 below. As the track leads to T12 only, construction traffic would be limited and interfaces between PRow users and the construction traffic will be for relatively short periods.
- 7.1.3 Additionally, signage will be installed on the access tracks to discourage / prevent public access to site.

Figure 13 – Lordship Lane / access track intersection



**7.2 Proposed signage**

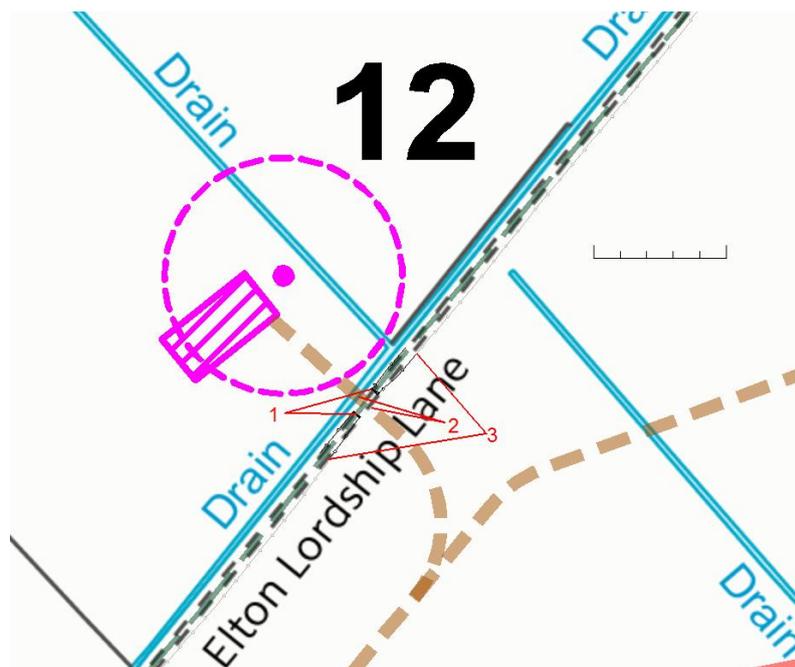
7.2.1 The information in this section refers to Figure 14 below, and some sign examples have been provided in Section 13.

7.2.2 Location 1: PRow Temporary Gates - Both gates will require signage that clearly displays to the public that there is a site vehicle crossing and to exercise caution. The signs will also make clear that this is a diverted route from Lordship Lane and indicate which it's the correct path to follow for PRow users.

7.2.3 Location 2: Site access- Access track is to be appropriately signed that clearly shows to the PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Additionally these signs will make users of the site access track aware that there is a pedestrian crossing and the implementation of a 5mph max speed limit through this section.

7.2.4 Location 3: Access track crossing - Both entrances to the temporary gates ways will be signed to detail the upcoming danger and inform the PRow users of the correct route for the diversions/route restrictions.

**Figure 14 – Section 4 Signage**



**8 SECTION 5: LORDSHIP LANE / ELTON LORDSHIP LANE JUNCTION****8.1 Proposed Method**

8.1.1 The PRow diversion along Elton Lordship Lane intersects with Lordship Lane. To the west of this intersection, Lordship Lane is closed to PRow users for the duration of the construction work (between **Point B** and **Point G**, identified in Section 5.1.2 of this document). Appropriate signage to prevent unauthorised access to the west of this junction will be installed. The temporarily diverted route will run along Elton Lordship Lane and Lordship Lane, east of the junction of the two lanes.

8.1.2 The site access track that links T10 and T13 (between **Point F** and **Point H**) travels in a north/south direction between Cells 4 and 6 and is perpendicular to Lordship Lane. Where this track intersects Lordship Lane (at **Point G**) there is a requirement for a construction access ramp to be constructed due to a substantial level change (c. 10m) between the bottom of the cell bund and the top.

8.1.3 The PRow along Lordship Lane (after the junction with Elton Lordship Lane) is intersected by the site access track. At this intersection, temporary gates (see Section 3.4) and signage will be implemented to allow for safe passage across the access track during the construction phase. This will also provide a separation between the construction traffic and the PRow users, as illustrated in Figure 15 below. Appropriate signage will direct users from one gate to the next.

8.1.4 Additionally, signage will be installed on the access tracks to discourage / prevent public access to site. There will also be signs on the access track to inform the construction traffic of the PRow crossing. This is illustrated in Figure 16 below.

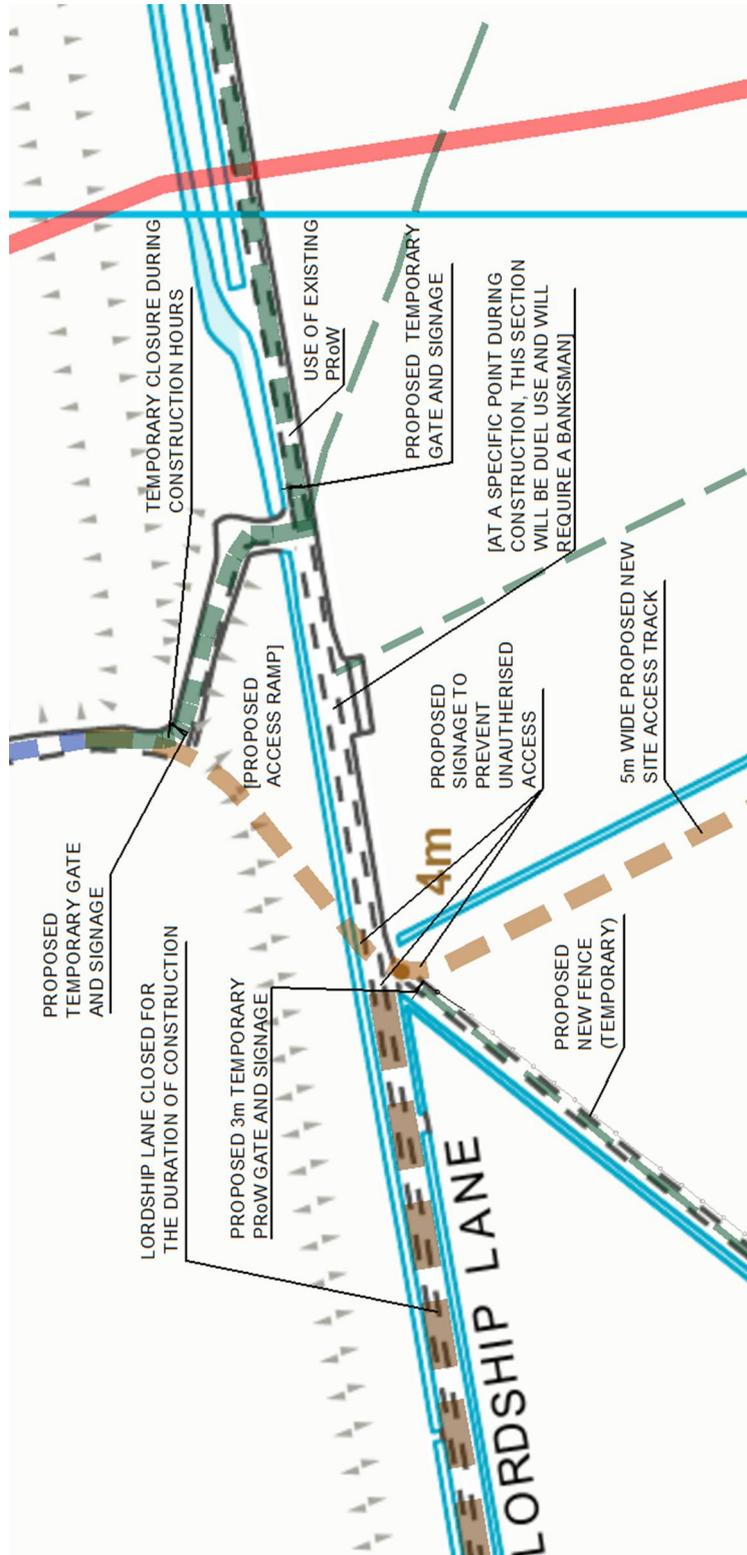
8.1.5 The section of Lordship Lane between the junction with Elton Lordship Lane and the Junction with Cross Lane will be open to PRow users for the duration of the construction works.. For a period of the construction (whilst the access ramp up the southern side of cell 4 is being construction), this section will be shared usage between construction traffic and PRow users. A gate on the PRow at each end of this section will be installed; both will be appropriately signed to inform the public of the upcoming arrangements and warn of construction traffic. A banksman will control construction vehicle movements and PRow users to allow for safe passage along the dual use section. The banksman will control traffic using the following method:

- On arrival of PRow users, they will be directed by the banksman whether to proceed based on construction traffic using the section – the banksman will stop all construction traffic (along Lordship Lane, at the bottom of the access ramp on the track towards T13 and at the top of the access ramp) to allow PRow users safe passage through the section;
- PRow users will then be allowed to pass through the section as soon as the section is clear of construction traffic;
- Once the closed section is clear of PRow users, the banksman will release construction traffic.

8.1.6 There will be a temporary gate located part way along Cross Lane near the intersection with the access track, as illustrated in Figure 15 below, to allow members of the public a viewing point at the top of the embankment.

- 8.1.7 The temporary gate to Cross Lane will be closed during construction hours and will be re-opened out of construction hours by site personnel. Locking of the site before work commences will be undertaken a suitable time before work begins to allow for any users of the PRow to exit the temporarily restricted lane. Prior to unlocking the temporary gate, all site work must be ceased. The opening / closure times of Cross Lane will be down to the discretion of FWFL.

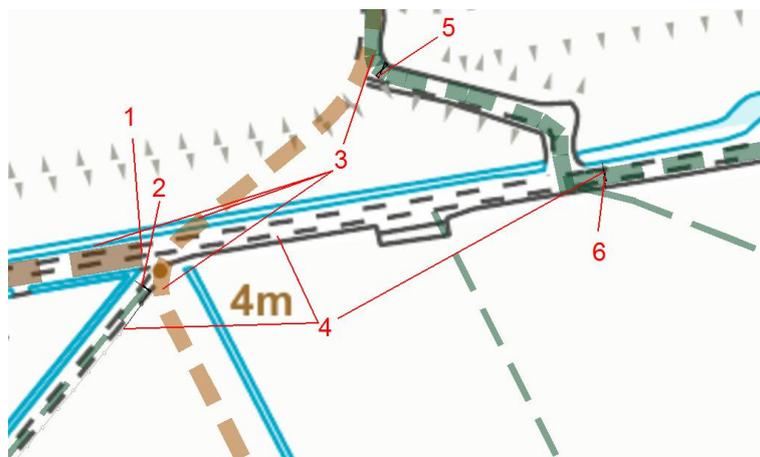
Figure 15 – Diversion around the Lordship Lane / Elton Lordship Lane junction



**8.2 Proposed Signage**

- 8.2.1 The information in this section refers to Figure 16 below, and some sign examples have been provided in Section 13.
- 8.2.2 Location 1: Restricted access – On Lordship Lane, to the west of the junction, there will be signs prohibiting access by the public and warning of the construction site ahead.
- 8.2.3 Location 2: PRoW Temporary Gates - Both gates will require signage that clearly displays to the public that there is a site vehicle crossing and to exercise caution. The signs will also make clear that this is a diverted route from Lordship Lane and indicate which it's the correct route and procedure to follow for PRoW users. Details for the use of a banksman when this section of Lordship Lane is shared with construction vehicles will be included on the sign. The signs will detail the times and process of operation and the caution that must be undertaken.
- 8.2.4 Location 3: Site access- Access track is to be appropriately signed that clearly shows to the PRoW users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Additionally these signs will make users of the site access track aware that there is a pedestrian crossing and the implementation of a 5mph max speed limit through this section.
- 8.2.5 Location 4: Access track crossing - Both entrances to the temporary gates ways will be signed to detail the upcoming danger and inform the PRoW users of the correct route for the diversions/route restrictions.
- 8.2.6 Location 5: PRoW Temporary Gate (Restricted Access) – There will be signage to inform PRoW users that Cross Lane will be closed during the hours of construction. The times and dates will be included on the sign.
- 8.2.7 Location 6: PRoW Temporary Gate – The temporary gate will detail the diversion to the PRoW route. There will also be details detailing the use of a banksman when this section of Lane is shared with construction vehicles. The signs will detail the times and process of operation and the caution that must be undertaken.

**Figure 16 – Section 5 signage**



**9 SECTION 6: CROSS LANE****9.1 Proposed Method**

9.1.1 Cross Lane (represented in blue in Figure 17 below) is a restricted byway that passes around the western and northern perimeter of Cell 6 (between **Point G** and **Point K**). It is proposed that a temporary closure for the duration of the construction works will be implemented along the length of Cross Lane (between **Point G** and **Point K**). Cross Lane will be closed during construction hours and will be re-opened out of construction hours as a PRoW. The opening / closure times of Cross Lane will be down to the discretion of FWFL. The times and dates of the opening hours will be published online and appropriate signage will be implemented on-site.

9.1.2 Temporary 3m gates at **Point G** and **Point K** will close off Cross Lane during construction hours and the gates will be opened after construction hours by site personnel; again this will be subject to the discretion of FWFL. Locking of the site before work commences will be undertaken at a suitable time before work begins to allow for any users of the PRoW to evacuate the lane. Prior to unlocking the temporary gate, all site work must be ceased.

9.1.3 There are two site access tracks from Cross Lane to T18 at **Point J** and **Point K**. Both access tracks will have signage (see Section 13) implemented at the connection to Cross lane. These will be closed during hours when construction is not being undertaken to discourage / prevent access to site by the public.

**Moorditch Lane / Cross Lane Junction**

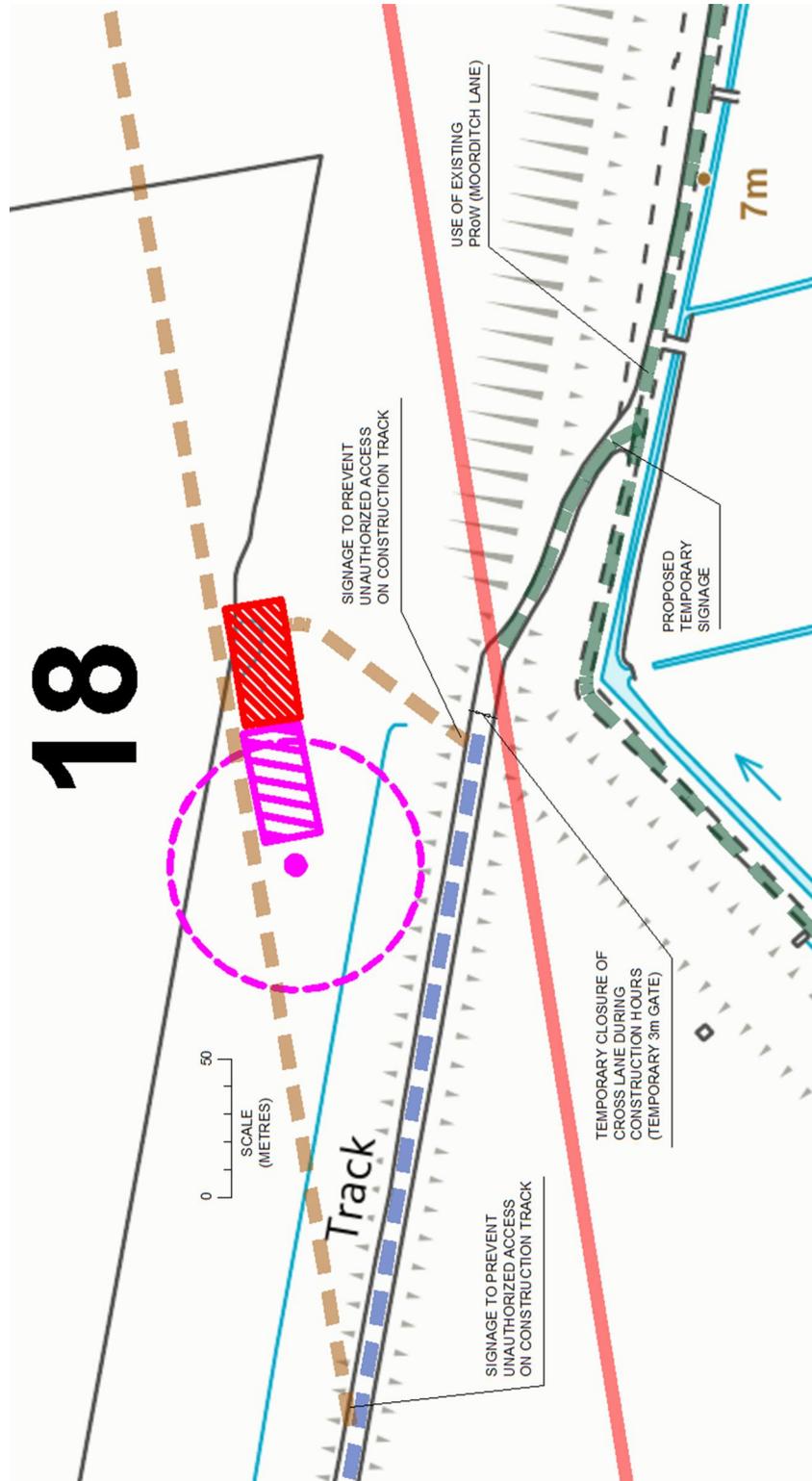
9.1.4 Cross Lane, at the junction with Moorditch Lane (identified in green in Figure 17 – at **Point K**) will require a temporary gate (see Section 3.4) and signage to inform and separate the construction site from the open PRoWs during the hours of construction. The times and dates of the opening hours will be published online and appropriate signage will be implemented on-site.

9.1.5 Moorditch Lane is part of the NCR No. 5, however, the implementation of a temporary gate at the entrance to Cross Lane (**Point K**) will have no impact on the NCR.

9.1.6 The temporary gate shall be located part way along Cross Lane near the top of the cell bund bank, as illustrated in Figure 17 below, to allow members of the public a viewing point at the top of the embankment.

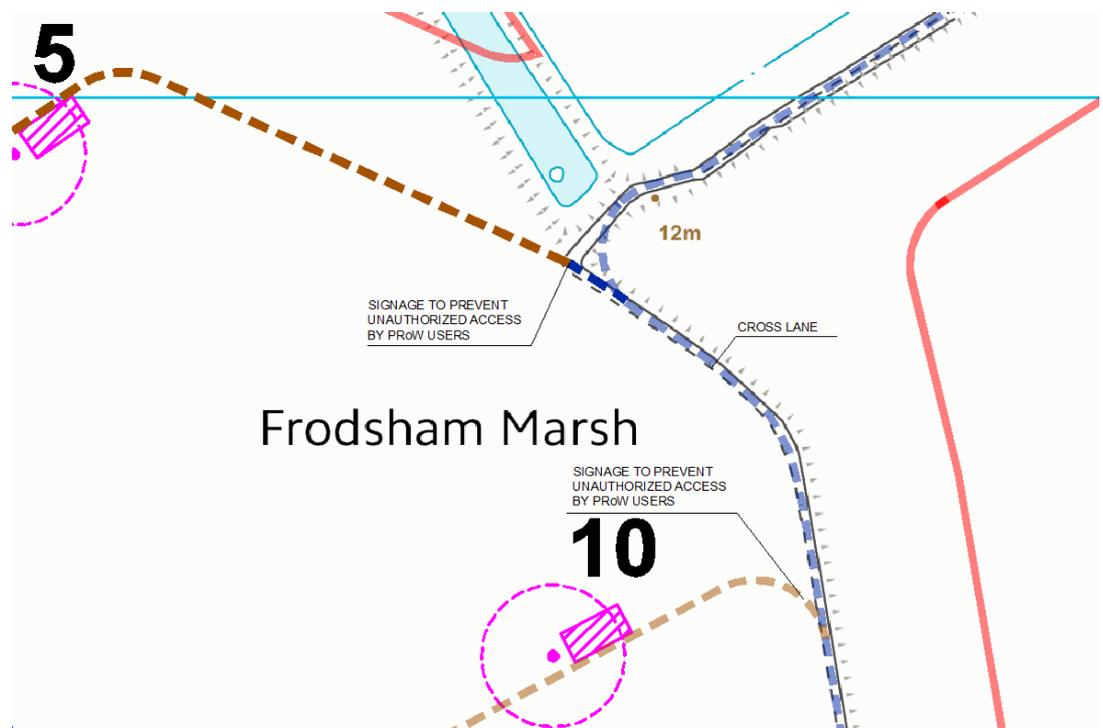
9.1.7 The temporary gate to Cross Lane (**Point K**) will be closed during construction hours and will be re-opened out of construction hours by site personnel. As mentioned in section 9.1.1, the opening times will be at the discretion of FWFL. Locking of the site before work commences will be undertaken a suitable time before work begins to allow for any users of the PRoW to exit the temporarily restricted lane. Prior to unlocking the temporary gate, all site work must be ceased.

Figure 17 –Junction of Cross Lane and Moorditch Lane



- 9.1.8 Where Cross Lane divides Cell 4 and Cell 6 (to the west of Cell 6) there are two access tracks that exit Cross Lane into the cells, one leading to T5 (**Point I**) and the other leading to T10 (**Point H**).
- 9.1.9 It is proposed that Cross Lane is subject to closure during construction hours and scheduled to open as a PRow outside construction hours. Again, this will be at the discretion of FWFL.
- 9.1.10 As a result the two access tracks from Cross Lane, to T5 (**Point I**) and T10 (**Point H**), will require signage to inform the PRow users PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Figure 18 below illustrates the location of these signs.

**Figure 18: Section 6 Signage**



**9.2 Proposed signage**

9.2.1 The information in this section refers to Figures 19 and 20 below, and some sign examples have been provided in Section 13.

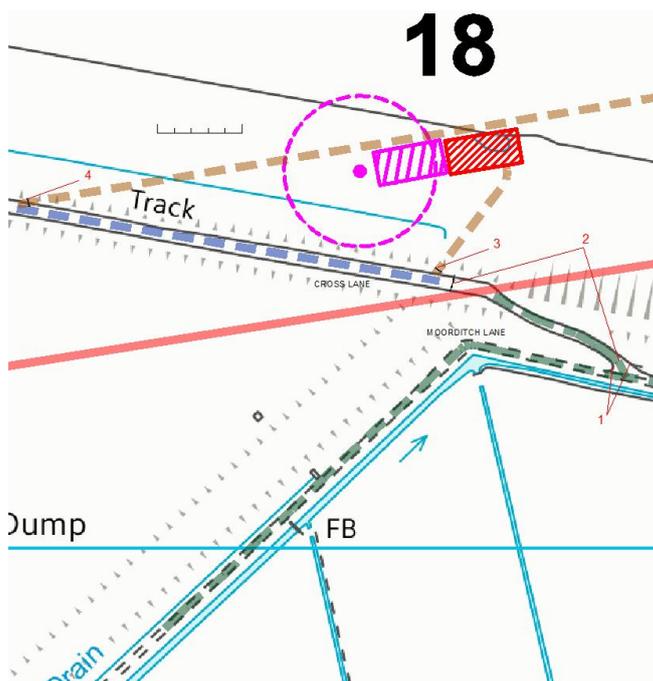
9.2.2 Location 1: Entrance from Moorditch Lane to Cross Lane – There will be signage to inform PRow users that Cross Lane will be closed during the hours of construction. The times and dates will be included on the sign.

9.2.3 Location 2: Cross Lane entrance – There will be signage to inform the PRow users that they are entering a construction site and to take caution. There will be a sign notifying the times and dates of closure.

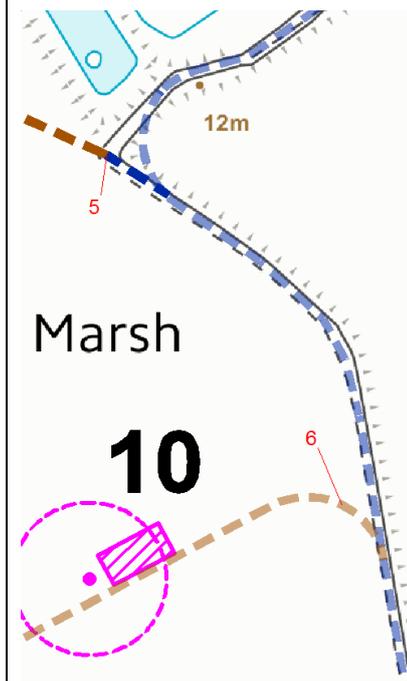
9.2.4 Location 3 & 4: T18 Access Tracks from Cross Lane – Access track is to be appropriately signed that clearly shows to the PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk.

9.2.5 Location 5 & 6: Respective T5 & T10 access tracks from Cross Lane - Access track is to be appropriately signed that clearly shows to the PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk.

**Figure 19 – Section 6 Signage**



**Figure 20 – Section 6 Signage**



**10 SECTION 7: ALDER LANE****10.1 Proposed Method**

10.1.1 The site access track that connects T16 / the alternative Met Mast (pending separate planning application) to T15 uses approximately 120m of Alder Lane, a restricted byway between Cell 1 and Cell 2 (shown in Figure 21 below). As a result, the 120m section of Alder Lane (between **Point L** and **Point M**) will become dual use as a PRow and as a site access track during the hours of construction.

10.1.2 A banksman will be used to manage the flow of onsite traffic with the PRow traffic over the dual use section established above (only during site construction/transportation hours).

- The banksman will be situated at the point where the Brook Furlong PRow merges with the site access track from Cell 5 (**Point L**), south of Alder Lane. Before this merger, there is a 50m separation of the access track and Brook Furlong / Alder Lane (shown in Figure 21 below). The banksman will move to the intersection of Alder Lane and the site access track from T15 in Cell 1, when necessary.
- Appropriate and clear signage will be used to warn construction traffic drivers and PRow users of the upcoming intersection and the use of a banksman during construction hours.

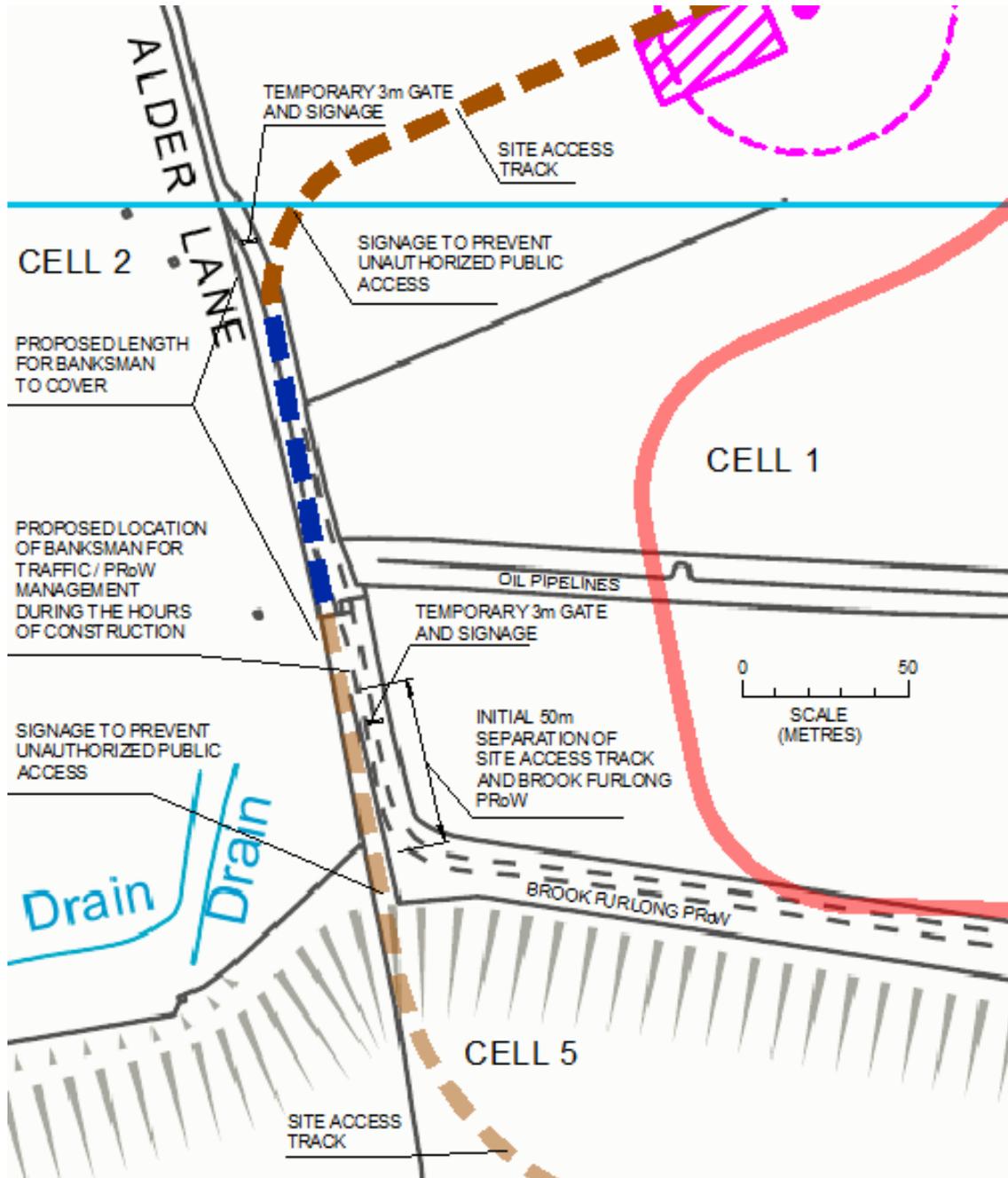
10.1.3 The banksman will control construction vehicle movements and PRow users to allow for safe passage along the dual use section of Alder Lane (between **Point L** and **Point M**). The banksman will control traffic using the following method:

- On arrival of PRow users, they will be directed by the banksman whether to pursue based on construction traffic visibly using the section.
- PRow users along the restricted byway will then be allowed to pass through the section as soon as the section is clear of construction traffic;
- Once the closed section is clear of PRow users, the banksman will release construction traffic.

10.1.4 The existing gate and cattle grid located in this dual use section are to be removed. The existing fence either side of Alder Lane will act as a physical separation from the construction site and will also be retained.

10.1.5 Temporary gates (see Section 3.4) and signage will be installed on Brook Furlong and Alder Lane. Suitable signage will be in place to make PRow users aware of the construction areas, as shown in Figure 21 below.

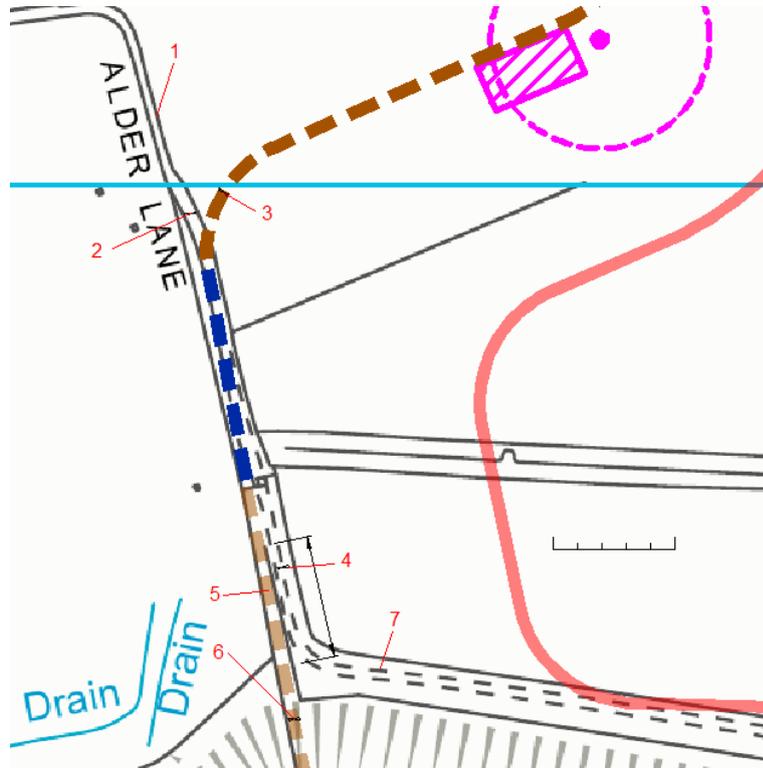
Figure 21 –Alder Lane



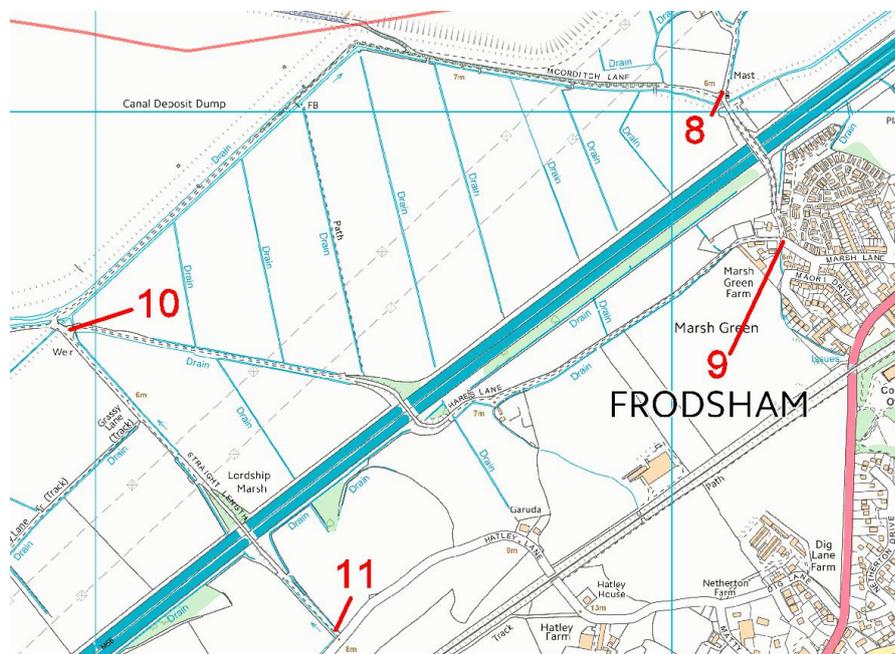
**10.2 Proposed signage**

- 10.2.1 The information in this section refers to Figures 22 and 23 below, and some sign examples have been provided in Section 13.
- 10.2.2 Location 1 & 7 - Advanced signage to inform PRow users of the dual road use, and times/dates of site traffic. The signs will warn PRow users that a temporary gate is ahead and to reduce speed.
- 10.2.3 Location 2& 4: Temporary PRow gates - Gate will require signage to inform the PRow users of the shared use with construction traffic and the times and dates of which these apply. The gate will also warn users of the site access tracks in use. There will be a sign to inform users that there is a banksman operating for this section and to await instructions, and will inform the users of the process for a safe passage.
- 10.2.4 Location 3 & 6: Respective Cell 1 and Cell 5 Access from Alder Lane - Access track is to be appropriately signed that clearly shows to the PRow users that there will be no unauthorised access, the area is a construction site and is a considerable risk. Signs will also alert construction vehicle drivers that they are coming from an access track onto a PRow and should exercise caution. The sign for the construction vehicle drivers will also inform of the use of a banksman at the junction with Alder Lane.
- 10.2.5 Location 5: Site access track merging with Alder Lane – Signage will be in place to notify construction traffic drivers travelling from the access track onto Alder Lane. This signage will notify that there is integration with a PRow and that caution will be exercise, also the sign will inform the construction vehicle drivers that there is a banksman in place to manage traffic.
- 10.2.6 Location 8, 9, 10 &11: Advanced signage – Signage will be in place to pre-warn PRow users that there are construction restrictions in place on specific routes. This can be seen in Figure 23 below.

**Figure 22 – Section 7 Signage**



**Figure 23 – Advanced Signage**



**12 SITE CONSTRUCTION STAFF SAFETY NOTIFICATIONS**

- 12.1.1 The details of the above will be included on the site safety briefing note to ensure that all site personnel are aware of the changes to the PRoW and are to exercise caution in these areas.
  
- 12.1.2 New and temporary site personnel will also be briefed on these changes to the PRoW to increase awareness of where members of the public may be and any potential risks.

13 PROPOSED SIGNAGE

13.1.1 The following signs are proposed for use on the PRowWs to inform the public of restrictions and diversions that are in place due to the construction. All signage is to be reviewed in advance of installation by Cheshire West and Chester Council. Figure 24 below illustrates some examples of signs that could be used on site.

Figure 24 – Sign Examples



Sign 1



Sign 2



Sign 3



Sign 4



Sign 5



Sign 6



Sign 7



Sign 8



Sign 9



Sign 10

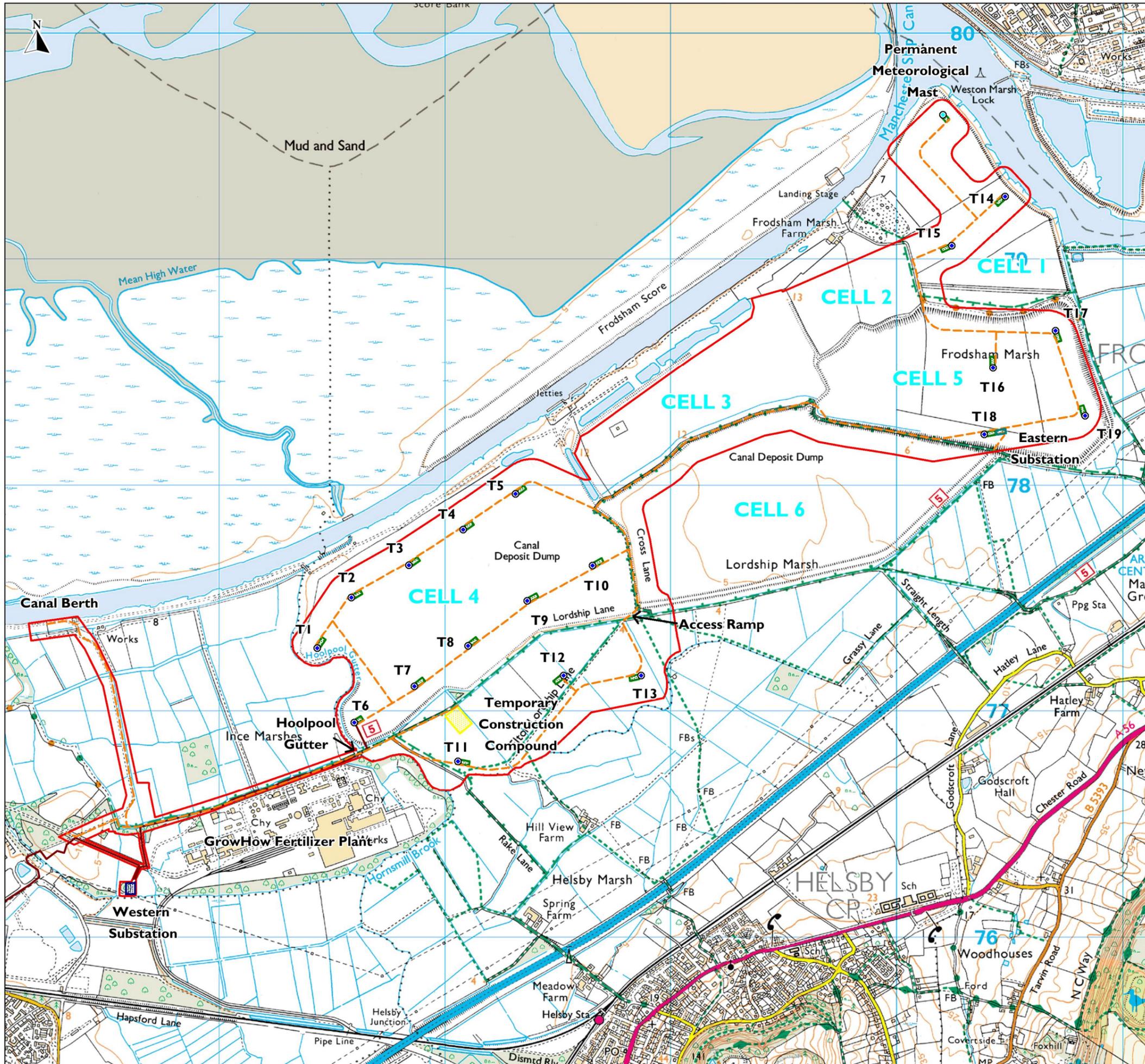


Sign 11



Sign 12

## APPENDIX 1 – Preliminary Site Layout Plan



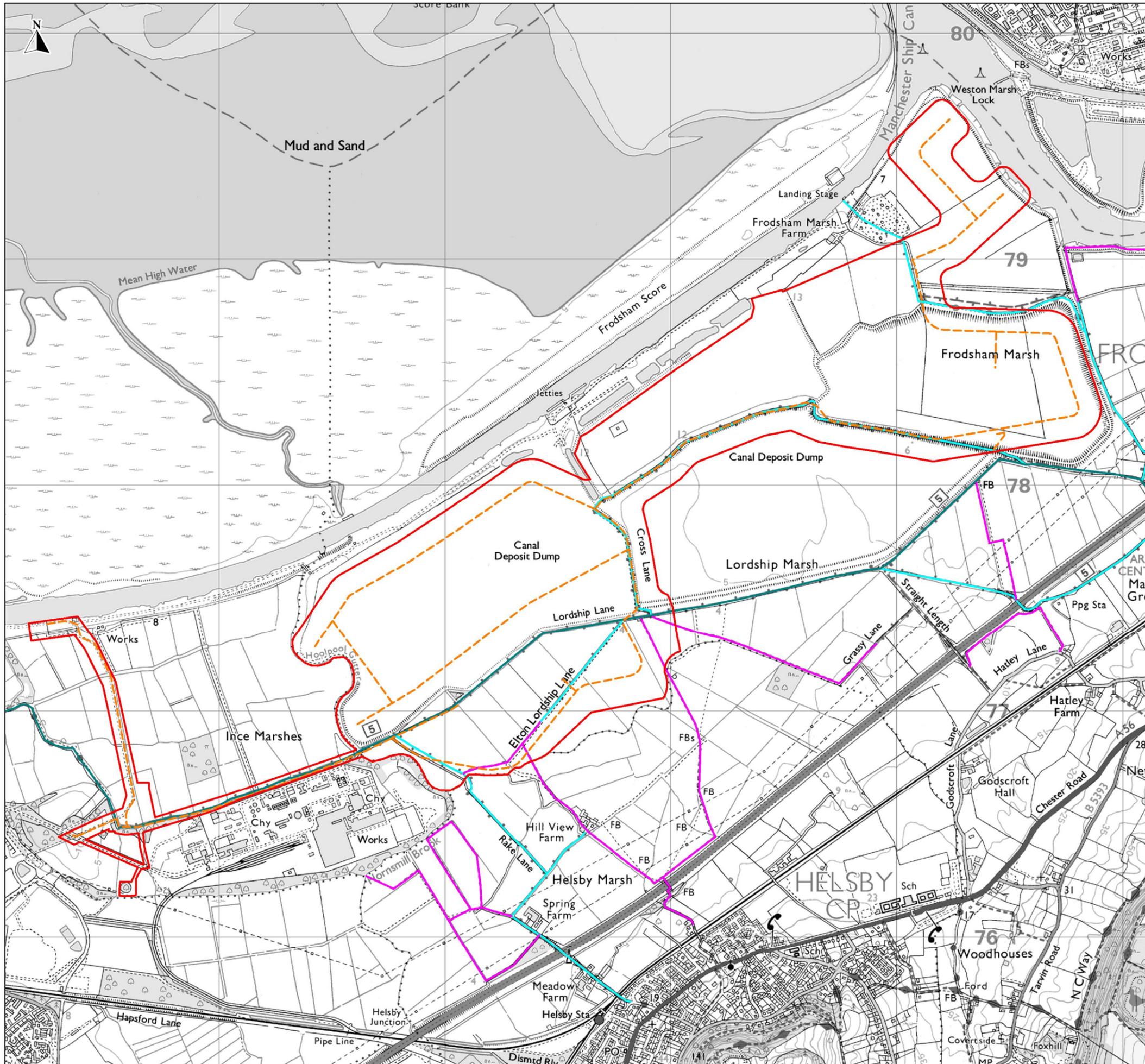
- LEGEND**
- Site Boundary - the "Site"
  - Turbine Location
  - Access Track
  - Crane Hardstanding
  - Temporary Construction Compound
  - Eastern Substation (18MW)
  - Western Substation (39MW)
  - Permanent Meteorological Mast Location
  - Cable Route



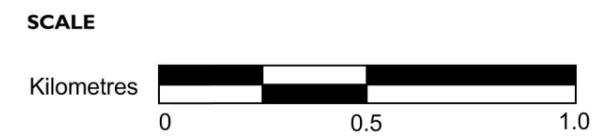
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<b>FRODSHAM WIND FARM</b>		
<b>Preliminary Site Layout Plan</b>		
<b>DOCUMENT REFERENCE</b> VI	<b>LAST REVISION DATE</b> 12th December 2014	
<b>SITE DESIGN VERSION</b> VI	<b>SCALE</b> 1:17k when printed at A3	
<b>DRAWN</b> TR	<b>CHECKED</b> LT	<b>APPROVED</b> AL
<b>PARSONS BRINCKERHOFF</b>		<b>APPENDIX I</b>

## APPENDIX 2 – Plan of Public Rights of Way



- LEGEND**
- Site Boundary - the "Site"
  - Access Track
  - Cycle Route
  - Footpaths
  - Restricted Byways



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<b>FRODSHAM WIND FARM</b>		
<b>Plan of Public Rights of Way (PRoW)</b>		
DOCUMENT REFERENCE VI	LAST REVISION DATE 12th December 2014	
SITE DESIGN VERSION VI	SCALE 1:17k when printed at A3	
DRAWN TR	CHECKED LT	APPROVED AL
<b>PARSONS BRINCKERHOFF</b>		<b>APPENDIX 2</b>

## Non-Material change to Planning Permission

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██████████  
██████████  
Turley  
Floor 5  
Transmission  
6 Atherton Street  
M3 3GS  
United Kingdom

**Application Number:**  
**24/01799/NMA**

2 September 2025

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### Town and Country Planning Act 1990

**Proposal:** This NMA application seeks to amend the wording of Condition 9 (HGV Movements) of Planning Permission reference 14/02277/S73.

**Location:** Ince Resource Recovery Park, Grinsome Road, Ellesmere Port, Cheshire



In pursuance of their powers under Section 96A of the above Act, the Council hereby amends the above planning permission SUBJECT to the following conditions:

1. All conditions attached to permission 14/02277/S73 dated 26th March 2015 still apply, subject to the non-material amendment to the following condition as listed:

Condition 9 is hereby amended to read:

#### Condition 9

*HGV movements to and from each individual facility (as shown on the Siting Masterplan ref 12705-PL07K), when measured by the automatic traffic counters installed pursuant to condition 8 shall not exceed the permitted number on more than 3 days in a continuous 30 day monitoring period and shall not exceed the permitted number by more than the amounts shown on any day (exceedances calculated as one 2-way HGV movement per 20 (or part of 20) daily 2-way HGV movements allowed). The overall permitted number shall be calculated by reference to those plots (identified on the Siting Masterplan ref. 12705-PL07K that have been fully developed at any point of time on the basis of the following allowances per completed development plot:*

Plot	Facility (as per Siting Masterplan re. 12705-PL07K)	Daily 2-way HGV Movements	Permitted exceedance (2-way HGV)

1	Dry Cargo Facility	14	1
2	Soil Treatment Facility	54	3
3 (1)	Waste Electrical and Electronics Equipment (WEEE) Recycling Facility	72	4
4 (2)	Wood / Timber Recycling	84	5
5	Integrated Waste Management Facility (IWMF)	216	10
6	Plastics Recycling Facility	30	2
7	Waste Treatment Plant	0	0
9 (3)	Ethanol Production Facility	58	4
10a (4)	Resource Recovery Business Centre	37	2
10b (5)	Resource Recovery Business Centre Plastics to Hydrogen Facility	10	1
11 (6)	Commercial/Industrial Waste Transfer Station	78	4
12 (7)	Resource Recovery Village	36	2
13 (8)	Resource Recovery Village	9	1
14	Block Making Facility	20	1

- (1) The allowance for Plot 3 consists of HGV movements on planning permission 14/02271/S73 – Timber Recycling Plant
- (2) The allowance for Plot 4 consists of HGV movements on planning permission 18/04671/WAS Bio-substitute (Bio-SNG) Natural Gas Renewable Fuels Facility
- (3) The allowance for Plot 9 of HGV movements on the following planning permissions:

Planning Permission	Daily 2-way HGV Movements	Permitted exceedance (2-way HGV)
14/02278/S73 – Biomass Renewable Energy Plant (BREP)	36	2
21/04076/FUL – Polymer Laminate Recycling Facility (PLRF)	2	1 *
21/04076/FUL – Hydrogen Refuelling Station	20	0
24/00261/FUL – Protos Energy Recovery Facility (ERF) Carbon Capture Facility (CCF)	**	**

25/00952/FUL – Protos Spur CO2 Pipeline Above Ground Installation (AGI)	0	1
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\*For the avoidance of doubt, the permitted exceedance of 1 number HGV is shared between the Polymer Laminate Recycling Facility and the Hydrogen Refuelling Station.

\*\*The daily two-way HGV movements allowance and permitted exceedance for the Protos ERF CCF shall be incorporated within, not additional to, the HGV movements permitted for the Protos ERF (Plot8) by planning permission 18/01543/S73 as amended by 24/01829/NMA).

- (4) The allowance for Plot10a consists of HGV movements on planning permission 21/04076/FUL – Material Recovery Facility (MRF).
- (5) The allowance for Plot 10b consists of HGV movements on planning permission 19/03489/FUL – Plastics to Hydrogen Facility.
- (6) The allowance for Plot 11 consists of HGV movements on planning permission 21/04076/FUL – Plastics Recycling Facility (PRF1).
- (7) The allowance for Plot 12 consists of HGV movements on planning permission 21/04076/FUL – Plastics Recycling Facility (PRF2).
- (8) The allowance for Plot 13 consists of HGV movements on planning permission 20/04396/FUL – Polyethylene Terephthalate Plastics Recycling Facility (PETPREF)

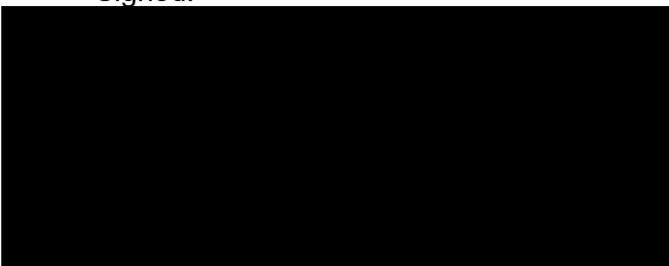
Reason: In the interests of highway safety and convenience and to encourage the use of sustainable modes of transport.

#### Notes

1. The local planning authority has sought to work with the applicant in a positive and proactive way to secure a development that will improve the economic, social and environmental conditions of the area, in line with the NPPF.

Signed:

Date: 2 September 2025



Rob Charnley  
Head of Planning and Placemaking

Cheshire West and Chester Borough Council The Portal Wellington Road Ellesmere Port CH65 0BA

**Please read the notes on the following page, they will explain your rights and other important matters about this decision.**

## **NOTICE TO APPLICANT WHERE PERMISSION IS REFUSED OR GRANTED SUBJECT TO CONDITIONS**

If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State for the Environment under Section 78 of the Town and Country Planning Act 1990.

If you want to appeal, then you must do so within six months of the date of this notice. However, if this application relates to a Householder development and you want to appeal, then you must do so within 12 weeks of the date of this notice.

Forms can be obtained from:

**The Planning Inspectorate, 3/13 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN - (Tel: 0303 444 5000)**

The Secretary of State can allow a longer period for giving notice of an appeal, but he will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to him that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions it imposed, having regard to the statutory requirements, to the provisions of the development order and to any directions given under the order. In practice, the Secretary of State does not refuse to consider appeals solely because the local planning authority based its decision on a direction given by him.

If either the local planning authority or the Secretary of State for the Environment refuses permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor can he render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted. In these circumstances, the owner may serve a purchase notice on the District Council in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.

### **OTHER IMPORTANT POINTS TO NOTE**

Under the provisions of Circular 04/2008 entitled Planning-Related Fees will be charged at the requisite fee at the time of applying.

Your attention is drawn to the relevant provisions of the Chronically Sick and Disabled Persons Act, 1970 and the Code of Practice for Access for the Disabled to Buildings. These provisions apply to (a) buildings or premises to which the public are admitted whether on payment or otherwise or (b) premises in which persons are employed to work. Similar provisions also apply for the benefit of disabled in educational buildings.

Development for which listed building consent and/or permission is granted is subject to compliance with the general statutory provisions in force in the District, except as may be modified in this permission and the Building Regulations. Your attention is drawn to Section 50 of the Cheshire County Council Act, 1980 which provides that where plans are deposited under the Building Regulations for the erection/extension of a building with the district council, then that council will reject the plans unless, after consultation with the Fire Authority, they are satisfied that the plans show there is an adequate means of access for the Fire Brigade to the building or extension and that the building or extension will not render inadequate any existing means of access, for the Fire Brigade, to the neighbouring buildings. This note is included to give effect to Section 50 of the 1980 Act by virtue of sub-section (2) of the said Section.

Developers should check with all statutory undertakers at an early stage to ensure where their equipment (pipes, cables, poles etc) is located in relation to the development site and agree measures to ensure that no damage is caused to that equipment during construction or negotiate the repositioning of some or all of the equipment.

Any Environmental Statement submitted with the application, together with any related information, has been taken into account by the Council in arriving at this decision.

**Street Naming and Numbering** – It is a legal function of the Council to allocate property numbers and street names to new developments and conversions. This service is chargeable, please visit the Street Naming and Numbering page on our website and use the online form to submit an application. The charging scheme, guidance and contact details are also available on our Street Naming and Numbering web page.



## **Cheshire West & Chester**

## **Waste Needs Assessment 2023**

## **Appendix 5: Hazardous Waste Management Requirements for Cheshire West & Chester to 2045**

**Report:** Final

**Version:** v1.1

**Issued:** 28th December 2023

## 4 Forecasting Future Hazardous Waste Arisings

### National Policy

- 4.1 The National Policy Statement for Hazardous Waste<sup>98</sup> which remains the most current statement of Government policy on the issue, states that arisings of hazardous waste are expected to increase for the following reasons:
- Continuing consumer demand means that hazardous waste will continue to arise as consumer durables containing hazardous materials are discarded.
  - Increasing use of producer responsibility schemes, such as those provided for Waste Electrical and Electronic Equipment (WEEE) which require the separate collection of WEEE resulting in more hazardous items being removed from the mixed municipal waste stream, collected separately as hazardous waste.
  - Changes to the list of hazardous properties in the revised Waste Framework Directive and changes to the European Waste List, lead to further increases in the amount of waste that must be managed as “hazardous”.
  - There are still uses in which components that become hazardous waste may be unavoidable for the foreseeable future. For example, the use of oil in internal combustion engines.

### Defining Growth Factors for Cheshire West and Chester

- 4.2 While Planning Practice Guidance advises that future hazardous waste arisings be estimated by extrapolating time series data drawn from the HWI, use of historical HWI data alone to establish possible future trends is not considered reliable due to frequent changes in the definition of hazardous waste and refinement of regulatory guidance which has tended towards widening the range of wastes being classed as hazardous and thereby distorting timeseries data of arisings. While in 2021 there is a closer correspondence between the values, because the timeseries data cannot be relied upon, an alternative approach to forecasting arisings has been adopted.
- 4.3 To generate Plan Area specific forecasts, business sector proxies have been taken to identify GVA growth factors from the Cheshire & Warrington Econometric Model (CWEM)<sup>99</sup>. These have been applied to the breakdown of the 2021 baseline value by major waste types, to determine how each is likely to grow through the Plan period (extrapolating from 2036 to 2041). This produced initial forecasts of hazardous waste arisings from CWaC over the Plan period. Applying this approach to the tonnages and waste type breakdown arrived at for 2021, shown in Table 5 above, gives the results displayed in Table 6 below. It was not considered there was a suitable proxy for track ballast or glass, plastic and wood, given they arise from recycling of existing materials, so they have been held constant. Bottom ash and other still bottoms were not continued due to the expectation that it arises as a consequence of waste treatment so may potentially be double counted with input to CWaC facilities from CWaC.

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<sup>98</sup> *National Policy Statement for Hazardous Waste: A framework document for planning decisions on nationally significant hazardous waste infrastructure* Defra June 2013

<sup>99</sup> *The Cheshire & Warrington Econometric Model (CWEM)*, is an economic forecasting model maintained and operated by Cheshire East Council on behalf of Cheshire & Warrington partners.

Table 84: Business\_Sector Proxies applied to Principal Hazardous Waste Arisings in Cheshire West and Chester  
 Source: Table 5 & CWEM GVA Forecast

Hazardous Waste Type/Source	Sector Proxy
End-of-life vehicles & Components	Statista Calculation
Sludges from physico/chemical treatment containing dangerous substances	Chemicals - indirectly (following treatment)
Oily Water	Statista Calculation
Construction, Demolition & Excavation	Bespoke
Bituminous mixtures containing coal tar	None - Constant
Bottom ash and slag containing dangerous substances	None - Constant
All organic solvents, washing liquids and mother liquors	Chemicals
Other bases	Chemicals
Packaging containing residues of or contaminated by dangerous substances	None - Constant
Sludges from on-site effluent treatment containing dangerous substances	Chemicals - indirectly (following onsite treatment)
Aqueous washing liquids and mother liquors	Metal and Metal Products
WEEE	Electrical Equipment
Wastes from flue-gas treatment	None - Constant
Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	Statista Calculation
Organic wastes containing dangerous substances	Chemicals

4.4 Apart from the Statista Calculation and bespoke ‘oily water’ proxy, the other proxies listed in Table 6 were sourced from the Cheshire & Warrington Econometric Model (CWEM). This dataset shows the forecast year-by-year gross value added (GVA) prices between 2019 to 2036. From these GVA values, annual growth rates were calculated. As the Plan period for this report spans from 2021 to 2045, these growth rate percentages were calculated in increments across this Plan period, as show in Table 7 below. As there are no GVA values beyond 2036 the % values from 2035 were carried across for 2040 and 2045.

4.5 For end-of-life vehicles & components, a negative projection using Statista data has been calculated to account with sales of new internal combustion engine vehicles (diesel or petrol) ending in the UK at 2030. For construction, demolition and excavation waste, a bespoke proxy has been produced that sees a constant decline to five percent of the 2021 value. This is based on the expectation that legacy contaminated land and hazardous material in building stock is cleared by 2040, with only incidental amounts of contamination arising from that year.

**Table 85: Sector Proxy Growth Rates derivation**

Source: Statista and CWEM GVA Forecast

Sector Proxy	From CWEM GVA	Plan Milestone Year						Comments
		2021	2025	2030	2035	2040	2045	
Statista Calculation	Sales in Thousand Units	16,849	14,258	9,937	6,097	2,257	169	N/A
	Period Growth Rate		-15.4%	-30.3%	-38.6%	-63.0%	-92.5%	
Chemicals	GVA	549.1	553.1	552.5	548.9			As there are no GVA values post 2036 in the CWEM dataset. The period growth rate for 2041 has taken as the 2036 growth rate and the GVA values calculated from these
	Period Growth Rate		0.7%	-0.1%	-0.7%			
Metals & Metal Products	GVA	284.5	299.1	301.1	306.6			
	Period Growth Rate		5.1%	0.7%	1.8%			
Electrical Equipment	GVA	41.7	48.4	51.2	54.4			
	Period Growth Rate		16.2%	5.7%	6.4%			

4.6 Applying the period growth rates from Table 7 to the starting tonnages for the principal hazardous waste types in 2021 from Table 5, future hazardous waste arisings for the Plan period was calculated at five year milestones across the Plan period, as shown in Table 8.

**Table 86: Forecast Principal Hazardous Waste Arisings in Cheshire West & Chester Applying Sector Proxy**

Source: Table 5 & Table 7

Hazardous Waste Type/Source	Plan Milestone Year						Comments
	2021	2025	2030	2035	2040	2045	
End-of-life vehicles & components	13,187	11,156	7,776	4,774	1,766	169	UK ban on selling petrol and diesel cars from 2030/35 will see a reduction in the quantity of internal combustion ELVs.
Sludges from physico/chemical treatment containing dangerous substances	4,448	4,479	4,474	4,443	4,412	4,381	N/A
Oily Water	2,221	2,843	2,132	1,422	711	111	N/A
Construction, Demolition & Excavation	3,553	2,878	2,203	1,528	853	178	Legacy contaminated land and hazardous material in building stock expected to have been cleared by 2045.
Bituminous mixtures containing coal tar	1,395	1,395	1,395	1,395	1,395	1,395	N/A
Bottom ash and slag containing dangerous substances	1,348	1,348	1,348	1,348	1,348	1,348	N/A
All organic solvents, washing liquids and mother liquors	1,823	1,835	1,834	1,821	1,808	1,795	N/A
Other bases	1,110	1,117	1,116	1,109	1,101	1,093	N/A
Packaging containing residues of or contaminated by dangerous substances	1,037	1,037	1,037	1,037	1,037	1,037	This might fall as the use of dangerous substances in manufacture falls as a result of REACH & RoHS
Sludges from on-site effluent treatment containing dangerous substances	991	998	997	990	983	977	N/A
Aqueous washing liquids and mother liquors	910	956	963	980	998	1,016	N/A
WEEE	696	808	854	909	967	1,029	N/A
Wastes from flue-gas treatment	2,553	2,553	2,553	2,553	2,553	2,553	N/A
Absorbents, filter materials (including oil filters), wiping cloths, protective clothing contaminated by hazardous substances	618	523	365	224	83	169	N/A
Organic wastes containing dangerous substances	618	622	622	617	613	609	N/A
<b>Total</b>	<b>36,507</b>	<b>34,549</b>	<b>29,669</b>	<b>25,150</b>	<b>20,628</b>	<b>17,748</b>	

4.7 As Table 8 only relates to wastes that account for 83% of arisings, a composite growth factor across all the above sectors has been applied to the baseline value to give the values at each of the Plan's milestone years as shown in Table 9.

**Table 87: Forecast Hazardous Waste Arisings in Cheshire West and Chester Extrapolating Sector Total (tonnes)**

*Source: Table 8 & Baseline Arising Output of Reconciliation Process*

	Plan Milestone Year				
	2025	2030	2035	2040	2045
Totals from Table 12	34,549	29,669	25,150	20,628	17,748
Composite Growth Rate	-5.36%	-14.13%	-15.23%	-17.98%	-13.96%
Total applying composite growth rate to baseline value	41,797	35,892	30,426	24,956	21,472
Tonnage difference on previous milestone		-5,905	-5,466	-5,471	-3,484

## Conclusion

4.8 Table 9 shows that the quantity of hazardous waste is expected to fall over time, to end up at a tonnage of **c21,500 tonnes** in 2045 i.e. nearly halved. This implies a growth rate of -2.96% per annum across the Plan period. The tonnage values shown in Table 9 have been used to project capacity requirements in the next section of this report based on an assessment of existing capacity within Cheshire West and Chester and management routes followed.

## 5 Hazardous Waste Management Capacity in Cheshire West and Chester

5.1 This section considers the availability of capacity within Cheshire West and Chester for managing hazardous waste. It provides the basis from which the existing baseline hazardous waste management capacity may be established and, subsequently, from which specific management capacity requirements might be identified. Since the HWI does not attribute waste down to site level, the WDI 2021 input values have been used to ascertain the amount of waste that specific CWAC sites managed, to understand what capacity each may offer.

**Table 88: CW&C Facilities Receiving 500t+ Hazardous Waste Inputs Reporting through the WDI 2021 (tonnes)**

*Source: WDI 2021 Environment Agency*

Facility Type	Facility Name/Operator	Total (tonnes)
Vehicle Depollution Facility	Unit 7 Indigo Business Park, Oil Sites Road (Jamie McIntyre)	852
	Road Three, Winsford (SynetiQ Ltd)	2,642
Chemical Treatment	Land at Brunner-Mond Works, Griffiths Road (ECO-Option (UK) Ltd)	23,413
Haz Waste Transfer	Cheshire Waste Management Centre, Oil Sites Road (Tradebe North West Ltd)	4,955
Haz Waste Transfer/Treatment	Ellesmere Port Transformer Oil Regeneration Plant, Bridges Road (Haltermann Carless UK Ltd)	5,643
Hazardous Waste Incinerator	Ellesmere Port Incinerator, Bridges Road (Veolia ES (UK) Ltd)	56,492
Metal Recycling	Land/premises at, Cart Road (A.Vlies Northwich Metals Ltd)	2,560
<b>Total</b>		<b>96,557</b>

5.2 Comparing the total managed value shown in Table 10 (c96,500 tonnes) to the final arising value derived for Cheshire West and Chester (c46,000 tonnes) suggests a surplus in hazardous waste management capacity of c50,500 tonnes currently exists within the Borough. This comes as no surprise given CW&C hosts a number of strategically significant facilities for the management of hazardous waste, one of which being the Ellesmere Port HTI with capacity of up to 100,000tpa and, the presence of the chemicals sector such as Brunner Mond and oil treatment capacity. Moreover, it should also be borne in mind that the inputs to sites in 2021 may neither be truly representative of site capacity i.e. inputs in 2021 may be lower than the peak, nor actually reflect the theoretical capacity that a site may offer, therefore a review of each site's capacity has been undertaken.

5.3 Any sites that managed an amount of hazardous waste exceeding 20% of the total peak amount of waste managed were included in Table 10. The potential capacity was calculated by applying the percentage of waste managed at the site for 2021 that was hazardous to the total peak value.

**Table 89: Updated Capacity of Facilities Permitted to Manage Hazardous Waste in CW&C (tonnes)**

Source: WNA 2021 Environment Agency dataset, WNA 2019

Facility Name/Operator	WDI 5-year Peak	Permit Limit <sup>100</sup>	Preferred Value	Comment
Unit 7 Indigo Business Park, Oil Sites Rd (Jamie McIntyre)	852	2,499	2,499	Salvage & vehicle recycling company
Road Three, Winsford (SynetiQ Limited)	2,642	-	2,642	Salvage & vehicle recycling company
Land at Brunner-Mond Works, Griffiths Rd (ECO-Option (UK) Ltd)	28,507	-	28,507	Recycler of waste Sulphuric Acid, Ammonia & Ammonium compounds and the production of recovered product-grade liquid Ammonium Sulphate.
Cheshire Waste Management Centre, Oil Sites Road (Tradebe North West Limited)	4,952	4,999	4,999	Packing, collecting, disposal and recycling of chemical, hazardous, non-hazardous, WEEE and toxic waste.
Ellesmere Port Transformer Oil Regeneration Plant, Bridges Rd (Haltermann Carless UK Ltd)	8,564	-	8,564	Used transformer oils are recycled/regenerated back into insulating oil.
Ellesmere Port Incinerator, Bridges Rd (Veolia ES (UK) Limited)	66,532	100,000	100,000	High temperature incineration of hazardous materials and treatment of low level radioactive waste.
Land/premises at, Cart Rd (A.Vlies Northwich Metals Limited)	2,560	4,999	4,999	ELV depollution facility with metal recycling.
<b>Grand Total</b>			<b>152,210</b>	

5.4 With respect to hazardous waste management capacity in Cheshire West and Chester excluding landfill, comparing the updated capacity value (c152,000tonnes) to the final arising value derived suggests a surplus of between c110,000 tonnes per annum at the start of the Plan period and c130,500 tonnes per annum in 2045 the end of Plan period .

### Hazardous Waste Landfill

5.5 In addition to the above, there is capacity offered by Winsford Rock Salt Mine Waste Disposal Facility. This facility is a long term storage underground facility, but is classed as a landfill by the Environment Agency. The Agency's remaining landfill capacity datasheet for 2021 gives a remaining capacity value of c1,401,500 m<sup>3</sup>. This value will decrease over time as the capacity is occupied. The WDI 2021 shows inputs of c20,000 tonnes in 2021.

<sup>100</sup> Permit limits for Unit 7, Cheshire Waste Management and Land/premises at Cart Rd taken from EA permitted sites listing July 2017.

## Management Capacity Conclusion

- 5.6 Cheshire West and Chester hosts a number of facilities that manage significant quantities of hazardous waste, including treating such wastes. The combined capacity offered by these facilities equates to at least 152,000 tonnes per annum, with a number of niche operators taking hazardous wastes as a raw material for manufacturing processes. In doing so these operators provide strategically significant management capacity for a number of niche waste streams arising from within the region and beyond.
- 5.7 While there is no national policy expectation that net self sufficiency ought to be pursued for hazardous waste it is important that each hazardous waste stream produced within the Borough in significant quantities will be adequately catered for throughout the Plan period. For this reason the role of facilities beyond CW&C in the management of certain types of hazardous waste arising in the Plan area is considered in the following section.

## 6 Management Routes Followed by CW&C Hazardous Waste

6.1 This section assesses the management routes followed by hazardous waste arisings from Cheshire West and Chester. As the previous section covered capacity within Cheshire West and Chester, this section focuses on waste produced within, but managed outside, Cheshire West and Chester. The HWI is used as the primary source, cross checked with the WDI to identify the specific receiving site where possible. This exercise is important to identify WPAs hosting receiving facilities with whom CW&CC should engage under the Duty to Co-operate to establish if the current patterns of management can continue for the Plan period. If such engagement suggests that certain types of waste cannot continue to be managed at certain facilities in future, then this may indicate CW&C should plan for the management of that waste stream within its own boundaries.

6.2 Table 2 shows that the HWI identified c43,000 tonnes of hazardous waste leaving Cheshire West and Chester for management. This was managed at facilities located within a wide range of WPAs (c73). Applying a significance threshold, whereby only WPAs receiving over 500 tonnes of waste are considered, reduces the number of receiving WPAs down to 14 (as shown in Table 15), with Lancashire being the principal recipient (c10,000 tonnes) followed by Stockton-on-Tees (c4,000 tonnes), Knowsley (c4,000 tonnes) and Cambridgeshire (c3,500 tonnes). This is presented in rank order in terms of WPA tonnage and fate in Table 15 overleaf.

6.3 In summary:

- the tonnage exported from Cheshire West and Chester in 2021 was c43,000 tonnes; and
- Lancashire was the principal recipient of hazardous waste from Cheshire West and Chester followed by Stockton-on-Tees.

**Table 90: WPAs Receiving over 500 tonnes of Hazardous Waste from CWaC (in rank order)**

Source: HWI 2021 Environment Agency

Deposit WPA	Waste Fate						Grand Total
	Recovery	Treatment	Transfer for Recovery	Incineration without energy recovery	Transfer for Disposal	Landfill	
Lancashire	1,682		207		218	8,087	10,194
Stockton-on-Tees		2,164	279		49	1,342	3,834
Knowsley	735	2,183	674		184		3,777
Cambridgeshire	3,350		6			29	3,386
Salford	139	1,255	920		51		2,366
Trafford	12	1,191	178		549		1,930
Staffordshire	204	1,346	127		77		1,754
Liverpool	245	854	38		28		1,165
Cheshire East	833		261		61		1,154
Stoke-on-Trent City	223	78	113		655		1,069
Derbyshire	680	136	31		118	3	968
Sefton	948				3		951
Gloucestershire					3	667	670
Hampshire			6	640			648

## **7 Conclusion on Cheshire West and Chester's Hazardous Waste Management Requirements**

- 7.1 The reconciliation process has indicated that c43,000 tonnes of hazardous waste was produced in Cheshire West and Chester in 2021. This is predicted to fall to c28,000 tonnes by the end of the Plan period. Currently, all reported hazardous waste arising in CW&C appears to be effectively managed with no obvious stresses in the system.
- 7.2 The capacity assessment indicates that the combined site capacity is at least 150,000 tpa, indicating sufficient waste management capacity for the management of Cheshire West and Chester's waste at the end of the Plan period, assuming all sites identified continue to offer capacity for the duration of the plan period. It is recommended that the sites be safeguarded through policy where the potential loss of capacity through either redevelopment or constraint is resisted unless equivalent compensatory capacity provision is made.
- 7.3 Notwithstanding the above, given the varying management requirements of particular waste streams, the continued availability of capacity for the Plan period at facilities outside the Plan area currently managing significant quantities be confirmed through contact with the host Waste Planning Authorities named in Table 12 under the Duty to Cooperate/alignment engagement and Statements of Common Ground entered into as necessary.