

PRN 31347

31/03/1997

**LLANELLI
and
Loughor
wetlands
archaeological assessment
1997**

same style.



ARCHAEOLEG CAMBRIA ARCHAEOLOGY

report prepared for

Cadw: Welsh Historic Monuments

(Cadw happy
with working)

✓

Front cover: the lower reaches of the Afon Lliedi were canalised and directed into the Carmarthenshire Dock in the early years of the 19th century. This photo shows the railway bridge over the Lliedi, and in the top right of the picture a new road into the docks area, part of the regeneration plans for the area.

Same type face as text.

? photo acknowledgement
what was the deal with the w?
- which acknowledgement
wasn't?

1 - p. ms. at bottom?

LLANELLI and LOUGHOR WETLANDS ARCHAEOLOGICAL ASSESSMENT

INTRODUCTION

The Welsh
Wales' coastal wetlands contain some of the most important and spectacular archaeological sites and finds of the last ten years. The Dyfed Wetlands Survey, initiated by Archaeoleg Cambria Archaeology (formerly Dyfed Archaeological Trust) in 1995, is a Cadw grant-aided programme to record and assess the archaeological potential of the coastal wetlands of the Carmarthen Bay area. This report concentrates on the Llanelli and Loughor wetlands which contain an intricate and vulnerable record of the development of the towns and their environs.

Why are wetlands so important to archaeologists?

Wetlands provide a unique opportunity to study a wide range of relationships between past human activity (archaeological evidence) and the landscape (environmental evidence). The preservation qualities that exist in wetlands mean that objects made from organic materials survive, often in exceptional condition (plate 1), whereas on dryland sites they decay and normally leave no trace in the archaeological record. Equally important, but more widespread, is the environmental evidence preserved in wetland conditions such as, pollen, plant remains,

molluscs, diatoms, foraminifera and insect remains, which provide contemporary evidence of past environmental conditions and landscapes. The combination of the archaeological and environmental evidence means that a multi-discipline approach can be adopted for the study of wetland sites allowing a more complete interpretation of past activity than is generally possible for dry sites.

The extraordinary range of 'finds' from wetlands has meant that most wetland archaeological studies have concentrated on buried sites, features and landscapes and not so much on the historic landscape. Whilst this is understandable, because the buried archaeological resource is sensitive to even very slight changes in ground conditions, the situation is changing towards a more landscape-based approach in response to increasing piecemeal development. As with all wetlands the archaeological resource of the Llanelli and Loughor wetlands is extremely fragile and vulnerable to change. It is currently facing a range of pressures from a variety of sources such as, erosion, development and in some areas total re-landscaping.

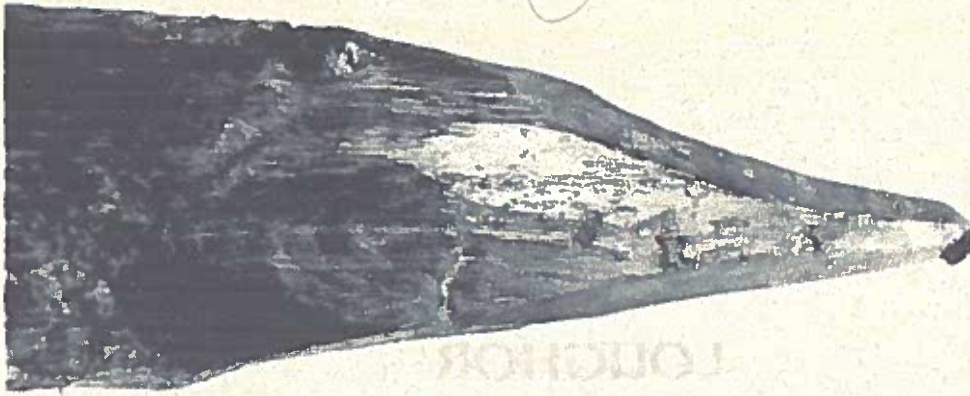
2
2

Plate 1: The point of a well preserved waterlogged stake.

THE LLANELLI AND LOUGHOR WETLANDS ASSESSMENT

Ecological designations

The waters and intertidal zone of the Burry Inlet are recognised as a Special Protection Area under the EC Directive on Conservation and as a wetland of international importance as defined by the Ramsar Convention of 1971. Many areas are designated as a Site of Special Scientific Interest (SSSI). Whilst these ecological designations are an important recognition of the special nature of this area it must be remembered that there are few, if any purely 'natural' wetlands in Britain. They have been heavily influenced by human actions, so it is important that the human aspect of wetland development be acknowledged and considered in any discussion on wetland management.

Project objectives

This assessment had a range of individual, but related, objectives aimed at providing a framework within which to identify management priorities and formulate workable strategies for the protection of the wetland archaeological resource in the context of coastal zone development. It was recognised that there was a need to disseminate archaeological information to a wide range of non-archaeological organisations operating within or having an interest in the Llanelli and Loughor wetlands. This summary report highlighting the key findings of the assessment is the response to that need. It is based on the full project report *The Llanelli and Loughor Wetlands Assessment 1997* (Page 1997) which provides a detailed overview of:

- The development and condition of the historic landscape and of the individual sites that make up the historic landscape.
- The pressures on the historic landscape.
- The recommendations for the management of the historic landscape.
- The recommendations for the management of individual sites and features within the historic landscape.
- The archaeological management priorities for the assessment area.
- The management strategies and initiatives to protect and enhance the archaeological resource.

THE LANDSCAPE

The present landscape around Llanelli and Loughor is the result of natural and human actions interacting and influencing each other since the end of the last ice age. Nowhere are those interactions and influences more evident than in coastal areas where the constant battle between natural and human forces has resulted in sea

defences, drained marshes, abandoned settlements, shipwrecks, silted-up harbours and drowned former landscapes.

2. inter-related
could be identified
formulated

even
created

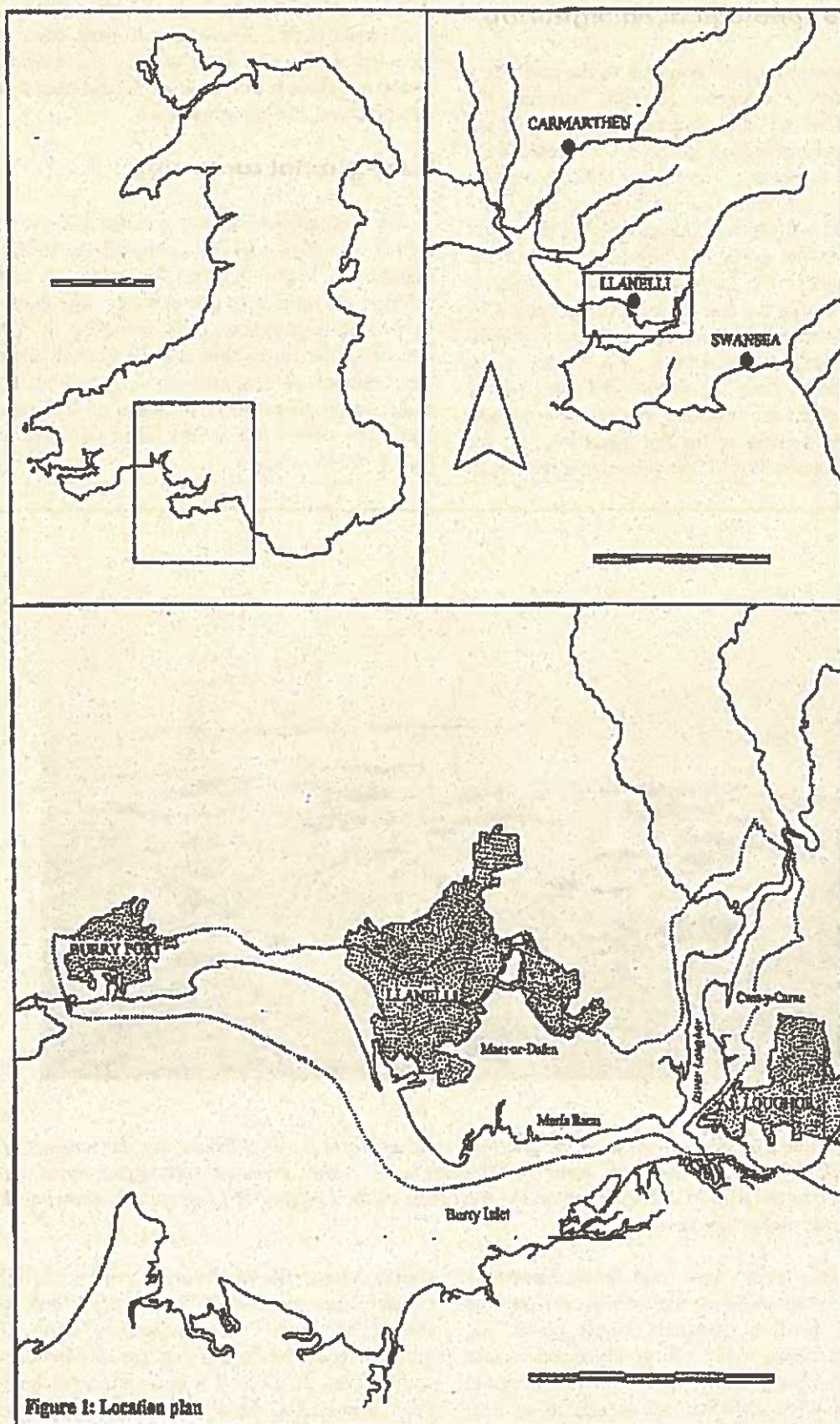


Figure 1: Location plan

Physical development: geological and geomorphological background

The assessment area is bounded to the north by a discontinuous crescent of high ground, the remnants of sea cliffs and raised beaches of the last interglacial period which are traceable from Pembrey to Bynea. The former cliffs, composed of rocks of the Carboniferous period, are dissected by small river valleys draining the higher ground to the north into the Loughor and the Burry Inlet. The Llanelli area was completely covered during the last (Devensian) glaciation by ice-sheets spreading from the north and northeast to the south and southwest. A coastal slope leading south from the former cliff-line and the coastal plain are mantled by the glacial and periglacial deposits of the last glaciation. As the ice sheet retreated c.10,000 years ago a number of

glacial moraines were deposited along the low-lying ground at the base of the former sea cliffs, these survive today as islands of higher ground in the alluvial plain. These islands have been the focus for agriculture from at least the medieval period and there is every likelihood that they were also favoured during earlier times.

Post-glacial warming

As the post-glacial weather warmed and the ice melted, mixed-oak forests colonised the lowland regions of Wales, giving the region a very different appearance to that of today. Remains of those forests are now being exposed by tidal erosion in the Burry Inlet around Llanelli and in the Loughor at Llangennech. A radiocarbon dated sample from one of the areas of submerged forest has shown that it was killed by rising sea level c.4000 years ago.



Plate 2: These tree stumps visible in the intertidal zone at Morfa Bacas, Llanelli, are the remains of a forest killed by rising sea-levels some 4,000 years ago. Other areas of submerged forest were discovered to the west of Llanelli, and on the west bank of the Loughor at Llangennech, showing that forest cover was extensive.

Rising sea levels have laid down extensive deposits of alluvial clay, mud and sand along the coastline to form the flat coastal plains and saltmarsh visible today. River movement across the alluvial plains means that sediment accretion and erosion is cyclical with the superficial, or drift, deposits constantly being modified and eroded. The submerged forest at Morfa Bacas shows that in the past the Loughor followed a more southerly

course close to the Gower coast. Since 1830 the Loughor has meandered farther north and has started to erode the saltmarshes along the northern coastline uncovering earlier landscapes and features. In places it is uncovering old buried tidal channels that have worked wood contained in the sediments filling them. This shows early human activity in the region, and that there is

Is? Rhyonast-?
Then has been the
major change
to the Loughor

? whether sun- whether it is meandered or
whether there was a sudden course
change - even by human action - needs
to be checked.

great potential for surviving buried features and deposits across the whole area.

HUMAN IMPACT

Estuaries have long been exploited, and of the coastal littoral it is estuaries that have been most affected by human actions. Besides having an abundance of natural resources estuaries were, and are important as gateways to the sea and to the interior, via the rivers. Many of Britain's major, and numerous smaller ports, harbours and landing places are situated in the relatively sheltered waters found in estuaries. The assessment area has surviving evidence of a wide range of human exploitation of the Burry Inlet and Loughor Estuary.

Nature's larder: food collection in the Burry Inlet and Loughor Estuary

The richness and diversity of the flora and fauna of estuarine wetlands attracted people from the earliest of times. The Burry Inlet and Loughor Estuary would have provide a number of exploitable zones, ranging from the marine environment of the river Loughor through the saltmarsh and intertidal zone to the back fen where the wetlands met the dryland zone. Each zone has its own plant and animal communities, making estuaries amongst the most fertile and productive ecosystems in the world. The chief factor in determining the zones and available resources is salinity. As salinity decreases further from the sea the halophytic plants (plants that tolerate salt water) give way to a more species-rich flora which attracts a more diversified fauna,

giving a wide variety of resources over a short distance.

Early human exploitation of the wetlands would have been by hunter-gatherer groups taking advantage of seasonally available resources such as new plant growth, shellfish and returning fish and wildfowl. Throughout the prehistoric period the Burry Inlet and Loughor Estuary were fertile and productive places with many natural food sources available. Shellfish collection is still an important local industry.

as early
as
13c
give an
idea of
date

Plate 3: A small refuse midden gives a glimpse of some of the available food resources. This one in the intertidal zone at Morfa Bacas contained cockle and mussel shells and a roe deer skull showing that a good variety of food from the sea and forest was available in the area.



A large number of fishtraps, which range in date from at least the late-17th or early-18th century to the present day, in the intertidal zone around Llanelli shows that fishing has always been important to the region. A small number of fishing boats still operate out of Burry Port and Llanelli North Dock.

Plate 4: The sea has always been important in supplying food and this is reflected in the remains of vast numbers of fishtraps visible in the intertidal zone. Here lines of uprights mark the positions of fishtraps and netting points. Some of these date from the 17th and 18th centuries.



Plate 5: Remains of a modern fishtrap at Penrhyngwyn.

Food production: a history of winning land from the sea

The importance of the sea defences to the region is immediate and obvious/ without them large areas of the region would be regularly flooded. Within the assessment area there is long history of sea defence and land reclamation. Winning land from the sea was a costly and time-consuming business and, until recently, was generally only undertaken to provide good agricultural land. In more recent times land has been reclaimed for a variety of reasons such as industrial and domestic development and leisure activities. Successful reclamation relies on the construction of a system of sea defences and drains to drain the newly enclosed land.



It appears that sea-wall construction and land reclamation started during the medieval period, and was concentrated on the islands of higher ground in the Llanelli Marsh. Areas of medieval land enclosure have been identified at Cwrt-y-Carne Farm (the former site of a monastic grange associated with the Cistercian Abbey at Neath) on the east bank of the Loughor and around Trostre and Llwynhendy. However, it was not until the post-medieval and modern periods that enclosure and drainage was carried out to a level sufficient to provide a stable, controlled and productive landscape.

During this latter period a number of farms like Pen y Bryn (now the site of a Sewage Treatment Works), Tir Morfa Fawr and Penclacwydd, were established on the raised glacial islands in the Llanelli marshes. Few, if any of these 'marsh farms' are still operating today.

Plate 6: St. Michael's Chapel at Cwrt-y-Carne Farm was the chapel of the medieval monastic grange of Neath Abbey. The grange was established sometime during the late- 12th century, making it one of the earliest known agricultural settlements in the area. The remains of the chapel now stand on a low mound in the surrounding saltmarsh, this shows that during the medieval period this area was above the level of high spring tides, or that it was enclosed.

Plate 7: Tir Morfa Fawr, one of the post-medieval farms established on the glacial islands in the Llanelli marshes. This farm is due for renovation as part of the expansion of the neighbouring Penclacwydd Wildfowl and Wetlands Centre.



Industry and the growth of modern Llanelli

As well as the usual resources, the wetlands of the Burry Inlet and Loughor Estuary had one resource that more than anything shaped the character of the region: coal. From the medieval period onwards the burgeoning coal industry, and the metal processing industries it spawned were the major factors in the economic and social development of the region as well as in the formation of the present landscape. A supporting infrastructure of harbours, quays, shipping places, canals, tramroads and railways was established to export coal and other material by sea. The harbours at Pembrey and Burry Port, the Llanelli

docks and the numerous shipping places along the Loughor were developed by colliery and metal works owners to export their products.

Mining in the Llanelli coalfields has its origins in the medieval period. The medieval monastic grange at Cwrt y Carnau had a coal mine during the 13th century, and the end of the 16th century the 'Port of Burry' (?Pembrey) was the chief place of export for Carmarthenshire coal. Until the 18th century the amount of coal mined and exported was small, this was primarily because the local technology was only capable of exploiting easily located, shallow seams near the place of export, namely the River Loughor.

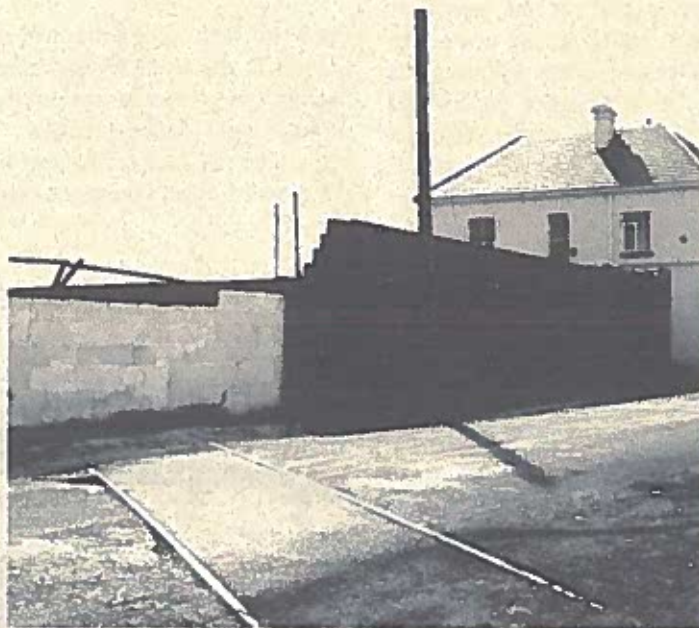


Plate 8: These rails in the modern road at Burry Port are a graphic reminder of the industrial past, and the industrial decline of the region. This short stretch of rails is practically all that remains of a complex and extensive transport system that linked the shipping places on the Loughor with the collieries of the Llanelli coalfield. The rail system developed from simple wooden railed tramways, used to move coal from local collieries to the ports in the 17th century, to the massively complex system of railways that was operating in the Llanelli Docks during the 19th and 20th centuries.

By By 18th 19th and early 20th centuries
Llanelli was a world centre for bitplate
an industry now

It was not until a number of wealthy industrialists from outside of the region recognised the potential of the coalfields that the industry expanded to any great extent. Those industrialists brought with them knowledge of new technologies that allowed deep mining in the area for the first time such as horse and steam powered pumps to drain the newly sunk shafts (water was obviously a problem in such a low-lying area). A significant amount of the coal mined was for local

consumption in the expanding local metal processing industries. Most of the works were owned by the industrialists who owned the mines, so the coal and metal industries were a stimulus to each other, promoting rapid expansion. That expansion, throughout the 19th century, led to Llanelli becoming one of the most important industrial centres in the country, and laid the foundations for modern Llanelli.

not quite right

Copperworks

Plate 9: 19th century works building at Burry Port. Industrial architecture has a beauty that goes beyond its functional use. This gable wall shows evidence of past changes to the building.

and note how the dark copper slag has been shaped & mixed as a building material



Transport

Essential to the industrialisation of the region was a good transport system, not only to bring in raw materials, but also to export the products of the works and mines. Until the arrival of the railway in the middle of the 19th century the River Loughor was the major part of the transport system. The Loughor had been an important route since the Roman period, when following the establishment of the fort at Loughor, in c.75AD the river was an important supply route. This is a function it also performed during the medieval period, servicing the castle built by Henry

Beaumont, Earl of Warwick, in the 12th century on the site of the Roman fort. This emphasises the strategic position of Loughor at the confluence of the Afon Lliw and the Loughor. The monastic grange at Cwrt y Carnau also used the river to move produce back to Neath Abbey, the abbey had its own boats which it used for these journeys.

Prior to the construction of formal docks at Llanelli in the late 18th and early 19th centuries, loading and unloading was carried out at a number of traditional shipping places. These were the many tidal pills and creeks that occurred all along the coastline from Llangennech to Pembrey.

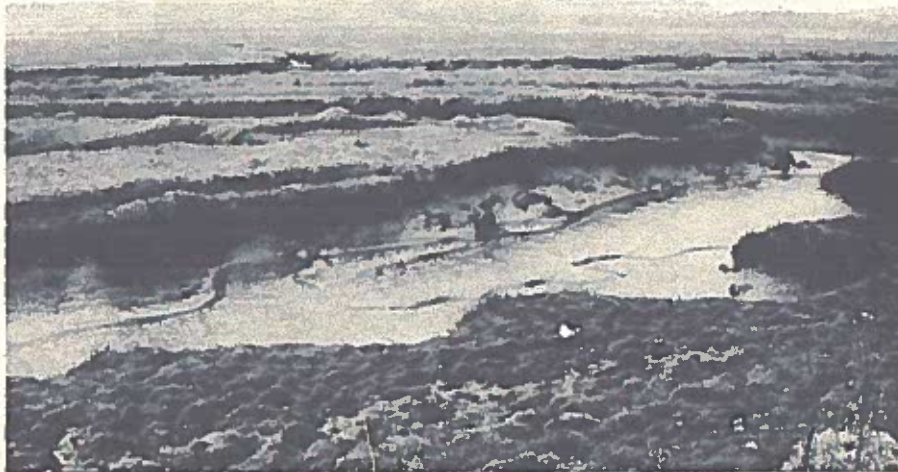


Plate 10: Tidal pills like this one were used as shipping places for centuries.

The decline in the docks, and their eventual closure in the 1950s was symptomatic of a general decline in the industry of the region. Following the construction of the Trostre planting works, most of the smaller works closed, and many of their sites have since been cleared. The once

thriving dock area of Llanelli now shows little sign of the heavy industry that took place there during the 19th and early 20th century. Only North Dock, Carmarthenshire Dock (the earliest dock in Llanelli) and Burry Port Harbour are still navigable, but, only to small craft.

Plate 11: North Dock, Llanelli, at low tide. Formerly an old scouring reservoir it was turned into a dock during the 19th century, and now following the end of commercial shipping is used by small fishing crafts. It also contains a number of hulks.



The industrial decline of the region has led to a shift towards more leisure orientated uses of the landscape. That shift is continuing with large-scale and radical re-development plans for the

coastal wetlands around Llanelli. A proposed millennium coastal park, stretching from Loughor Bridge to Pembrey old harbour, will completely reshape the landscape inside the sea wall.



Plate 12: Burry Port lighthouse. The harbour itself is now only navigable to small craft.

CONCLUSIONS

This assessment has shown that there is a wealth of heritage interests surviving in the area, dating

from the prehistoric period to the present day. It has also shown how some modern traditions, and physical features have early origins. For example, shellfish were exploited by prehistoric peoples;

the road line from the old Loughor bridge along Spyty Road, Heol y Bwlch, Cwmfelin Road and Tanygraig Road probably follows the line of the Roman road from Loughor to Carmarthen; mining had its origins in the medieval period; and shipping in the Burry Inlet was well established by the 16th century.

With large-scale changes planned for the future it is important that the surviving, and the buried evidence of the past is not needlessly lost. The evidence within the assessment area survives in a variety of forms, ranging from buried, and extremely vulnerable, waterlogged deposits, surviving industrial and dock complexes to areas of post-medieval agricultural landscapes. This last form of evidence is particularly well preserved in the area between the wildfowl and wetland centre at Penclacwydd and the new sewage treatment works at Pen y Bryn. The one thing that all these forms of evidence have in common is that they are under pressure from a number of sources.

Those pressures can be divided into four categories:

Environmental pressures: erosion, sea-level rise, etc..

Water management operations: drainage, sea-wall construction.

Land management: changes in land drainage; land clearance.

Development: industrial; domestic; leisure.

These pressures are a problem for archaeological sites in the assessment area, but the fragile nature of buried wetland archaeological deposits means that they face extra pressures. Unlike most dryland sites, which are really only affected by direct action, waterlogged deposits can be affected by development some distance away. For example, drainage operations can be changed slightly to miss a visible dry site, but buried deposits are invisible and could easily be destroyed. Furthermore, the improved drainage will lower the water table over wide area, which leads to a drying out of the waterlogged soils damaging any archaeological deposits they contain. That is why developments in wetland locations have extra archaeological implications to take into consideration.

THE FUTURE

With regeneration plans for the Llanelli area well under way now is the time to see if there is a role for the region's cultural heritage. The fragility of

archaeological remains in the wetlands makes it essential that management priorities are identified and initiated as soon as possible. The key management priorities are:

- To protect, preserve and, where possible, enhance archaeological sites, features and deposits.
- To formulate plans for sustainable management of the archaeological resource within the context of coastal zone development.
- To integrate the archaeological interests within wider coastal zone management plans.
- To initiate programmes of archaeological recording of those sites affected by coastal erosion.
- To, where possible, investigate the character, preservation and extent of buried archaeological deposits.
- To promote the archaeological resource to a wider, non-archaeological audience.

For these initiatives to be implemented and successful it will be necessary to ensure archaeological input at an early stage of any consultation regarding development within the coastal zone.

The archaeological resource of the Llanelli and Loughor wetlands is an important source of information about the development of the region. Parts of it can be used for educational and leisure

purposes, particularly the surviving industrial features around Llanelli and Burry Port. The archaeological evidence could be used in conjunction with facilities like the Penclacwydd Wildfowl and Wetland Centre to show how the present landscape is a product of both natural and human actions. It would nice to think that the past has a part to play in the future development of the Llanelli and Loughor area.