Specification for an Underwater Archaeological/ Wade and Metal Detector Survey for Cummeennabuddoge Wind Farm Planning Observation

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By: Dr Kevin Martin
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RUBICON archaeology

1 INTRODUCTION

1.1 Summary of Required Archaeological Services

Cummeennabuddoge Wind Farm consists of the construction of 17 wind turbines and associated infrastructure. An advance underwater archaeological/wade and metal detector survey is required to be undertaken for all watercourses where they are traversed by the proposed development.

1.1.1 Definitions

'Project Archaeologist' is defined as the individual appointed to oversee the archaeological elements of the contract.

'Archaeological consultant' is defined as the person or persons, firm or company appointed to undertake the archaeological consultancy services contract (underwater/wade and metal detector survey).

1.2 Proposed Development and Site Location

The Proposed Development will involve the wind farm consisting of 17 no. Wind Turbines with a total tip height in the range of 199.5 m to 200 m maximum inclusive, a permanent meteorological met mast with a height of 110 m (AGL) and associated infrastructure including hardstanding's, cablings, and access roads. The Proposed Development will consist of a 110 kv grid connection to Ballyvouskill and related works in the townlands of Cummeenabuddoge, Clydaghroe, Glashacormick, Cummeenavrick, in Co. Kerry, and Caherdowney, Co. Cork.

1.3 Hydrology and Watercourse Crossings

The Proposed Development site is located in the upper sections of the River Clydagh catchment (a tributary of the River Flesk) which drains into Lough Leane approximately 28 km downstream and to the west of the Proposed Development site. The River Clydagh is fed by several smaller watercourses draining from the Proposed Development site. None of the Proposed Development infrastructure is located in areas identified as being at risk of flooding with the exception of watercourse crossings and their approaches. The crossings will be designed to ensure flood resilience.

Fourteen watercourse crossings have been identified within the Proposed Development site which require further archaeological survey. These are listed below in Table 1 and shown in Figure 2.

Table 1 — Underwater Archaeological/Wade and Metal Detector Survey Locations

Watercourse Crossing ID	ITM
WX01	516679/581342
WX02	518944/582683
WX03	519607/583080
WX04	519809/583115
WX05	520695/583685
WX06	520829/583638
WX07	521429/583638
WX08	522706/583253
WX09	518301/583462

Watercourse Crossing ID	ITM
WX10	515654/581945

1.4 Archaeological Findings

An EIAR has been undertaken of the proposed development, which included the examination of the available archaeological and historical sources, a site visit, an interrogation of local knowledge, and a thorough examination of cartographic sources in order to identify any potentially sensitive sites. It identified no likely significant direct effects (negative) from the proposed development on the receiving environment, given the layout and design of the proposed development and the mitigation measures recommended.

1.5 Role of Project Archaeologist

Rubicon Archaeology Limited are acting as 'Project Archaeologist' to oversee the archaeological elements of this contract. The Project Archaeologist will provide advice to the client or the client's representative (as required) in all archaeological matters and, in particular, in ensuring that the work of the archaeological consultant is conducted in accordance with the terms of the detection licence, all agreed method statements and within the agreed timescales. The archaeological consultant will liaise with the Project Archaeologist and client's representative in relation to all archaeological requirements and allow the Project Archaeologist to inspect at all times, any works associated with the contract.

1.6 Aims and Objectives

An underwater/wade and metal detector survey is required at the areas listed on Table 1 above, shown on the contract drawings (Figures 1 & 2) and as set out in these Services Requirements. The aim of the underwater/wade and metal detector survey is to:

- survey, measure and record the river channels and riverbanks
- ascertain the character, condition and extent of any archaeological features/deposits or objects likely to be affected by the proposed works, including any associated temporary works, and the likely impact of the proposed works on these remains
- accurately locate these archaeological features/deposits or objects and present the findings in map form
- describe same and discuss their likely provenance
- recommend appropriate measures for the avoidance of these remains or, where this cannot be achieved, recommend measures to mitigate the impact of the works
- incorporate all of the above into a report

These surveys are being carried out to determine the requirement for any subsequent archaeological work (i.e. preservation *in situ*, test trenching archaeological excavation and or archaeological monitoring. Detailed specifications for the required services are set out in the relevant sections below.

1.7 Provisional Programme

An underwater/wade and metal detector survey shall only commence upon instruction by the Project Archaeologist and client's representative.

The underwater/wade and metal detector survey are to be completed within a 10-week period. This 10-week period includes 3 weeks for mobilisation/application for licences, and 1-week for carrying out the on-site survey. The draft underwater/wade and metal detector survey reports shall be prepared and submitted to the client within 2 weeks of the completion of all on-site services. A 1-week period is allowed for review of the draft report by the Project Archaeologist and a further 1-week period for submission of the final underwater/wade and survey reports. A further 1-week is allowed for archiving and submission of the archive to the appropriate bodies.

2 LICENCE REQUIREMENTS

2.1 Detection Licence

In accordance with the *National Monuments Act 1987 (Amendment)* and in advance of site works commencing, the archaeological consultant will be required to apply for a Section 2(2)(a) detection licence from the Minister for Housing, Local Government and Heritage (DoHLGH) for the site. The archaeological consultant will submit a copy of the draft licence application and accompanying method statement to the client's representative for the Project Archaeologist's review and approval in advance of submission to DoHLGH. It is anticipated that archaeological licences will be issued by the DoHLGH within 3 to 4 weeks of receipt of application. The survey works will not commence on site until the appropriate licence has been granted by the DoHLGH.

2.2 Underwater/Wade and Metal Detector Survey Method Statement

The method statement and application form shall be prepared by the archaeological consultant immediately upon award of the contract and shall be submitted to the Project Archaeologist and client's representative and County Archaeologist for approval. The archaeological consultant shall make any reasonable changes requested by the Project Archaeologist/client's representative in order to meet the requirements of these services requirements. The Archaeological Consultant shall ensure that the full extent of the proposed impact area in each watercourse crossing is surveyed. After written instruction from the Project Archaeologist/client's representative, the archaeological consultant shall submit the application to the National Monuments Service (Department of Housing, Local Government and Heritage).

The underwater/wade and metal detector survey method statement shall include, at a minimum:

- A non-technical summary of 500 words or less
- A brief description of the proposed development
- A description of the aims of the survey
- A description of the specific areas of the survey and supporting maps
- An outline of any statutory protections in place
- An outline of the *Health and Safety and Welfare at Work* requirements (including liaison with statutory bodies)
- A description of the survey methodology, including details of the underwater/wade and metal detector survey instruments and equipment to be used

- A description of data recording methods to be used, including data back-up and storage procedures
- An outline of any anticipated constraints on methods
- A description of reporting requirements
- Details of the survey team, including experience and qualifications
- A programme for the completion of on-site services and reporting
- A description of the landowner liaison procedures that will be implemented
- A description of liaison with procedures that will be implemented with the Project Archaeologist, resident archaeologist, engineer and third parties
- Supporting documentation, including technical specifications of the metal detector and survey (GPS) to be used and confirmation that valid Manufacturer's Calibration Certificates are available and evidence of the operator's previous experience and training
- Site location map (*c.* 1:10,000)
- Plans of the proposed survey locations, adjacent topographic features (including LiDAR and aerial anomalies), recorded monuments and known cultural heritage sites and development boundary, at an appropriate scale.

The client will supply an ESRI shapefile or similar of the survey areas for the underwater/wade and metal detector survey upon award of the contract.

Notwithstanding any interim or other arrangements required by the National Monuments Service regarding licence applications and submission of reports, the archaeological consultant shall provide digital copies in high resolution of all approved method statements and associated applications for licence(s).

In the event that there is any significant change proposed to the methodology for delivering the archaeological works, an updated archaeological method statement must be produced.

3 UNDERWATER/WADE AND METAL DETECTOR SURVEY SCOPE

3.1 Underwater/Wade and Metal Detector Survey

An underwater/wade and metal detector survey will be conducted at each of the 14 watercourse crossings listed in Table 1 and shown in Figure 2.

Tenderers should price for the required stage services on the basis of the following specifications:

- A desktop/baseline study
- A field/walkover survey of any foreshore/riverbank
- A wade/snorkel and metal detector survey
- Each survey area should be subject to a systematic inspection (wading using visual and accompanying bathyscope or by snorkelling) and a metal detection survey to identify any evidence of archaeological remains (structures/features/deposits) and archaeological objects located in, or adjacent to, the waterbody
- The survey should include a visual assessment of the river and lake banks, as well as river and lakebed, where visible; it is best carried out following vegetation clearance. Any clearly identified or potential archaeological remains/objects should be described, recorded and

photographed, and their location and extent should be surveyed. The survey will be carried out within the works areas identified in Table 1 where this can be achieved (allowances will be made for immovable obstacles or areas unsuitable for survey)

- The topography and condition of the area and riverbed should also be recorded
- The survey must be based – as a minimum measure – on a survey grid with a baseline established in the field for survey control, to ensure full coverage of the riverbed
- The survey should be performed systematically over the entire length of the water body, within the area subject to the scheme, where this can be achieved. Any constraints that impede completion of the survey (such as the presence of immovable obstacles, deep water, strong water currents, weirs, or dangerous conditions) should be recorded, described and illustrated in the maps accompanying the UAIA report
- The metal detection survey should be undertaken by an experienced licenced metal detectorist using a suitable underwater metal detector. The survey shall be undertaken using a suitable underwater metal detector (e.g. Minelab, J. W. Fisher or equivalent)
- The location of all ferrous and non-ferrous material contained within the survey area (that is, in the waterbody) should be recorded using a Global Positioning System (GPS). The metal detection survey should provide a quantitative estimation of the amounts of metals in the area to be impacted by the scheme
- The location of all archaeological remains or objects identified should be recorded using Electronic Distance Measurement and/or Digital GPS, as appropriate
- All archaeological remains or objects identified should be photographed if possible and left in situ until an agreement has been reached, in consultation with the National Monuments Service, the National Museum of Ireland, the contracting authority and the Project Archaeologist, to remove them. Finds of archaeological significance that are in threat of being damaged or irretrievably lost may be retrieved. The National Monuments Service, National Museum of Ireland, the contracting authority, and the Project Archaeologist should be immediately informed of the find
- Any constraints encountered (e.g., the presence of immovable obstacles or areas unsuitable for survey) which impede completion of the survey shall be recorded and described.

3.2 'Setting Out' Surveys

Neither the scheme boundaries nor the survey areas will have been 'set out' in advance of this contract for the benefit of the archaeological consultant. It will be the responsibility of the archaeological consultant to establish the scheme boundaries and survey areas in the field and to establish reference points for all of the surveys described by this specification.

3.3 Excluded Areas

Some areas within the footprint of the scheme may have to be excluded (either temporarily or permanently) from on-site surveys in the current contract. These may include areas that cannot be disturbed because they are especially sensitive in ecological terms.

3.3.1 General considerations

The archaeological consultant shall take care to avoid damaging any ground in the accessing or use of the survey areas. If such damage occurs it shall be reinstated by the archaeological/underwater archaeological consultant at their own cost to the satisfaction of the landowner and the client's

representative. If necessary, this shall include the provision of suitable topsoil and seeding. This provision shall also apply to the locations of all temporary accommodation, car parking areas, storage areas or routes/tracks there to and any access over lands to or on the sites of survey work.

3.4 Liaison

The archaeological consultant shall operate under the general supervision, control and direction of the Project Archaeologist on all matters as directed. In general, the Project Archaeologist will ensure that the work of the archaeological consultant is conducted in accordance with the agreed method statements and within the agreed timescales, and that reports are of the highest quality. The survey director shall act as senior representative and project manager for the archaeological consultant. They must have the authority to make on-site decisions on behalf of the archaeological consultant, and shall receive, on behalf of the archaeological consultant, directions and instructions from the Project Archaeologist, in consultation with the clients representative.

3.5 Access to Lands

3.5.1 Access to or entry on lands and/or private property

Upon the award of the contract, the archaeological consultant shall nominate a person to liaise with landowners affected by the scheme when seeking entry onto their land or to answer any landowners' queries that may arise. The nominated person shall consult with the Project Archaeologist and client's representative prior to seeking entry onto land.

The archaeological consultant shall provide a minimum of three days prior notice to entry to any lands and provide the Project Archaeologist and clients representative with a map and list of all areas where access is required and a list of the vehicles, plant and other machinery to be taken onto such areas.

The archaeological consultant shall also confirm to the Project Archaeologist and client's representative that affected landowners have been advised of proposed entry onto their lands and shall advise the Project Archaeologist and client's representative of any arrangements for entry or agreements with landowners concerning access. Land entry arrangements will include removal of all livestock from areas where surveys are proposed, for the duration of the work, including pre-excavation surveys, and fencing, and also reinstatement (if necessary).

The surveys shall be strictly confined within the Lands Made Available, as detailed on the Contract Drawings. No archaeological investigations are to be carried out outside the Lands Made Available unless expressly agreed with the Project Archaeologist and client's representative.

The archaeological consultant shall carry out the work with the least possible damage to lands or disturbance to landowners whose property borders the land-take for the scheme. Any routes or tracks to areas of archaeological investigations must be agreed with the affected landowners and in addition, the archaeological consultant shall comply with any reasonable requests made by affected landowners with respect to investigations on their property.

The archaeological consultant shall carry out any necessary surveys with due consideration for neighbouring landowners and householders. Noise and other disturbance shall be minimised.

The operation of plant or movement of vehicles within 100 m of an occupied house shall be limited to the hours set out in Table 2 unless otherwise instructed in writing by the Project Archaeologist and client's representative.

Table 2 — Permitted hours of operation

Day	Hours
Monday to Friday	08:00 to 18:00 hours
Saturday	08:00 to 16:00 hours

3.6 Fencing

Where the boundary survey area passes through a field or where there is no hedge or fence existing, the archaeological consultant shall liaise with the landowners to ensure all livestock are removed from the field or fields in question and are kept away from the area of the works for the duration of the works and provide adequate temporary electric fencing and/or post-and-wire fencing, as appropriate, so as to ensure clear and safe separation of any livestock from the Lands Made Available to the satisfaction of the clients representative.

The archaeological consultant shall patrol all temporary fencing and shall repair any fence or barrier breached or otherwise disturbed during the execution of the archaeological services.

3.7 Survey Control

The Project Archaeologist/client's representative will supply the archaeological consultant with a suitable location plan, including topographical data and spatial data in GIS shapefile format from which the archaeological consultant shall set out each area of investigation. Thereafter, the archaeological consultant shall relate the position of the excavation to a geometric grid established from this control data and tied to the national grid (ITM).

Any errors in setting out the areas to be investigated leading to extra work shall be at the archaeological consultant's own expense and the cost will not be reimbursed by the client. The archaeological consultant shall establish the elevation of the ground at each area of archaeological survey relative to the Ordnance Survey datum point at Malin. Elevations quoted shall be accurate to ± 25 mm.

3.8 Statutory Undertakers

The archaeological consultant shall liaise with statutory undertakers and public authorities and satisfy him/herself as to the exact position of any plant or utilities or services in the vicinity of each site and the depth, size and gradient thereof. The archaeological consultant shall also satisfy themselves as to the exact location of any privately owned services or land drains where these are known to exist.

3.9 Underwater Archaeological/Wade and Metal Detector Survey – Reporting

The required underwater archaeological/wade and metal detector survey reporting outputs are:

- One underwater archaeological/wade and metal detector survey report detailing the survey results from each of the 14 watercourse crossing points listed in Table 1.

3.9.1 Underwater/wade and metal detector survey report

The results of the underwater/wade and metal detector survey shall be described in an illustrated technical and interpretative report. It shall include the following information at a minimum:

Table 3 — Contents of underwater/wade and metal detector survey report

Report Section	Contents
1. Title page	- Project name - Archaeological Dive Licence No. or relevant consent identified number - Archaeological Detection Device Licence No. or relevant Consent identified number - Townland names - Site/feature types - ITM/Admiralty Chart references/latitudinal and longitudinal references. - Archaeological Licence Holder/Director/Underwater Archaeologist - Report authors - Report status (draft/final) - Date of issue
2. Contents	– List of contents – List of illustrations
3. Summary	– A non-technical summary of less than 500 words.
4. Introduction	– Brief description of scheme. The report will place the areas surveyed within their wider landscape context to include the nature, extent, significance and use over time, including that of any waterbody. Geographical details and general setting including natural topography, geology and hydrology of the site and environs, including width of watercourse, depth, flow direction and current flow rate, visibility, bottom type and height of banks. It will also describe the context of immediate archaeological and cultural landscape (terrestrial and underwater) of environs of survey/assessment area including routeways, waterways, land/water-use, archaeological objects and monuments, historic wrecks or historic buildings and designed landscapes in the environs.
5. Site Description	- Location, form, dimensions. and type of site/feature. - Statutory protections and requirements (including legislation directly relating to the protection of the underwater cultural heritage, for example, 1987 and 1994 *National Monuments (Amendment) Act*; *UNESCO Convention on the Protection of the Underwater Cultural Heritage).* - Desktop study: historical and archaeological background and research context of site/area: information from the *Wreck Inventory of Ireland Database* (where relevant); topographical files of the NMI; relevant historical and archaeological sources, cartographic sources, journal sources and local sources. - Summary of any relevant previous archaeological work (including underwater archaeology) or relevant geophysical survey work (including marine geophysics) carried out for archaeological purposes. - Altitude, depth, aspect, land/water use and vegetation of site.

Report Section	Contents
6. Methodology	- Dive/wade survey and inspection methods for both the diving and metal detection and to include geo-referencing methodology for all identified features encountered. - Specialist contributions and/or consultations if relevant. - Conditions (such as weather, marine/freshwater conditions, vegetation, and water use). - The reasons for choosing one or more topographic survey methods.
7.Results	- Full record of any archaeology or potential archaeology identified including location, character, interpretation and significance of features, wrecks, wreck material or archaeological objects and metal objects discovered related/associated features, wrecks, wreck material or archaeological objects. - Topographical survey of area assessed. - Tabular view of all identified features, wrecks, wreck material and/or archaeological objects with associated locations, details of which should be presented as geo-referenced data given in latitude and longitude (WGS1984) and/or ITM coordinate systems depending on the location of the site being assessed. - A quantitative estimation of the amounts of metal objects identified in the area to be impacted by the scheme.
8. Catalogue of Archaeological Objects (if required)	General descriptive inventory of any portable archaeological objects, to NMI standards, including those recovered for their safety, namely the dimensions, fabric, type and condition of each object and other relevant remarks (such as conservation needs).
9. Discussion	Interpretative discussion of the *Underwater Archaeological Impact Assessment* (UAIA) results - considering alternative possible interpretations where appropriate; considering historical information, where available; and comparing the results to similar or related archaeological sites.
10. Significance	- Statement of the relative significance (High, Medium, Low) of the site area and any identified archaeological features, wrecks, wreck material or archaeological objects that remain *in situ*, such as anchors.
11. Impacts	- Detailed statement of the impacts (direct or indirect) of the proposed development on the archaeological features, wrecks, wreck material or archaeological objects that remain *in situ*, as described in the report. Indirect impacts can relate, for example, to changes in hydrology as a result of proposed works; impacts from vibrations of works; or movements of plant and machinery. - Both direct and indirect impacts should be assessed. and the residual effects of the development should also be considered.
12. Recommendations	Recommended mitigation measures to negate or minimise all impacts to known and potential cultural heritage based on the results of the UAIA.
13. Bibliography	- References to all maps and published/printed/online/manuscript sources referred to in the report
14. Illustrations	– Site location maps (1:10.000): charts (Admiralty Charts, sea charts).

Report Section	Contents
	- Assessment area location limits/extents and adjacent cultural and topographic features, including limits of proposed development, where appropriate. - Site map with location of all finds/features/areas of interest clearly indicated and geo-referenced. - Drawings of archaeological features (at a minimum, any features mentioned in the main text should appear on a plan, at an appropriate scale). - Sufficient historical mapping will be included in the report to illustrate the changing nature of watercourses through time and to assist with placing in context any feature or structure known or identified during the surveys or highlighting the potential for the identification of previous cultural material or structures that now have no above-ground trace. - Significant relevant extracts from early or historical maps and charts - Selected photographs of features, wrecks, wreck material and archaeological objects *in situ*. - High-resolution digital photography, including photogrammetry, if possible, to record the general setting of the watercourses as well as the condition of any features or finds of an archaeological nature, both above and below the water. - Illustrations of the topography of the stream/riverbed in the survey areas, including contours and surface details which will be depicted in plan and section at appropriate scales (1:50 or 1:20, where scale allows). - Survey data should be recorded using ITM and with reference to recorded levels (OPW data or equivalent). - Illustrations should include: - Selected underwater photographs of recovered significant archaeological objects. - General underwater photographic views of the site locations and setting of the work. - General underwater photographic views of stream/riverbed topography. - All survey drawings to be to publication standard.

The archaeological consultant is advised that the report arising from the programme of archaeological investigations described by these services requirements is the property of the client.

the archaeological consultant shall provide one (1) printed and bound copies of each underwater/wade and metal detector survey report as well as digital copies in high resolution .pdf (illustrations and report) and .dwg or similar (illustrations only) formats. All illustrations must be fit for publication with reference points tied into the Irish Grid (ITM).

A draft copy of the preliminary report shall be submitted in digital format by the archaeological consultant to the client's representative for the Project Archaeologist's review. The finalised reports which will incorporate observations from the Project Archaeologist will be resubmitted to the client's representative no later than five (5) working days after receipt of objections and/or observations from the client's representative and Project Archaeologist.

It will be the responsibility of the archaeological consultant to issue the finalised report in digital (.pdf) and hard-copy format to the National Monuments Section of the Department of the Housing, Local Government and Heritage and the National Museum of Ireland. The archaeological consultant will note that client may publish reports on archaeological surveys and investigations and upload reports onto the client's website.

3.9.2 Approval of draft reports

The archaeological consultant will be required to submit a fully illustrated draft copy of all reports (excluding progress reports) to the Project Archaeologist for approval and shall be prepared to amend the reports in line with any reasonable suggestions by the Project Archaeologist or where this is required in order to achieve the standard, content and organisation of reporting described above and set by the statutory authorities.

All reports shall be supplied in draft in the first instance to the Project Archaeologist and clients representative and the archaeological consultant will be required to make any reasonable changes that may be requested.

The Project Archaeologist, at that time, reserves the right to request (in whole or in part) an amended report. The Project Archaeologist will exercise this right where the Project Archaeologist forms the opinion that the draft report fails to address the survey aims and/or fails to achieve the standard, content and organisation of reports set out in these Services Requirements and/or contains significant errors of fact. The archaeological consultant shall prepare a revised report addressing the issues raised by the Project Archaeologist. Revised reports will only be approved and accepted when the issues raised have been addressed to the satisfaction of the Project Archaeologist.

The archaeological consultant will be required to supply final versions of all approved reports. These should be delivered in hardcopy (1 copy) and digital Microsoft Word and .pdf formats, on CD or similar portable medium, incorporating any amendments agreed at draft stage.

The client shall strive to turnaround draft report(s)/outputs within 2 weeks of receipt with any comments and/or approval.

3.10 Underwater/Wade and Metal Detector Survey – Digital Data Deliverables

The underwater/wade and metal detector survey digital data deliverables are:

- Mapping of the underwater anomalies, metal findspots identified by the survey in shapefile or geodatabase format. The schema of this map file(s) should generally correspond with the information presented in the table of significant anomalies presented in the underwater/wade and metal detector survey report (Table 3)
- All greyscale illustrations generated as part of the underwater/wade and metal detector survey in georectified, industry standard, GIS compatible, raster format

The digital data deliverables shall be organised in folders, and the filename of each individual file shall clearly identify the file contents. The digital data deliverables shall have embedded metadata or, where appropriate, be accompanied by metadata in tabular format detailing, at a minimum, the data contents, spatial extents, date the data was collected, processing undertaken and the persons who collected and processed the data.

All data shall be in the Irish Transverse Mercator (ITM) co-ordinate system. All levels shall be in terms of the Ordnance Survey of Ireland - Malin Head Vertical Datum.

The archaeological consultant shall supply the data via a suitable data transfer medium. If the files are too large to fit onto one media volume, then the information can be split into individual files spanning several volumes with the media sequentially numbered.

Where multiple media are supplied, the archaeological consultant shall supply a list of all media, stating individual contents. Each media item shall be individually labelled with the project title, site (1–12), reference number, and date.

4 PROGRAMME

The archaeological consultant's proposed programme for underwater wade and metal detector survey services shall state the earliest date on which the works will commence.

The programme shall identify:

- any lead in time
- the start and end dates for the underwater/wade and metal detector survey services
- the various grades of staff to be employed
- the types of plant and facilities used
- dates for completion of the report(s) and date for submission to the client.

If underwater/wade and metal detector survey services are being divided into different geographical areas, the programme shall address all of the above points for each area.

4.1. Archaeological Consultant's Detailed Programme

The archaeological consultant will be required to provide a detailed programme in advance of commencement of each stage showing how the required work is to be completed within the summary provisional programme of archaeological services (Table 4) and to review and update this as instructed by the Project Archaeologist and clients representative.

Table 4 — Detailed programme

Programme	Weeks
Application for underwater/wade and metal detector survey licence(s). Mobilisation, landowner liaison, setting out.	Weeks 1–3 (3 weeks)
License approval from NMS.	Week 4–8 (4 weeks)
Underwater/wade and metal detector survey fieldwork. Fieldwork should commence as soon as practical after the license is approved.	Week 9 (1 week)
Preparation and submission of draft report	Weeks 10–11 (2 weeks)
Review of draft report by Project Archaeologist	Week 12 (1 week)
Preparation of final report	Week 13 (1 week)
Review of final report by Project Archaeologist	Week 14 (1 week)
Archiving	Week 15 (1 week)

4.2. Avoidance of Delay

It is essential that all stage services are completed within the time periods according to the timescales contained within the contract (Table 4).

The actual commencement time for each stage may vary according to timing of any necessary statutory consents and for this reason the contract is a floating programme.

The time periods for the completion contractual obligations and the programmes submitted must be in accordance with these and all relevant personnel to meet these contractual stages must be supplied.

It will be the responsibility of the archaeological consultant to ensure that the programme of work is adequately resourced and properly managed in order to complete the work in the time allowed.

4.3. Revisions to Programme

If for any reason the work falls significantly behind the stated programme or be otherwise varied from the stated programme, the client's representative, in consultation with the Project Archaeologist, may request an updated programme and this will state the means and resources by which any delay can be recovered.

Any such revised programme that may be requested by the engineer shall be provided in writing by the archaeological consultant within three days of receiving the request.

NOTE: The programme for each stage of the contract shall be prepared in Microsoft Project or equivalent project management software and submitted to the clients representative and the Project Archaeologist in digital and hard copy.

5. ARCHAEOLOGICAL STAFF

5.1 Staffing Levels

The archaeological consultant will provide at least the minimum number of archaeological staff required to complete all of the required investigations, excavations, surveys, analyses and reports within the required timescale.

For purposes of the present contract the following grades of archaeological staff are recognised:

- Underwater archaeologist
- Topographical surveyor
- Landowner liaison officer

The on-site archaeological team must include an underwater archaeologist and topographical surveyor as a minimum. it will be acceptable for the underwater archaeologist to undertake the role of landowner liaison officer.

The archaeological consultant shall give written notice of any intention to increase or decrease the number of staff employed on the archaeological programme during the on-site services and/or during post-excavation stage.

The client will at any time seek Curriculum Vitae to satisfy itself as to the appropriate qualification of personnel to be assigned by the archaeological consultant to the respective grade.

5.2 Archaeological Staff Grades

5.2.1 Underwater archaeologist

The individual acting as underwater archaeologist shall as a minimum requirement:

- The individual(s) acting as underwater archaeologist directing licence-eligible activity must be fully qualified archaeologist(s), having a Level 8 qualification recognised by Quality and Qualifications Ireland (QQI), or other equivalent academic qualification in archaeology or another relevant discipline.
- Any personnel engaged to direct underwater investigations must have at least 3 years relevant postgraduate experience in underwater archaeological-related fieldwork and reporting and will have held at least five full archaeological dive/wade licences in their own name and have completed all reporting obligations arising from same.
- Be eligible to receive a detection licence (for archaeological metal detection survey) from the Minister for Housing, Local Government and Heritage.
- In addition, they must be eligible to hold a Licence to Excavate from the Department of Housing, Local Government and Heritage; they must have at least three years' relevant postgraduate experience in archaeological fieldwork and reporting and will have held at least five full excavation licences in their own name and completed all reporting obligations arising from same.
- The contractor has the responsibility to ensure that all diving/wading/snorkelling undertaken as part of the works programme is compliant with the *Health and Welfare at Work (Diving) Regulations* 2018 and 2019 (S.I. No. 254/2018, S.I. No. 180/2019) and the 2019 Health and Safety Authority *Code of Practice for Inland Diving and Inshore Diving*. All personnel employed by the contractor shall be appropriately qualified and certified.

5.2.2 Topographical surveyor

The topographical surveyor will be a competent surveyor capable of carrying out all tasks required in topographical surveying for archaeological excavations or for the production of related maps, plans and other drawings, for reporting purposes.

5.2.3 Landowner liaison officer

The landowner liaison officer shall be a competent person capable of carrying out all tasks required in liaising with affected landowners before and during on-site services and maintaining records as required by the client. This person:

- Shall consult with the engineer and the project liaison officer, appointed by the client, prior to seeking entry onto land
- Shall liaise with landowners when seeking entry onto their land and shall respond in a timely fashion to landowners' queries regarding the on-site underwater/wade survey services

- Shall maintain records of entry onto lands in a format to be agreed with the Project Archaeologist and client's representative
- Shall attend all progress meetings and any other meetings requested by the Project Archaeologist and client's representative
- Shall be on site constantly during the on-site work, unless otherwise agreed with the Project Archaeologist and client's representative
- Will be approved in writing by the Project Archaeologist and client's representative

5.3 Working hours

In the course of the required fieldwork services (i.e. underwater/wade and metal detector survey) archaeological staff may work within the prescribed hours set out in Table 2, unless otherwise agreed in writing by the Project Archaeologist and clients representative.

5.4 Remuneration

Underwater/wade and metal detector services shall be carried out for a total fixed price lump sum, as tendered.

Prices should include all reasonable expenses, accommodation, and welfare.

At any time, the client may use the change order mechanism to reduce or increase the scope of any stage service and the corresponding fee.

The archaeological consultant will not be paid for the following:

- Periods when the work is suspended on the instruction of the Project Archaeologist and client's representative:
    - for the improper execution of the work or,
    - for any reason relating to health and safety
- Standing time due to adverse weather conditions

5.5 Temporary Accommodation

5.5.1 Temporary accommodation for the archaeological consultant

Site accommodation for staff should be provided where necessary in accordance with the requirements of the *Safety, Health and Welfare at Work (Construction) Regulations 2013 Part 14 Construction Site Welfare Facilities*. Site accommodation includes access to changing facilities, secure storage, drying rooms, segregated portable toilets, and a cabin with food preparation and dining facilities. This should be factored into any tender submission.

The facilities (including portable on-site staff welfare facilities) to be provided by the archaeological consultant shall be determined by the archaeological consultant to suit their operations. The facilities and equipment provided shall be appropriate for the number of personnel employed by the archaeological consultant to carry out the services within the contractual programmes. They shall comply in every respect with Health and Safety Regulations and local government sanitary regulations.

The archaeological consultant is responsible for their storage needs for their plant, tools and equipment.

Adequate on-site portable staff welfare facilities must be provided as necessary. Such field accommodation should be adequate in accordance with Health, Safety and Welfare Regulations and resource requirements.

5.5.2 Parking facilities

The archaeological consultant shall determine and provide their own parking requirements.

NOTE: Under no circumstances will vehicles be allowed to park on public roads or hard shoulders in a manner that compromises the safety of other road users or pedestrians. Any cars parked adjacent to or on private property must have the prior consent of the relevant landowner. Parking provision on adjacent public roads will not be permitted without the approval of the client.

5.6 Working in Wet Weather

In order to adhere to the project programme, and in so far as best underwater/wade survey practice and Health and Safety Regulations allow, the consultant shall make all reasonable measures to facilitate the continuance of survey work during unfavourable and inclement weather conditions.

5.7 Plant, Survey Instruments and Additional Survey Instruments

The archaeological consultant shall provide all survey instruments, tools, equipment and operators required for carrying out the required survey services within the required periods.

The pricing of all plant/tools and equipment and operators for same shall be included in the contract rates and prices.

6. SAFETY, HEALTH AND WELFARE

6.1 Safety Planning

The archaeological consultant shall comply with the *Safety, Health and Welfare at Work Act 2005 (as Amended), the Safety, Health and Welfare at Work (Construction) Regulations 2013 (Amended 2021), the Safety, Health and Welfare at Work (General Application) Regulations* 2007 to 2023 (as Amended) or any amendment thereof. Additionally, the archaeological consultant shall comply with the *Health and Welfare at Work (Diving) Regulations 2018 and 2019 (S.I. No. 254/2018, S.I. No. 180/2019) and the 2019 Health and Safety Authority Code of Practice for Inland Diving and Inshore Diving*. The archaeological consultant shall ensure that all personnel involved in the underwater/wade and metal detector survey are made aware of the need to comply with safe working practices.

Upon award of the tender, the archaeological consultant will submit a copy of their Company Health and Safety Statement. Prior to the commencement of the survey fieldwork, the archaeological consultant shall submit RAMS for each site. The archaeological consultant's RAMS shall include the following information, at a minimum:

- Procedures for briefing all personnel on health and safety matters
- List of protective equipment and clothing to be provided
- List, with locations, of health and safety notices and posters to be displayed

- Description of staff welfare and accommodation provisions, including portable on-site staff welfare facilities
- Precautions to be taken against specific risks in the archaeological investigations
- List of telephone numbers for all local emergency services including doctors, hospitals, An Garda Síochána and the fire authority
- Procedures for recording in a register all incidents relating to health and safety in the course of the archaeological investigations

6.1.1 Work involving particular risks

This is a non-exhaustive list of particular risks. It should be noted that many of the risks on the project may arise out of working methods which are at the discretion of the archaeological consultant and as such cannot be determined by the Project Archaeologist and/or clients representative.

- Engulfment/earthfalls especially in soft ground
- Working in or adjacent to wetland/bogland/soft ground
- Exposure to hazardous chemical or biological substances
- Weil's disease and Lyme's disease and other infectious diseases harboured by soil, water, vegetation or animals
- Overhead power lines
- Underground power cables and other services
- Investigations adjacent to watercourses that may involve risk to the archaeological consultant of persons falling in and/or drowning (this risk applies to workers and other persons entering on the site, and will require effective measures to secure the works at all times)
- Investigations within watercourses that may involve the risk to the archaeological consultant or persons drowning or being injured, and will require effective equipment and safety measures to mitigate at all times
- Statutory authority plant and equipment crossing areas of the site, above, below and overground
- Working in densely vegetated areas
- Working on steep slopes
- Falling from a height
- Working in close proximity to livestock
- Investigations on or adjacent to farmyards and farm access tracks requiring a suitable safety management system to be implemented
- Disease outbreak or contamination on farms
- Diseased wild animals
- Unauthorised access to the site by members of the public
- Contamination of watercourses or groundwater
- Work close to occupied residential properties and trafficked public roadways
- Work on trafficked public roadways
- Investigations on and adjacent to the public road requiring a suitable traffic arrangement system (including a traffic management plan) to be implemented
- Investigations on or adjacent to a pedestrian right of way requiring a suitable safety management system to be implemented
- Work involving exposure of workers to excessive noise (e.g. working close to excavators)
- Working in confined spaces
- Materials or equipment falling onto trafficked carriageways
- Illegal/illicit dumping

- Working in proximity to other contractors and/or service providers

NOTE: Health and safety provisions on the site apply not only to employees, agents and subcontractors of the archaeological consultant and the client, but to members of the public and all other visitors.

6.2 Prevention of Animal Disease

The following requirements for the prevention of the spread of animal disease should be adopted in the archaeological consultant's safety plan for the work:

- Section 10(1) of the *Animal Health and Welfare Act 2013* shall apply, namely that a person shall not wilfully, recklessly or negligently transmit a disease or introduce a disease agent, or cause or permit another person to transmit a disease or introduce a disease agent, to an animal or onto land or premises.
- The archaeological consultant shall seek to prevent the spread of animal disease in the course of site work undertaken with respect to this national road project. All personnel involved in such work will be required to comply with these requirements.
- All equipment coming from outside the state will be cleaned and disinfected on entry to the country.
- On first arrival on site all machines/vehicles will be sprayed with appropriate disinfectant. The archaeological consultant will verify to the local authority that this has been done, and the local authority may carry out spot checks, as appropriate.
- The Project Archaeologist and clients representative will liaise with the local District Veterinary Office (DVO) to establish the location of any restricted herds along the route of the investigation work. The liaison will continue on a regular basis throughout the site works. Where any landholder becomes aware that his/her herd has become infected, it is his/her responsibility to inform the Project Archaeologist and clients representative as a matter of urgency.
- Where the Project Archaeologist and clients representative has been informed of a restricted herd along the route of the road scheme, it will require the archaeological consultant to disinfect machinery, vehicles and personnel before leaving the land concerned. The number of accesses across the working strip will be reduced to one in the case of lands having restricted herd status. The archaeological consultant will arrange for disinfectant mats/baths to be replenished with disinfectants, as required.
- Persons working for or on behalf of the client in connection with the roads scheme who may have to call to landowners of restricted herds will ensure that their footwear and clothing are disinfected on leaving the property (or land) concerned.
- In the event of an outbreak of a serious Class A disease, the local authority in the area concerned will be subject to such operational restrictions as are imposed by the Department of Agriculture and Food.

The client will require the archaeological consultant or their agents to confine access to the working area to road crossings unless otherwise agreed with the landowner.

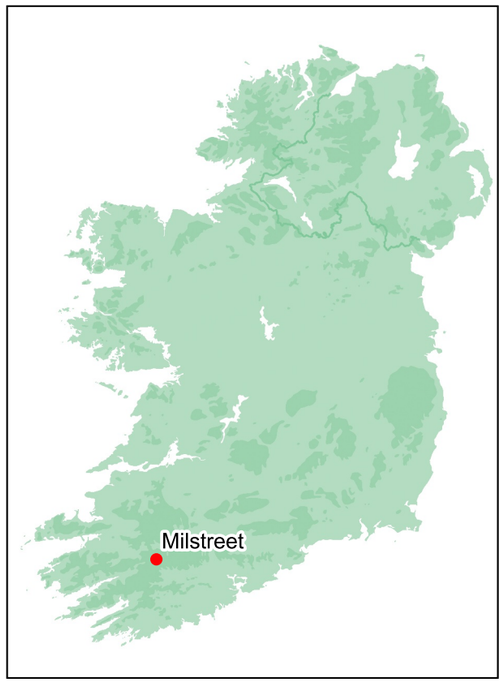
7. TENDER AWARD

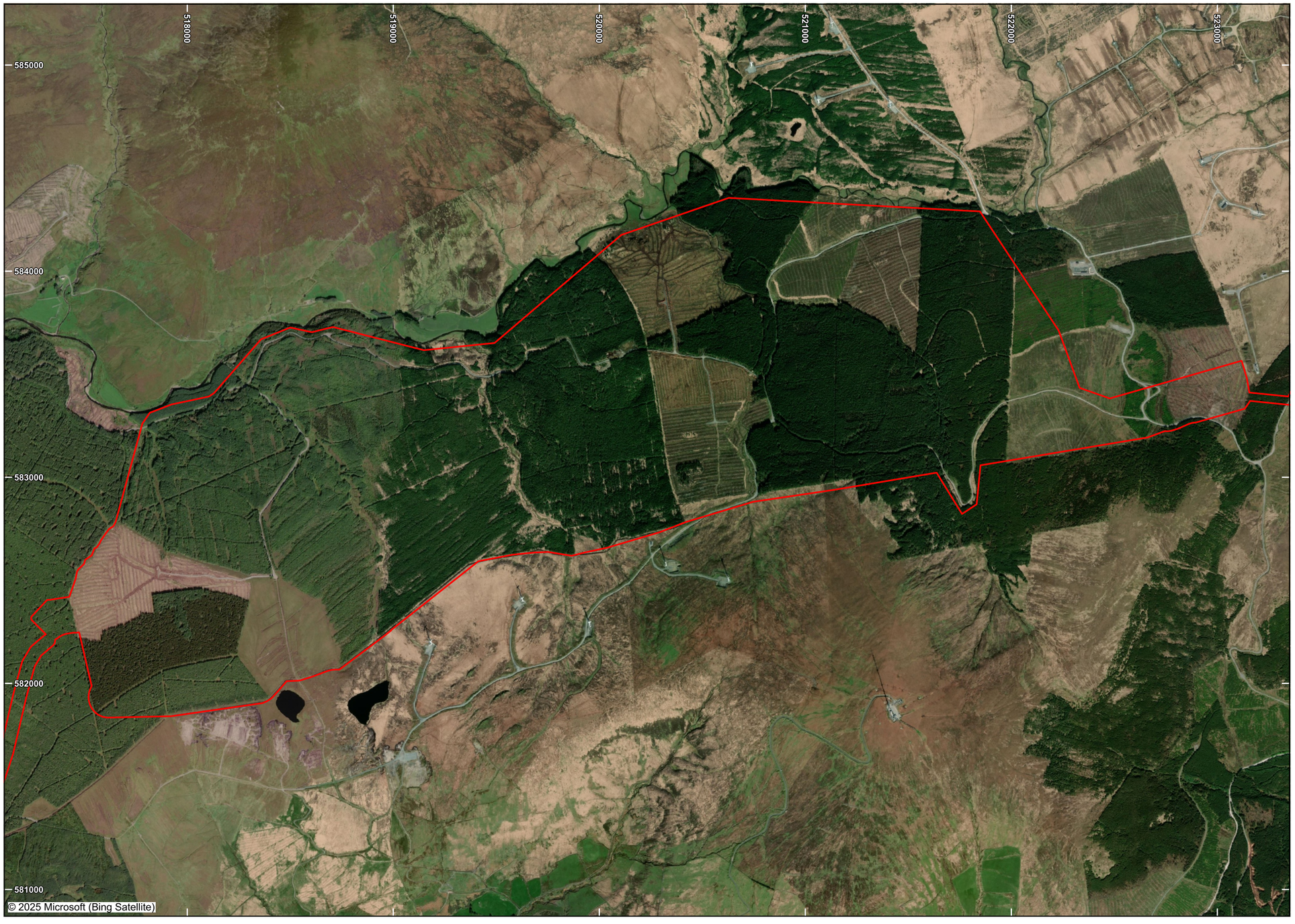
7.1 Pricing

The service contract shall be awarded based on the most competitive tender returned and will be calculated on an assessment of the fixed price lump sum bid. Candidates should ensure that their Lump Sum Fixed Price submitted includes for all elements necessary to provide the defined services.

On award of tender the successful tenderer will be required to submit:

- Evidence that the required insurances are in place (including Professional Indemnity Insurance)
- Copy of Company Safety and Health Statement
- RAMS covering all of the underwater/wade & metal detector survey locations





Legend

Site Boundary

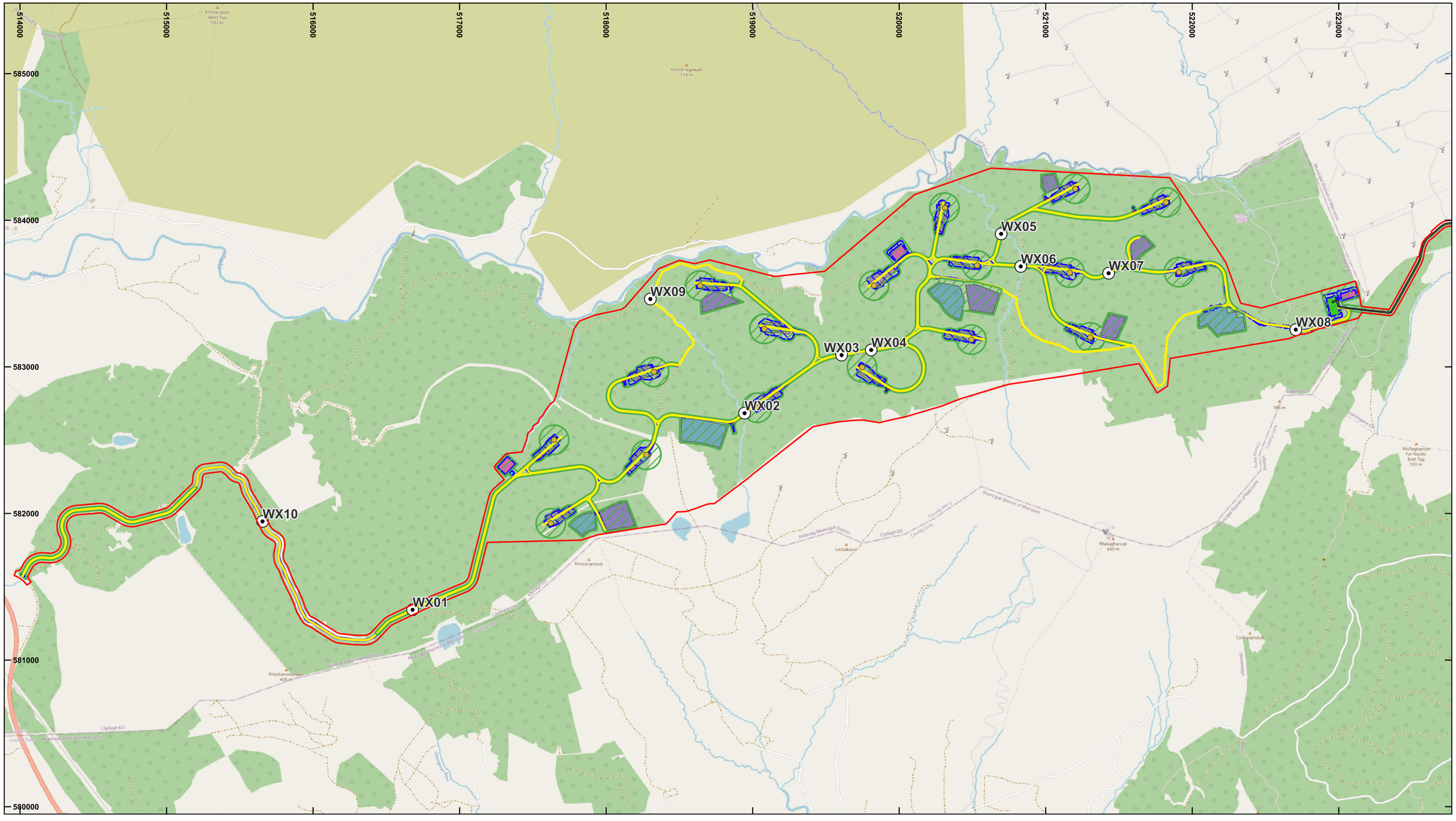
Project Code: RH7669 - Cummeennabuddoge Windfarm		
Prepared by: H.Sims Approved by: K.Martin	Status: Wade Survey Draft: 1.0	Date: 20/11/2025 Scale: 1:20,000 @ A3

N

0.2 0.4 0.6 0.8 1 km

RUBICON archaeology

Figure 1 - Scheme location.



Legend

- Site_Boundary

Development Plan

- Turbine
- Watercourse_crossing

Site_Infrastructure

- Turbine foundation
- Borrow pit
- Cable trench
- Compound
- Crane hardstanding
- Cut and fill
- Felling area
- Installation area
- Met mast hardstanding
- Onsite access track
- Peat storage area
- Substation
- Turning head

Project Code: RH7669 - Cummeennabuddoge Windfarm		
Prepared by:C.O'Sullivan Approved by: K.Martin	Status: Wade Survey Draft: 2.0	Date: 20/03/2026 Scale: 1:25,000 @ A3

N

0.25 0.5 0.75 1 1.25 km

RUBICON archaeology

Figure 2 - Underwater/Wade & Metal Detector Survey Locations.