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**Request for Quotation**

Feasibility Study - utilising remote sensing and 3rd party data to monitor Natural Ecosystem Function indicators across the SSSI series in England.

You are invited, to submit a quotation for the requirement described in the specification below.

Please confirm, by email, receipt of these documents and whether you intend to submit a quote.

Your response should be returned to the following email address by:

**Email:** richard.askew@naturalengland.org.uk

**Date: 07/09/2022**

Reference: **Technology, 3rd party data and NEF indicators – Feasibility Study**

Ensure you state the reference and ‘Final Submission’ in the subject field to make it clear that it is your response.

**Contact Details and Timeline**

Richard Askew will be your contact for any questions linked to the content of the quote pack or the process. Please submit any questions by email and note that, unless commercially sensitive, both the question and the response will be circulated to all tenderers.

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| --- | --- |
| Action | Date |
| Date of issue of RFQ | 15/09/2022 |
| Deadline for clarifications questions | 30/09/2022 |
| Deadline for receipt of Quotation | 07/10/2022 |
| Intended date of Contract Award | 13/10/2022 |
| Intended Contract Start Date | 14/10/2022 |
| Intended Delivery Date / Contract Duration | 06/02/2023 |

### Glossary

Unless the context otherwise requires the following words and expressions used within this Request for Quotation shall have the following meanings (to be interpreted in the singular or plural as the context requires):

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| --- | --- |
| “Authority” | Means the Department for Environment, Food and Rural Affairs acting as part of Natural England |
| “RFQ” | Means this Request for Quotation and all related documents published by the Authority and made available to suppliers |
| “Contract” | Means the contract to be entered into by the Authority and the successful supplier. |

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### Conditions applying to the RFQ

You should examine your response to the RFQ and related documents ensuring it is complete prior to submitting your completed quotation.

Your quotation must contain sufficient information to enable the Authority to evaluate it fairly and effectively. You should ensure that you have prepared your quotation fully and accurately and that prices quoted are arithmetically correct for the units stated.

The supplier by submitting a quotation is deemed to accept the terms and conditions in the RFQ. Failure to comply with the instructions set out in the RTQ may result in the supplier’s exclusion from this procurement.

**Acceptance of Quotations**

By issuing this RFQ the Authority does not bind itself to accept any quotation and reserves the right not to award a contract to any supplier who submits a quotation.

**Costs**

The Authority will not reimburse you for any costs and expenses which you incur preparing and submitting your quotation, even if the Authority amends or terminates the procurement process.

**Mandatory Requirements**

The RFQ includes mandatory requirements and, if you do not comply with them, your quotation will not be evaluated. All mandatory requirements are set out in Bravo.

**Clarifications**

The Authority reserves the right to discuss, confidentially, any aspect of your quotation with you prior to any award of Contract to clarify matters.

**Amendments**

The Authority may amend the RFQ at any time prior to the deadline for receipt. If it amends the RFQ the Authority will notify you in writing and may extend the deadline for receipt in order to give you a reasonable time in which to take the amendment into account.

**Conditions of Contract**

The terms and conditions - Condensed Terms and Conditions (Annexe 1) will be included in any contract awarded as a result of this RFQ process. The Authority will not accept any material changes to these terms and conditions proposed by a supplier.

**Specification**

The Authority is Natural England. The Authority’s priorities are to secure a healthy natural environment; a sustainable, low-carbon economy; a thriving farming sector and a sustainable, healthy and secure food supply. Further information about the Authority can be found at: Natural England

Feasibility Study - utilising remote sensing and 3rd party data to monitor Natural Ecosystem Function indicators across the SSSI series in England.

**1) Background**

Natural England’s (NE) Resilient Landscape and Seas programme have commissioned a National SSSI Monitoring and Evaluation programme (SME) using DEFRA uplift funding. This programme has four aims:

1. Set up a national risk-based monitoring programme for SSSIs.
2. Ensure monitoring capacity and capability within NE is ‘fit for purpose’ to deliver a national SSSI monitoring programme.
3. Move from Unit to Feature based condition assessment.
4. SSSI Future Reforms: Investigate whether the legal framework for SSSIs supports the natural world’s adaptation to climate change.

SSSI Future Reforms has the following three objectives:

1. Gather evidence of climate change impacts on SSSI condition.
2. Investigate whether the current SSSI legal framework supports adaptation to change and if not, determine the obstacles and recommend changes.
3. If change is required, rethink ‘what good looks like’ on SSSIs and the wider landscape, developing monitoring indicators and technologies to support changing conservation objectives.

This specification focuses on objective 3, developing monitoring indicators and technologies i.e. Natural Ecosystem Function indicators.

**2) What is Natural Ecosystem Function (NEF)?**

The SME programme’s aims are collectively establishing a risk-based monitoring plan that can provide national context on the condition of individual SSSIs and how condition contributes to the resilience of the wider landscape, with SSSI Future Reforms developing monitoring indicators that contribute to the evidence base on how the natural world is responding to climatic change. There is a requirement to develop an understanding of the naturalness of sites as a whole, how ecosystem function links with the surrounding landscape to enhance ecosystem resilience and how this is changing. As a result, Natural Ecosystem Function Indicators are being developed to provide a measurable assessment of site naturalness across a range of factors.

**3) What are Natural Ecosystem Function (NEF) Indicators?**

NEF indicators are indicators of modification e.g. drainage channels on blanket bog, so on a SSSI in favourable condition, few NEF indicators should be identified (unless a SSSI is designated for features requiring management intervention e.g. ditches). Monitoring NEF indicators provides a richer understanding of the habitat/ecosystem supporting site features, evaluating the current state of naturalness of a site and potential for increasing naturalness.

**Please read attached papers for further details on NEF indicators.**

**Table 1: NEF Indicators**

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| **Indicator 1: Hydrology** |
| **Abstraction:** presence of infrastructure  **Water Diversion:** presence of infrastructure  **Artificial Drainage**: e.g. straight channels  **Water level management:** presence of Infrastructure  **Flood Management:** presence of Infrastructure |
| **Indicator 2: Nutrient / Chemical Status** |
| **Water**: visual evidence of eutrophication or other pollutant e.g. ochre  **Soil**: visual evidence e.g. fertiliser / biocide use e.g. spray drift during application  **Air:** evidence of reduction in air quality e.g. atmospheric pollution from emissions |
| **Indicator 3: Soil / Sediment processes** |
| **Freshwater:** modifications impairing sediment movement e.g. weirs  **Coastal:** infrastructure impairing sediment movement e.g. flood defences  **Soil:** erosion; compaction e.g. due to farm machinery, cattle |
| **Indicator 4: Vegetation controls** |
| **Livestock Grazing:** evidence of grazing e.g. density of dung  **Livestock Type:** sheep, cattle, ponies, other  **Vegetation Cutting:** visual evidence  **Dead standing / fallen wood:** presence  **Burning:** visual evidence (accidental or deliberate) |
| **Indicator 5: Species composition** |
| **Non-native plant species:** presence  **Non-native animal species:** presence  **Control of Native animal species**: visual evidence e.g. predator control |

**4) Aims of the feasibility study**

Natural England are reforming how we monitor protected sites, with the focus shifting to include the usage of 3rd party and monitoring technologies e.g. Earth Observation . This will increase efficiency and capacity for condition assessments to be made partially or entirely remotely, allowing more sites to be monitored in less time and management resources distributed effectively based on current information.

Considering all habitats, this project will investigate approaches that would be available to Natural England in the short to medium term (max 5 years) to gather, store and synthesise existing and new spatial/DNA/acoustic data to locate and monitor NEF indicators present on SSSI.

Contractors should work through each of the indicators and describe how current monitoring technologies such as earth observation and / or 3rd party data could be used to detect and map NEF indicators and their impact on natural processes e.g. aquatic system modification, plus horizon scan for future tech. This is a pilot study with the aim to provide a summary of what techniques are available now and will be available in the next 5 years. We do not expect contractors to trial any approaches.

Natural England has the ability through the Evidence Earth Observation Service (EEOS) to carry out earth observation analysis, though we would like it to be assessed what skills, knowledge and software would be needed to conduct these approaches.

We invite you to refine the scope of this specification based on your knowledge of the topic. Please include your proposal in the quote.

**5) Areas to Explore**

(In addition, please suggest other approaches not listed here)

**For example:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data Source** | | **NEF** | |
| Earth Observation | Satellite | NEF Indicator 1 - Hydrology -  Artificial drainage | What resolution of imagery is required to map drainage channels on SSSIs, can this be done with Sentinel data? Can LIDAR be used? Is there a way to automate the process rather than manual mapping? |
| Manned Aircraft |
| Acoustic | Bioacoustics | NEF Indicator 5 -Species composition -  Non-native animal species | Can bioacoustics be used as a method for detecting invasive species on site? |
| DNA | DNA | NEF Indicator 5 -Species composition -  Non-native animal species | Consider practical approaches for using DNA methods to pick up invasive/non-native species. |
| DNA metabarcoding |
| Air Sampling |
| 3rd Party data | Wildlife Trusts,  EA, Hunting groups etc | NEF Indicator 2 -Nutrient/ Chemical Status - Water | Does the EA/other bodies regularly monitor water pollution in freshwater systems? |

**6) Format**

There is no set format for the report, but it needs to be succinct and accessible. A suggested format would be to work through each of the indicators and providing a summary of what might be possible, but it is equally important to recognise some indicators cannot be assessed with 3rd party or remote sensing data. We suggest approximately ten to fifteen pages (not including reference list) of single space text should be sufficient. Please supplement the report with tables, maps and images to highlight potential remote sensing and 3rd party data opportunities. You should include an accessible one-page non-technical summary of your conclusions in the form of bullet points or very short paragraphs.

**7) Project deliverables**

1. A report summarizing potential uses for 3rd party and remote sensing/DNA data in NEF indicator monitoring. We will aim for the report to be published and will provide further template guidance once a successful contractor has been chosen.

2. A presentation detailing project recommendations.

**8) Milestones**

Milestones are set out below. If these milestones present difficulties, please discuss with the project lead before accepting the contract.

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| Draft for discussion | 09/01/2023 |
| Final agreed paper | 06/02/2023 |

**9) Terms and Conditions**

You can view our terms and conditions on the following link:

[www.gov.uk/government/organisations/natural-england/about/procurement](http://www.gov.uk/government/organisations/natural-england/about/procurement).

**10) Quotation**

Please provide a quotation for this work, showing number of days and day rate, plus any additional expenses. In addition, include a short overview (max. one page of A4) of aspects you intend to cover. Please return your completed quotation to Richard Askew by email at richard.askew@naturalengland.org.uk by 07/10/2022

To discuss the content of this specification, please contact Richard Askew on the email above or by phone on 07425 630845.