

The Stones of Stonehenge Project

Report on Geophysical Survey

September 2021

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Summary

The Stones of Stonehenge Project undertook a geophysical survey in September 2021 at Parc-Lan Standing Stones (PE371), Penlan, south of Carnedd Meibion-Owen, Pembrokeshire, (SN 0901 3575) with the aim of establishing whether the stones had always stood on their own or were part of a larger formation. Magnetometry survey in the field outside of the scheduled area revealed two parallel former field boundaries, running east–west and 60m apart, with cultivation marks on the same orientation. These boundaries appear to be elements of a more extensive coaxial field system identified by 3-D photogrammetric survey, which may represent a later prehistoric subdivision of the landscape in which the stones are set. The results did not indicate the presence of anomalies thought likely to be indicative of the presence of any additional stones or associated structures.

Crynodeb

Cariodd allan Prosiect Cerrig Côr y Cewri arolwg geophysegol yn fis Medi 2021 yn Gerrig Sefyll Parc-Lan (PE371), Penlan, de o Garnedd Meibion-Owen, Sir Benfro, (SN 0901 3575) gyda'r nod i sefydlu os roedd y cerrig gwastad wedi sefyll ar ben eu hunan neu ag oeddent nhw yn rhan o ffurfiad mwy. Ddarau arolwg magnetometreg yn y cae tu hwnt i'r ardal gofrestredig datguddio dwy ffin caerau cyfochrog oedd yn bodoli yn y gorffennol. Roedd y rhain yn rhedeg dwyrain-gorllewin ag 60m ar wahân, gyda marciau amaethu yn rhedeg yn yr un cyfeiriad ar ffiniau. Mae'n ymddangos fod y ffiniau yma wedi bod yn elfen o system caeau cyfechellog eang cafodd ei darganfod trwy arolwg ffotogrametreg 3-D, sydd o bosib yn cynrychioli israniad o'r dirwedd yn bellach yn gynhanes o fewn tirwedd y cerrig sefyll. Nid oedd y canlyniadau yn awgrymu presenoldeb anomaleddau fase'n gallu cynrychioli cerrig sefyll ychwanegol neu strwythurau cysylltiol.

Event PRN: 128268

Introduction

Geophysical surveys were conducted inside the scheduled area at Parc-Lan Standing Stones (PE371) with the aim of establishing whether the two standing stones located there had always stood on their own or were part of an originally larger formation or structure (Royal Commission 1925). (Figure 1). The work builds on previous geophysical and aerial-photogrammetric surveys conducted outside of the scheduled area in 2020. Surveys were conducted with the kind permission of the landowner, Mr Andrew Lewis. The stones are located at Penlan, south of Carnedd Meibion-Owen, Pembrokeshire, (SN 0901 3575), and survey locations are detailed in Figure 2. The site is under pasture and located on the Aber Mawr Shale formation.

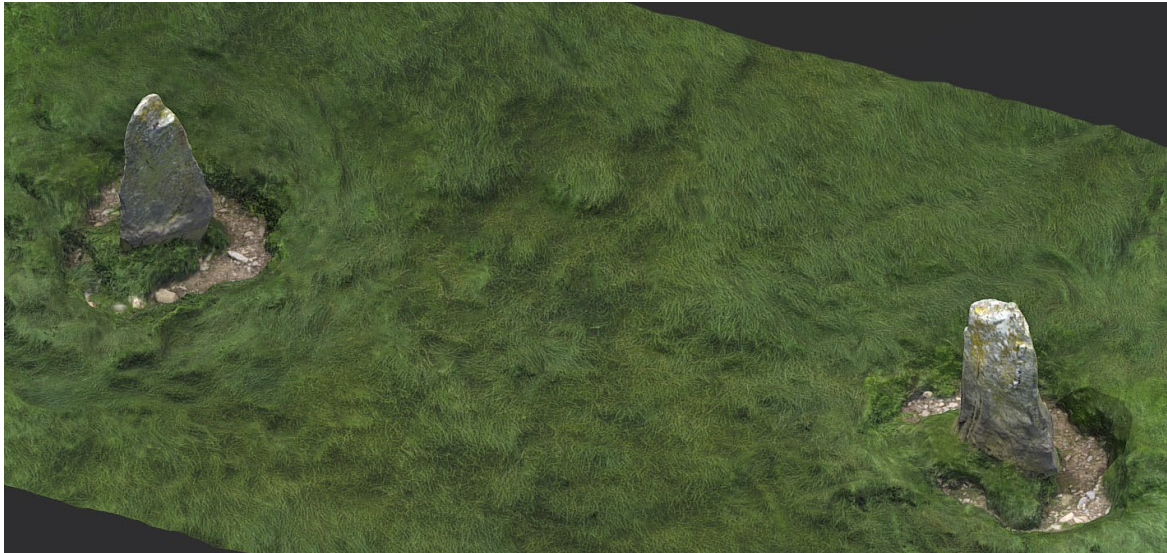


Figure 1. The Penlan Stones.

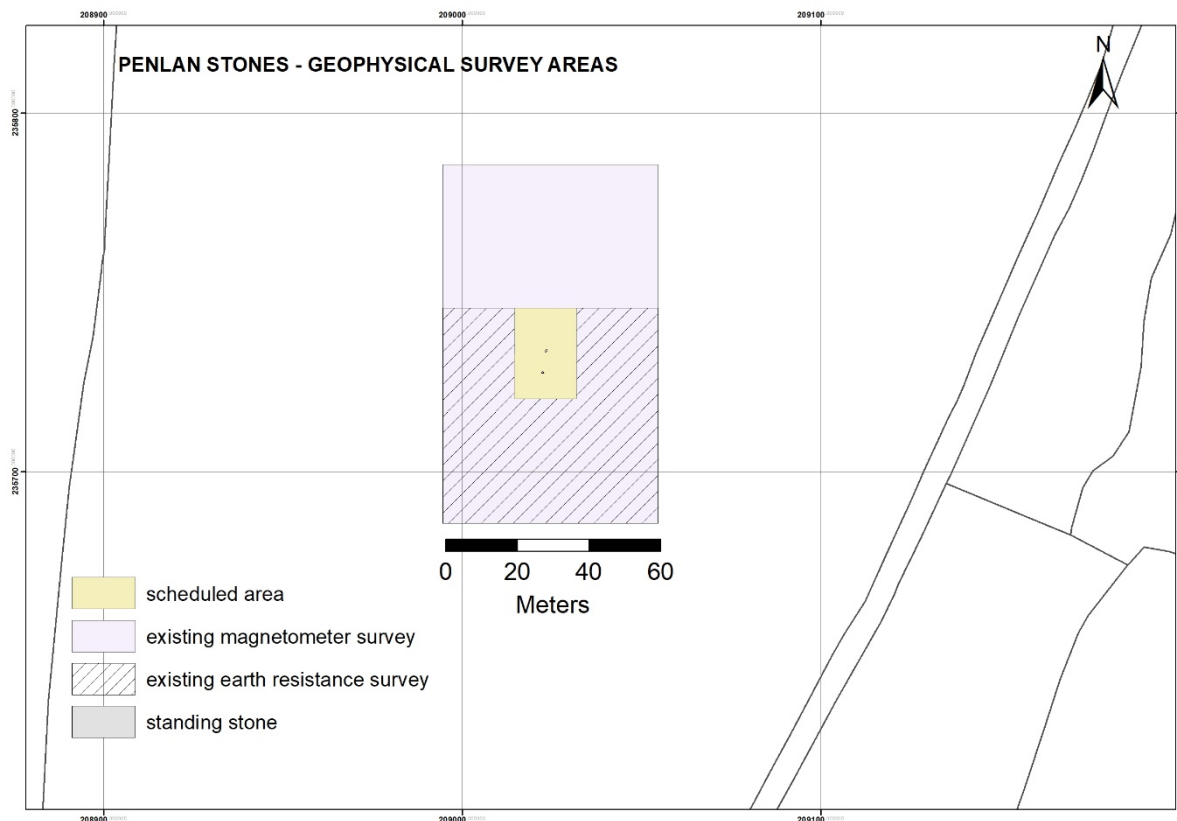


Figure 2. Survey locations at Penlan.

Methods

Geophysical survey grids were laid out using Leica GS15 Smart Rover GNSS. Magnetic survey was carried out using a Bartington Grad601-2 Single Axis Magnetic Field Gradiometer System (fluxgate gradiometer) with dual 1m Grad-001-1000L sensors over 20m by 20m grids with readings taken at 0.125m intervals along traverses spaced 1m apart, at a resolution of 0.1nT. Earth resistance survey was conducted over 20m by 20m grids using a Geoscan RM15-D resistance meter and a PA5 multi probe array frame in the 0.5m configuration. Areas of interest were targeted with readings taken at 0.125m intervals along traverses spaced 0.5m apart. Data acquired via both methods were output to TerraSurveyor v.3.0.27.0 for minimal processing. Plots of processed data are designated 'enhanced'. Processing information for each plot can be found in the individual figure headings. Georeferenced and interpretive plots were composed in ESRI ArcGIS 10.2, and the data integrated. Note that black represents positive magnetic anomalies or areas of high resistance and white represents negative magnetic anomalies or areas of low resistance.

Results and Conclusions

The magnetic data (Figures 3 and 4) indicates a few small anomalies to the north and south of the stones but no evidence for a former larger stone formation. The linear anomaly in the south-west part of the plot is related to a modern pipeline linked to a water trough. The two parallel anomalies running east-west and 60m apart are thought likely to represent former field boundaries, with anomalies indicative of cultivation marks can be observed on the same orientation. The boundaries appear to be elements of a more extensive coaxial field system identified by a 3-D photogrammetric survey, which may represent a later prehistoric subdivision of the landscape in which the stones are set.

The earth resistance survey data (Figure 5) contains a high-resistance linear anomaly related to the water pipeline, and there is a weak indication of the eastern end of the northern field boundary as a low resistance, diffuse, linear anomaly. The band of high resistance anomalies along the slope west of the stones are most likely to be indicative of area of near-surface patches of bedrock.

An interpretation diagram is provided in Figure 6. The survey data collected has not been able to provide evidence for the presence of stone holes or any associated structures in the location of the stones. Alternative approaches may need to be considered to ascertain whether the stones were ever part of a larger formation.

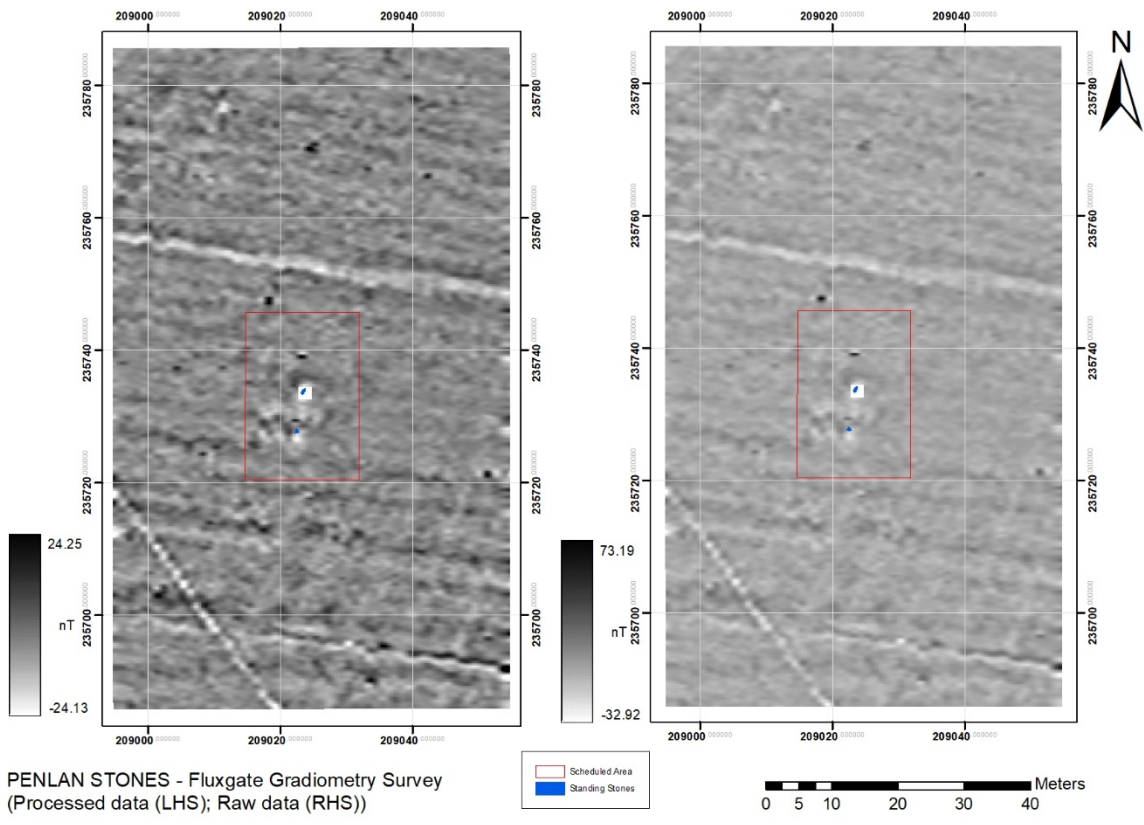


Figure 3. Greyscale plot of raw (de-striped) and enhanced (de-striped, clipped and interpolated) magnetometry data from Penlan.

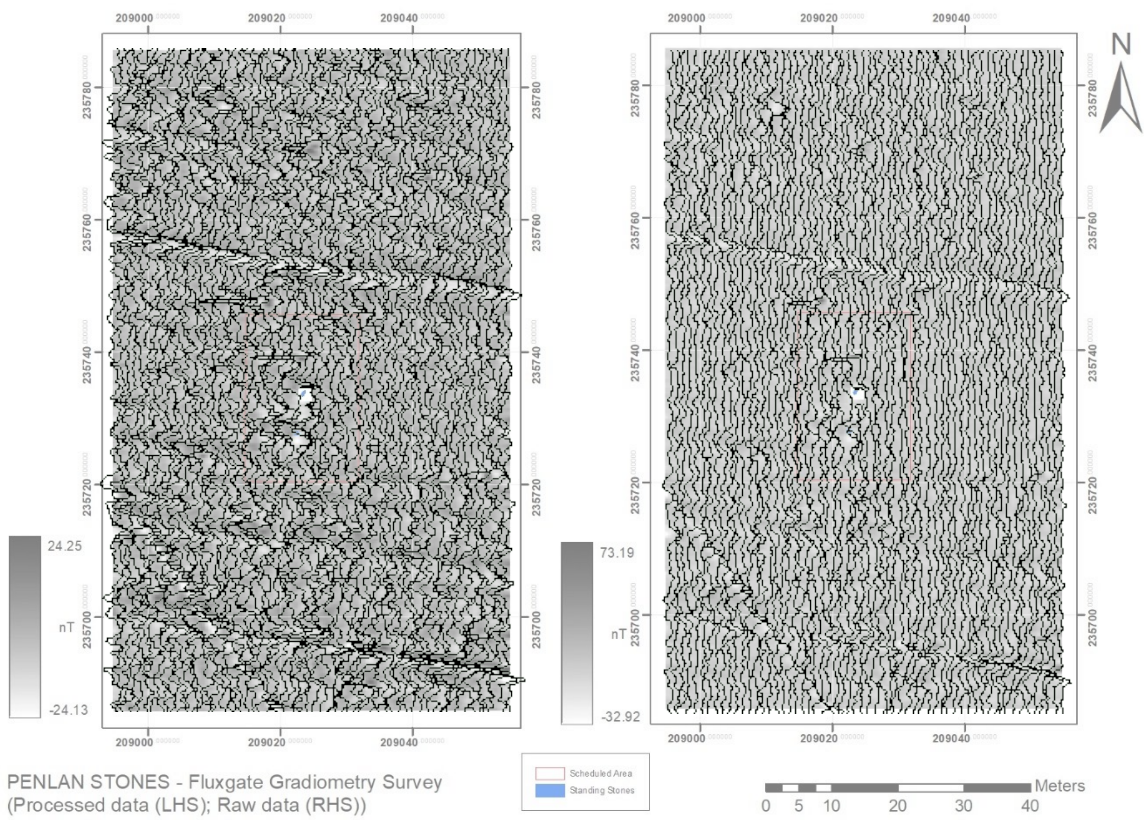


Figure 4 Trace plot of raw and enhanced (de-striped, clipped and interpolated) magnetometry data from Penlan.

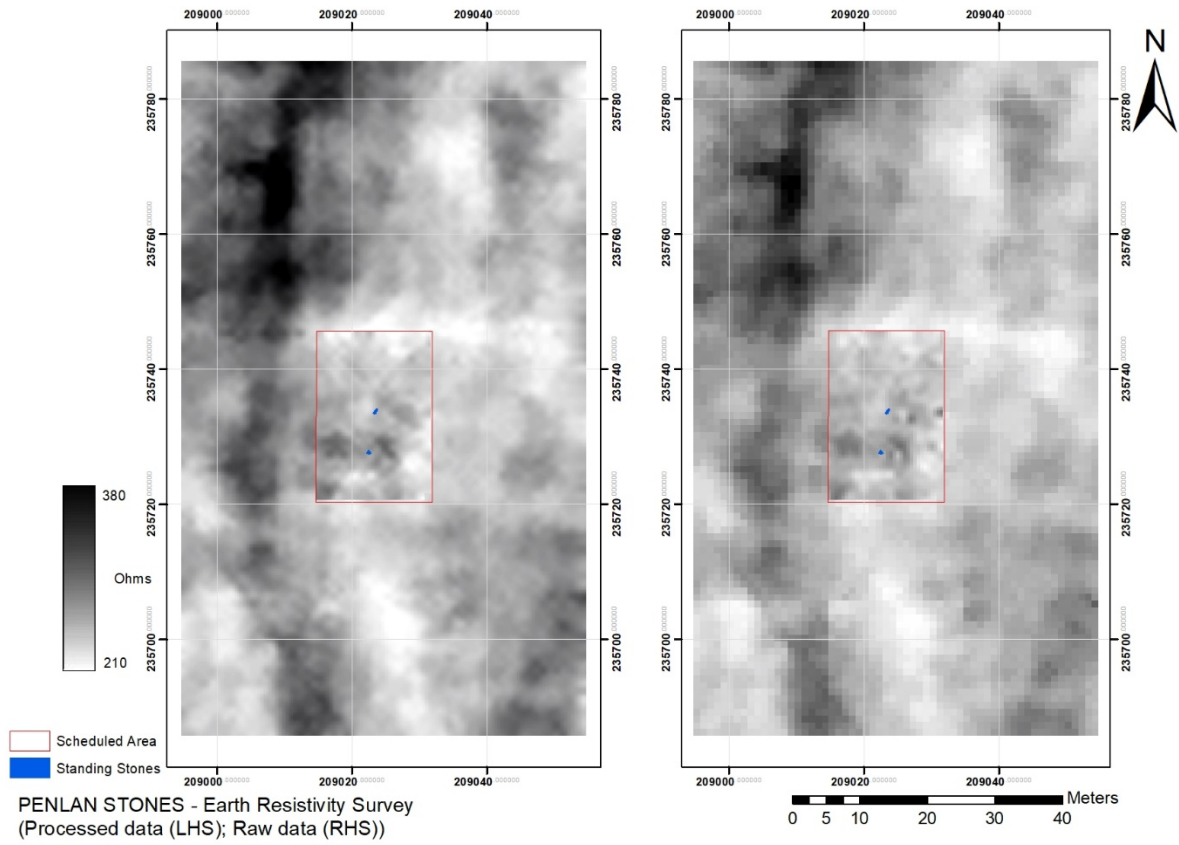


Figure 5 Greyscale plot of raw and enhanced (de-spiked, clipped and interpolated) earth resistance data from Penlan.

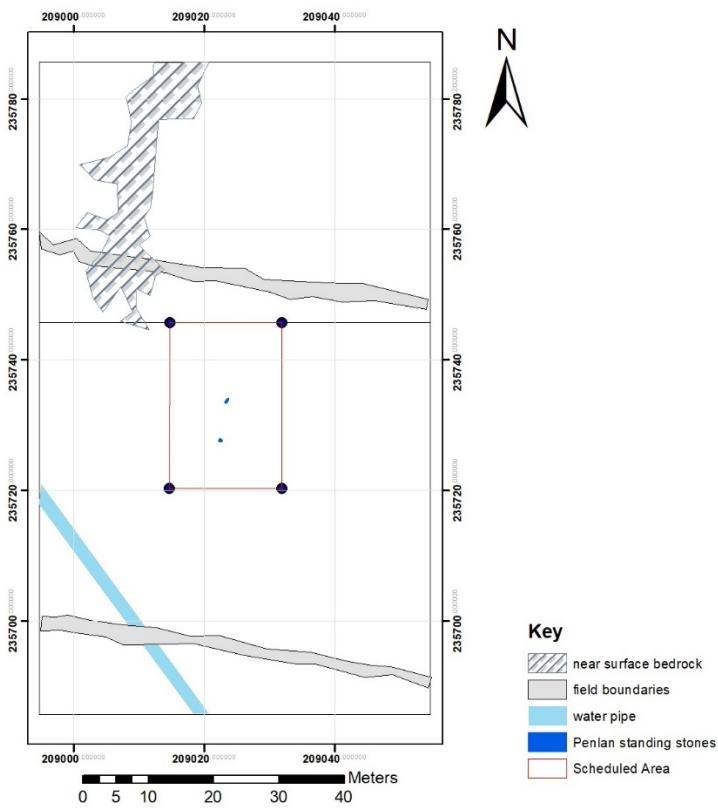


Figure 6. Interpretation Diagram

References

The Royal Commission On The Ancient and Historical Monuments and Constructions In Wales and Monmouthshire 1925. *An Inventory of the Ancient Monuments in Wales and Monmouthshire*, Volume VII - County of Pembroke: 257-8.

Author: K Welham, Bournemouth University

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