Specialist competence matrix – **geophysics** Practitioner (PCIfA)

Chartered Institute for Archaeologists

Knowledge	• Principles of basic field survey from GPS operation and limitations to traditional methods utilising tapes and trigonometry. • Basic geophysical instrument operation, relevant to role. • Basic principles of geophysics - i.e. what is being measured and how it is recorded. • Basic knowledge of archaeological features and landforms. • Basic crop and soil type recognition. • Recognise how the data collected in the field is affected by the local landforms and environmental conditions.
Autonomy	• Configuring and setting up instruments independently. • Monitoring of real-time data quality and ability to react if quality deteriorates. • Ability to work safely and recognise potential environmental hazards (ground conditions, weather and livestock). • Taking opportunities to shadow senior staff and begin to learn principles of interpretation. • Appreciate benefits of and undertakes background reading (from journals, available grey-literature, etc.) and attends archaeological events.
Coping with complexity	• Coping with awkward survey areas, obstructions and other less straight-forward data collection contexts. • Dealing with instrument / environmental issues. • Ability to cope with changes to planned survey strategy due to external constraints.
Perception of professional conduct	• Understand that they form part of a team working to a deadline and value the benefits of teamwork. • Understanding that raw survey quality (physical or digital - i.e. positional accuracy or recorded data quality) is paramount - everything else depends upon this. • Realise that geophysics is often a "baseline" for further evaluation. • Demonstrates understanding of the ethical requirements of the *Code of conduct* and can apply to own work. • Upholds the values of the Institute to work in the public interest.

Specialist competence matrix – **geophysics** Associate (ACIfA)

Knowledge	• High-level and demonstrable knowledge of geophysical theory of different techniques. • Understanding physical limitations of techniques. • Recognise potential environmental effects upon data - these might be fixed (geology/soils/past land use) or transient (weather/current land use). • Developing survey strategies for complex sites. • Basic data processing steps.
Autonomy	• Responsibility for timetabling within field. • Responsible for limited numbers of staff. • Ability to enforce safe systems of working, recognising potential hazards and taking appropriate action. • In-project liaison with clients, landowners and site visitors. • Responsible for overall data quality. • Forming own interpretations under supervision. • Drafting smaller reports.
Coping with complexity	• Dealing with site practicalities. • Able to keep to schedule, and, importantly, recognise when timetables will have to change and notify others (e.g. line manager) in good time. • Able to handle changing external factors requiring flexible strategy. • Can make contingency decisions based on initial survey results. • Recognise when specified technique is not producing satisfactory results and inform stakeholders / consider alternatives.

Please go to the next page for Perception of professional context

Specialist competence matrix – **geophysics** Associate (ACIfA)

Perception of professional conduct	• Keeping up to date with technological developments (journals/conferences/training sessions). • Appreciation of how landforms affect data. • Understanding the effects of previous and current land-use on data sets. • Appreciate how wider archaeological setting might inform upon the results. • Ability to maintain focus on wider research aims / objectives of a project during both fieldwork and reporting stages. • Consideration of the readership when drafting reports - i.e. style might be different for a commercial unit, national heritage body or local society. • Understanding of geophysics' role within a planning or research framework. • Understands the ethical requirements of the *Code of conduct* and uses them to guide and review own practice and, where applicable, that of others. • Can recognise and resolve potential conflicts of interest within an established framework. • Upholds and promotes the values of the Institute to work in the public interest.

Specialist competence matrix – **geophysics** Member (MCIfA)

Knowledge	• Substantial knowledge of geophysical theory, supported by demonstrable experience and/or relevant geoscience qualification • Application of complex and/or novel data for a range of techniques. • Substantial understanding of the potential implications of applying processing techniques on a given data set.
Autonomy	• Timetabling of project from fieldwork to report delivery. • Ensuring field teams are fully resourced. • Management of complex projects. • Final sign-off of reports, where relevant to role. • Full liaison with clients, landowners, local/national curatorial heritage staff. • Has responsibility for mentoring/training of other members of staff (especially in more complex aspects of works such as data processing and interpretation). • Where appropriate, will be responsible for identifying external CPD opportunities that might benefit staff.

Please go to the next page for Coping with complexity and Perception of professional context

Specialist competence matrix – **geophysics** Member (MCIfA)

Chartered Institute for Archaeologists

Coping with complexity	• Responsible for project design. • Recognise that certain target/environment combinations may require 'non-standard' approaches which will require specific justification and planning. • Confidence to suggest and justify alternative approaches that might best fulfil a project brief rather than the proposed methodology and, where relevant, recommend this alternative. • Understanding of differing strengths and complementarity of the various geophysical techniques and ability to propose a package of work rather than a single technique. • Ability to interpret the potential archaeological significance of a range of geophysical anomaly types using more than one geophysical technique to an appropriate level of detail. • Ability to synthesise a broad range of supplemental information (land use past and present, soils, geology, topography, weather conditions) whose effects may combine to produce artefacts within the data, which could otherwise be misinterpreted.
Perception of professional conduct	• Appreciation of the role of geophysics within the *inverted pyramid* hierarchy of investigative techniques from the more extensive, lower detail techniques (e.g. aerial mapping, landscape survey) as well as more targeted, high detail investigations (e.g. excavation). • Fully appreciates the relevance and value of archaeological feedback upon future geophysical work. • Able to identify CPD requirements of a team/department to better meet the wider goals of the organisation and, where appropriate, plan to meet those requirements. • Recognise the importance to the industry as a whole of promoting and demonstrating best practice in every aspect of their work and instilling this amongst colleagues. • Demonstrates professional judgement and ethical behaviour across a wide variety of complex situations, supporting and encouraging others to do the same. • Can anticipate, recognise, and resolve potential conflicts of interest. • Promotes the values of the Institute to work in the public interest with colleagues, clients, and stakeholders.