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Request for Quotation

Digital aerial survey of the Berwick to St. Mary’s Marine Conservation Zone in March 2023

Reference: mNCEA\_PBDM\_WP5.5

## 

## Request for Quotation

## Digital aerial survey of the Berwick to St. Mary’s Marine Conservation Zone in March 2023

You are invited by Natural England 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: 17:00 GMT on Friday 20th January 2023

Email: richard.caldow@naturalengland.org.uk

Date: 20/01/2023

Time: 17:00 GMT

Ensure you state the reference number (**mNCEA\_PBDM\_WP5.5**) and ‘**Final Submission**’ in the subject field to make it clear that it is your response.

**Contact Details and Timeline**

Richard Caldow 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. Due to the timing of the issue of this RfQ, responses to clarification questions (if not provided before 23rd December 2022) may not be provided until the week commencing Monday 9th January 2023.

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| --- | --- |
| Action | Date |
| Date of issue of RFQ | 16-12-2022 at 12:00 GMT |
| Deadline for clarifications questions | 06-01-2023 at 12:00 GMT |
| Deadline for receipt of Quotation | 20-01-2023 at 17:00 GMT |
| Intended date of Contract Award | 27-01-2023 |
| Intended Contract Start Date | 30-01-2023 |
| Intended Delivery Date / Contract Duration | 31-03-2023/ 2 months |

### 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):

|  |  |
| --- | --- |
| “Authority” | Means 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. |

### 

### 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 RFQ 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.

#### 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 attached *Standard Condensed Terms and Conditions* (available at [Procurement at Natural England - Natural England - GOV.UK (www.gov.uk)](https://www.gov.uk/government/organisations/natural-england/about/procurement) ) 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](http://www.naturalengland.org.uk/)

Natural England is seeking a contractor to design and carry out **one** high resolution / definition digital aerial survey of the Berwick to St. Mary’s Marine Conservation Zone this coming spring (2023), using the most up to date digital aerial imagery (video or still) methods, and to process the resulting imagery to provide a comprehensive digital dataset from which robust estimates of the abundance and distribution of birds and marine mammals within the Berwick to St. Mary’s MCZ (and some surrounding areas i.e. Lindisfarne Special Protection Area) can be derived. The survey should be scheduled to occur in March 2023 to target the start of breeding season of common eider (*Somateria mollissima*). Subject to additional funding being available, Natural England anticipates issuing a further, separate Request for Quotation in early 2023 to conduct three further surveys of the MCZ between 1st April and 31st July 2023.

In this RFQ, the Authority is not seeking like for like costs against a prescribed model survey. Rather, the Authority requests potential suppliers to review the available information on the abundance and distribution of the species of particular interest within the Berwick to St. Mary’s MCZ (common eider) and, based on power analyses of those data, or of hypothetical species’ distribution patterns, provide the authority with their recommended approach to design of this specific survey and % coverage in the light of the statistical power achieved. The authority does not have a specific preference for whether a transect based or grid-based methodology should be employed or for a particular % coverage. As stated in **Section 4. Methods** of this specification “*Survey designs should aim to balance costs against survey coverage, image resolution and duration of survey*”, and “*Bidders should indicate which survey design corresponds to the costings provided so that Natural England can judge the relative degree of power to detect varying magnitudes of population decline of the species of principal interest that is likely to be achieved by the recommended survey design and assess that against the costs/benefits of alternative designs*.“

1. **Background**

**1.1 Site details**

The Berwick to St. Mary’s Marine Conservation Zone was classified in 2019. It is an inshore site located along the Northumberland coast in north-east England and extends from Berwick-upon Tweed (Scottish border) in the north to just south of St. Mary’s Island in the south and covers an area of 634 km2 (Figure 1). The southern part of the Berwick to St. Mary’s MCZ which overlaps the Coquet to St. Mary’s MCZ (which has sixteen designated marine habitat features) supports nationally important numbers of breeding common eider and supports regionally and nationally (England) important numbers of common eider in the non-breeding season. The northern part of the Berwick to St. Mary’s MCZ which lies to the north of the Coquet to St. Mary’s MCZ and extends as far north as Berwick-upon-Tweed is equally important for common eider. This area encompasses the common eider breeding sites on the Farne Islands, and these islands together with Coquet Island are the main breeding areas for common eiders on the east coast of England and form the southern limit of regular breeding of the species on the western side of the North Sea. This area also regularly supports regionally and nationally (England) important numbers of common eider in the non-breeding season. The combined Berwick to St. Mary’s MCZ holds 26.21% of the English and 5.72% of the GB non-breeding common eider populations.

The conservation aim of the MCZ for both breeding and non-breeding common eider is to provide a critical seaward maintenance and foraging extension surrounding the breeding colony at Coquet Island and Farne Islands. The site covers areas on which common eider are ecologically dependent, in this case for behaviours such as foraging, preening, bathing and displaying. The MCZ was classified with a General Management Approach to *Recover to a favourable condition.*

The common eider is the only designated feature of the Berwick to St. Mary’s MCZ and is **the principal focus of this study**. While the priority is to collect data on common eider within the marine area of the MCZ and certain adjoining areas (Lindisfarne SPA), data should be extracted for **all species** from all parts of the area covered during the aerial surveys.

Understanding of the breeding season abundance and distribution of eider ducks at the time of classification of the MCZ was based on a variety of data sources described in Natural England Joint Publication JP026 (2018) ([NEJP026](file:///C:/Users/m303844/Downloads/JP026%20edition%201%20JNCC%20NE%20Tranche%203%20Pre-consultation%20advice%20overview%20report%20Highly%20Mobile%20Species%20proposals%20(1).pdf)). Based on 5-year mean counts from the Farne Islands, Coquet Island and Lindisfarne, the breeding population of eiders in the MCZ during the years 2011-2016 was estimated to be approximately 760 - 960 pairs. A recent evidence review (Percival 2022) compiled data on common eider breeding populations from the annual Northumberland and Tyneside Bird Club reports and counts of the breeding populations at the two main colonies on the Farne Islands and Coquet Island monitored by the National Trust and RSPB wardens respectively. The two sites differ markedly in their population trends. At the Farne Islands there has been a highly significant decline over time, equivalent to 61% decline over 20 years (comparing the initial 5-year mean of 1,350 reduced to the current level of 530). In contrast, breeding numbers at Coquet Island have been more stable, with no statistically significant trend over time though a suggestion of a slight increase to the most recent populations of 250 – 400 pairs. Therefore, a more up to date estimate of the number of nesting eider in the MCZ may be between 780 and 930 pairs.

**1.2 Study area**

The survey data gathered must allow the subsequent production of population estimates, with associated confidence intervals, for the eider duck population within the entire Berwick to St. Mary’s MCZ boundary (Figure 1) unless operational restrictions justify excluding certain areas. Note, that while the main focus of this project is to collect survey data across areas within the boundaries of the Berwick to St. Mary’s MCZ (area 634km2), **survey data should also be gathered over certain areas known to be important to eider ducks that lie adjacent to but outside the MCZ boundary i.e. Lindisfarne SPA (37km2**) (Figure 2).

The extent of the Berwick to St. Mary’s MCZ is shown on Defra’s [MAGIC mapping portal](https://magic.defra.gov.uk/MagicMap.aspx?srs=WGS84&chosenLayers=mczIndex,mczfociPIndex,mczhociPIndex,mczbshPIndex,mczhociIndex,mczbshIndex,backdropDIndex,backdropIndex,europeIndex,vmlBWIndex,25kBWIndex,50kBWIndex,250kBWIndex,miniscaleBWIndex&box=-2.08495263599997:55.0217592000001:-1.30135979199997:55.8312637840001&useDefaultbackgroundMapping=false)[[1]](#footnote-2): A shapefile of all the UK MCZs can be downloaded from: [Marine Conservation Zones (England)](https://www.data.gov.uk/dataset/80c075c3-1880-44a0-bffc-69e20f307c21/marine-conservation-zones-england) The extent of the Lindisfarne SPA is shown on Defra’s [MAGIC mapping portal](https://magic.defra.gov.uk/MagicMap.aspx?&startTopic=GreyRasters&chosenLayers=marinespa,baseIndex&box=178856:493808:391992:598752&useDefaultbackgroundMapping=false)[[2]](#footnote-3): A shapefile of all the UK SPAs can be downloaded from the [JNCC resource hub](https://hub.jncc.gov.uk/assets/07078ed3-496d-432b-974e-1754b47536c7) for use in GIS systems.

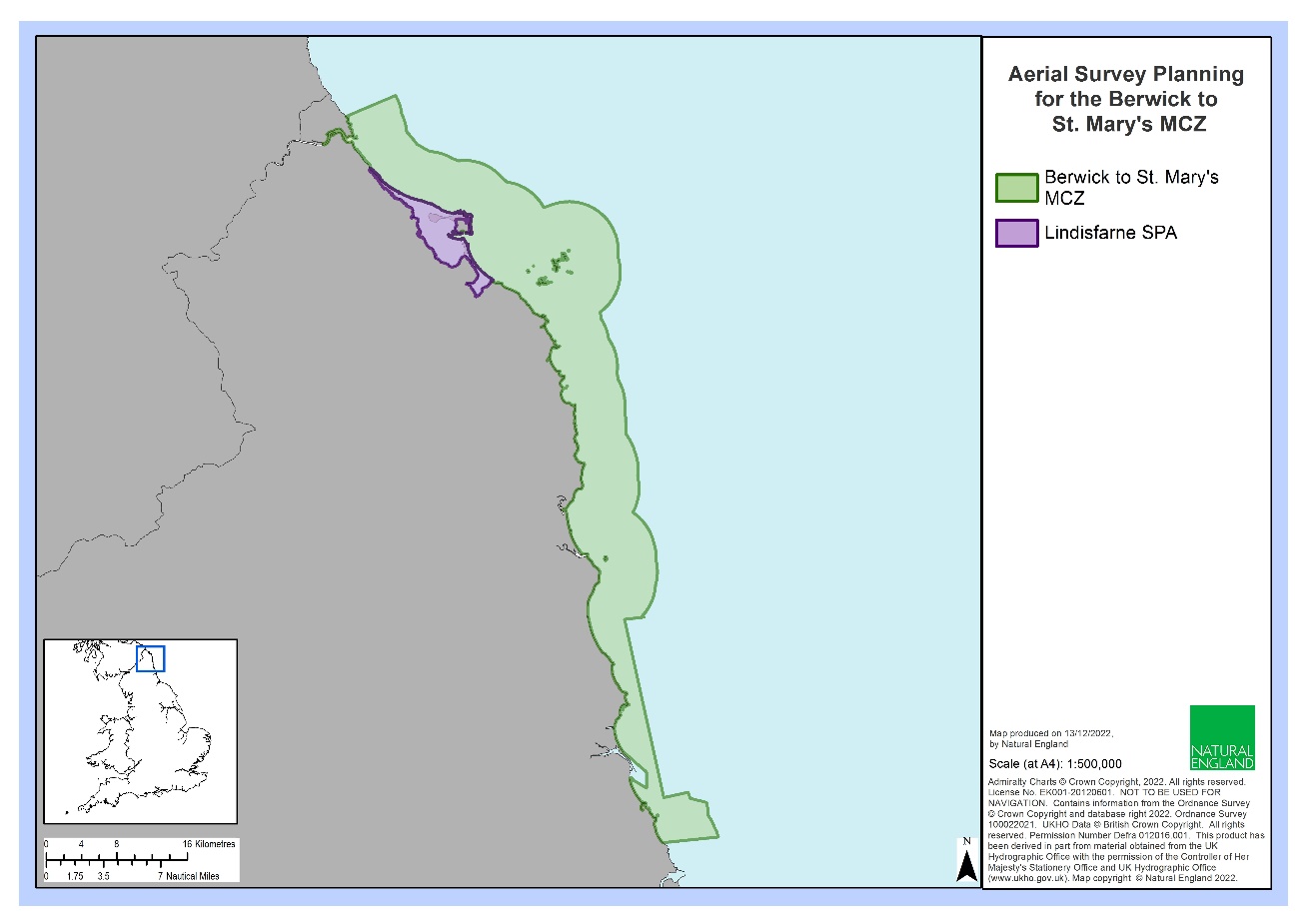


Figure 1. Map depicting the Berwick to St. Mary’s MCZ survey area (and Lindisfarne SPA).

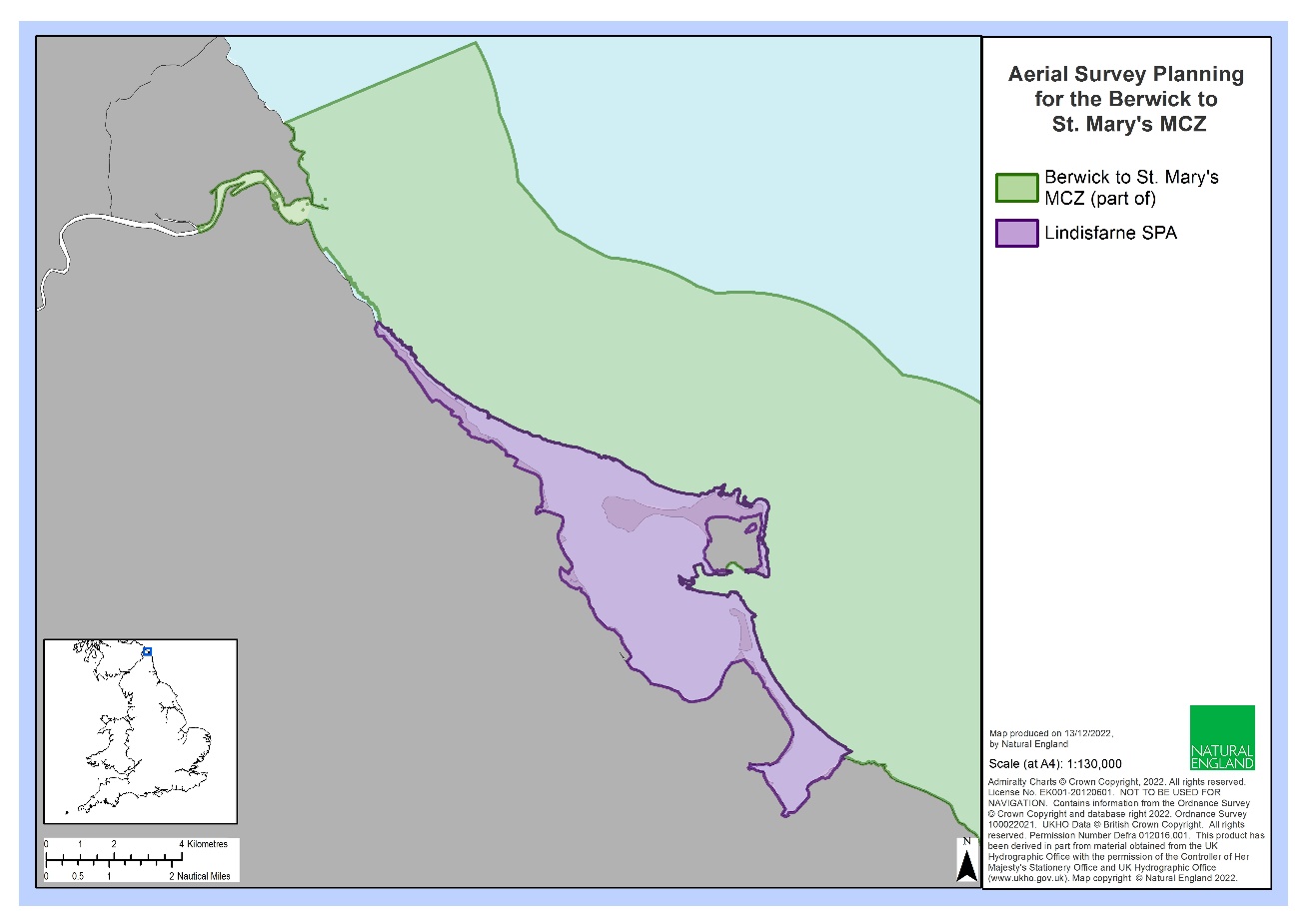


Figure 2. Map depicting the Lindisfarne SPA which lies adjacent to the northernmost part of the Berwick to St. Mary’s MCZ.

1. **Aims**

Natural England is seeking a contractor to design and carry out **one** high resolution / definition digital aerial survey of the Berwick to St. Mary’s MCZ this coming spring (2023) using the most up to date digital aerial imagery (video or still) methods, and to process the resulting imagery to provide a comprehensive digital dataset from which robust estimates of the abundance and distribution of birds and marine mammals within the MCZ can be derived. The survey should be scheduled to occur in March 2023 to target the start of the breeding season of common eider. Subject to additional funding being available, Natural England anticipates issuing a further, separate Request for Quotation in early 2023 to conduct three further surveys of the MCZ between 1st April and 31st July 2023.

The species of principal interest in this project is the common eider. This species is primarily marine and therefore surveys should if possible be designed and timed to reflect this. Natural England wishes to gather information on the distribution and abundance of each age/sex class of eiders separately, including the distribution and abundance of eider ducklings.

While the priority is to collect data for common eider ducks and ducklings, data should be extracted for **all species** recorded during the aerial survey across the entire MCZ because Natural England wishes to obtain sightings data for all other bird and marine mammal species/species groups within the Berwick to St. Mary’s MCZ **as part of fulfilling the core objectives of this study**.

The successful Contractor will be required to design, organise and logistically coordinate the survey work, as well as process the resulting imagery and provide the imagery and processed data in an agreed format to Natural England. Under this contract there will be no requirement to analyse the survey data to produce e.g. abundance estimates or density maps – the contract is solely for data collection, image processing and provision of resultant images, data and associated metadata compliant with required standards.

1. **Objectives**

The service required is provision of all aspects of digital aerial survey (including suitably qualified surveyors, appropriate digital camera equipment, and survey aircraft designed for offshore work over long durations), digital data processing, Quality Assurance and reporting to meet the requirements and objectives of the survey work, as detailed in this specification.

There are four **core objectives** for this contract. These are to:

1. conduct **one** high precision digital aerial survey of the **Berwick to St. Mary’s MCZ** **plus adjoining areas within the Lindisfarne SPA** in March 2023. **Ideally the survey should occur on or as close as possible to the 12th of March 2023 on which day shore-based Wetland Bird Survey (WeBS) counts of this coastline will be conducted**. Survey data are to be collected using digital video or still imagery at a suitable resolution (typically at least 2 cm Ground Sample Distance (GSD)) to confidently capture and identify to the lowest taxonomic/age/sex level possible all birds (in flight and on the water) and marine mammals within the survey area;
2. process imagery to identify **all** birds, marine mammals, and other objects of interest captured to the lowest taxonomic/age/sex level possible;
3. Quality Assure results so that pre-agreed data standards are met (e.g. to meet MEDIN standards or equivalent for archival in marine data repositories such as the Marine Data Exchange);
4. produce ArcGIS layers, associated metadata, accompanying .csv files etc. and a brief report detailing survey effort and observations for the survey within pre-agreed timeframes following completion of the survey, likely to be within 6 – 8 weeks of data collection.

**There is no requirement to analyse data to produce e.g. abundance estimates or density maps – the contract is solely for data collection, image analyses and provision of data, imagery and associated files to required standards**.

1. **Methods**

The successful Contractor will need to develop an appropriate survey design to meet the project aims and objectives outlined above.  **Natural England do not consider that unmanned aerial vehicles (UAVs or drones) have the capability to fulfil the requirements of this project that requires collection of high-resolution digital imagery over sea areas extending up to 14 km from the mainland coast.**

**Survey design**

There have been no previous digital aerial surveys of the Berwick to St. Mary’s MCZ. Bidders should therefore clearly indicate, and provide supporting evidence for their degree of confidence in:

a) Survey detection of the target species (common eider),

b) Subsequent analysis to identify objects to species/age/sex level for the target species and,

c) The suitability of the proposed survey design to provide a data set that can subsequently provide robust population estimates and distribution maps for the target species (and age/sex classes within the population).

Bidders must also provide information on technical and procedural specifications, to include as a minimum, but not necessarily limited to:

* Camera specification and type
* Camera performance in different environmental conditions (for example, comparison of bird detections during good versus poor light conditions, between different sea states and in variable cloud levels) and approaches to management of variable image quality with respect to environmental conditions (e.g. sea state, cloud cover, sun altitude and surface glare)
* Choice of survey design (e.g. transect or grid based, continuous or discontinuous image capture)
* Number of transects/survey replicates
* Transect or grid orientation and spacing and swathe / image width
* Survey altitude and image resolution (2cm GSD or higher)
* Methods for ensuring accurate georeferencing of survey images
* Time required to complete the survey
* Proposed survey timing in relation to daily and monthly tidal cycle
* Proposed survey area extent in relation to the MCZ boundaries; information on any operational restrictions or other factors that justify excluding coverage of certain areas
* Proposed overall percentage analysed coverage of the survey area (including actual area surveyed and percentage of images to be analysed) and commentary on implications for confidence in final population estimates. Costings may be presented for alternative coverage percentages
* Analyses that illustrate the statistical power to detect changes in population abundance of varying magnitudes of the target species that will be achieved by the proposed/preferred survey design, in comparison to alternative designs.
* Approach to image recognition and species attribution, including QA procedures.
* Proposed output format of the raw data (including the fields/attributes that would be included)

A suitable survey method should consider the following points and bidders are required to consider and address each of these points in their submission:

* The survey targeting the start of the breeding season of common eiders should be carried out in March 2023. Ideally the survey should occur on or as close as possible to the 12th of March 2023 on which day shore-based Wetland Bird Survey (WeBS) counts of this coastline will be conducted.
* The survey should be undertaken using digital high-definition video or high resolution still photography with a Ground Sample Distance (GSD) of 2cm or finer.
* The survey should be designed to gain a representative sample of the population of common eider across the study area to enable statistically robust estimates of abundance of the entire population and of different age/sex classes within it (and associated confidence intervals) and maps of their distributions to be generated after this contract.
* Ideally the survey of the entirety of the study area should be completed within one day.  If possible, given daylight restrictions and tide times, consideration should be given to the practicalities of completing the survey over periods of +/- 2 hours around the time of high water. This would minimise the constraints on the distribution of the species of principal interest due to the exposure of intertidal parts of the MCZ at lower tidal states.
* Nesting eider ducks are primarily located on Coquet Island and the Farne islands. It is likely therefore that eiders will be particularly abundant in the waters around these islands. Consideration should therefore be given to ensuring that one or more transects pass over or close to these island groups.
* The survey design and sampling approach should establish a baseline to achieve the best power to detect trends/changes in the eiders’ population over time. Details of number of transect/survey replicates and transect or grid orientation and spacing and swathe/image width proposed should be provided.
* Survey designs should aim to balance costs against survey coverage, image resolution and duration of survey. There will be a need to explicitly state the number of replicates as well as percentage coverage of the survey area along with power analysis to prove that suggested designs will provide the required robust population estimates (with confidence intervals). Costs should be provided for various options of replicates and coverage considered appropriate to meet the requirements.
* Potential analytical methods for deriving population abundance estimates (after this project) include design-based methods or model-based methods and therefore the suitability of the survey data for use with these types of analysis should be considered.
* There is a relationship between the size of sample coefficients of variation (CVs) and the statistical power to detect differences between samples (e.g. changes in abundance over time). These analyses have indicated that the lower the CVs of individual samples i.e. the greater the precision of sample estimates, the finer is the level of detectable difference in estimates between them. Bohlin (1990) established a “class-based” approach to specifying the precision requirement: class 1 (greatest precision) - a CV no larger than 0.045 corresponds to an ability to detect a population change factor as small as 1.2, class 2 (intermediate precision) - a CV no larger than 0.098 corresponds to an ability to detect a population change factor as small as 1.5, class 3 (lower precision) - a CV no larger than 0.16 corresponds to an ability to detect a population change factor as small as 2 (i.e. a halving or doubling).
* Thaxter & Burton (2009) noted that ”*Detecting a halving or doubling of the population corresponding to a CV of ≤16% is suggested as a general benchmark for all surveys and is particularly important for EIA and BACI surveys*.” Consequently, a target CV of <=0.16 has been the basis on which many digital aerial survey designs have been drawn up with the aim of establishing a baseline abundance estimate from which a halving or doubling could reliably be detected.
* However, the resultant population abundance estimates (which will be produced after completion of this project) are likely to be used to inform, amongst other things, condition assessment monitoring of the Berwick to St. Mary’s MCZ. For that purpose, it is unlikely that “standard” survey designs (which typically aim to deliver population abundance estimates with a Coefficient of Variation (CV) of 0.16 (and so the power to detect halving or doubling of populations across the MCZ over time)) will be sufficiently powerful. Power to reliably detect smaller declines in populations across the MCZ will be desirable to inform condition assessments.
* Bidders are therefore requested to present analyses to illustrate how the power to detect change in the population abundance of breeding common eiders (currently estimated to be around 780 to 930 pairs (c1600 to 2000 individuals) within the MCZ varies with the magnitude of that potential change (e.g. declines of 50%, 40%, 30%, 20%, 10%) and with the number of transects flown and/or images captured and/or % coverage. Bidders should indicate which survey design corresponds to the costings provided so that Natural England can judge the relative degree of power to detect varying magnitudes of population decline that is likely to be achieved by the recommended survey design and assess that against the costs/benefits of alternative designs.
* The calculator tool at this link [https://rtd-displacement-project.shinyapps.io/RTDDisplacementProject/](https://eur03.safelinks.protection.outlook.com/?url=https%3A%2F%2Frtd-displacement-project.shinyapps.io%2FRTDDisplacementProject%2F&data=05%7C01%7Crichard.caldow%40naturalengland.org.uk%7C102364f1be7d44efe53608da32a327a7%7C770a245002274c6290c74e38537f1102%7C0%7C0%7C637877975240837786%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=W3QjvJP3dvHLlRfO9U%2BK%2BCCC4Lb2sxA7W9hxT%2FnUg18%3D&reserved=0), which has been developed by JNCC, provides an indication of the type of power analyses which would be useful. However, underlying this tool is information on the observed distribution of red-throated divers in the Outer Thames Estuary SPA from 2018 and so the results it generates are specific to that species and that SPA. In the absence of any previous MCZ wide survey of eider distribution (both along shore and offshore), power analyses for the current bidding process, using a similar calculator, might be conducted assuming either: a) a random distribution of the population across the entire MCZ or ii) a distribution weighted towards the most inshore coastal strip of the MCZ only.
* Details of the camera specification and type, performance in different environmental conditions (for example, comparison of bird detections during good versus poor light conditions, between different sea states and in variable cloud levels) and approaches to management of variable image quality with respect to environmental conditions (e.g. sea state, cloud cover, sun altitude and surface glare) are important and information on these matters should be provided by bidders.
* Flight altitude and the resolution of images should maximise the probability of identification of individuals of the target species to species and ideally age/sex level and should also be specified in the tender. Ideally, example images of common eiders at the preferred resolution should be presented in the tender submission documents. Consideration should be given to the ability to discriminate these birds from other possible confusion species and attempts to deal with this uncertainty should be outlined in the tender including all Quality Assurance measures.
* Full details of logistic considerations for survey work should be provided in the tender e.g. operational restrictions, or other factors that may justify excluding coverage of certain areas and how these restrictions will be addressed.
* There are various risks that may constrain the ability to complete the survey and data extraction within the required timescales, considering factors such as weather, airspace restrictions and COVID-19 etc.. Bidders should describe the potential risks and provide details of relevant contingency measures.
* Natural England will require the successful framework contractor to pass copies of some or all survey imagery to Natural England. Bidders should provide details of the process by and format in which this imagery will be transferred to Natural England and an estimate of the total storage capacity required.

1. **Requirements**

To enable successful delivery, the successful Contractor is expected to:

* Conduct appropriate preliminary analyses to demonstrate that the survey design/coverage will allow robust population abundance and distribution estimates to be derived from the survey data (after this project). **Those preliminary analyses are to be submitted at tendering stage**. For example, simulated hypothetical distributions of the designated population of breeding eiders could be used to explore the suitability of alternative survey designs/coverage etc. in terms of the resulting population abundance estimates, confidence intervals and costs.
* Plan the survey design and submit these plans at tendering stage.
* Conduct the survey, including organisation and positioning of aircraft, crew and equipment and ensuring that all health and safety requirements, including Covid-19 requirements, are met.
* Process the acquired imagery.
* Quality Assure results so that pre-agreed data standards are met (e.g. to meet [MEDIN standards](https://medin.org.uk/data-standards) or equivalent for archival in marine data repositories such as the Marine Data [Exchange](http://www.marinedataexchange.co.uk/)). Note, that by the time this project is completed it is likely that Marine Scotland’s *Digital Aerial Survey Data Standard Guidance Document,* which is currently in preparation (ABPmer in prep), will have been finalised and published. This guidance document is not currently available but will set out details of the data and metadata requirements needed for MEDIN compliance when reporting on digital aerial surveys and will provide templates for the provision of all necessary information in a standard format. It is likely that the successful framework contractor will be required to provide data and metadata relating to the surveys conducted under this project in accordance with this guidance, once finalised.
* Submit ESRI ArcGIS 10.2 compatible shapefiles (clean of any topology errors) and .csv files showing survey effort (e.g. aircraft tracks and altitude) and observations of birds, marine mammals and other objects of interest, including data fields and metadata to pre-agreed standard (see above). These to be submitted to pre-agreed public repository with accompanying metadata, within pre-agreed period following the survey. Point and polygon data should be supplied.
* Submit a one-page summary survey report before the 31st March 2023.
* Submit a brief technical report in Microsoft Word format following completion of the survey and processing of imagery, detailing pertinent survey information including: detailed description of, and rationale for, survey methods and design, maps of survey route and coverage; details of survey as actually flown (dates, time, weather conditions, crew, camera set up, etc.); details of data extraction and processing and associated challenges or limitations (e.g. around species identification). The final report structure and content will be agreed with the nominated officer.
* Submit copies of all survey imagery and above files to Natural England.

**Project deliverables**

* Digital copies of all the georectified original survey photographs – please indicate available formats.
* A copy of the camera calibration report for the survey.
* Quality assured datasets of validated and geo-referenced observations (for all species/species groups/other objects of interest recorded) – so that pre-agreed data standards are met (e.g. to meet MEDIN standards or equivalent for archival in marine data repositories such as the Marine Data Exchange) (see guidance at <https://medin.org.uk/>) and/or compliance with Marine Scotland’s *Digital Aerial Survey Data Standard Guidance Document* (ABPmer in prep)(once finalised);
* ESRI ArcGIS 10.2 compatible shapefiles with attached metadata and clean of any typology errors and .csv files showing survey effort (e.g. aircraft tracks and altitude) together with log of conditions (sea state, visibility, cloud cover, glare, precipitation etc) during the survey.
* ESRI ArcGIS 10.2 compatible shapefiles with attached metadata and clean of any typology errors and .csv files showing observations of birds, marine mammals and other objects of interest, including data fields and metadata to pre-agreed standard. Point and polygon data should be supplied. All datafiles to be submitted to pre-agreed public repository within pre-agreed period following completion of the survey.
* Raw data files providing details of all the objects observed within each sample frame and subsequent identification. For each object detected, data fields to include, as a minimum, georeferenced position, date, time, number of individuals, assignment to identity (bird species and age/sex or broader category), confidence level in that categorisation, whether in flight or on the water surface and direction of travel. The locations of any objects such as vessels that might influence observed bird distributions should also be recorded within these data files.
* A one-page summary survey report before the 31st March 2023
* A brief technical report in Microsoft Word format detailing pertinent information regarding survey flight (dates, time, weather, crew, camera set up, etc.) and image processing. (Report does not need to contain any descriptive or analytical statistics or modelling).

All data provided must comply with Natural England metadata standards and GIS formats as outlined at Annex 1 and should additionally be in European Seabirds at Sea (ESAS) compatible format.

**Data ownership, intellectual property rights and copyright**

All data captured and produced shall be fully owned by and copyrighted to Natural England. This shall include any intellectual property rights that might otherwise impede on Natural England’s usage and data sharing of the outputs. Natural England may share any project outputs with third parties including for the purposes of additional analyses outside the final scope of any contract awarded against this statement of requirements. Any data supplied by Natural England to potential bidders and the successful contractor are for use in this project only and should not be retained once the bidding process (for unsuccessful bidders) or project (for the successful contractor) has been completed. In addition, neither bidders nor the successful contractor must pass such data on to any third parties unless with explicit prior permission from Natural England. The contractor is responsible for ensuring that all products submitted are of a satisfactory standard. The Natural England Nominated Officer may undertake a QA review of all project deliverables, including image analyses, prior to approving subsequent payment for the work.

**Timescales, milestones and payment schedule**

The intended timetable for this tender process is:

|  |  |
| --- | --- |
| **Activity** | **Date** |
| Issue of Request for Quotation | Noon Friday 16th December 2022 |
| Deadline for submission of clarification questions | Noon Friday 6th January 2023 |
| Deadline for submission of Quotes | 17:00 GMT Friday 20th January 2023 |
| Evaluation of Quotes | By Friday 27th January 2023 |
| Contract Award | Friday 27th January 2023 |

Every effort will be made to adhere to the above timescales. If this is not possible, bidders will be informed of any significant delays to the process as soon as possible.

Once let, the following are the key project milestones:

|  |  |
| --- | --- |
| **Milestone** | **Date** |
| Project inception meeting/teleconference between contractor/sub-contractor and Natural England | Monday 30th January 2023 |
| Contractor to produce final survey design and project plan and provide to Natural England (if different from that in tender documents) | Friday 3rd February 2023 |
| Natural England and contractor to agree final survey design and project plan | Friday 10th February 2023 |
| Completion of survey by contractor | 1st – 31st March 2023 |
| Submission of one-page summary survey report by contractor to Natural England | Within 3 working days of completion of aerial survey |
| Teleconference between Natural England and contractor to discuss conduct of survey | Before 31st March 2023 |
| Submission of ArcGIS layers, other associated datasets, metadata and imagery to agreed standards and a brief technical report detailing survey design, effort etc and observations for the survey | 31st March 2023 |

This is the envisaged contract timetable. Bidders should highlight any proposed deviation from this timeline within their bid. Any delays to this timetable during the contract should be immediately discussed with the Project Officer.

Prices will remain fixed for the duration of the contract award period.

Payment of 50% of the total contract value will be made on receipt of a detailed invoice following completion (to the satisfaction of the Natural England Nominated Officer) of the survey and submission of a one-page summary survey report. Payment of the balance of the total contract value (remaining 50%) will be made on receipt of a second invoice following completion (to the satisfaction of the Natural England Nominated Officer) of all the milestones detailed above, and formal acceptance of the specified outputs.

1. **Other considerations**

In support of this contract, we will provide the successful framework supplier with:

* Project support from dedicated project lead.
* Relevant available data from previous survey work.
* Opportunity to feedback and discuss progress with the project lead.

1. **References**

ABPmer (in prep) Digital Aerial Survey Data Standard, Guidance Document. ABPmer Report No. R.3947.**\***

Bohlin, T. (1990) Estimation of population parameters using electric fishing: aspects of the sampling design with emphasis on salmonids in streams. In, Cowx, I.G. & Lamarque, P. (eds.) Fishing with Electricity. Fishing News Books, Oxford, pp. 156-173.

Natural England & JNCC (2018) Marine Conservation Zones Scientific advice on proposed MCZs for highly mobile species: Tranche 3 pre-consultation advice overview report. Natural England Joint Publication JP026. 333pp. [Summary of Natural England’s confirmed advice provided to Defra on Marine Conservation Zones to be considered for consultation in 2018 - JP026](http://publications.naturalengland.org.uk/publication/6079955233931264)

Percival, S. (2022) *St Cuddy’s Duck Evidence project: Common Eiders in the Berwick to St. Mary’s Marine Conservation Zone*. Ecology Consulting Report to Natural England. 36pp.

Thaxter, C.B. & Burton, N.H.K. (2009) High-Definition Imagery for Surveying Seabirds and Marine Mammals: A Review of Recent Trials and Development of Protocols. British Trust for Ornithology Report Commissioned by Cowrie Ltd.

**\*** Unfortunately, this draft report is unavailable for dissemination at this time.

**Quotation Submission**

We will award this contract in line with the most economically advantageous tender (MEAT) as set out in the following award criteria:

Price – 40%

Quality – 60%

**Prices**

Prices must be submitted in £ sterling, exclusive of VAT. **Prices will be evaluated exclusive of VAT.**

Costings should be provided to carry out all planning, data collection, image and data processing and reporting to deliver the **core objectives** as detailed in *3.* *Objectives* of the Specification of this RFQ.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Total project cost (exclusive of VAT):** | | | **£** | | |
| **VAT** | | | **£** | | |
| **Total project cost (inclusive of VAT):** | | | **£** | | |
| **Breakdown of total costs (exclusive of VAT):** | | | | | |
| **Item** | **Daily staff rates (where applicable)** | **Number of staff days (where applicable)** | **Total staff costs (where applicable)** | **Other associated costs** | **Total value** |
| Survey/project planning | £ |  | £ | £ | £ |
| Hire/operation of aircraft (excluding fuel costs) | £ |  | £ | £ | £ |
| Fuel costs | n/a | n/a | n/a | n/a | £ |
| Flying hours required (in transit to and from survey area) | n/a | n/a | n/a | n/a | h |
| Flying hours required (on survey) | n/a | n/a | n/a | n/a | h |
| Litres of fuel per flying hour | n/a | n/a | n/a | n/a | l/h |
| Fuel cost per litre, on date tender submitted | n/a | n/a | n/a | n/a | £/l |
| Image Analysis | £ |  | £ | £ | £ |
| QA of imagery/data/results so that pre-agreed data formats and standards (e.g. MEDIN compliance) are adhered to | £ |  | £ | £ | £ |
| Reporting (including provision of all associated deliverables) | £ |  | £ | £ | £ |
| **Any other cost element not listed above (please specify and provide a cost for each additional item separately)** | £ |  | £ | £ | £ |

**Quality**

|  |  |  |  |
| --- | --- | --- | --- |
| Question | Question description | Response to include & Evaluation Criteria | Weighting |
| E01 -Methodology | Please provide details of the methodology and approaches proposed to deliver the requirements set out in the Specification. | The response must demonstrate the delivery method for each requirement specified in the *Specification (3. Objectives)* of this RFQ, and where relevant demonstrate how these methods comply with those set out in the *Specification (4. Methods)* or provide reasons for why they do not.  Evaluation criteria:  Your response will be evaluated on the basis of whether it:   * Demonstrates a clear understanding of the nature of the requirements. * Includes a clear, practical, achievable and cost-effective methodology to deliver these requirements including:  1. Presents the results of preliminary analysis to inform proposed survey design, 2. Presents a clear survey design based on such analyses, 3. Presents anticipated levels of precision around population abundance estimates and estimates of the power to detect abundance changes of varying magnitude achieved by different survey designs, 4. Provides details of clear and established survey methods to ensure identification rates of target species are maximised,  * Provides details of clear and established procedures for capturing, securing, storing, analysing and QA-ing seabird and mammal imagery from marine locations, with typical durations from image capture to fully available data; * Provides details of the process by which and format in which imagery will be transferred to Natural England and an estimate of the total storage capacity required. * Provides details of contingency processes for disrupted or aborted surveys; * Documents any added value your organisation can bring to the core requirement, for instance supplementary data (e.g. bird flight height) that could be collected on survey tasks.   Include information in sufficient detail to allow a full appraisal of the suitability of the approach to deliver for the project.  **A minimum score of 50 for this question is required to be met. Any score below this will be scored as a Fail**.  Please submit a document with the filename “**mNCEA\_PBDM\_WP5.5\_E01\_Your Company Name**”.  The submission must include the information requested above (maximum response: 5 sides of A4, font size Arial 11). | 60% |
| EO2 – Staff Technical Expertise | Please provide details of the project team providing the requirements set out in the Specification. | The response must demonstrate that the staff members (including any sub-contractors if appropriate) **who will be assigned to delivery of this specific project** have sufficient technical expertise across the broad range of technical skills required to deliver the project objectives including both generic skills and specific skills including but not limited to:     * Planning and conducting digital aerial surveys of seabirds and mammals at sea * Handling, storing and securing digital imagery * Analysing digital imagery at pace * Ensuring Quality Assurance of data products * Presentation of geospatial data, including implementing data standards   This will include examples of skills, expertise, and relevant training. The project team should have an appropriate balance of inputs by senior and junior staff. Lines of reporting to staff (to senior staff and/or the project manager) should be clearly presented and sufficient.  The information provided should include:   * For each member of the Project team, information on the amount of time input to this specific project, their roles, responsibilities, levels of seniority, the value added that they will bring to the project, their lines of reporting and their availability to do the work. * The name(s) of the individual(s) who will have overall management responsibility for the project and will report to Natural England’s project officer and the person who will be responsible for ensuring that the Project is completed satisfactorily.   Evaluation Criteria:  Your response will be evaluated on the basis of:   * The level and relevance of expertise and skills, provided by the Project team and sub-contractors and the value added delivered by this. This will consider expertise and skills in: project management; ornithology; data collection and collation; digital imagery processing; GI (mapping and spatial analysis). * The suitability and adequacy of the staff making the inputs to each stage of the Project (in terms of their expertise and skills), the quantity of their inputs and their availability to do the work. * The appropriateness of the balance of inputs by senior and junior staff and clarity and sufficiency of lines of reporting.   **A minimum score of 50 for this question is required to be met. Any score below this will be scored as a Fail**.  Please submit a document with the filename “**mNCEA\_PBDM\_WP5.5\_E02\_Your Company Name**”.  Your response must not exceed a maximum of 6 sides of A4, font size Arial 11. Use of team structure trees etc. is encouraged for clarity and brevity. It is very important to demonstrate leads and roles of all staff involved. | 30% |
| E03\_Risk Assessment | Please provide a Survey Risk Assessment. | Provide a Survey Risk Assessment tailored to the requirement to cover matters regarding:  Health and Safety risks associated with conducting the survey flight(s) needed to fulfil the core objectives of this project, and associated mitigation measures.  All other (non-H&S) risks associated with delivery of the survey(s) needed to fulfil the core objectives of this project, and associated mitigation measures and contingencies.  Evaluation criteria:  Your response will be evaluated on the basis of whether it:   * Demonstrates a clear understanding of the Health & Safety issues associated with delivery of the surveys needed to fulfil the core objectives of this project and describes effective measures to mitigate those risks. * Demonstrates a clear understanding of other risks associated with delivery of the surveys needed to fulfil the core objectives of this project and describes effective measures to mitigate those risks.     **A minimum score of 50 for this question is required to be met. Any score below this will be scored as a Fail**.  Please submit a document with the filename “**mNCEA\_PBDM\_WP5.5\_E03\_Your Company Name**”.  The attachment must include the information requested above (maximum response: 5 sides of A4, font size Arial 11). | 10% |

|  |  |
| --- | --- |
| **Score** | **Justification** |
| For a score of hundred (100): | Excellent - Response is completely relevant and excellent overall.  The response is comprehensive, unambiguous and demonstrates a thorough understanding of the requirement and provides details of how the requirement will be met in full. |
| For a score of seventy (70): | Good - Response is relevant and good.  The response demonstrates a good understanding and provides details on how the requirements will be fulfilled. |
| For a score of fifty (50): | Acceptable - Response is relevant and acceptable.  The response provides sufficient evidence to fulfil basic requirements. |
| For a score of twenty (20): | Poor - Response is partially relevant and/or poor.  The response addresses some elements of the requirements but contains insufficient / limited detail or explanation to demonstrate how the requirement will be fulfilled. |
| For a score of zero (0): | Unacceptable - Nil or inadequate response.  Fails to demonstrate an ability to meet the requirement. |

**Contract Management**

This contract shall be managed on behalf of the Authority by Richard Caldow [richard.caldow@naturalengland.org.uk](mailto:richard.caldow@naturalengland.org.uk) tel 07770 731470

We will raise purchase orders to cover the cost of the services and will issue to the awarded supplier following contract award.

### Disclosure

All Central Government Departments, their Executive Agencies and Non-Departmental Public Bodies are subject to control and reporting within Government. In particular, they report to the Cabinet Office and HM Treasury for all expenditure. Further, the Cabinet Office has a cross-Government role delivering overall Government policy on public procurement, including ensuring value for money and related aspects of good procurement practice.

For these purposes, the Authority may disclose within Government any details contained in your quotation. The information will not be disclosed outside Government during the procurement.

In addition, the Authority is subject to the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, which provide a public right of access to information held by public bodies. In accordance with these two statutes, the Authority may be required to disclose information contained in your quotation to any person who submits a request for information pursuant to those statutes.

By submitting a quotation, you consent to these terms as part of the procurement.

### Disclaimers

Whilst the information in this RFQ and any supporting information referred to herein or provided to you by the Authority have been prepared in good faith the Authority does not warrant that this information is comprehensive or that it has been independently verified.

The Authority does not:

* make any representation or warranty (express or implied) as to the accuracy, reasonableness or completeness of the RFQ;
* accept any liability for the information contained in the RFQ or for the fairness, accuracy or completeness of that information; or
* accept any liability for any loss or damage (other than in respect of fraudulent misrepresentation or any other liability which cannot lawfully be excluded) arising as a result of reliance on such information or any subsequent communication.

Any supplier considering entering into contractual relationships with the Authority following receipt of the RFQ should make its own investigations and independent assessment of the Authority and its requirements for the goods and/or services and should seek its own professional financial and legal advice.

**Protection of Personal Data**

In order to comply with the General Data Protection Regulations 2018 the contractor must agree to the following:

* You must only process any personal data in strict accordance with instructions from the Authority
* You must ensure that all the personal data that we disclose to you or you collect on our behalf under this agreement are kept confidential.
* You must take reasonable steps to ensure the reliability of employees who have access to personal data.
* Only employees who may be required to assist in meeting the obligations under this agreement may have access to the personal data.
* Any disclosure of personal data must be made in confidence and extend only so far as that which is specifically necessary for the purposes of this agreement.
* You must ensure that there are appropriate security measures in place to safeguard against any unauthorised access or unlawful processing or accidental loss, destruction or damage or disclosure of the personal data.
* On termination of this agreement, for whatever reason, the personal data must be returned to us promptly and safely, together with all copies in your possession or control.

**General Data Protection Regulations 2018**

For the purposes of the Regulations the Authority is the data processor.

The personal information that we have asked you provide on individuals (data subjects) that will be working for you on this contract will be used in compiling the tender list and in assessing your offer. If you are unsuccessful the information will be **held and destroyed within two years** of the award of contracts. If you are awarded a contract it will be retained for the duration of the contract and destroyed within **seven years** of the contract’s expiry.

We may monitor the performance of the individuals during the execution of the contract, and the results of our monitoring, together with the information that you have provided, will be used in determining what work is allocated under the contract, and in any renewal of the contract or in the award of future contracts of a similar nature. The information will not be disclosed to anyone outside the Authority without the consent of the data subject, unless the Authority is required by law to make such disclosures.

**ANNEX 1**

**Natural England data requirements**

This Annex provides high level guidance for contractors regarding Metadata and Geographic Information System deliverables. Final details of requirements for this project, with reference to section 5 of the Specification, will be agreed with the Nominated Officer.

Natural England reserve the right to check the quality of all digital data and reserve the right to return any data that does not meet these compliance requirements. If any part of this guidance is unclear please make early contact with the Natural England Nominated Officer who will be able to provide clarification in consultation with data management colleagues.

**Metadata**

A generic MEDIN compliant discovery metadata record should be completed for the project outputs as a whole and for each GIS layer generated. By generating MEDIN compliant metadata, Natural England gain required compliance with both INSPIRE Directive and UK GEMINI 2.1 metadata requirements, while using term list vocabularies fit for marine purposes. There are a variety of mechanisms for generating MEDIN compliant metadata available at the following link along with a full description of the MEDIN standard, XML encoding, and guidance documentation: <https://www.medin.org.uk/medin-discovery-metadata-standard>. Metadata derived as part of this project must be submitted to Natural England in an XML file which Natural England will archive through Data Archive Centres (DACs). Guidance ‘MEDIN Guidance for Contractors’ can be provided to the winning contractor.

Beyond the discovery metadata requirement it is essential that the final GI datasets are accompanied by a detailed ‘readme.doc’ describing the file structure within submitted outputs, and clearly outlining file associations (e.g. layer files for colours/ fill patterns).

**Geographic Information data - format for deliverables**

GIS products should be compatible with ArcGIS Desktop 10.2. Data will be supplied as a series of Feature classes in a File geodatabase (.gdb) to an attribute structure to be agreed between the contractor and Natural England on commencement of the contract. One or more ArcMap Document files (.mxd) must be provided to pull out data into distinct layers based on its attribution and these will apply appropriate layer styling.

Data in the Feature classes of File geodatabases will be supplied using the following coordinate system parameters:

|  |  |
| --- | --- |
| **Attribute** | **Value** |
| Geographic Coordinate System | GCS\_WGS\_1984 |
| Datum | D\_WGS\_1984 |
| Prime Meridian | Greenwich |
| Angular Unit | Degree |

For the purposes of this project ArcMap document files (.mxd) are to display WGS84 data projected from requested feature classes in Lambert Azimuthal Equal Area projection based on ETRS 1989, using an appropriate (eg Petroleum EPSG) transformation between WGS 1984 and ETRS 1989.

1. <https://magic.defra.gov.uk/> [↑](#footnote-ref-2)
2. <https://magic.defra.gov.uk/> [↑](#footnote-ref-3)