

Archaeology Research Grant Report

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| Recipient name: | Dr Daniel Curley |
| Discipline and subject area: | Archaeology Research Grant Scheme |
| Year awarded: | 2023 |
| Title of project: | Archaeological remote sensing investigations at Galey Castle and its surrounding area, Co. Roscommon |

Summary of findings:

The Ó Cellaig (O’Kelly) tower house castle at Galey Bay, Co. Roscommon superficially appeared to be a simple masonry construction of the late medieval period. However, initially through the combination of archaeological fieldwork and a rereading of the landscape, as well as historical and literary sources, and now the application of formal topographical and geophysical surveys, has changed our view of this Gaelic lord’s cenn áit. This project sought to explore this castle ruin, and its immediate environs, and has answered questions relating to its immediate landscape context and morphology, and how it might have appeared through time. It has also provided key information for any future research that could be proposed for the site.

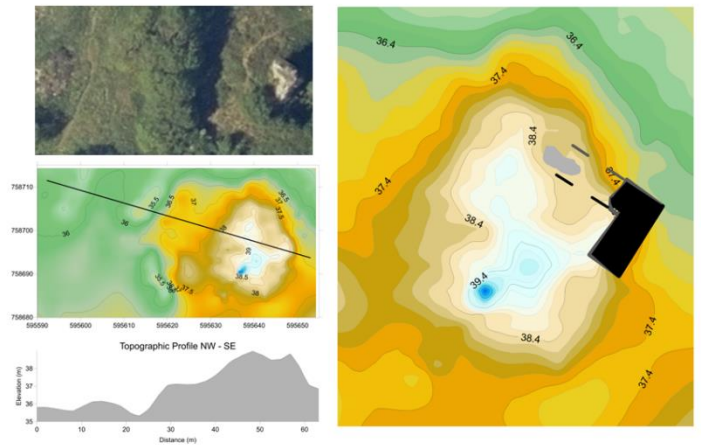


Photo 1 : Galey Castle, Co Roscommon. Left— Aerial photograph (© Bluesky), survey area topography & line of profile, topographic profile showing narrow and wide enclosing ditches and the castle mound. Right— Detailed topographic survey of the castle mound with mapped castle footprint and ground fast stone foundation material.

The topographical survey filled in a considerable gap in our ability to interpret the site, and this survey was only able to proceed thanks to several days’ careful clearance of overgrowth on the central platform of the site and its flanks. This survey has now assisted in clarifying the location and extent of the castle footprint, and added significantly to our understanding of the earthwork remains. The Electrical Resistivity Tomography (ERT) survey has created two pseudo-sections through the earthwork remains, and will provide key data and measurements in terms of the two now barely visible earthen ditches which partly surround the focus of the site, and give an indication of the material composition of other areas also. The magnetic susceptibility survey was targeted on an area which proved to be inconclusive in terms of the research question posed of the site, which we conclude is likely due to site conditions through time and flooding episodes in the area.

In summary, this survey has clarified many research questions which the project team posed of Galey and its environs, revealing a complex fortification morphology with additions through time, adding significantly to our knowledge of this important estate centre of the wealthy and powerful O’Kelly lords of later medieval eastern Connacht.

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Please outline the objectives of the project.

- Create a micro-topographic plan of the Galey site and its near vicinity.
- Conduct two geo-referenced ERT surveys across the earthwork, in order to reveal anomalies which would be consistent with geological and archaeological features that may be present on the site. This is largely undertaken to confirm and quantify the extents of the two cartographically attested wet ditches which surround the central platform, as well as inspect the central platform in terms of anomalies which may represent the material composition of that area on the site.
- Conduct a magnetic susceptibility survey over an area identified through fieldwork, in order to enquire if any anomalies present which could be consistent with an attendant settlement which was once attached to the castle and any earlier phases of activity on the site. This survey was undertaken to the west of the castle site.

Please describe the methodology used in conducting the research.

Geophysical and topographic surveys were carried out on Galey Castle mound and its environs to aid interpretation of the site. The site was heavily overgrown (Photo 1) and some clearance was required in order that the surveys could proceed. Initial work involved a high spatial resolution micro-topographic survey on a 1m x 1m grid in the immediate vicinity of and on the estimated castle footprint. An area of 20m x 20m was set out in 4 x 10m x 10m grids. The survey was carried out using a Trimble R8 RTK GPS system with a real time VRS Now differential correction. Location and height accuracy is estimated to be within 5cm. Dense vegetation, that could not be cleared, obscured or degraded GPS signals on parts of the site and a Sokkia Set 500 total station was used to supplement data that was collected by the Trimble R8. In order to provide general topographic context to the detailed survey, other topographic data were acquired on and around the mound. Field data were reduced using the equipment manufacturers' proprietary software and ported to the Surfer

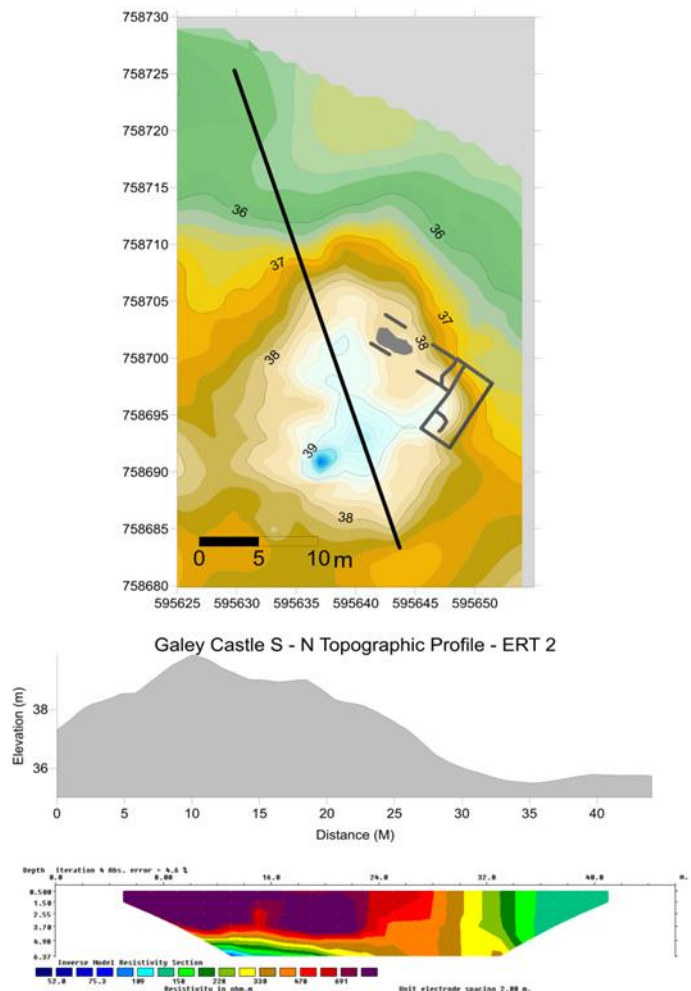


Photo 2 : Galey Castle, Co. Roscommon. Upper—Detailed topographic survey of the castle mound with outline of mapped castle footprint, ground fast stone foundation material and location of south to north topographic profile. Lower—topographic profile and Electrical Resistivity Tomography pseudo-depth section ERT 2



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package for final processing and visualization. Photo 1 illustrates some of the topographic imagery produced with a general map with topographic profile, a detailed map of the mound with 25cm contours and the footprint of the visible remains of the castle. In order to investigate the structure of the mound and the two enclosing ditches an Electrical Resistivity Tomography (ERT) survey was carried out along two transects. The result of an ERT survey is the production of 2D resistivity pseudo-depth sections that can be interpreted in terms of sub-surface archaeology and/or geology. The survey was carried out using a Campus Tigre 32 x 5m electrode system. The depth of investigation was controlled by the electrode separation and three separations were used in collecting the data. This resulted in estimated depths of investigation of 3, 6 and 9 metres depending on the separation selected. The field data were acquired using Imager software to control the survey instrument. The data were reduced and visualized using Res2dinv software to produce the pseudo-depth sections (Photo 2). The area to the west of the castle mound and enclosing ditches is possibly the location of a settlement and/or industrial area associated with castle occupation. The area is boggy and partially overgrown with young saplings. Given the nature of the site, the choice of a non-invasive method of investigation was limited to topsoil magnetic susceptibility. The method can detect evidence of settlement or industrial activity by detecting burnt residues associated with such activity; these result in enhanced magnetic susceptibility of the topsoil. The reconnaissance survey was carried out on a nominal 5m x 5m grid set out with the total station. The survey instrument was a Bartington MS2 with an 18cm MS2D fieldloop. Data were recorded manually and input to Surfer software for plotting and visualization. All data values were negative, a phenomenon likely due to the boggy nature of the surveyed area.

Please outline the findings of your research and/or milestones achieved.

The micro-topographical survey has enabled the identification of an area on the central platform which, in terms of scale and shape, is very likely to represent the now-disappeared western and south foundations of the tower house which once stood at Galey. This will now enable us to quantify the former size of the castle, and compare it with extant tower houses elsewhere on the island. This survey also mapped considerable sections of the immediate hinterland surrounding the central platform at Galey, not least the two relatively low-relief ditches, and which would not have been detectable via airborne topographical survey methods due to thick vegetation on site.

The ERT line 2 has identified a regular and not superficial high resistivity anomaly on the central platform, which likely represents the foundational remains of the tower house castle in that area, and will enable an approximate calculation of the depth to which the castle foundations were constructed. ERT line 1 has provided measurement data for the two, now-low relief ditches which surround the central platform on site, and has corroborated the information gleaned from ERT line 2, terms of the presence of the tower house foundations, thus adding clarity to the way in which the fortifications once looked. Unfortunately, the magnetic susceptibility survey was inconclusive in its findings, likely a result of the site conditions in the target area, where attest recent, and possibly historic flooding, has probably removed much of the diagnostic material which the susceptibility survey is designed to uncover.

All in all, the application of this multi-method archaeological remote sensing survey to the Galey site has answered a number of questions related to this medieval Gaelic stronghold, and has been the first modern scientific research undertaken at this archaeological monument, hopefully the first endeavour of many into this storied place.



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Please provide details of the dissemination of the outcomes from this project.

A presentation on the results of this research project has been offered to the local community in Knockcroghery, Co. Roscommon, and the hope is that a lecture will take place in Q1 2024 to deliver this. The awardee also hopes that this RIA-funded project may serve as the impetus for greater local interest in the site, its history, and value to the area, and the awardee is working with the local community in order to achieve this.

A presentation on the archaeology of the later medieval O'Kelly lords will be communicated to the Old Athlone Society in December 2023, and the results of this research project will form part of that presentation.

The awardee publicised the fieldwork via his own social media profile, and is happy to supply the details for inspection if required by return.

b) No. of Academic Papers/articles published: 1

c) No. of Lectures given/outreach events: 2

How will you continue to communicate the results of your project and what are your publication plans?

The awardee will be including the results of this RIA-funded research project in his forthcoming monograph on the topic of the archaeology of the Ó Cellaig lords of Uí Maine and Tír Maine, which is scheduled for publication in April 2024. The article indicated at b) above is currently in peer-review.

How did the award enhance your professional development?

It has enabled me to connect with a new local community in a significant way, my direct involvement in the surveys and the data collection ensured that I could continue to build up my proficiency levels in remote sensing surveys, the associated equipment, and the contexts which present for their most suitable application.

What plans (if any) do you have to further your proposal/project?

Plans are being progressed to apply to for a Community Monuments Fund project at Galey, on the strength of the research previously undertaken, and now the RIA-funded project.