

DYFED ARCHAEOLOGICAL TRUST LTD



PEMBROKE POWER STATION ARCHAEOLOGICAL STUDY

ARCHAEOLOGICAL IMPLICATIONS
OF A BULK SOLIDS HANDLING
JETTY IN THE PEMBROKE RIVER

DAT Project Record No. 33146 JUNE 1996

Commissioned by: National Power Plc

Report by: R.P. Sambrook

Dyfed Archaeological Trust Ltd

The Shire Hall

8 Carmarthen Street

Llandeilo

Dyfed SA19 6AF

Tel (01558) 823121 Fax (01558) 823133



01/06/96

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1. SUMMARY

- 1.1 With plans proposed to extend the area of the Pembrokeshire Power Station complex, it was necessary to carry out a programme of archaeological fieldwork at two locations bordering on the present site (these areas are identified as Area A and Area B on Fig.1). Documentary research was also carried out in order to complement this field survey.
- 1.2 Both of the survey areas were known to included some previously recorded archaeological sites considered to be of some significance. In Area A, a post mediaeval hamlet had been identified at Venny-Lake. In Area B, a post-mediaeval farmstead was known at West Pennar, as well as a previously recorded iron age defended settlement nearby, known as West Pennar Rath, which has produced evidence of prehistoric occupation.
- 1.3 Fieldwork and desk-top research carried out for this report identified a number of new sites of archaeological importance in Area B, near West Pennar Rath, increasing the archaeological value of the landscape north of the Power Station.
- 1.4 It was found that the impact of the proposed developments was most significant in the case of Area A. The installation of a new pipeline through the Venny-Lake hamlet could disturb any archaeological features surviving in the vicinity of the hamlet and mitigation strategies for the recording of such features have been recommended.
- 1.5 It was found that the present proposals do not appear to pose any threat to the archaeological resource of Area B, neither with respect to the conversion of the present Oil Tank site, nor the proposed alterations to the quay facility on the shore of Pennar Gut, as it is not proposed that any undisturbed ground will be included in the developments.

2. INTRODUCTION

- 2.1 On 3rd January 1995, National Power submitted an application to the Secretary of State for Trade and Industry for consent, under section 36 of the Electricity Act 1989, to modify Pembroke Power Station to operate using emulsified hydrocarbon fuels. The modifications would include retro-fitting a limestone-gypsum flue gas desulphurisation (FGD) plant to the power station.
- 2.2 The requirement to store imported limestone and fuel at the plant and temporarily store the gypsum by-product of the desulphurisation process, means that new storage facilities will be required. It has been proposed that the area to the north of the present plant, currently occupied by the Fuel Oil Tanks, be cleared of present structures and become the location for a substantial Limestone Gypsum Storage facility.
- 2.3 Whereas it was originally envisaged that fuel and limestone would be imported via a purpose built jetty to the west of the plant, plans have now been proposed to import fuel via a pipeline linking the Power Station to the neighbouring Texaco Oil Refinery. This would involve installing a new pipeline to the refinery.
- 2.4 In view of the location of sites of known archaeological interest in the vicinity of the Power Station, National Power commissioned the Dyfed Archaeological Trust to assess whether or not the proposals will have any effect on archaeological sites. This report provides details of the field work and desktop research which has been completed in respect to each of these areas.

3. AIMS AND OBJECTIVES.

- 3.1 The aims and objectives of this report are;
- to enhance and add to the archaeological record and understanding of the development of the historic landscape in each of the areas studied
- to provide an evaluation for each archaeological site identified
- ♦ to suggest mitigation strategies for any impacts upon the archaeological resource of the area.
- where necessary, make recommendations for programmes of future archaeological work.

4. METHODOLOGY.

- 4.1 There are two element to this archaeological study. Firstly, a desk-top study of the two areas included in the proposed developments was made (Areas A & B on Fig. 1). This was complemented by field visits to each of these areas, when an archaeological survey of both was made.
- 4.2 The desk-top study began with reference to records housed in the regional Sites and Monuments Record (SMR), maintained by the Dyfed Archaeological Trust. Reference was also made to a number of earlier archaeological appraisals undertaken on behalf of National Power (Clouston, 1994; Murphy, 1995¹ and 1995²), which deal with adjacent areas. Printed maps, manuscript maps and documents deposited with the Pembrokeshire Record Office and the National Library of Wales were also examined, and relevant published material consulted. Commercially-flown vertical and oblique aerial photographs of the area held by the Pembrokeshire Coast National Park and the Dyfed Archaeological Trust were also examined.
- 4.3 Field visits were made to each site identified during the desk-top study in order to assess the current condition of the archaeological resource. A search was also made for previously unrecorded archaeological sites. Primary Reference Numbers (PRNs), specific to each individual site or archaeological feature included in the SMR, were allocated to newly recorded sites. These are quoted within the body of this report, as are the PRNs of previously known sites.

5. RESULTS

5.1 The Historic Landscape.

- 5.1.1 In order to understand and evaluate the historic landscape of the areas affected by the proposed developments, it is necessary to examine sources and the landscape morphology for a much wider area than that which will be directly affected by the proposals.
- 5.1.2 The Power Station is located in the parish of Pwllcrochan. There is little published or manuscript documentary evidence for this parish. Only one manuscript source of relevance is indexed at the Pembrokeshire Record Office and five at the National Library of Wales. There are no published parish histories and Pwllcrochan is usually only mentioned in passing in general historical works and surveys. Although a detailed map survey was made of the entire parish by the Ordnance Survey in 1809-10, the 1839 tithe survey is the most useful survey of the parish, for it provides detailed information about contemporary land ownership and land use. An earlier estate map (of 1777) and a land sale catalogue (of 1824) also cover parts of the parish.
- 5.1.3 Despite the limitations of the historic sources for Pwllcrochan, enough information is available to provide a sketchy outline of the landscape and settlement history of the parish.

The earliest physical evidence of human settlement in Pwllcrochan parish occurs in the form of several iron age defended settlements, such as that of West Pennar Rath (PRN 3277), which is located with the area of the present survey. Although a small site, West Pennar Rath is typical of the many *raths* of the Pembrokeshire countryside. It occupies a ridge-top position overlooking the Milford Haven, at the landward end of a promontory headland (into which a cut has been made for locating the Oil Tanks mentioned previously). During the desktop survey carried out for this report, another hillfort site (PRN 33148) was identified in the field adjacent to West Pennar rath, indicating that the area was well settled in pre-Roman times.

Raths were generally occupied throughout the iron age and into the early Roman period. It is probable that such sites were occupied by members of influential local families or clan groups. The late iron age landscape would have been well cultivated, with both crop-raising and animal husbandry practised to support the local community, which would have included farmers who lived in hamlets or farms elsewhere in the area, who may well have been bound to the service of those occupying the high-status defended settlements. In some instances re-use of such sites has been shown to have occurred during the dark ages (after c.400AD), but whether or not this occurred at West Pennar we cannot be certain without further evidence.

5.1.4 A continuation of settlement in the locality can, however, be envisaged throughout the early mediaeval period and into Norman times. The parish church is probably the modern face of a local ecclesiastical tradition which extends back to the mediaeval or dark age period; the neighbouring farms of Upper and Lower Hentland

(located in Rhoscrowther parish, but near Pwllcrochan church) derive their names from the Welsh *Henllan* or 'old church', suggesting that there has been a tradition of Christian worship in the area since pre-Norman times, implying, therefore, the presence of a supportive community.

5.1.5 There are few clues as to the level of population and the settlement pattern of mediaeval Pwllcrochan. Documentary evidence records an increase in population after the 16th century, becoming a slow decline, and a retreat of settlement, from at least the 17th century. In 1563, 31 households were recorded in the parish of Pwllcrochan, 59 in 1670 and 38 in 1801 (Kissock, 1993).

The latter stages of this decline are captured on early cartographic evidence, for late 18th and early 19th-century maps show considerably more dwellings around Pwllcrochan church than exist at present. A further group of dwellings were also once present around Venny-Lake and at nearby Martin's Haven. Nearly all of these dwellings have been abandoned over the last 200 years; only the church and a single cottage nearby now survive.

Outside these small hamlets, settlement occurred in the form of a few dispersed farmsteads, some of which are seen on the parish tithe map as relatively large complexes of agricultural buildings. One of these was West Pennar farm, which was almost completely erased from the landscape when the Power Station was built. Only some fragmentary ruins now mark the farmyard complex, but many of the fields belonging to the holding and named on the tithe map are still recognisable to the north of the Power Station.

5.1.6 The Power Station complex is super-imposed onto a rural landscape of narrow lanes and small or medium sized, regular shaped fields; although some grubbing out of hedges has occurred during the later 20th century in order to enlarge some fields within the parish. Many of the lanes are deep holloways, sunk into the landscape after centuries of use. In general the fields are bounded by earth-built hedge banks, topped by flailed hedges. Some substantial coppiced ash and sycamore trees are also present.

Many elements of this landscape have been present since the first map evidence was compiled in 1777, including roads, lanes, field boundaries and settlements. However there have also been some significant landscape changes, not all related to the construction of the Power Station. Within the present study area, the most obvious of these has occurred at the Pennar Cants, which is the name applied to the north-facing coastal slope north of the Power Station site. This narrow strip was described as an area of 'furze' (gorse and rough pasture) at the time of the 1839 tithe map, but successive Ordnance Survey maps show the spread of woodland across the area. Today, the Cants are almost inaccessible due to a combination of steep slopes and thick tree and scrub growth.

Woodland and scrub has also covered some areas which were clearly unwooded until the mid-20th century, such as around the site of the old West Pennar farm and also at several other locations on the fringe of the Power Station site. In some places, it is evident that some deliberate planting of broad-leaved trees has occurred for landscaping purposes, but the cessation of active agricultural practices on some land parcels has allowed trees, scrub and bracken to spread.

5.1.7 Field and place names recorded on maps and in documentary sources are generally of limited interest, apart from 'Rath Field' near the old West Pennar Farm, where the iron age site described above is located (5.1.3). In a wider context, however, the survival of many Welsh place names in this locality, including the parish name Pwllcrochan and that of neighbouring Rhoscrowther, is of some etymological interest and may be of importance to the general history of the English settlement of Pembrokeshire.

5.2 REGISTER OF ARCHAEOLOGICAL SITES.

5.2.1 Area A (See Fig. 1):

The only sites of archaeological importance within this area are those identified by K. Murphy in a previous survey carried out for National Power (Murphy, 1995, 7). No new sites were identified either through documentary or field survey. Much of the area was either planted with barley or obscured by woodland and scrub growth at the time of the field visit. Those sites listed by K. Murphy within this area are;

- 29583 (SM92410285). Venny-Lake. The estate map of 1777 shows this dwelling standing alongside PRN 29582. Still occupied in 1908, this house has since been abandoned and demolished, its site overgrown with scrub.
- 29584 (SM92360279). An un-named cottage built between 1777 and 1809-10. It was still occupied in 1908. No trace is now visible of the building and the site is overgrown.
- 30147 (SM92380283). Cottage & Garden, Venny-lake. A small cottage and garden are shown here on the 1839 tithe map. Neither are now recognisable, the area is thickly wooded.

5.2.2 Area B:

- 3218 (SM931029). An earthwork feature observed by the Ordnance Survey in 1965. Its function is unknown and it is not though to be an antiquity.
- 3227 (SM933030). West Pennar Rath. This small iron age defensive settlement has been partly ploughed out, with only its eastern and western defensive banks and ditches now recognisable above ground. Aerial photographs do however show that these banks did originally complete a circuit, forming a sub-circular enclosure enclosing c.0.44ha. The site is a Scheduled Ancient Monument.
- 8466 (SM933030). A salvage excavation undertaken by the Dyfed Archaeological Trust in 1979, when a pipeline was laid to the south of West Pennar Rath, revealed a large number of oyster shells, cattle bones, some coarse, black pottery sherds and post holes (Edwards, DAT SMR, 1979). Although no datable evidence was recovered, it is possible that these finds are related to iron age or Romano-British

occupation associated with West Pennar Rath. They certainly indicate that the land outside the rath is itself potentially archaeologically sensitive.

- 8500 (SM935030). A single prehistoric flint scraper found in West Rath Field in 1979.
- 10793 (SM931029). West Pennar has been identified from documentary sources as a mediaeval settlement, perhaps a small agricultural hamlet (Rees, 1932). Although the site of the later farmstead which bears the name appears to have been partly destroyed, the archaeological potential of the surviving portion of the site is quite high.
- 26243 (SM933030). A World War II searchlight battery was positioned on the edge of West Pennar Rath. The installation has been demolished and only some hut bases in the rath's western ditch survive.
- 26244 (SM93100309). A World War II anti-aircraft gun battery was located here. It included a complex of 4 gun pits, a command post and 14 huts. All these features have been removed.
- 33148 (SM937031). Eastern Middle Park Rath. A probable iron age hillfort has been identified on a 1955 aerial photograph (Meridian Airmaps 190/200 No. 25436). It occupies the rounded hillock at the eastern end of the West Pennar promontory, but is not visible on the ground. Other earthwork features identified nearby may be associated with this site (see PRN 33149-50 below).
- 33149 (SM935030). Rath Park, Hollow way?/Boundary? This rather curious feature
 has certainly been used as, and may have been created as, a farm track. It forms the
 eastern boundary of the field known as Rath Park, but was truncated by the
 construction of the Power Station, when a large cutting was made into the ridge in
 order to create the level area on which the Oil Tanks now stand.
 - In cross section the feature resembles a hollow way, running for some 150m north-south across the neck of the West Pennar promontory. The western side of the trackway is defined by a hedge-topped earth bank, c.1.75m high x 1.5m wide, both sides of which show traces of stone facing. Only the eastern side is cut into the land surface, where a lynchet like feature, approximately 1.75m high and topped by a hedge, marks a sharp step up from Rath Park to neighbouring Eastern Middle Park.

Although the southern end of the track has been lost to the Power Station site, and some of what remained has been 'grubbed out', the line of the track/boundary can be seen as a slight earthwork feature, continuing across the field and up to the Power Station's perimeter fence.

Map evidence shows that this feature was certainly in existence by the early 19th century, but no map indicates the presence of a trackway here. It is also unusual in that 'pre-Power Station' maps indicate that the line of the boundary/track ran across the promontory neck, originating and terminating at points which do not appear to be associated with any other mapped feature.

It is impossible to know the origins of the lynchet-like feature described above based on the evidence currently available. It may be a natural feature landscaped and incorporated into a farm track of post-mediaeval date. However, it may represent a lynchet formed by mediaeval or earlier ploughing, or even the line of a boundary created during prehistoric times to cut off the West Pennar promontory for purposes of stock control or defence. It may well be associated with the newly identified hillfort site on the promontory (PRN 33148), and may also have a possible relationship to a relatively large earth bank which forms the northern edge of Eastern Middle Park (PRN 33150).

- 33150 (SM936031). Defensive earthwork?/Boundary bank, Eastern Middle Park. The boundary between the Pennar Cants and the fields to the south of the coastal slope is generally a low and denuded earth and stone bank, topped by mature trees or scrub growth. However, the northern boundary bank of Eastern Middle Park is a much more substantial earthwork. This bank runs for over 100m, east-west, and reaches up to at least 3m in width x 2m high (estimated from the northern or downslope side). It stands above what might be a man-made terrace, cut into the hillslope in order to give the bank the illusion of being higher that is actually the case. Such a technique was often used in iron age hillfort construction, and it is tentatively suggested that this bank is a remnant of a prehistoric defensive earthwork, perhaps an outer work of the nearby hillfort (PRN 33148). It is also speculated that there may be a relationship between this bank and the lynchet-like feature described above (PRN 33149). Unfortunately, most of the bank was under a dense bracken and bramble cover at the time of the field visit and, therefore, difficult to properly view and assess.
- 33151 (SM931029). West Pennar Farmstead. Partial remains of some ivy covered buildings are visible on the site of this old farmstead, but the woodland and undergrowth was so dense at the time of the field visit that access was impossible. The farmyard complex may be on the site of a mediaeval settlement (PRN 10793, above). The earliest available maps show the farmyard area to be apparently well organised, with a range of well spaced buildings surrounded by a series of small paddocks and gardens and an orchard. Interestingly, a trackway named in the tithe apportionment as 'The Walk' (Parcel No. 124) ran due south from the farmyard to the coastal edge, indicating that access to the waterway was considered important to the farming population. By the mid-20th century the farmstead had become a much more compact unit of buildings, with range of outbuildings built around a courtyard, set apart from the farmhouse. These buildings were mostly demolished during the 1960s, but some fragmentary masonry remains. At the time of the field visit, the area was too overgrown to examine in detail.

6. EVALUATION OF ARCHAEOLOGICAL IMPORTANCE.

An earlier archaeological appraisal of the Pembroke Power Station (RPS Clouston, 1995) used five categories in its assessment of importance, and these have adhered to in previous DAT assessments commissioned by National Power (Murphy, 1995). The categories are;

Major: including the highest status site e.g. Scheduled Ancient Monuments (SAM), Listed Buildings Grades 1 and II*

Average: the majority of sites with reasonable evidence of occupation, ritual, industry etc. and Grade II Listed Buildings

Minor: sites with some evidence of human activity, but in a fragmentary or poor state, buildings of local importance

Unimportant: destroyed, non-antiquities, random stray finds, buildings of no merit

Unknown: insufficient evidence available to judge importance

6.2 EVALUATION OF ARCHAEOLOGICAL SITES WITHIN THE STUDY AREA.

Major: West Pennar Rath (PRN 3277) - SAM; Eastern Middle Park Rath (PRN 33148).

Average: Occupation site (PRN 8466); Cottages at Venny-Lake (PRN 29583; 29584; 30147); West Pennar farmstead (PRN 33151).

Minor: Flint scraper find spot (PRN 8500).

Unimportant: Searchlight Battery (PRN 26243); Anti-aircraft battery (PRN 26244).

Unknown: Earthwork (PRN 3218); West Pennar mediaeval settlement (PRN 10793; Rath Park Hollow way/boundary (PRN 33149); Defensive earthwork?/boundary bank (PRN 33150).

7. IMPACT OF THE PROPOSED DEVELOPMENT ON THE ARCHAEOLOGICAL RESOURCE.

- 7.1 One area likely to be affected by the laying of a new pipeline between the Power Station and the neighbouring Texaco Oil Refinery is that of the now abandoned hamlet at Venny-Lake, part of which lies within the property owned by National Power. The cluster of former dwelling sites here includes sites PRN 29583, 29583 and 30147 and others located outside the Power Station's perimeter boundary (see Murphy, 1995²). The hamlet site lies within the proposed pipeline corridor and could feasibly be wholly removed if the pipeline is routed through it.
- 7.2 The proposed limestone and gypsum storage facility is envisaged as occupying the site of the present Oil Tanks. In this case, whilst the present site boundaries are maintained, there is no appreciable impact on archaeological sites. However, should any extension of the site be proposed to the north of this area, it would directly affect archaeologically sensitive areas, around both West Pennar farm, West Pennar Rath and Eastern Middle Park Rath.
- 7.3 The proposed extension of the jetty in Pennar Gut does not appear to threaten any archaeological sites. The land edge north of the present jetty is largely man-made and a relatively deep dredged channel has been maintained between the jetty and the Milford Haven waterway, therefore no archaeological features are likely to survive along the southern side of the West Pennar promontory.

8. RECOMMENDATIONS.

- 8.1 The group of post-mediaeval dwellings identified by K. Murphy (1995) around Venny-Lake are an important element in the historic settlement pattern of the parish; at least one of the dwellings has mediaeval ancedents (PRN 29582 outside the present study area). If possible the pipeline should be routed so as to avoid disturbing this area, but should this not prove feasible an archaeological programme of recording and excavation would be required, comprising;
- i) photographic, drawn and written record of the standing structures, trial excavation to assess the nature of any archaeological deposits. This may provide a sufficient record of surviving features, if not a further programme of work may have to be initiated.
- ii) excavation in and around standing structures to attempt to provide a full building sequence and history of the hamlet. Provision for post-excavation work with the aim of producing a report up to publication standard must be included in the programme of works.
- 8.2 The area north of the Power Station includes a number of known prehistoric sites and artefact find spots (PRN 3227; 8466; 8500). There are also some potentially significant features identified during field work (PRN33148 33150) and an area of documented mediaeval and post mediaeval settlement (PRN 10793; 33151).

The proposals for the construction of the limestone and gypsum storage facility, as outlined at present, does not affect these sites. However, should a revised plan involve a northwards extension of the Power Station perimeter, this area would be affected and programmes of archaeological work could be required for both West Pennar farm and the occupation area identified outside the southern limit of West Pennar Rath.

A preliminary geophysical survey would be required in Rath Park and Eastern Middle Park to assess the extent of occupation outside the raths which they include, and to identify any associated features not now visible in the landscape. Dependent on the results of such a survey, further archaeological work, including excavation might be required.

The site of the West Pennar farmstead would need to be approached in a similar fashion to the Venny-Lake hamlet, as described above, with a full photographic, drawn and written record compiled for surviving features, possibly leading to a second phase of work which would include some degree of excavation around the farmyard complex.

9. SOURCES CONSULTED.

9.1 Aerial photographs.

Dyfed Archaeological Trust

Meridian Airmaps Ltd. 190/200 Nos. 25437 - 38 (1955)

Pembrokeshire Coast National Park

Gonex H 9267 58 92 062 colour 1:10,000 survey (1992)

JA Storey & Partners 914 5083 171-172 and 197-198 colour 1:10,000 survey (1983).

9.2 Unpublished sources

Dyfed Archaeological Trust

Regional Sites and Monuments Records.

Edwards 1979 DAT SMR Site Record Form PRN 8466 - Description of salvage excavation in Rath Park.

Kissock J 1993 'Historic Settlements Project - South Pembrokeshire'.

Murphy K 1995¹ 'Pembroke Power Station - The Tunnel Cutting and Jetty Access

1995² 'Pembroke Power Station - The Materials Handling Plant'.

Haverfordwest Library

Francis Green collection of documents; place name and other indexes.

National Library of Wales

Pwllcrochan Tithe Map and Apportionment (1839

Ordnance Survey original surveyors drawings, 2" to the mile, sheet 182 (1809-10).

Pembrokeshire Record Office

D/EE/7/338 Maps of the estate of Harcourt Powell Esq. by Thomas Lewis, p.30 Venny-Lake (1777).

Schedule of D-Angle collection

D-Angle 5 Rhoscrowther and Pulcrogan estates - Particulars and Conditions of Sale (1824).

Royal Commission on Ancient and Historical Monuments

National Monuments Record - OS quarter sheets SM90S

Pembroke Farm Survey Maps 1787 (microfilm of estate maps relating to SW Pembrokeshire).

Clouston RPS 1994 'National Power Archaeological Study - Pembroke Power Station'.

9.3 Published.

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1974 Sheet 228 Haverfordwest. Solid & drift sheets. OS, Southampton.

Lewis S 1833 Topographical Dictionary of Wales. London.

RCAM 1925 VII: County of Pembroke. HMSO, London.

Rees W 1932 Map of South Wales and the Borders in the 14th century. SW Sheet.

Ordnance Survey

1864 1:2500 First Edition, Pembrokeshire XXXIX.6 and 7. OS, Southhampton.

Ordnance Survey

1887 1:10,560 First Edition, Pembrokeshire 39 NE. OS, Southampton.

10. FIGURES.

- Fig. 1 Location Map of Archaeological Sites
- Fig. 2 The Power Station site in 1839.
- Fig. 3 Aerial photograph of the West Pennar Head hillfort.





