

ST. NON'S CHAPEL, PEMBROKESHIRE: GEOPHYSICAL SURVEY (NGR SM 75074 24344)



Prepared by DAT Archaeological Services
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National Park Authority



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ST. NON'S CHAPEL, PEMBROKESHIRE: GEOPHYSICAL SURVEY

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**ST. NON'S CHAPEL, PEMBROKESHIRE:
GEOPHYSICAL SURVEY**

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ST. NON'S CHAPEL, PEMBROKESHIRE: GEOPHYSICAL SURVEY

SUMMARY

DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park Authority to undertake a geophysical survey of land at St. Non's Chapel, Pembrokeshire. The survey was requested to provide a better indication of the archaeological potential of the site, assist with management of the monument and enable targeting of any further archaeological investigation in the future. The site was thought to have particular archaeological potential for discoveries of prehistoric and Early Medieval date.

The survey site covers an area of approximately 2.2ha covering one field that surrounds the ruins of St. Non's Chapel, which lies 1 mile south of St Davids in Pembrokeshire, on a gentle south-facing slope on the coastal cliff edge. The chapel is thought said to have been built on the spot where St. Non gave birth to St. David in the 6th century. Together with a holy well, believed to have sprung forth at the birth of the saint, the chapel has always been an important focus of pilgrimage, and was especially so in the Early Medieval and medieval periods.

The potential for prehistoric archaeology has been identified, mainly due to the presence of standing stones in the field of possible Neolithic or Bronze Age date, further such stones in the locality, and stone tool find sites nearby.

A catholic chapel and retreat now stand next to the survey site, indicative of the continued religious importance of the site, which still includes the holy well site, the waters said to have healing and miraculous powers. The area lies on a gentle south facing slope with extensive views across the coastline.

The site was surveyed over four consecutive days between the 14th and 18th of March 2016, over an area of approximately 2ha in size. The survey was conducted using a fluxgate gradiometer which detects variations in the earth's magnetic field.

The presence of a number of buried features has been detected within the northern half of the area. Potential buried archaeology in the south of the area could not be ascertained due to high magnetic readings caused by the type of bedrock present. Due to this, and the likely magnetic geology of most of the rest of the field, slight features, in particular the remains of timber structures would be impossible to pick up.

The most prominent feature is a positive meandering linear running generally northwards from the chapel, which is very likely to represent a palaeochannel (former stream course). Other positive features show former field boundaries, probable plough lines and tree boles, possible pits and hearths. Few of the features are clear enough to indicate graves, which are in any case rarely picked up by magnetometry. A negative linear feature near to above-ground ruined walls most probably indicates buried wall footings. There are some discrete negative anomalies in other parts of the field that may have been caused by buried rock or voids.

The results seem to indicate both farming and settlement activity at the site, and potentially fallen and buried standing stones. No evidence was found for a suggested inner enclosure around the chapel.

1 INTRODUCTION

1.1 Project Commission

- 1.1.1 DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park Authority to undertake a geophysical survey of the field surrounding the ruins of St. Non's Chapel, near the city of St. David's in Pembrokeshire (NGR SM 75074 24344; Figures 1 and 2).
- 1.1.2 The survey area excluded the area of the scheduled ancient monument of the chapel and its immediate surroundings which are demarcated by a wooden fence.
- 1.1.3 The results of the geophysical survey should provide a better indication of the archaeological potential of the site and assist with future management plans. It may also be used to enable targeting of any further archaeological investigation that may be undertaken.
- 1.1.4 A geophysical survey using both magnetometry and resistivity was made of a 60m by 60m block around the outside of the chapel in 1992 (Geophysical Surveys of Bradford 1992). The survey failed to find any evidence for archaeological features, but did detect several strong anomalies which appeared to be geological in nature.
- 1.1.5 The Pembrokeshire Coast National Park Authority are interested in finding out about the site for the following reasons:
 - To find further evidence for the wider prehistoric landscape that the site appears to be part of, such as the discovery of further recumbent stones or holes where stones have been previously sited;
 - To find a reason for the unusual north-south alignment of the ruined chapel; and
 - To find further evidence for settlement from post-prehistoric periods.

1.2 Scope of the project

- 1.1 A Written Scheme of Investigation (WSI) for a geophysical survey was prepared by DAT Archaeological Services prior to the commencement of works.
- 1.2 The WSI outlined the following tasks to be completed:
 - Provision of a written scheme of investigation (WSI) to outline the methodology for the archaeological work which DAT Archaeological Services will undertake;
 - To identify the presence/absence of any potential archaeological deposits through gradiometer survey; and
 - To produce an archive and report of any results.

1.3 Report outline

- 1.3.1 This report provides a summary and discussion of the geophysical survey and its results. References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

1.4 Abbreviations

- 1.4.1 All sites recorded on the regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Scheduled Ancient Monument (SAM). Listed Building (LB). Altitude is expressed to Ordnance Datum (OD). Gradiometer readings are measured in nanoTesla (nT).

1.5 Illustrations

- 1.5.1 Printed map extracts are not necessarily produced to their original scale.

1.6 Timeline

- 1.6.1 The following timeline (table 1) is used within this report to give date ranges for the various archaeological periods mentioned within the text.

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period ¹ –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20 th century onwards	

Table 1: Archaeological and Historical Timeline for Wales.

¹ The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust



Figure 1: Map showing the location of St Non's Chapel (pink star in red circle), near St David's, Pembrokeshire

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2 THE SITE

2.1 Location

- 2.1.1 The survey site covers an area of approximately 2.2ha covering one field that surrounds the ruins of St. Non's Chapel (NGR SM 75074 24344; Figures 1 and 2).
- 2.1.2 The ruin is situated 1 mile south of St Davids in Pembrokeshire, Southwest Wales, on a gentle south-facing slope on the coastal cliff edge. The highest part of the field is at about 43m OD and the lowest at about 19m OD.
- 2.1.3 The land is currently used for pasture and always has been within living memory.



Figure 2: Map showing location of survey area. It is outlined in red, and St. Non's Chapel is the black square within it.

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2.1.4 The geology of the site is shown in Figure 3, as mapped by the British Geological Society (BGS). There are no superficial deposits present; only bedrock, of three types. The volcanic tuff that underlies most of the site, a light, porous rock formed by consolidation of volcanic ash, has active magnetism that may interfere with the search for archaeological features. The conglomerate component of the St. Non's Sandstone Formation could also cause a high magnetic response, and on more recent mapping it encroaches into the south of the survey site.

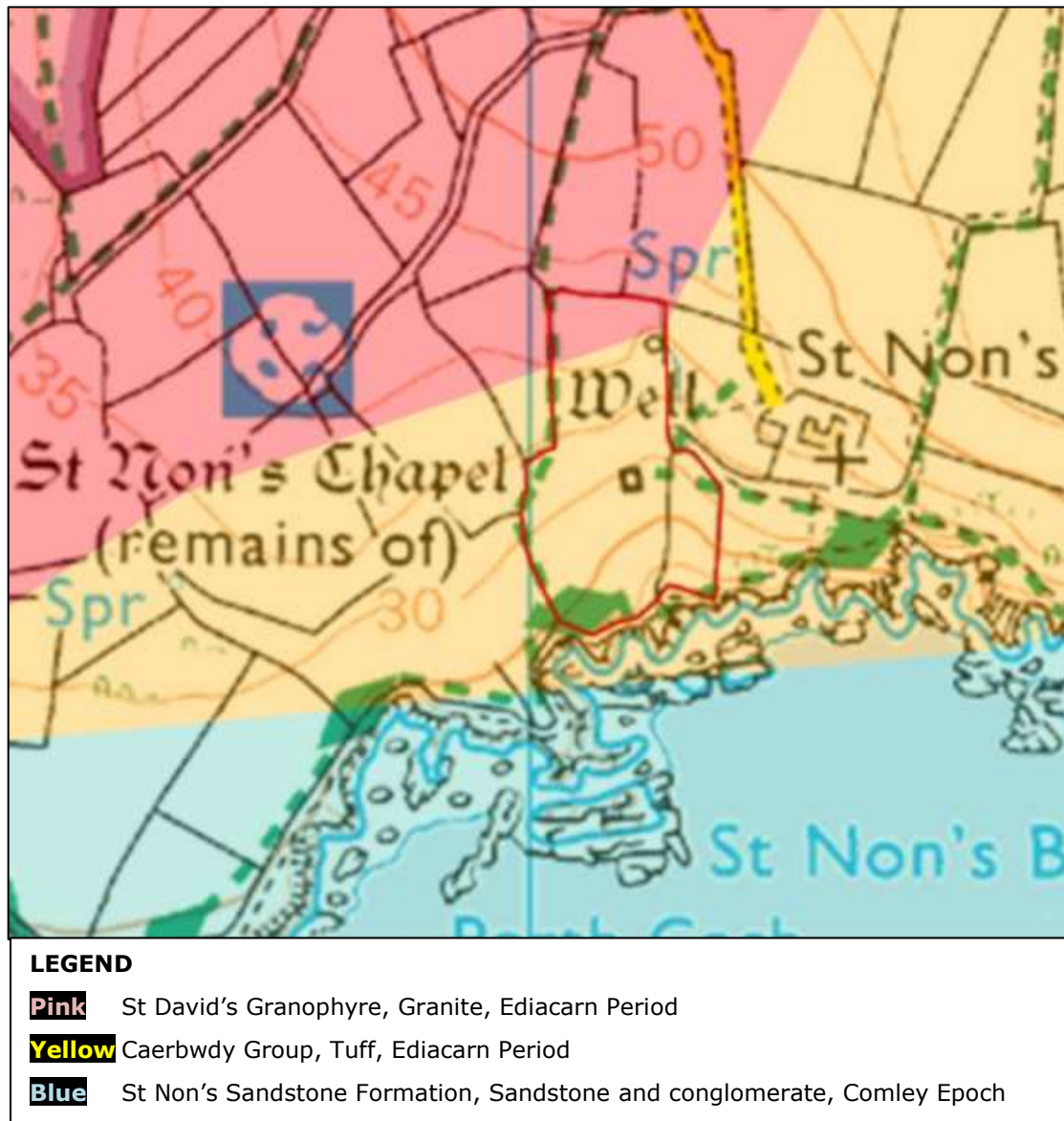


Figure 3: Geology Map, with the survey site outlined in red

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2.2 Archaeological Potential

Prehistoric

- 2.2.1 The site has prehistoric archaeological potential for the following reasons: firstly, there are standing and recumbent stones (PRN 2730) in the field around the chapel and there are many large erratics in the locality. Secondly, flint tools of Mesolithic and Neolithic date have been found around St. Non's Bay (PRNs 7755; 9838; 11157). Thirdly, other Neolithic and Bronze age sites are known within 0.5km of the site (PRNs 2683; 2686; 106560). Finally, the site is an ideal location for ancient habitation, being on a gentle south-facing slope with easy access the sea and probably to the spring water that still reliably feeds the Holy Well (PRN 2727).

Early Medieval and Medieval

- 2.2.2 St Davids, one mile to the north of the survey site, was established as a religious centre at least as early as the 6th century AD and from then until now there is record of probable continuous settlement. Of the ages between the Bronze Age and the 6th century, the archaeological and historical record is lacking.
- 2.2.3 It is said that two pilgrimages to St. Davids were held in the medieval period to equal one to Rome. With St Non's chapel being so close to St Davids and directly associated with it, it is likely that the site would have been busy at that time and associated settlement in the vicinity is not unlikely. It is also probable that even after the chapel ceased to function as such, the remains and the well would still have been busy and the focus for other activity. This is evident in the continued use of the site as the St Non's retreat and continued use of the Holy Well.
- 2.2.4 St. Non's chapel (PRNs 2725; 46863) has legend attached to it, the oldest surviving writing of which is that by Rhydyfarch in about 1090 in his *Life of St. David*:
- [Saint] *Gildas, struck dumb while preaching in a certain church, found that Non was hiding in the church, and then realised that the child she was carrying was destined to be saint of grace and power and rank..... Miracles came forth before and after the birth on the serene spot surrounded by lightning and thunder and floods, and the stone split at the place where a church of St. Non now stands with that stone lying covered in the foundation of its altar* (Wade-Evans 1923).
- 2.2.5 From this, and other probable early written and oral sources now gone, the interpretation that St Non gave birth to St David at the spot of the current St Non's Chapel arose.
- 2.2.6 In *Life of St. David* it is also related that during the birth of the saint, Non laid her hand on a stone and left upon it the impress of her fingers, and the stone was then laid under the altar.
- 2.2.7 The earliest almost definite record of the current siting of a chapel at St. Non's was investigated by the West Wales Historical Society and recorded in their *Transactions* in 1916:

The date of its foundation is unknown, but it must have been founded prior to 1335, as in a grant of a close of land made by bishop Henry Gower in that year.....one of boundaries of the land in question was stated to be the road leading from the city of St. Davids to the chapel of the Blessed Non.

2.2.8 Further light is thrown on the chapel's subsequent fate:

It seems likely that St. Non's Chapel was abandoned as a chapel before 1557. We find that while the valuation of the sea-coast chapels was returned at £11 in [1535], in.....1557-8 and 1565-6 it is 5s. per annum, which suggests that the chapel had been converted into a dwelling house.

2.2.9 An excavation in 1898 traced the external and internal walls to their bases and found no trace of other walls. They only finds were some fragments of floor tile, without ornament (Baring-Gould 1898), now in Tenby Museum. The author was under the impression that the platform under the altar had been tampered with and the stone of legend, if there, had been removed.

2.2.10 Not yet recorded, a recent probable prehistoric cup mark has been observed on one of the stones in the east wall of the chapel (P. Bennett, pers. comm.). It has been suggested that this stone or another like it could have led to the myth of Non's hand and/or finger impressions.

2.2.11 A large stone depicting a cross (PRN 2726), of possible 7th - 8th century date, stands in the southwest corner of St Non's Chapel. It was first recorded in 1856 when it was built into a drystone wall at the E end of the chapel, and may have been in situ. It was probably intended to be free-standing. There is no firm evidence that the stone originally came from the site.

2.2.12 In *A Guide to Ancient and Historic Wales: Dyfed* (Rees 1981), it is recorded that: *An early excavation reports the uncovering of 'stone coffins' which might in fact have been slab-lined graves of the early Christian period.*

2.2.13 The final known archaeological association of the site with the Early Medieval period is the possible enclosures it sits within. The outer enclosure is suggested by the current field boundaries to the east, south and west of the chapel, and an earthwork representing an earlier field boundary to the north of the chapel (Figure 4). The evidence for a possible inner enclosure is seen in two Meridian aerial photographs from 1955; one is shown in Figure 5. The inner enclosure is also apparent as a low earthwork on current LiDAR (Light Detection and Ranging) imagery.

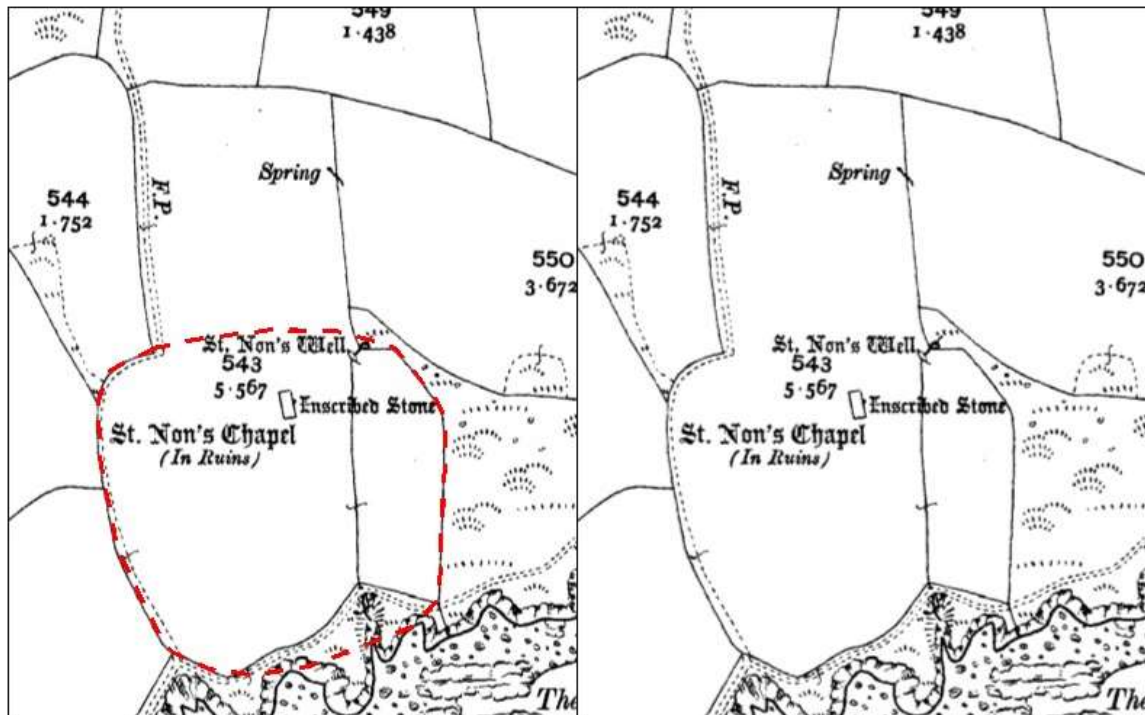


Figure 4: The suggested outline of an outer enclosure around the chapel (red dashed line), with the Ordnance Survey 2nd edition 1908 as backing map.

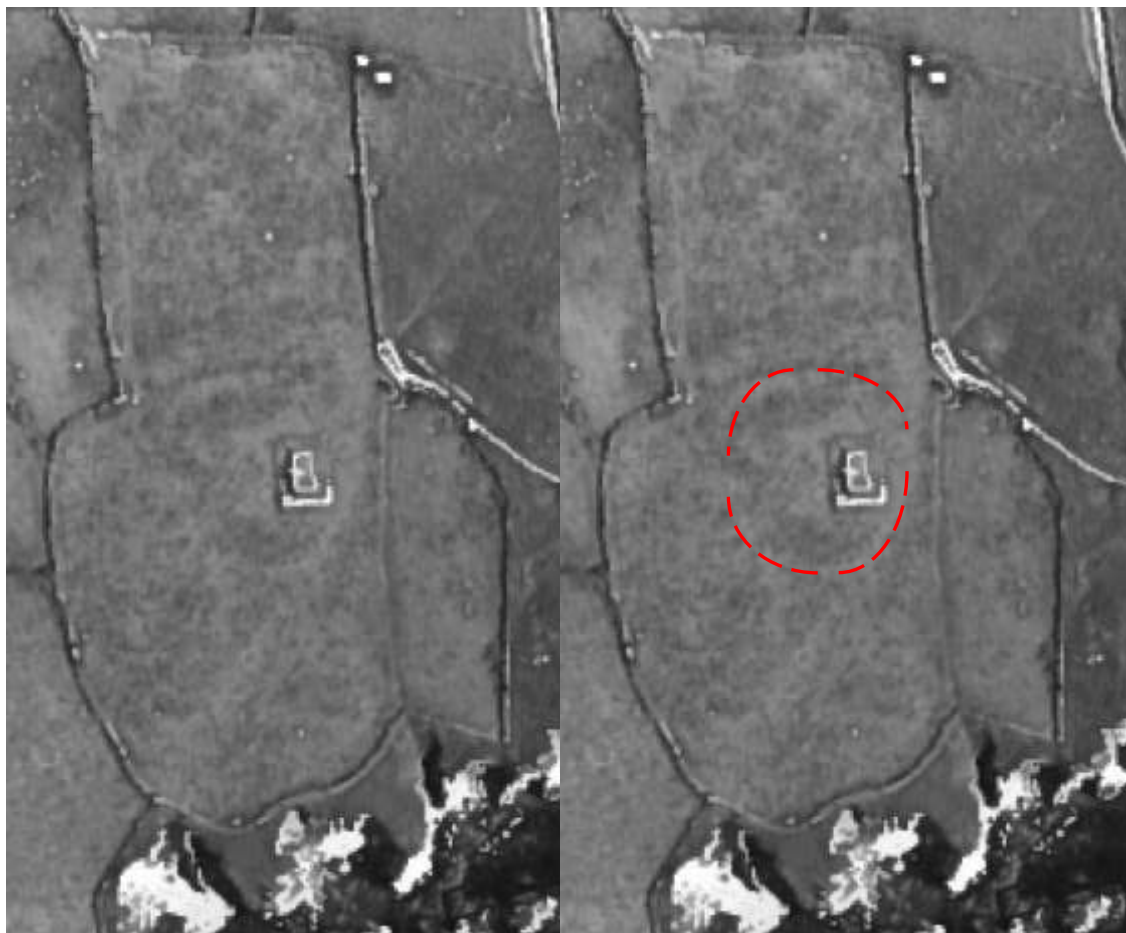


Figure 5: The suggested outline of an inner enclosure around the chapel (red dashed line), with Meridian aerial photo of 1955 as backing.

Post-Medieval and Modern

2.2.14 The earliest map showing the field layout around the chapel is the Parish tithe map of 1841 (Figure 6). It shows more field boundaries within the survey area than there are now. 'Ruins of Nuns Chapel' and 'Nun's well' are marked. The tithe apportionment of 1842 lists the fields 414-8 as being owned by St Davids Charter and Chapter, and occupied by Elizabeth Williams. Fields 415 and 418 were under arable, fields 416 and 417 under pasture, all under the same name: 'Park y Nun's well.' Field 414 is named 'cliff' and its state of cultivation is 'furze.'

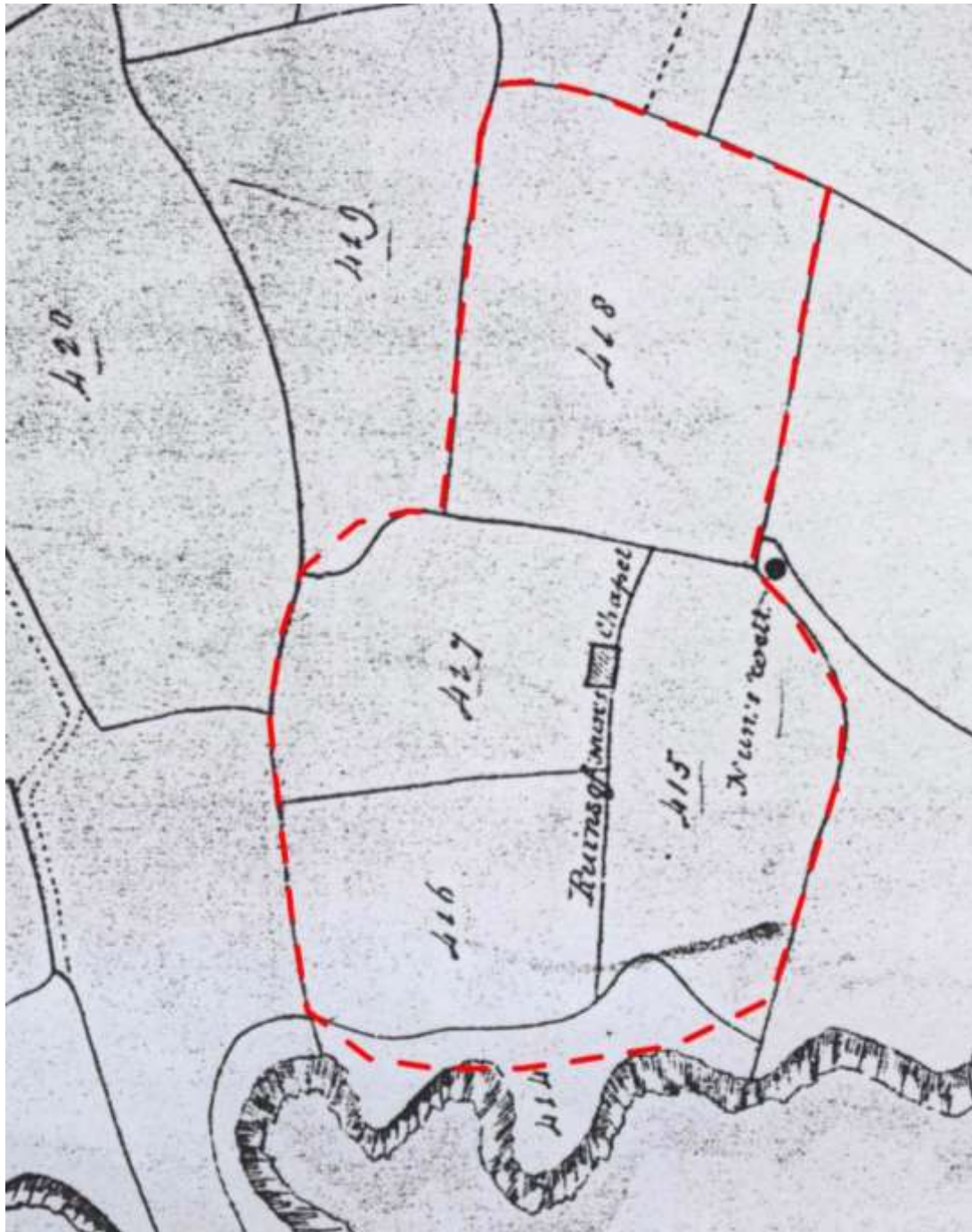


Figure 6: The St. Davids Parish Tithe Map of 1841,
with the survey site outlined in red

2.2.15 The 1st edition OS map, of 1889, is the next known map (Figure 7). An east-west field boundary has been removed since 1841, although two standing stones indicate its former western end. Further stones are marked, mostly in the same positions as they are mapped today. This map also shows that the stream from the well had a slightly different course – across from the well to immediately south of the chapel, and from there down the west side of a field boundary. Currently, the field boundary is no more and the stream has migrated, presumably naturally to a more direct route across the topography. The spring for the well is indicated north of the well.

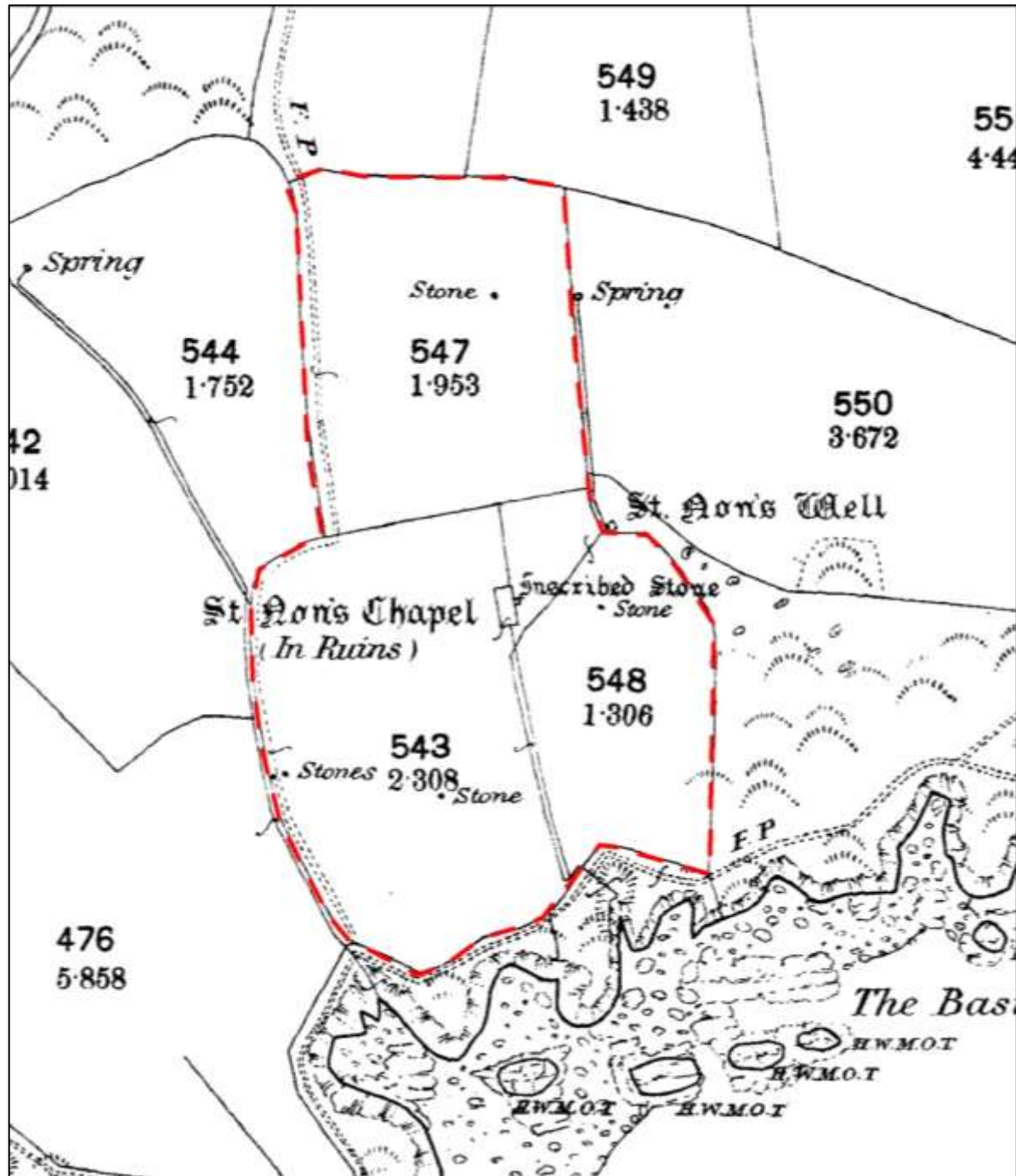


Figure 7: The 1889 1:2500 1st edition OS Map,
with the survey site outlined in red

- 2.2.16 The 1:10560 OS Map of 1891 shows the same layout as the 1889 map, but in less detail. The 1908 2nd edition 1:2500 OS Map (Figure 4) shows that a few more field boundaries have been removed and the site has the same layout as today. The stream has moved, or been deliberately diverted. The 1:10560 OS Map of 1908 shows the same layout as the 1:2500 map, but in less detail. The 1953 1:10560 OS Map shows the newly built Monastery (now the retreat) and the Roman Catholic Chapel.
- 2.2.17 In 1716, it was written that: *The ground on which the chapel stood is now turned into a garden of leeks* (Browne Willis 1716). A century later, the following useful pieces of information were recorded: *In digging for earth within the ruined walls of the chapel, some stone coffins were found, and: At the upper end of the field leading to Nun's chapel there appears the ruined site of a house, probably inhabited by the person deputed to take care of the spring* (Fenton 1811). 'Stone coffins' is usually Fenton's way of saying long cist graves: Early Medieval Christian stone, slab-lined graves.
- 2.2.18 Records in the HER and NMR record little else in the vicinity other than those sites already discussed. The Roman Catholic Chapel was built in 1934 and is a grade 2 listed building (PRN 58892; 16166).
- 2.2.19 The names of the two nearest beaches to the site are 'Porth Coch Bach' and 'Porth Coch Mawr.' Porth usually translates as harbour or port and indicates a high likelihood that these places were used as such in the past.

3 GEOPHYSICAL SURVEY METHODOLOGY

- 3.1 A fluxgate gradiometer with a DL601 data logger was used to conduct the detailed survey, which detects variations in the earth's magnetic field. A sample interval of 0.25m (four readings per metre) was used with 0.5m wide traverses across 20m x 20m grids using the zigzag traverse method of collecting data. The gradiometers sensitivity was set to detect a magnetic variation in the order of 0.1 nT.
- 3.2 The survey grid was tied in to the local Ordnance Survey grid by measuring offsets to mapped parts of the field boundary and the chapel.
- 3.3 The data was processed using Terrasurveyor 3.0 and is presented with a minimum of processing. The presence of high values caused by ferrous objects, which tend to hide fine details and obscure archaeological features, have been 'clipped' to remove the extreme values allowing the finer details to show through.
- 3.4 The processed data has been presented as a grey-scale plot, overlaid on local topographical features. The main magnetic anomalies have been identified and an interpretation of those results is also given.
- 3.5 The resulting survey results and interpretation diagrams should not be seen as a definitive model of what lies beneath the ground surface, not all buried features will provide a magnetic response that can be identified by the gradiometer. In interpreting those features that are recorded the shape is the principal diagnostic tool, along with comparison with known features from other surveys. The intensity of the magnetic response could provide further information, a strong response for example indicates burning, high ferric content or thermoremnancy in geology. The context may provide further clues but the interpretation of many of these features is still largely subjective.
- 3.6 All measurements given will be approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified features can be affected by their relative depth and magnetic strength.

4 RESULTS

4.1 Introduction

- 4.1.1 The site was surveyed over four consecutive days between the 14th and 18th of March 2016. In total an area approximately 2ha in size was surveyed of the 2.2ha site, covering all areas suitable for geophysical survey. Figures 8 - 10 show the survey results.
- 4.1.2 In the greyscale images, positive magnetic anomalies are displayed as dark grey to black, while negative magnetic anomalies are displayed as light grey to white. Palette bars relate the greyscale intensities to anomaly values in nano Teslas (nT). In the geophysical interpretation images, dipolar features are represented in red, positive features are represented in green, and negative features appear in blue.
- 4.1.3 Regions of anomalously positive relative magnetic field strength may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches. Regions of anomalously negative relative magnetic field strength may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids. Paired positive-negative (dipolar) magnetic anomalies typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as kilns or hearths.
- 4.1.4 Numerous small dipolar features can be seen to cover the areas surveyed. These are likely to represent small ferrous objects such as horseshoes or nails, which are commonly found distributed across sites. Unless these features form a pattern or a part of a larger geophysical feature, they will not be discussed further.
- 4.1.5 Where a field boundary contains ferrous material such as wire-fencing, a dipolar effect can be seen where the survey encroaches near to it. This dipolar 'shadow' is visible in nearly all instances where the survey meets the field boundaries.
- 4.1.6 It is possible for some archaeological features to remain undetected due to lack of variation in the magnetic susceptibility of the feature from the surrounding natural geological deposits.

4.2 The Survey

- 4.2.1 Figure 8 shows a greyscale plot of the whole survey area. Processing the whole survey together like this resulted in poor resolution of features in the northern part of site. As found in the previous survey (Geophysical Surveys of Bradford 1992), the archaeological interpretation in most of the area to the south of the chapel is hindered by the overpowering signals from the geology – the conglomerate component of the St. Non's Sandstone Formation. The relatively thin topsoil makes these signals even more masking of subtler features.
- 4.2.2 It is impossible to tell whether the change in geology in the northwest corner of the site has affected the results because of the large anomalies there, so it is possible that the volcanic tuff could be causing distortions in the magnetic patterns. Many features do show, but again there is likely to be masking of subtler features, also aggravated by the relatively thin topsoil.

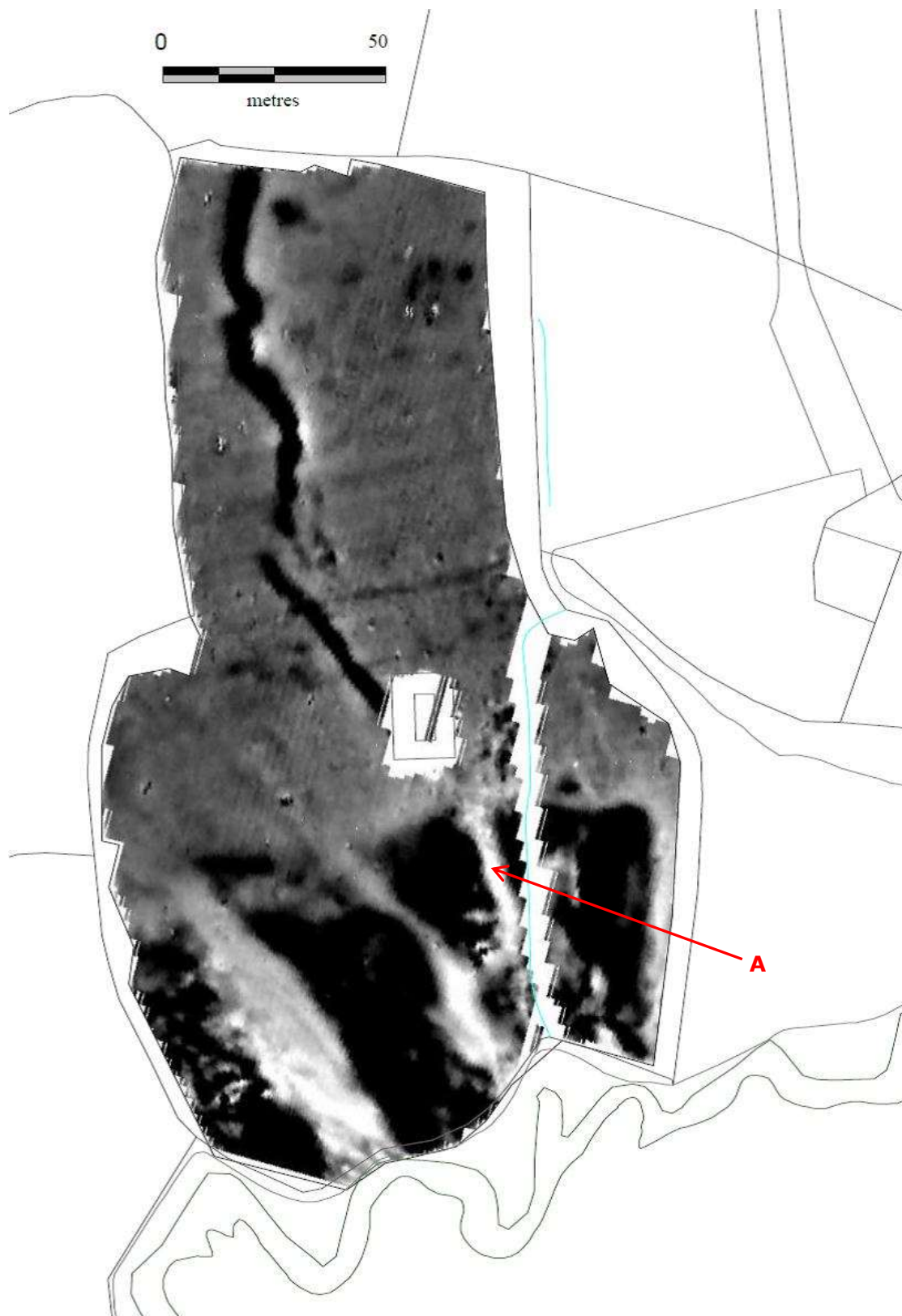


Figure 8: Processed data as a grey-scale plot, overlaid on local topographical features. The results are presented over a range of $\pm 27\text{nT}$ around the local average value of magnetic field strength.

- 4.2.3 Figure 9 shows the greyscale image resulting from the processing of the northern part of the site only. This image reflects the greater resolution of features achieved when data from the south of the site was excluded. Figure 10 shows the interpretation plot of the data for the northern part of the site.

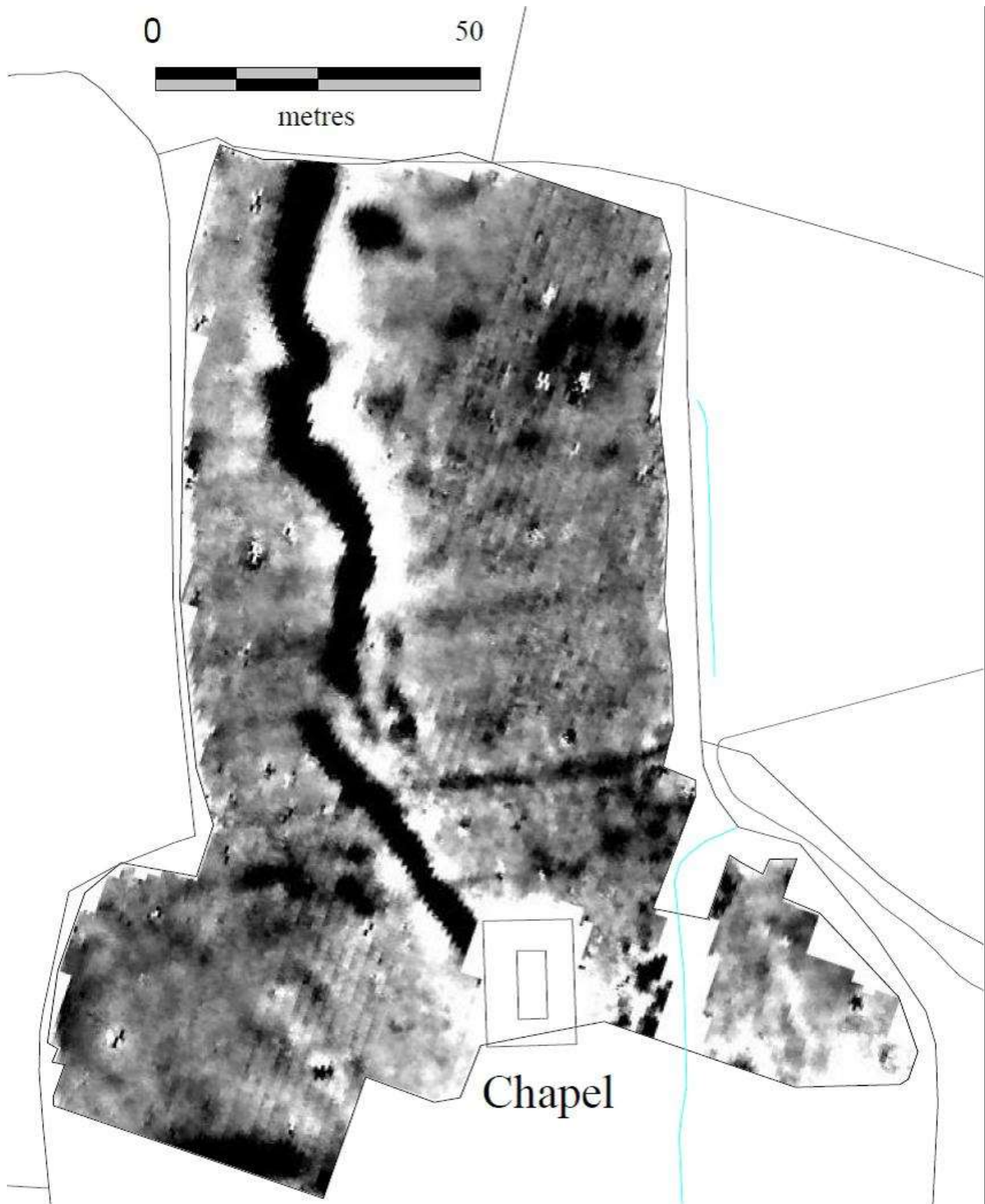


Figure 9: Processed data of the northern part of the survey site as a grey-scale plot, overlaid on local topographical features. The results are presented over a range of 18nT.



Figure 10: Interpretation plot of survey results, overlaid on local topographical features. (Dipolar features are represented in red; positive features are represented in green; and negative features appear in blue.) Standing stones are also shown, in purple.

- 4.2.4 The strong linear feature heading northwest from the chapel (**feature no. 1** on Figure 10) was interpreted in the 1992 survey as a geological feature, but this survey shows its probable continuation (with a small break) in a meandering form northwards, suggestive of a former stream (a palaeochannel). Although it appears as a dipole feature on the greyscales plots (Figures 8 and 9) the actual data reveals it to be strongly positive. It is possible that this palaeochannel can be seen running southeast-wards from the chapel on the greyscale plot (**Feature A** on Figure 8), although now showing in white. The change of shade from dark to light may be a consequence of the change in geology, but, equally, the stripe may be a result purely of the geological interference and not a channel at all. There are two other similar stripes to the west of this one and parallel to it, so it is possible that if one of them represents a palaeochannel, the others do too.
- 4.2.5 The 1st edition OS map (Figure 7) shows the present day stream on a different route to where it runs now. It then ran on a more southwesterly route from the well over to the chapel, and from there directly south to meet up with its present day position at the southern boundary of the field. This could then be another explanation for what is represented by **feature A** on Figure 8. The part of this former channel between the well and the chapel could be what is represented by **feature no. 2** on Figure 10, although this may alternatively be an extension of the nearby geological phenomenon. It is impossible to say without further investigation whether the palaeochannel and the old stream channel dried up naturally or were deliberately diverted.
- 4.2.6 To the west of the chapel, there are **three positive linear features running roughly northwest to southeast**. They are possibly plough lines, respecting the alignment of the palaeochannel. However, when they are viewed on the greyscale plot (Figure 8), it can be seen that they line up with the strong geological signals to their south, and hence may be due to the natural magnetism of that rock formation or the palaeochannels, if that's what they are. The most easterly of the group does follow the line of a current stream in the field north of it (field no. 544 on Figure 7). A further possibility is that the two most easterly of the linear feature group are continuations of the funnel shaped field boundaries in the next field to the north. Such funnels are regular features of field systems, used for controlling the movement of livestock.
- 4.2.7 The tithe map (Figure 6) records a rather curvy field boundary to the northwest of the chapel in the corner of the field that is not seen on subsequent mapping. **Feature no. 3** on figure 10 seems to show this boundary. It is not possible to see the other two old field boundaries near the chapel (shown in Figures 6 and 7) in the geophysics results, probably because they are too close to the strong magnetic responses caused by the geological anomaly.
- 4.2.8 It is interesting to note that the old east west field boundary south of the chapel was aligned almost exactly along the northern edge of the geological anomaly, probably indicating a division of land based on knowledge of the bedrock, which may have had an effect on the land use e.g. whether it was suitable for ploughing. The field south of this division was used for pasture at the time of the tithe map (1841), as was the one to its northwest. No plough lines can be seen in either area on the survey results or on any known aerial photo.
- 4.2.9 Plough lines are however prominent in aerial photos of the area north of the chapel, known to be under arable at the time of the tithe map. These

plough lines are probable shown by at least some of the **east - west positive linear features** in Figure 10. Of these, the southernmost is visible on the ground as a low earthwork, and is probably the remnant of the field boundary shown here on the tithe and 1st ed. OS maps.

- 4.2.10 Many features dotted all over the site appear to be dipole anomalies (red in Figure 10), highly likely to be ferrous items scattered in the topsoil. There are also many small features dotted around the site that are positive anomalies, possibly pits, but more likely to be tree and shrub boles associated with former land use / vegetation clearance. Near to the edges of the field it is likely that the signal has been distorted by the magnetism of the metal fencing, so some point anomalies that have been interpreted as positive features may in fact be dipoles. Some of the small positive anomalies had such high readings that they may be the buried remains of hearths (**features no. 4** on Figure 10.) Many of the positive anomalies do seem to form discrete groups, although whether the individual components were concurrent in time as well as space cannot be shown without obtaining material for dating through excavation.
- 4.2.11 The **discrete negative areas** may represent large rocks or voids. One in particular (**feature no. 5** on Figure 10) had a very high negative reading. Again, those near to field boundaries may be nothing more than dipoles that have had their signal distorted by the fences.
- 4.2.12 At the point marked **6** on the palaeochannel in Figure 10, extremely high positive readings were recorded, possibly just an anomaly but possibly representing a pit or hearth.
- 4.2.13 Negative features usually correspond to wall footings, and other concentrations of sedimentary rock or voids. The linear negative feature to the southeast of the chapel (**feature no. 7** on Figure 10) is probably a buried wall, and it is also visible on current satellite imagery, along with a possible return to the west at its southern end. The ruins of a small building lie above ground just to the north of this feature.

5 CONCLUSION

- 5.1 The gradiometer survey undertaken at the site of St Non's Chapel has been successful in demonstrating the presence of a number of buried features within the northern half of the area.
- 5.2 Potential buried archaeology in the south of the area could not be ascertained due to high magnetic readings caused by the type of bedrock present.
- 5.3 Over the whole of the area, it is likely that only 'major' features have been detected, due to the masking effect of the extremely high and low magnetic readings from the geology in the south of the field, and the likely magnetic geology of most of the rest of the site. Under these circumstances, slight features, in particular the remains of timber structures, would be impossible to pick up.
- 5.4 Many dipole, many positive, and far fewer negative features have been revealed by the geophysical survey. The most prominent feature is a positive meandering linear running generally northwards from the chapel, which is very likely to represent a palaeochannel. Three further probable palaeochannels run to the southwest of the chapel on very similar alignments.
- 5.5 Other positive features show former field boundaries (some still visible as slight earthworks), probable plough lines, tree boles, and possible pits and hearths. Few of them are rectangular enough to indicate graves, which are in any case rarely picked up by magnetometry.
- 5.6 Graves are very likely to be present, and as noted by Fenton, may be stone lined cist graves. If local stone was being used for the stone lining of the graves they would be unlikely to show a different magnetic signal to the bedrock beneath and therefore be invisible to the magnetometer.
- 5.7 The plough lines, field boundaries and tree boles represent former farming practices on the site. The plough lines and field boundaries could be medieval or later; the tree boles could represent clearance in the prehistoric period, or alternatively reclamation of the land in more recent times if the area had become overgrown.
- 5.8 There are some discrete negative anomalies in parts of the field that may be caused by buried rock or voids. These could indicate buried stones within the field, which could conceivably be recumbent or fallen standing stones which have become buried over time. Voids could indicate stone holes where stones had been removed. Confirmation as to what these represent would require intrusive works.
- 5.9 The possible pits and hearths identified by the survey suggest settlement activity around the chapel. The date of any such settlement is unknown. No structural features (other than the chapel and a later wall) were identified. As noted above, the remains of timber buildings would not show on the survey and so it is not possible to identify any lines of postholes that could form shapes to provide an indication of settlement date (round structures generally suggesting Bronze Age or Iron Age; rectangular structures usually indicating later types). Detail of the settlement could only be determined through excavation and dating of material.
- 5.10 A negative linear feature near to above-ground ruined walls to the southeast of the chapel most probably indicates buried wall footings. The date of the wall is uncertain, but is most likely Post-medieval.

- 5.11 The survey has not provided information to assist with the explanation of a north-south alignment for the chapel. No additional wall lines in the vicinity of the structure were identified by the survey, possibly as a result of the magnetic interference from the geology in the southern part of the site. It is possible that the chapel could have been extended or its use altered after its Early Medieval foundation, the religious significance of the site manifesting itself in the general location and holy well as opposed to a dedicated chapel.
- 5.12 Even with the magnetic interference from the geology in the southern part of the site the survey has been successful in indicating both farming and settlement activity, and maybe even the presence of buried standing stones. No evidence was found for the suggested inner enclosure around the chapel shown in Figure 5, potentially due to the geological conditions.

6 SOURCES

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Cartographic

St Davids Parish Tithe Map 1841 and Apportionment 1841

Ordnance Survey	1889	<i>1:2500 Pembrokeshire</i>
Ordnance Survey	1891	<i>1:10560 Pembrokeshire</i>
Ordnance Survey	1908	<i>1:2500 Carmarthenshire</i>
Ordnance Survey	1908	<i>1:10560 Pembrokeshire</i>
Ordnance Survey	1953	<i>1:10560 Carmarthenshire</i>
Meridian Aerial Photos	1955	

Appendix I:
Tables summarising known archaeological sites located within 0.9km of St. Non's Chapel.
Some sites appear in more than one table

SAM records

Sam No.	Name	Summary	Period	NGR
PE482	Whitewell	Site of medieval priory or hospice, established by Bishop Bek in the late 13th century (RCAHM 1925, 334-5). The site of the well and the platforms of the associated buildings is in a trapezoidal field to the south of the Cathedral Close.	Medieval	SM751251
PE013	St Non's Chapel	Standing remains of late medieval pilgrimage chapel to St Davids, within churchyard PRN 46863 and undated cist cemetery. Associated with well (PRN 2727) and Group II ECM (PRN 2726). Coastal clifftop location.	Early Medieval	SM750243

LB records

Number	Name	Grade	Summary	NGR
12574	Warehouse adjoining No.22 Catherine Street	II	-	SM7493925221
12585	Y Fagwr, Including Yard Wall & Gatepiers, Ffordd Porthclais	II	-	SM7491525064
12586	Coach-House at Y Fagwr, Ffordd Porthclais	II	Early to mid C19 coach-house.	SM7492925065
12587	Stable to right of Coach House at Y Fagwr, Ffordd Porthclais	II	-	SM7493225070
12588	Stable to left of Coach House at Y Fagwr, Ffordd Porthclais	II	-	SM7493625077
12589	Walled Garden & Terrace at Y Fagwr (formerly listed as Terrace Wall of Y Fagwr) Ffordd Porthclais	II	Circa 1830-40 walled garden with rubble stone enclosing wall.....Walled garden walls in poor condition apart from SE terrace wall.	SM7488525080
12690	Felin Isaf, including Former Water Mill to rear (Previously Listed as Dewiston Mill) Porthclais	II	Early nineteenth century two-storey mill on the River Alun. Has undergone some restoration since 1981. A mill was first recorded on this site in 1326 (PRN 47598).	SM7446124998
12691	Outbuilding to NE of Felin Isaf, Porthclais	II	19th century stable building at Felin Isaf.	SM7447625008
12712	St.Non's Well, St.Non's	II*	A medieval well located near to St. Non's chapel, St David's	SM7510424369
12713	Chapel of Our Lady & St.Non, St.Non's	II	Roman catholic chapel.	SM7521824356
12714	Warpool Court Hotel, St.Non's	II	-	SM7501724820
12715	Garden Terrace, Hemicycle & Archway at Warpool Court Hotel, St.Non's	II	Circa 1870 garden terrace wall with balustrade of elliptical arches between piers.	SM7500924797
12716	Walled Garden & Attached Tower in grounds of Warpool Court Hotel, St.Non's	II	Circa 1870 walled garden with three ornamental gateways and a terraced outbuilding attached to outside.	SM7506324838
12717	Pumphouse Tower in Grounds of Warpool Court Hotel, St.Non's	II	Later C19 pumphouse treated as folly tower in rubble stone with ornament in brick.	SM7507024776

Records in the HER (in order of PRN)

PRN	Name	Type	Summary	Period	NGR
1524	Flemings Way; Via Flandrica; Pilgrims Way; Via Julia (Wrongly)	Trackway	-	Unknown	SM7525
2657	Whitewell Hospice, St Davids Hospice	Hospital	Site of medieval priory or hospice, established by Bishop Bek in the late 13th century (RCAHM 1925, 334-5). The site of the well and the platforms of the associated buildings is in a trapezoidal field to the south of the Cathedral Close.	Medieval	SM75092512
2667	Pontifex Stone	Inscribed Stone	An incomplete cross-slab with inscriptions found during building work in St Davids Cathedral in 1891 and now in the Porth y Twr exhibition centre.	Medieval	SM7525
2672	Whitewell	Holy Well	A well beneath an arched covering located south of St. David's Cathedral Close, where a hospital was founded by Bishop Bell (1280-1283).	Medieval	SM75092514
2673	Whitewell Chapel	Chapel	Site of medieval well chapel, established by Bishop Bek in the late 13th century (RCAHM 1925, 334-5).	Medieval	SM75092512
2683	St David's	Finds		Bronze Age	SM7525
2684	St David's	Findspot	A collection of flint implements and flakes were recovered during excavations of the Clegyr Boia Neolithic settlement.	Prehistoric	SM7525
2686	St David's	Round Barrow	19th century excavations of a possible round barrow here apparently found part of a bronze helmet and possibly a bronze handle.	Bronze Age	SM7525
2708	Felin Isaf; Dewiston Mill; Bishop's Mill	Mill	Early nineteenth century two-storey mill on the River Alun. Has undergone some restoration since 1981. A mill was first recorded on this site in 1326 (PRN 47598).	Post-Medieval	SM74472500
2710	Porth Clais	Unknown, Earthwork	Low bank approximately 1m high with a shallow ditch to the north. Length approximately 20m long. Unknown function.	Unknown	SM74342388
2725	St Non's Chapel	Chapel	Standing remains of late medieval pilgrimage chapel to St Davids, within churchyard PRN 46863 and undated cist cemetery. Associated with well (PRN 2727) and Group II ECM (PRN 2726). Coastal clifftop location. See churchyard PRN 46863 for site description.	Medieval	SM75072434
2726	St Non's Chapel	Inscribed Stone	Group II ECM (cross-carved stone), of possible 7th - 8th century date, standing the SW corner of St Non's Chapel PRN 2725. It was first recorded in 1856 when it was built into a drystone wall at the E end of the chapel, and may be +/- in situ.	Early Medieval	SM75072434
2727	St Non's Well	Holy Well	A medieval well located near to St. Non's chapel, St David's, that reputedly had curative qualities. During restoration work in the C18th it was covered by a plain dome of masonry.	Medieval	SM75102438
2730	St Non's Well	Stone Setting	A group of stones, 5 standing and one recumbent, surrounding the ruined St Non's chapel. The stones do not appear to form a circle, but are seemingly purposefully situated.	Neolithic, Bronze Age	SM75072434
4352	St David's	Findspot	Approximate findspot of A medieval copper coin/jeton found at St David's, inscribed "AVE MARISTELLA DEI MATR". Whereabouts unknown.	Medieval	SM7525
4363	Parc y Garreg	Standing Stone	A "Garreg" place-name on tithe map may have indicated a standing stone existed here.	Bronze Age	SM74442411
4367	Rhos Carreg Lwyd	Standing Stone	A "Carreg" place-name on tithe map may have indicated a standing stone existed here.	Bronze Age	SM75502427
4373	Parc y Garn	Round Barrow	A "Garn" place-name on the parish tithe map that may have indicated a round barrow or cairn existed here.	Bronze Age	SM750247

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5501	Ffos y Mynach	Trackway, Boundary	Where this crosses the coastal strip it consists of no more than a low earth bank, approximately 0.7m high.	Unknown	SM7525
7755	St Non's Bay	Findspot	An unspecified number of flint scrapers from an unknown location in St. Non's Bay. This is part of the Bosanquet Collection in the Pitt-Rivers Museum in Oxford.	Prehistoric	SM7524
9838	Porth y Ffynnon	Findspot	A collection of flints consisting of cores, blades and flakes picked up from along the coast path between Portclais Inlet and St. Non's Bay.	Mesolithic	SM747240
10621	Manor of The City; Suburbs Of St Davids	Manor	-	Medieval	SM7525
10622	Chancellor's Manor	Manor	-	Medieval	SM7525
10623	Nun Street Manor	Manor	-	Medieval	SM7525
10624	Carnedrin Fach	Manor	-	Medieval	SM7525
10633	Nunnery	Tower House	-	Medieval	SM7525
11157	St Non's Bay	Lithic Working Site	A possible lithic working site, consisting of flint and quartz cores, blades and flakes. Two microliths were also recovered.	Mesolithic	SM75022418
11444	Mynydd Gwyn	Settlement	-	Medieval	SM7525
11844	St David's Cathedral	Finds	-	Roman	SM7525
12892	Caerfai	Settlement	-	Medieval	SM757244
12897	Porthclais	Settlement	-	Medieval	SM743242
12900	Dewsland	Manor	-	Medieval	SM7525
12982	St David's	Cross	-	Medieval	SM7525
13822	Lower Moor	Common Land	-	Post-Medieval, Medieval	SM747247
13940	Carn Warpool	Common Land	-	Post-Medieval, Medieval	SM749248
14398	St Davids Cathedral Mill Leat	Leat	A leat which dates to at least the late 13th century and was maintained to the middle of the 20th century.	Post-Medieval, Medieval	SM74472500
16164	Warpool Court	Mansion	-	Post-Medieval	SM75052483
16165		Monastery	-	Post-Medieval	SM75202437
16166		Church	-	Post-Medieval	SM75232434
20752	Catherine Street No.12	Cottage	Dwelling in St Davids.	Post-Medieval	SM75012524
20753	Catherine Street Nos.20 22	Dwelling	Dwelling in St Davids.	Post-Medieval	SM74942523
20754	Catherine Street	Warehouse	-	Post-Medieval	SM74942522
20763	Goat Street No.51	Dwelling	Dwelling in St Davids.	Post-Medieval	SM7508425246
20764	Goat Street Nos.63 65	Dwelling	Dwelling in St Davids.	Post-Medieval	SM75072519

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20812	St Non's Hotel	Hotel	-	Post-Medieval	SM7501724820
20813	Goat Street	Warehouse	-	Post-Medieval	SM750252
20814	Fagwr y	Dwelling	Dwelling in St Davids.	Post-Medieval	SM7491525064
26604	Y Fagwr	Stable, Coach House	Early to mid C19 coach-house and stable range in colourwashed rubble stone with slate roofs.	Post-Medieval	SM7492925065
26605	Y Fagwr	Wall, Garden	Circa 1830-40 walled garden with rubble stone enclosing wall.....Walled garden walls in poor condition apart from SE terrace wall.	Post-Medieval	SM7488525080
26668	Felin Isaf	Outbuilding	19th century, stable building at Felin Isaf.	Post-Medieval	SM7447625008
26680	Warpool Court Hotel	Ornamental Garden	Circa 1870 garden terrace wall with balustrade of broad elliptical arches between piers .	Post-Medieval	SM7500924797
26681	Warpool Court Hotel	Garden	Circa 1870 walled garden with three ornamental gateways and a terraced outbuilding.	Post-Medieval	SM7506324838
26682	Warpool Court Hotel	Tower, Folly	Later C19 pumphouse treated as folly tower in rubble stone with ornament in red and black brick.	Post-Medieval	SM7507024776
32619	Pen y Cyfrwy	Field System	Relict field system identified from First Edition OS maps, however the area was obscured by vegetation.	Unknown	SM75542428
32703	Pen y Cyfwy	Unknown	Four hollows on the coastal slopes, two square pits, possibly machine dug, and two circular with slight banks on seaward side, date & function unknown, possibly military.	Modern	SM75552409
32706	Maen Llwydwy	Clearance Cairn	Clearance of small stones.	BRONZE AGE	SM74822405
32707	Maen Llwydwy	Quarry	Area of three small quarry pits, approximately 10m in diameter, on top of cliffs.	Unknown	SM7480324024
46863	St Non's Chapel	Ecclesiastical Enclosure, Cist Grave Cemetery, Churchyard	Early medieval A site, ie. high-probability early medieval origins. Standing remains of late medieval pilgrimage chapel to St Davids, on a site probably mentioned in late 11th century. Lies within circular cropmark enclosure and possible outer enclosure	Early Medieval	SM75072434
47598	Felin Isaf; Dewiston Mill; Bishop's Mill	Mill	The site of a medieval flour mill first recorded in 1326.	Medieval	SM74472500
58803	Warehouse adjoining No.22 Catherine Street	Warehouse	Grade II listed warehouse	Post-Medieval	SM7493925221
58810	Stable To Right Of Coach House at Y Fagwr, Ffordd Porthclais	Stable	Grade II listed stable	Post-Medieval	SM7493225070
58811	Stable To Left Of Coach House At Y Fagwr, Ffordd Porthclais	Stable	Grade II listed stable	Post-Medieval	SM7493625077
58882	Felin Isaf,Including Former Water Mill To rear (previously Listed as Dewiston Mill) Porthclais	Mill House	Grade II listed mill house &	Post-Medieval	SM7446124998
58891	St.Non's Well, St.Non's	Well	Grade II* listed well This is a duplicate record for PRN 2727 – see for full details.	Post-Medieval	SM7510424369
58892	Chapel of Our Lady And St.Non, St.Non's	Roman Catholic Chapel	Grade II listed roman catholic chapel	Post-Medieval	SM7521824356
106560	Caerfai	cup marked stone	A cup-marked stone comprising at least six cup-marks arranged in a circle	NEOLITHIC	SM7586224389

Records in the NMR (in order of NPRN)

NPRN	Name	Type	Period	Summary	NGR
21999	Goat Street, 63 & 65	Dwelling	Post Medieval?	Later 18th to mid 19th century. Part of a former row.	SM7507025198
21923	Fagwr (Y), Terraced Wall	Wall	Post Medieval?	Early to mid 19th century. Stone wall. Slate coping.	SM7525
21922	Fagwr (Y)	Dwelling	Post Medieval?	Early to mid 19th century. 2 storey. Stone rubble walls. Contemporary staircase.	SM7525
272580	Providence	Wreck	Post Medieval	The PROVIDENCE was a wooden sailing vessel on passage from Liverpool to Bristol in late January 1797. The report printed in Lloyds List on 31 January 1797 noted the master's name as Rees and that the vessel had been lost near St David's.	SM7524
272833	Countess of Mansfield	Wreck	Post Medieval	The COUNTESS OF MANSFIELD was a wooden sailing vessel belonging to the port of London. The report printed in Lloyds List on 18 March 1836 noted the master's name as Wilson and that the vessel had been totally wrecked near St David's.	SM7524
272655	Ann of Dartmouth	Wreck	Post Medieval	The ANN OF DARTMOUTH was a wooden sailing vessel on passage to Liverpool. The report printed in Lloyds List on 4 February 1831 noted the master's name as Burner and that the vessel had been driven onshore near St David's on 1 February and that the crew and materials had been saved.	SM7524
272809	Morva	Wreck	Post Medieval	The MORVA was a wooden sailing vessel which was on passage from Cardigan to London in mid November 1793. The report printed in Lloyds List on 22 November 1793 noted the master's name as Phillips and that the vessel was lost near St David's Head.	SM7524
272630	Friends	Wreck	Post Medieval	The FRIENDS was a 39nt wooden smack built in 1845. The vessel was caught by a northeasterly force 9 gale and driven ashore 3 miles southeast (?) of St David's head. One crewmember was lost in the incident.	SM7524
276066	Whitewell, Medieval Hospital (site of)	Hospital	Medieval	Site of medieval hospital, 'called the priory of Whytwel', founded by Bishop Bec (1280-1293) for sick & infirm clergy, later annexed to St Mary's college (Nprn305386)	SM7509825132
308318	Pen Star	House	Post Medieval	Stone built two storey house with outside stone stair.	SM7525
30214	St Nons Hotel, Railings	Wall; Railings	Post Medieval?	Stone rubble dwarf wall with slate coping surrounded by iron railings.	SM7505225178
30213	St Nons Hotel	Hotel	Post Medieval	St Non's Hotel, St Davids, has a mid 19th century, or earlier wing.	SM7504325198
32063	Catherine Street, Warehouse	Warehouse	Post Medieval	18th century to earlier 19th century, gabled elevation to street, stone rubble walls.	SM7493925221
21745	Catherine Street, 20 & 22	House	Post Medieval?	Early to mid 19th century. Tall 2-storey house.	SM7494625224
30155	Rock Mount; Rock House	Dwelling	Post Medieval	A 2-storey building with a 3-window front, and walls of stone. The hipped roof is of slate with end stone stacks. 12-pane sash windows with stone voussoirs. Central entrance.	SM7492825075
30379	Warpool Court, St Davids	Dwelling	Post Medieval	-	SM7501724820

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32511	St Non's Holy Well, St Davids	Well	Medieval;Post Medieval	Medieval well head, restored in 18th century, coins found during cleaning 1825.	SM75102437
12148	Catholic Church, St David's	Church	Post Medieval	-	SM75232435
301109	St Non's Chapel	Chapel	Medieval	St Non's Chapel, now represented by footings and a ruinous wall, but reputedly built on the site where St Non gave birth to St David.	SM75072434
301110	St Non's Passion Fathers Monastery; St Non's Retreat	Monastery	Post Medieval	Attached chapel, Nprn12148; associated holy well, Nprn32511.	SM75202437
265320	Warpool Court, Garden, St Davids	Garden	Post Medieval	This garden is depicted on the Second Edition Ordnance Survey 25-inch map of Pembrokeshire XX, sheet 3 (1908). Its main elements on that map include lawns, walled garden, terrace, carriage drive, greenhouse, relict hedgelines, avenue and flagstaff.	SM7507324810
40226	Bishop's Mill; Dewiston Mill; Lower Mill; Felin Isaf, St Davids	Corn Mill	Medieval	Felin Isaf is an early-to-late nineteenth century corn mill on a medieval mill site which was first recorded in 1326, belonging to the Bishop and cathedral of St Davids. Attached to it on the north-west side is the mill house.	SM74462499
276056	St Davids Cathedral Mill Leat	Leat	Medieval	-	SM746242
400107	St Non's Chapel, earthwork bank N of, part of enclosure or vallum?	Earthwork	Medieval; Post Medieval	Earthworks representing a c.4.0-6.0m wide bank, giving the appearance of having been ditched on either side, running c.78m E-W, N of St Non's Chapel, along the line of a field boundary portrayed on OS County series (Pembroke. XX.3 1889).	SM75062436
404456	Porth Coch Mawr, St Non's Bay	Harbour	General	Aerial photograph of canoes in Porth Coch Mawr	SM74952412

APPENDIX II: WRITTEN SCHEME OF INVESTIGATION FOR GEOPHYSICAL SURVEY AT ST. NON'S CHAPEL, PEMBROKESHIRE

1 INTRODUCTION

- 1.3 This Written Scheme of Investigation (WSI) has been prepared by DAT Archaeological Services in response to a request from the Pembrokeshire Coast National Park Authority. The WSI provides details of a scheme of geophysical survey work to be carried out over 2.2ha at St. Non's Chapel, Pembrokeshire (SM 75074 24344).
- 1.4 St. Non's Chapel, thought to be of 6th century in origin, is statutorily protected as a Scheduled Ancient Monument (PRNs 2725; 46868 and SAM PE013). In the field the extent of the scheduled area is marked by a wooden fence, and survey will not take place within this area as permission has not been sought. Within the chapel is an undesignated heritage asset, an inscribed Early Medieval stone (PRN 2726). These remains, and the oval or D-shaped enclosure in which they site, point to the strong likelihood that other Early Medieval sites and finds may be present.
- 1.5 Within the survey area there are further known archaeological remains, all undesignated sites. Represented as a group by PRN 2730, they are large standing and recumbent stones that seem to form no overall pattern. While these could be associated in date with the Early Medieval religious foundation, stone settings also commonly date from late Neolithic and early Bronze Age times, so there is also a moderate potential of the discovery of sites dating to these parts of the prehistoric era. The archaeological potential for use in prehistory of the survey area is further enhanced by the gentle, south-facing slope of the land and the immediate access to both spring water and the sea.
- 1.6 This written scheme of investigation outlines the methodology through which DAT Archaeological Services would undertake an archaeological geophysical survey. The WSI cannot be used by any third party.
- 1.7 This specification is in accordance with the Standard and Guidance for Archaeological Geophysical Survey (CIfA 2014).
- 1.8 DAT Archaeological Services has considerable experience of this type of project and always operates to best professional practice. DAT Archaeological Services is the contractual arm of Dyfed Archaeological Trust that has its own Health and Safety Policy, and all works are covered by appropriate Employer's Liability and Public Liability Insurances. Copies of all are available on request.
- 1.9 ***Dyfed Archaeological Trust is a CIfA Registered Organisation.***
- 1.10 ***All permanent staff of DAT Archaeological Services are CSCS registered.***

2 GEOPHYSICAL SURVEY

2.1 In the Standards and Guidance for Archaeological Geophysical Survey (CIfA 2014), archaeological geophysical survey is defined thus: Non-intrusive and non-destructive techniques [used] to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as reasonably possible, within a specified area or site on land, in the inter-tidal zone or underwater. Geophysical survey determines the presence of anomalies of archaeological potential through measurement of one or more physical properties of the subsurface.

2.2 The purpose of a geophysical survey is described in the same document as follows:

A survey undertaken to the Standard will as far as possible inform on the presence or absence, character, extent and in some cases, apparent relative phasing of buried archaeology, in order to make an assessment of its merit in the appropriate context, which may lead to one or more of the following:

- a. The formulation of a strategy to ensure further recording, preservation or management of the resource*
- b. The formulation of a strategy to mitigate a threat to the archaeological resource*
- c. The formulation of a proposal for further archaeological investigation within a programme of research*

3 PROJECT OBJECTIVES

3.1 This document provides a scheme of works for:

Archaeological Geophysical Survey by fluxgate gradiometer at St. Non's Chapel, Pembrokeshire. A report shall be prepared on the results of the survey, and an archive created of all data created.

3.2 The following tasks will be completed:

- Provision of a written scheme of investigation (WSI) to outline the methodology for the archaeological work which DAT Archaeological Services will undertake (this document)
- To identify the presence/absence of any potential archaeological deposits through gradiometer survey
- To produce an archive and report of any results

4 GEOPHYSICAL SURVEY METHODOLOGY

4.1 A fluxgate gradiometer will be used for the survey, which detects variations in the earth's magnetic field. Readings will be taken at a high resolution on traverses 1m wide and every 0.25m within a 20m x 20m grid across the site. As much of the full area of the proposed development site will be surveyed as is possible, some 2.2ha in total. The survey grid will

be tied into the local Ordnance Survey grid by measuring offsets to known points on the field boundary and chapel.

- 4.2 The underlying geology and soils are considered suitable for geophysical survey.

Processing, presentation and interpretation

- 4.3 Processing will be performed using TerraSurveyor 3.0. The data will be presented with a minimum of processing. The presence of high values caused by ferrous objects, which tend to hide fine details and obscure archaeological features, will be 'clipped' to remove the extreme values allowing the finer details to show through.
- 4.4 The processed data will be presented as grey-scale plots overlaid on local topographical features. The main magnetic anomalies will be identified and plotted onto the local topographical features as a level of interpretation.
- 4.5 The resulting survey results and interpretation diagrams should not be seen as a definitive model of what lies beneath the ground surface, not all buried features will provide a magnetic response that can be identified by the gradiometer. In interpreting those features that are recorded the shape is the principal diagnostic tool, along with comparison with known features from other surveys. The intensity of the magnetic response could provide further information, a strong response for example indicates burning, high ferric content or thermoremnancy in geology. The context may provide further clues but the interpretation of many of these features is still largely subjective.
- 4.6 All measurements given will be approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified features can be affected by its relative depth and magnetic strength.
- 4.7 The interpretation diagrams will be used to identify the presence/absence of any potential archaeological deposits.

5 POST-FIELDWORK REPORTING AND ARCHIVING

- 5.1 A copy of the final report will be deposited with the regional HER within six months of the completion of the project.
- 5.2 All data recovered during the fieldwork will be collated into a site archive structured in accordance with the specifications in Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation (Brown 2007), and the procedures recommended by the National Monuments Record, Aberystwyth. The National Standards for Wales for Collecting and Depositing Archaeological Archives produced by the Federation of Museums and Art Galleries of Wales will also be adhered to.
- 5.3 The report will be prepared to follow the relevant Institute for Archaeologists Standards and Guidance (IfA 2014).

6 STAFF

- 6.1 The project will be managed by James Meek, Head of DAT Archaeological Services.
- 6.2 The on-site geophysical survey will be run by Pete Crane an experienced geophysical surveyor, assisted by other members of DAT Archaeological Services staff.

7 MONITORING

- 7.1 The site work will be monitored by the PCNP archaeologist and by the Project Manager.

8 HEALTH AND SAFETY

- 8.1 All permanent members of DAT Archaeological Services staff are CSCS² registered.
- 8.2 DAT Archaeological Services will carry out a health and safety risk assessment to ensure that all potential risks are minimised.
- 8.3 All relevant health and safety regulations must be followed.
- 8.4 Gradiometer survey is a non-intrusive method of archaeological prospection. The process involves the laying out of grids across the site area which are then traversed with the gradiometer taking regular readings. Trip hazards are one of the main issues for such work.
- 8.5 Due to the nature of the survey surveyors are not able to wear any clothing with metal in (such as safety boots). Sturdy footwear is worn with no metal parts.
- 8.6 The developer will make all site staff aware of any other PPE³ that may be required.

² *Construction Skills Certification Scheme (Health and Safety Tested)*

³ *Personal Protection Equipment*

ST. NON'S CHAPEL, PEMBROKESHIRE: GEOPHYSICAL SURVEY

RHIF YR ADRODDIAD / REPORT NO. 2016/16
RHIF Y DIGWYLLIAD / EVENT RECORD NO. 109350

Paratowyd yr adroddiad hwn gan / This report has been prepared by
Alice Day

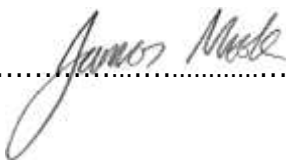
Swydd / Position: **Archaeologist**

Llofnod / Signature  Dyddiad / Date 7/Apr/2016

Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith
This report has been checked and approved by
James Meek

ar ran Ymddiriedolaeth Archaeolegol Dyfed Cyf.
on behalf of Dyfed Archaeological Trust Ltd.

Swydd / Position: **Head of DAT Archaeological Services**

Llofnod / Signature  Dyddiad / Date 7/Apr/2016

Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau
sydd gennych ar gynnwys neu strwythur yr adroddiad hwn

As part of our desire to provide a quality service we would welcome any
comments you may have on the content or presentation of this report

