

www.gov.uk/naturalengland

Request for Quotation

## Request for Quotation

**Protected Sites – Feasibility Study to reducing the impact of barriers to salmon migration and the wider natural processes of the River Avon.**

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 quote should be returned to the following email address by:

**Email:** [**emma.tomlin@naturalengland.org.uk**](mailto:emma.tomlin@naturalengland.org.uk)

**Date: 16th June 2023**

**Time: 17:00**

Ensure you state, ‘Sea to Salisbury improving salmon migration on the Lower Hampshire Avon’ and ‘Final Submission’ in the subject field to make it clear that it is your response.

**Contact Details and Timeline**

Emma Tomlin [emma.tomlin@naturalengland.org.uk](mailto:emma.tomlin@naturalengland.org.uk) will be your contacts 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 | 26/05/2023 |
| Deadline for clarifications questions | 09/06/2023 |
| Deadline for receipt of Quotation | 16/06/2023 |
| Intended date of Contract Award | 20/06/2023 |
| Intended Contract Start Date | 21/06/2023 |
| Intended Delivery Date / Contract Duration | 21/06/2023 – 15/03/2024 |

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### Glossary

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 Natural England acting on behalf of the Department for Environment, Food and Rural Affairs |
| “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 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.

#### 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](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/419955/standard-condensed-terms.doc) (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](http://www.naturalengland.org.uk/)

## Introduction

**Background to Natural England**

Natural England is the government’s adviser for the natural environment in England. We protect England’s nature and landscapes for people to enjoy and for the services they provide. Within England, we are responsible for:

* promoting nature conservation and protecting biodiversity;
* conserving and enhancing the landscape;
* securing the provision and improvement of facilities for the study, understanding and enjoyment of the natural environment;
* promoting access to the countryside and open spaces; and
* contributing to social and economic well-being through the sustainable management of the natural environment.

[Conservation 21](https://www.gov.uk/government/publications/conservation-21-natural-englands-conservation-strategy-for-the-21st-century) outlines out how we will work to protect England’s nature and landscapes for people to enjoy and for the services they provide, in support of Defra’s ambitions for the environment.

**Background to the specific Natural England work area relevant to this purchase**

A naturally functioning wetland landscape is one where rivers and streams flow freely to create complex, dynamic and well-connected habitat mosaics that support a rich assemblage of wildlife.

The river and stream channels should naturally follow a meandering course, with gradual change over years, particularly via erosion on the outside, and deposition on the inside, of the soft bank material on meander bends.

On the floodplain and in the main river, there should be an absence of artificial ditches, drains and barriers and a natural variation in the microtopography and geomorphology should occur, helping to provide a naturally functioning landscape.

The River Avon is one of the biggest and most ecologically important chalk streams in the world, supporting diverse fish populations, a particularly abundant aquatic invertebrate community, and over 180 species of plants. Chalk streams are globally rare, and with over 85% of the world’s chalk streams found in Southern England alone, we must do all we can to conserve and enhance this natural wonder for future generations.

The River Avon is a Site of Special Scientific Interest (SSSI) and therefore forms part of the nation’s finest natural heritage. The River Avon is internationally recognised as a wetland site of importance (Ramsar site) and was confirmed as a Special Area of Conservation (SAC) in 2000. The SAC also includes a number of tributaries and adjacent habitats. The lower reaches of the Avon Valley are also designated as a Special Protection Area (SPA) for their bird interest.

The River Avon is home to a diverse fish community including Atlantic salmon, trout, grayling, eel and other minor species. Southern chalk stream salmon are a genetically distinct sub-group, especially adapted to the chalk stream environment and set apart from other salmon in the world. This unique population has suffered significant declines in recent decades, caused and/or exacerbated by a combination of human induced pressures, including artificial barriers (e.g. dams, weirs, culverts and sluices) that block or delay their iconic migration to their spawning grounds in the upstream river.

In-channel barriers are one of the reasons that the River Avon fails to meet its Conservation Objectives under the Habitats Regulations and also a key driver behind 60% of Europe’s rivers failing to meet ‘good ecological status’ under the EU Water Framework Directive.

The River Avon has over 100 barriers along its course which can reduce the resilience of river habitats and species populations to environmental stress, such as in dry or hot years and such stress is likely to increase with climate change. Barriers alter the natural flow regime for a river and inhibit sediment movement and hydro-morphological function that would naturally support the habitat and wildlife for a chalk river. Barriers are thought to adversely impact fish migration including salmon.

Migratory fish are a highly important part of river ecosystems and local economies, and the genetic distinctiveness of Southern chalk stream salmon make them irreplaceable. We cannot afford to lose these special fish from the Avon.

## Requirement

**Objectives**

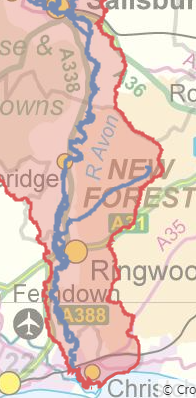
Members of the Hampshire Avon Catchment Partnership (HACP) are working together throughout the wider Avon catchment to reduce many of the pressures that affect the health of the river. However, further investigation is required to help us reduce the risk posed by barriers impacting on the natural function of the river and in particular on salmon and others fish migration in the lower reaches of the Avon.

Research has shown that by removing these often outdated, unsafe or environmentally unacceptable barriers, rivers can rapidly return to a more natural and healthy state, benefiting both wildlife and people. Along with restoring the natural flow regime for a chalk river, improvements in water quality and resilience to flooding, barrier removal enables sediments to move freely downstream; a key process which helps form and maintain healthy coastlines, resilient to the impact of climate change.

This project is an excellent opportunity for members of the Hampshire Avon Catchment Partnership to understand a series of actions aimed at reducing the impact of barriers to salmon migration and the wider natural processes of the River Avon.

Outcomes will contribute towards an improvement in the statutory environmental targets associated with the River Avon.

Project Area (Salisbury to Christchurch Harbour) (blue area to be surveyed)



Requirement

Natural England propose to oversee and commission a series of investigations to assess the status and risk posed by barriers to salmon migration along the course of the Avon from the sea to Salisbury.

The investigation will set out a prioritised plan of action to address each barrier.

This will build on, and not duplicate, appraisals completed under previous plans and strategies by the Environment Agency. Information to be supplied by Natural England and Environment Agency.

Will provide an opportunity to design and implement projects to remove barriers presenting the highest risk to salmon.

Project outcomes

Members of the Hampshire Avon Catchment Partnership will have a report and an interactive map of the barriers to fish migration in the lower Avon that will enable delivery of a coordinated plan of action to remove the barriers presenting the highest risk to the species within 3 years upon completion of these investigations and set within the context of the wider river restoration plan that includes the objective to remove the impact from all structures on the river habitat.

A detailed action plan including an interactive map that addresses barriers to salmon migration in terms of prioritising the need to remove structures and restore natural function of the River Avon SAC.

Detailed design(s) for the barriers identified for removal. These are subject to actions identified by the feasibility study.

Methodology

A desktop study will be carried out to inform the requirements of field surveys to assess in-channel barriers. Results will be mapped using interactive GIS software to set out a prioritised action plan to address barriers to salmon migration (and shared amongst the Hampshire Avon Catchment Partnership).

The status and options to remove each barrier will be compared against existing data sets and local stakeholder knowledge to inform the action plan.

Detailed design(s) to be undertaken for barriers identified as a priority for removal by the feasibility study. The designs will also need to include the wider restoration and timescale required to support the structure removal.

The quote will need to include

1. An outline survey design specification detailing what methods and equipment would be used and how the methods outlined would achieve the objectives detailed above. It is appreciated the survey methods and timings may need to adjust depending on weather and results gathered and an explanation should be given on how this would be approached. Covid working practices will need to be included.
2. Desktop study and field surveys, including stakeholder engagement (including EA and NE consultation)
3. Upload missing barriers to the EA’s River Obstacle App
4. Produce an ArcGIS based action plan for barrier easement or removal, made available to Hampshire Avon Catchment Partnership.
5. Design of river restoration for reaches of river where barrier(s) identified and prioritised for removal

## Methods

### Field work

The contractor will be responsible for obtaining landowner permission and will need to ensure that a site-specific health & safety risk assessment is carried out and biosecurity procedures are followed, including the undertaking of a risk assessment. Natural England will help with landowners’ details where possible.

**Land Access**

Natural England will help to seek permissions for access using Land Registry searches and will be supplied when needed by Natural England. This information will be held in confidence by the successful contractor and destroyed at the end of the contract. Landowner details are to be stored on a desktop GIS only and not on a cloud-based system such as ARC Online. The contractor must give at least 24 hours’ notice to the landowner prior to survey unless granted otherwise, with any refusals or other issues notified to the Natural England project officer within 1 working day.

## Outputs

**General**

The products of this work will be:

* Desktop study and field surveys, including stakeholder engagement (including EA and NE consultation)
* Upload missing barriers to the EA’s River Obstacle App
* Produce an ArcGIS based interactive action plan for barrier easement or removal and a written report of findings made available to Hampshire Avon Catchment Partnership.
* Design of barrier(s) identified and prioritised for removal

The supplier must comply with [Natural England publishing standards for commissioned reports (NECR000)](http://nepubprod.appspot.com/publication/5790636781600768) and use the report template provided on the page, following the guidance within it.

The supplier must not make any changes to the templates, including to heading styles and font sizes. The supplier must include a clear section on any third-party data replicated or used to derive the output from, and how, within the report.

Natural England requires the opportunity to comment on the draft final outputs and will be expected at least four weeks before the deadline for comments to be incorporated. Tenderers should be aware that Natural England and Defra will aim to publish the project outputs. Written work must comply with Natural England’s publication style guidance (this will be supplied in advance).

Natural England is also happy to encourage widespread publication, and welcomes the use of appropriate trade press, peer-reviewed journals and sector-specific journals. The appointed Contractor is also to be aware that Natural England, Network Rail and Environment Agency requests acknowledgement in the project (including oral presentations), and that the project manager is notified at least two weeks prior to any publication.

**Intellectual property**

The Intellectual Property Rights resulting from the work shall belong to Natural England. The cover of all reports or drawings will include a statement © Natural England and the date of creation.

Any data reproduced in all or in part, in the works the supplier submits, or used to derive the work must be owned by or licensed to Natural England. The supplier can request to use data held by Natural England and complete some of our contractor licences at <https://www.gov.uk/guidance/how-to-access-natural-englands-maps-and-data#request-data> .

Data not held by Natural England must have a license permitting the required rights. If it isn’t a standard licence (eg OGL, NCGL, CC suite) you must obtain a licence in Natural England’s name (as well as your own) which you must send to data.services@naturalengland.org.uk for Natural England to review and sign. If you’re contacting the data owner to request access to their data and/or a licence, you can adapt Natural England’s standard wording [Natural England staff - download and attach].

The Supplier shall indemnify and keep indemnified Natural England against all actions, claims, demands, losses, damages, costs and expenses and other liabilities Natural England may suffer or incur arising from any infringement or alleged infringement of any third-party Intellectual Property Rights except to the extent that they have been caused by or contributed to by Natural England’s acts or omissions.

The supplier must provide Natural England with details of any third-party data consulted or incorporated, and the processes used either within the report, or in the Lineage section of the metadata (see Outputs).

Contact [data.services@naturalengland.org.uk](mailto:data.services@naturalengland.org.uk) if you need advice.

## Timescales

* W/C 19TH June – Start up meeting between Natural England, Environment Agency and Contractor
* Monthly teleconferences thereafter
* W/C 30th October – ArcGIS based interactive map action plan for barrier easement or removal with written report provided in digital format via e-mail.
* W/C 6th November 2023 – Meeting with Natural England, Environment Agency and Contractor to discuss barriers identified for removal
* W/C 12th February - Design of barrier(s) identified and prioritised for removal
* 28th February 2024 Final report and design(s) due. Three copies, digital format via e-mail
* 4th March 2024 - Wash up meeting with Natural England, Environment Agency and Contractor
* Contract to be completed by 15th March 2024.

It is anticipated that this contract will be awarded to end no later than 15th March 2024. Prices will remain fixed for the duration of the contract award period. We may at our sole discretion extend this contract to include related or further work. Any extension shall be agreed in advance of any work commencing and may be subject to further competition.

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

Suppliers will be required to invoice after the final reports have been received and signed off by Natural England. Invoices must be submitted to NE via SSCL by 19th March 2024.

## Prices

Prices must be submitted in £ sterling, excluding VAT.

Please state whether you are VAT registered.

Please provide a breakdown of the costs in the attached rate card excel spreadsheet, bearing in mind the scenario to be costed as described in section 3. Then return this spreadsheet along with the Supplier Undertaking.

The contract will be set up as a call off contract up to a maximum value. The pricing is put into the contract for baselining purposes (scenario) and calculation of the services to be provided (Rate Card).

**Quotation Submission**

The submission will be assessed against the criteria detailed in the table below. Please include a detail explanation of the methodology you intend to use for the surveys, to be no longer than four A4 pages, not including annexes.

In addition, include information relating to your quality assurance and project management procedures, to be no longer than two A4 pages long.

You will also be required to submit a curriculum vitae for each person that will be carrying out survey work in relation to this contract. This must include their qualifications relating to bat surveys as well as their experience of carrying bat surveys. To be no longer than one A4 page per person.

As outlined above, we require a detailed risk assessment covering;

* A risk assessment - YOU MUST SEND THIS AS PART OF THE BID APPLICATION.

**Evaluation Criteria**

The contract will be awarded to the tender which best fits the profile of requirements. This will be assessed by the Project Officer in consultation with relevant colleagues using the evaluation criteria detailed below.

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

Price – 30%

Quality – 70%

The tenders will be assessed by a tender evaluation panel comprising representatives from Natural England’s Area and Scientists Directorates team.

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| **Criteria** | Weighting % |  | **To include:** |
| Proposed methodology | 50 |  | Please submit an outline method of how you propose to deliver the project, including:  • Survey specification, methods and analysis  • Health & Safety (including survey risk assessment and lone working policy)  • Biosecurity procedures |
| Key personnel who will be directly involved with this contract | 30 |  | Please submit CVs separately, including relevant project you have undertaken. |
| Quality Assurance measures | 10 |  | Please describe how you will assure quality of the protocol |
| Recent experience of carrying out similar contracts | 10 |  | Please detail previous relevant work you have undertaken |

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| **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 Emma Tomlin

Tel: 07425 620834

Our alternative contact is Sue Moore

Tel: 0[7887823017](tel:+447887823017) (working days Monday to Friday)

Project group email: **[emma.tomlin@naturalengland.org.uk](mailto:emma.tomlin@naturalengland.org.uk)** (nb. This will be changed to a Project email once contract is awarded)

### 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**

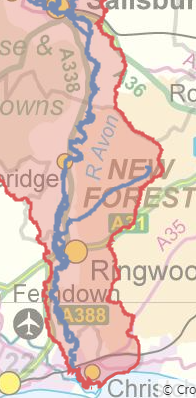
For the purposes of the Regulations the Authority is the data processor.

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: Additional Information**

Figure 1: Project Area ([River Avon Systems SSSI](https://magic.defra.gov.uk/magicmap.aspx?&startTopic=GreyRasters&chosenLayers=sssiPIndex,sssiIndex,baseIndex&box=413737:111860:415343:112604&useDefaultbackgroundMapping=false))



Further Information:

1. Download the app

This project enables people to send in photos and details of obstacles that they see when they’re out and about, either on, in or by the UK’s rivers. It is possible to submit just the basic information such as the location of the obstacle and a photo, or to submit more detailed information such as the type of obstacle, its height and length, and whether there is a fish or an eel pass present.

The App will be particularly useful to organisations who undertake river surveys as it enables users to track and record the route that has been surveyed, providing a rapid way of visualising where further survey work is required.

Download for free from the App Store for iOS devices or the Google Play store for Android devices.

<https://river-obstacles-theriverstrust.hub.arcgis.com/>

**Annex 2: Natural England data standards**

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.

A metadata record should be completed for the project outputs as a whole and for each GIS layer generated. This is so that so we can easily understand the lineage (what information products have been used in the output) and ensure the correct licensing and copyright attributions are applied.

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). Natural England can supply a basic metadata template for this on request. If you use your own template you should ensure it is complaint with [National Biodiversity Network Trust community standards](https://docs.nbnatlas.org/share-species-occurrence-records-with-the-nbn-atlas/).

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).

Spatial data must be in ESRI Shapefile or Geodatabase (v10.2.2 with a .lyr file) format and must have been through the [Esri Check Geometry](https://desktop.arcgis.com/en/arcmap/10.7/tools/data-management-toolbox/check-geometry.htm) tool. Annex 2 provides more detail about data standards for spatial data. Documentsthat give more detailed information on the creation of the dataset or how to use the data should be in Word format.

All data, media of any nature containing information and data or other material belonging to Natural England or relating to the Services shall be delivered promptly. Spatial data and accompanying documents , along with Word documentsthat give more detailed information on the creation of the dataset or how to use the data should be sent to [data.services@naturalengland.org.uk](mailto:data.services@naturalengland.org.uk) .

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| File format | ESRI shp or gdb  If MapInfo software is used then data must be converted to ESRI using either: the file conversion tools within that software; FME software; or download freely available conversion software such as QGIS |
| Geographic projection/spatial reference | If data is on or near land then use British National Grid co-ordinate systems. If data is marine-based then use WGS84. |
| Units | Coordinate units: metres  Distance units: metres  Area units: hectares |
| Digitising | Using Ordnance Survey MasterMap (as supplied) |
| Boundaries | Where a boundary follows an OS MasterMap feature the OS MasterMap feature should be copied so that the digitised boundary and OS MasterMap feature share the same geometry.  Where a boundary follows part of an OS MasterMap feature the digital boundary should be snapped along the OS MasterMap feature so that the digitised boundary and MasterMap feature both share the same geometry where appropriate.  Where a boundary does not follow an OS MasterMap feature the digitised boundary should be captured with sufficient nodes that the digitised feature takes on the shape of the feature on the source material at a scale of 1:2500.  Where a boundary is shared between two (or more) polygons the boundaries should all share the same geometry. Thus, there should be no slithers or gaps between polygons with contiguous boundaries.  Where a boundary follows a feature on an aerial photograph, scanned and geo-rectified map (maybe field or historical) or other raster image that is not shown on the OS MasterMap Data, the digitised boundary should be captured with sufficient nodes that the digitised feature takes on the shape of the feature on the raster material at a scale of 1:2500.  Holes in polygons should be appropriately "punched". Where there is a hole in a polygon this should be digitised as a hole as shown below.  goodhole |
| Errors | Features should not be "stream" digitised. Stream digitising is the process of manual digitising, of lines or regions, where nodes are automatically placed at pre-set intervals based upon distance or time.  Polygons should not contain inappropriate "spikes". In the figure below the digitised field has an inappropriate spike.  spike  Polygons must not contain "bowties". Polygons must not intersect or cross themselves. In the figure below the digitised field has a bowtie caused by a polygon crossing itself.  bowtie |
| Point data | Point data must be accurate to 10 metres.  Point data should be collected in the field using GPS wherever possible.  Grid references collected in the field should be to at least 8 figures, e.g. SE832413. |