THE MARITIME ARCHAEOLOGICAL POTENTIAL IN THE AREA OF THE ST ANDREWS OUTFALL

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ILLUSTRATIONS

(All illustrations courtesy of the University Library, St Andrews)

SUMMARY

A number of wrecks are known to have sunk in the vicinity of the proposed development.

No evidence of other types of archaeological site was discovered. It must be stressed that this does not mean that further sites do not exist, nor that they are unimportant.

These results are consistent with the relative lack of knowledge about the archaeological potential of any area of the seabed and intertidal zone.

Recommendations are included for responses to the unexpected discovery of archaeological remains during the progress of the outfall construction.

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INTRODUCTION

This report represents the results of a survey commissioned by Fife Regional Council Engineering Department to assess the impact of the construction of the proposed sewer outfall at St Andrews on archaeological sites within the marine and inter-tidal zone. A principal aim of the study was to identify known archaeological sites and features in the vicinity of the line of the proposed outfall and to comment on the potential for further archaeological remains of importance. In addition, the report provides recommendations for any further archaeological work which may be required and any contingency plans which may be appropriate to respond to the unexpected discovery of archaeological remains during the course of the development.

The lack of an established national database of submerged archaeological resources and, more specifically, the absence of a maritime section to Fife Regional Council's Sites and Monuments Register has necessitated the gathering of information from a range of sources. It is encouraging to note that the Royal Commission on the Ancient and Historical Monuments of Scotland has begun a Maritime Record to be incorporated in the National Monuments Record for Scotland and discussions are underway to establish a similar inventory for Fife's waters.

Bearing the above in mind this report represents an overview of the readily available information and identifies both known and potential sites in the study area. It must be emphasised that only extensive field evaluation by suitably qualified archaeologists can determine a fuller picture of the archaeological resources in the study area.

BACKGROUND INFORMATION

Although there are relatively few pieces of legislation with direct relevance to archaeology underwater, their interrelationships are often complex, misunderstood, and subject to variations in interpretation. Separate legislation is currently applied to shipwreck sites as opposed to other types of archaeological site.

Merchant Shipping Act 1894 (MSA 1894)

"Wreck" recovered from the sea from UK Territorial waters (including material of archaeological and historic value) is subject to the provisions of Part IX of the Merchant Shipping Act 1894 (Receiver of Wreck 1994). Wreck includes a ship, aircraft, or hovercraft, parts of these, their cargo and equipment. The Receiver of Wreck, located within The Coastguard Agency, is responsible for the administration of the Acts on the behalf of the Department of Transport. All material must be reported to the Receiver who will then determine if it can be considered as wreck or not. The Receiver of Wreck will investigate ownership of the wreck items and the owner has one year to come forward and prove title to the property. During this statutory period the finder may be allowed to hold the material on behalf of the Receiver of Wreck. The Receiver must be satisfied that the finder has sufficient expertise and resources to provide adequate conservation treatments to ensure that the material does not deteriorate.

Wreck recovered from within UK waters which remains unclaimed at the end of the one year statutory period, becomes the property of the Crown and the Receiver of Wreck is required to dispose of it. This may be through sale or auction, although in many instances the finder will be allowed to keep items of unclaimed wreck in place of a salvage award. For the purposes of the MSA historic wreck is defined as items over 100 years old.

Protection of Wrecks Act 1973 (PWA 1973)

The PWA 1973 is administered in Scotland by Historic Scotland and under this Act wreck sites of archaeological, historical or artistic interest are designated as Historic Wreck Sites. A restricted area around the remains is established where activities such as diving, excavation, deposition of materials, and

salvage are prohibited, except where a licence is issued (with appropriate restrictions) by Historic Scotland. Advice on designation is provided by the Advisory Committee on Historic Wreck Sites, a non-governmental organisation composed of individuals with interests and expertise in the marine zone.

The Archaeological Diving Unit, based in the University of St Andrews, provides Historic Scotland (and all the other UK home country heritage bodies and the Department of National Heritage) with technical support, under contract, for the implementation of the PWA 1973. There is no specific age limit for designating a wreck nor any reference in the PWA 1973 to "national" importance but the sites must be located within the 12 mile territorial limit and in tidal waters.

The discovery of any new wreck sites in Scotland should be reported to Historic Scotland so that the appropriate action can be taken to assess whether the site is of archaeological, historic or artistic significance.

Ancient Monuments and Archaeological Areas Act 1979 (AMAA 1979)

AMAA 1979 can be applied within UK territorial waters as it contains a general provision for the scheduling of monuments in the territorial sea and it also refers specifically to vessels. However, to date it has never been applied to wholly submerged sites.

The Protection of Military Remains Act 1986

This Act provides for the protection of remains of military aircraft and vessels that have crashed, sunk or been stranded, including any associated human remains. Wreckage of ships have to be designated as a "protected place" by the relevant Secretary of State. Once designated it is an offence to tamper with, damage, move, remove or unearth it or enter the interior. Divers are allowed to visit such sites provided that no damage results. The remains of aircraft from HMS Jackdaw ditched in the sea may fall under the provisions of this Act.

THE NATURE OF THE MARITIME ARCHAEOLOGICAL RESOURCE

Much archaeological evidence of the human past can be obtained from underwater environments as submerged environments often provide much better preservation conditions than terrestrial environments. This evidence takes a wide variety of forms including: paleo-environments and paleo-river valleys and channels; shipwrecks and their cargoes; submerged settlement sites and earthworks; non-artefactual evidence (ecofacts); and sedimentation regimes resulting from earlier human modification of the environment (e.g. the building of harbours or foreshore structures). In the past this potential has been underestimated and under exploited.

ARCHAEOLOGICAL BACKGROUND

St. Andrews Bay could be described as a natural ship trap and it holds a selection of wrecked vessels of different types and periods, from yachts and schooners to steam tugs and fishing boats. These sites represent an important source of maritime historical and archaeological information. St Andrews Bay became the final resting place to many vessels due to a number of reasons including poor navigation, equipment failure, heavy weather and human error.

"*From its close proximity to the Firths of Forth and Tay many of the shipwrecks occurred from bewildered vessels having run full tilt into the Bay.....their crews thinking they were running up the Firth of Forth into a haven of safety, until the dull thundering boom of breakers all around, from the rugged rocks of the Fife coast to the equally dangerous submerged banks of the Tay, only too truly warned them of their desperate position.*" (Bruce 1884)

The reports of the shipwrecks recorded by Bruce make harrowing reading of crews perishing, in many cases, close to shore. At one time there were no fewer than six lifeboats operating in the area.

Two coastal features lie in the vicinity of the outfall's landward end, Kinkell Cave and Kinkell Harbour. The latter feature is not easily seen but lies adjacent to the highly visible Rock and Spindle formation. Kinkell Cave was excavated in 1913 with the conclusion that the cave had been inhabited "*in the Roman period and again during the Celtic Early Christian period*" (Wace & Jehu 1915). The finds

showed a marked lack of fish remains indicating that the early inhabitants relied on hunting rather than fishing for their food supply.

Evidence from the early occupation of the area may now lie in submerged sites beyond the present inter-tidal zone, along with material remains indicating the type of vessels that may have been in use at the time. Information contained in such sites could give pointers to the use made of the sea, whether for fishing, trading or as sea-raiders as well as providing clues to their origin.

Evidence for the use of the cave for religious purposes came from the discovery of a sandstone slab bearing a human figure, "*possibly a monk*" and incised crosses. Small crosses were noted at one time (1867) as being visible on the wall of the cave, but they have since been eroded. Mention is made of a local tradition that the cave was used as a refuge by Covenanters which seems likely given the history of nearby Kinkell Castle. Although there are no longer any visible remains of the latter structure it appears to have featured in the religious struggles of the 17th Century. The castle at this period seems to have entertained some of the leading Covenanting preachers of the period (Bruce 1884).

Kinkell harbour, and Boarhills harbour are mentioned by Bruce as being used as harbours of refuge during south-east gales. It appears that latterly the main use of Kinkell Harbour was as a landing place for tourists visiting the nearby Rock and Spindle formation.

IDENTIFYING NEW SITES

Chance finds provide the most common means of locating vessels from the early historical period. This method can be enhanced by identifying likely areas such as marine hazards (or "ship traps") or the sites of early harbours. Local historical sources can often provide useful information, and they are particularly useful in the period before the systematic collection of such data. One example of a wreck from the 17th Century was recorded by the diarist John Lamont:

"....being a great tempest of wind, a caper vessel, belonging to Captain Seaton.....riding before Kirkcaldy, brake her ropes and did split upon the sands of Kirkcaldy, wherein were two men and two boys lost...."(Kinloch 1830)

Newspapers could be expected to provide the most accurate detail, however even comparatively modern reports can be surprisingly vague. It will be readily appreciated that there is a considerable problem not only with identifying potential sites, but also with locating sites which are known. Positions given for vessels going down at sea are derived from their last messages, in between then and the vessel sinking she could have travelled a considerable distance. Material held in local museums, such as archaeological finds made in the inter-tidal zone, can give valuable clues to the erosion of land sites and to the possibility that further material lies offshore. The observations of divers and fishermen can provide evidence of the seabed although this information requires cross-referencing with other source material.

As an example of the lack of consistency in sources for wreck information, none of the wrecks listed below were included in a local recreational diver guide *Shipwrecks of the Forth* (Baird 1993), which despite its title covers a geographical area from Stonehaven to Berwick. In addition, there are no charted wrecks and the source data for Admiralty Chart 190 is given as lead line surveys between 1907 and 1912. St Andrews Bay is shown as an anchorage.

LIST OF SITES LOCATED IN, OR NEAR, THE SUBJECT AREA

JANET
1800, Sloop, Kinkell Braes, East Sands, 300 yards from shore.

ELISA
1834, Sloop, North side of Headless Men.

RISEBOROUGH
1841, Brig, East Sands.

HAWTHORN
December, 1851, Schooner, outward bound from St Andrews with a cargo of potatoes when she foundered unseen in a squall after leaving the harbour.

SUTLEJ
1858, Steamship, St Andrews Bay, Lat 56 27 00 N, Long 02 42 30

OSPREY
1871, Steam Tug, bound for Dundee when she foundered unseen at night. Last seen three miles East from St Andrews Pier.

MARY
October 1884, Brig, 200 tons, South Shields, bound from South Shields to London with a cargo of coal when driven North by a gale. She ran into St Andrews Bay and became embayed. After anchoring she dragged and became a total wreck East of the Maiden Rock.

RESOLUTE LH 850
29/09/1912, Fishing Smack, struck and was totally wrecked near the point at Kinkell Cave in an Easterly gale. The St Andrews lifeboat rescued the crew.

SIGNIFICANCE OF THE SITES

No formal guidelines exist for assessing archaeological potential therefore the appraisal of known material and/or known sites in the marine zone will necessarily remain for the time being the best available strategy for determining significance.

There is a tendency to see the Fife coast as a collection of picturesque fishing villages and assume, not unreasonably, that they have always been such. However this would be mistaken, for much of their history trading (to the Baltic, Holland, France and Spain) was their principal activity. It is the casualties of this and other marine traffic, particularly that of the early historic period, which forms probably the largest, and least known, part of the archaeological heritage of Fife.

The most famous sea rescue in the area was the one carried out on the 5th January 1800, by John Honey in rescuing the crew of the sloop *JANET* of Macduff. The *JANET* had come ashore on the East Sands and a crowd had gathered watching the crew clinging to the stricken vessel. Honey, who was about 18 at the time, volunteered to attempt to carry a line to the vessel, in which venture he succeeded. He then had to escort the crew back through the surf as they were too weak to help themselves. He repeated this effort five times until he had brought all the crew to safety. The maritime significance of this wreck was such that it was shortly after this incident that a subscription was raised to provide St Andrews with its first lifeboat.

It is likely that the wrecks listed above will have been dispersed by forces of nature and, to an unspecified extent, the activities of sport divers and contemporary salvors. In academic terms such sites still have considerable archaeological value in the study of the formation and degradation of archaeological remains.

POTENTIAL IMPACT OF THE OUTFALL CONSTRUCTION

No details were provided for the method of construction of this particular outfall so the following comments are of a necessarily general nature. The site most likely to be disturbed by activities related to the construction work would seem to be that of Kinkell castle, where any remaining foundations of the building complex may be at risk. This castle, no evidence for which now remains above ground, was a substantial tower house of late 15th early 16th century date. Its general outline is clearly depicted in an 18th century engraving of the Fife coast. Although at some distance from the site of the proposed work its full extent is not known and outlying features of the castle complex may be encroached upon by the forthcoming work.

Referring to the pipeline corridor marine environments comprise many chemical, physical and biological processes which combine to produce unique characteristics in particular areas. The

preservation of archaeological remains depends on the equilibrium of these processes being maintained. Clearly activities such as the installation of an outfall may disturb this equilibrium and cause an adverse effect on archaeological material.

Examination of the side scan sonar traces of surveys carried out along the proposed pipeline corridor did not show any conclusive evidence of upstanding archaeological remains. Clearly this does not mean that archaeological material is not present buried beneath the sediment. Such sediments, because they remain relatively undisturbed for long periods, are a rich depository of data about the environment of the past which is often underestimated and underused.

In the assessment of the extent of possible impact it is important that details of the location of activities, including areas likely to be affected by processes associated with the activity (e.g. anchoring, trenching, spoil dumping, plant bases and storage areas), and areas likely to be affected by changes in hydrography etc., should also be considered.

It is also important to recognise that in marine environments impacts can take place some distance away from the site of proposed development activities because of the dispersal effects of tides and currents.

POTENTIAL IMPACT OF THE OUTFALL OPERATION

It should be recognised that the effect of the introduction of sewage into the marine environment on the archaeological resource is presently unquantified. However, the aim of doctoral research at the Robens Institute (University of Surrey) is to observe and quantify the direct and indirect effects of nutrient rich and microbiologically contaminated water, and sediments, upon the integrity and fabric of marine archaeological sites (M. Merret-Jones, pers.com.). In addition it is intended to define the factors that are of consequence to the preservation of marine archaeological sites and to begin to develop models to assess the potential effects of altered sewage discharges on such sites.

PROPOSALS FOR MITIGATION OF IMPACT

General proposals for the mitigation of potential impacts of development on the marine archaeological resource include avoidance, site stabilisation, watching briefs, field evaluation, rescue excavation and the consequent preservation by record.

Avoidance and site stabilisation strategies would not be recommended on the basis of the evidence presented in this report, considering the lack of available information. Therefore the most appropriate strategy in the case of the St Andrews outfall may be to recommend some kind of watching brief. Watching briefs are the standard response to a general, non-specific archaeological potential recognised in the development area and they are effected by the provision of an experienced archaeologist who is present during the development to detect and record surprise discoveries, notify the relevant authorities and advise on further action.

The practical implications of suggesting watching briefs for marine operations are considerable and they will seldom be an effective or satisfactory sole response to the estimated archaeological potential of an area. Despite these problems, an archaeological watching brief will often be built into the programme with a contingency for diving inspection and the recording of any archaeological material that is detected. This work should be carried out by a suitably qualified archaeological organisation with experience of watching briefs. Health and safety must be a primary consideration and in all cases the responsibilities and powers of the archaeologist should be clearly defined and communicated to all those involved.

FURTHER ARCHAEOLOGICAL WORK

Further survey work may be deemed necessary for archaeological purposes. Such work would have additional benefits in the form of notifying in advance of any possible upstanding obstructions in the subject area which may cause damage to construction equipment. Magnetometer survey has the potential for identifying buried masses of ferrous material which again may form a hazard to the development.

Although such geophysical archaeological evaluations are not yet widely practised in Britain, these techniques offer a more economic and time efficient survey option than diver-based searches.

PROCEDURES FOR THE UNEXPECTED DISCOVERY OF ARCHAEOLOGICAL REMAINS

It is important that the implications of accidentally discovering archaeological material are fully realised. Proposals for development must also include procedures that will adequately signal that something has been discovered, contain contingency plans for the reporting of the find to a relevant competent agency, and adequately cover all the procedures for recording the exposed archaeological remains.

It is also in the interests of developers to make themselves aware of the potential costs of the investigation of archaeological remains in marine environments and any conservation, excavation or mitigation strategies which may subsequently be necessary.

As outlined above there is a legal responsibility to report to the Receiver of Wreck any objects recovered from the seabed. It is important to ensure as far as possible that the declared objects are treated in an appropriate archaeological manner and the efforts that the Receiver has made recently to treat historic wreck sympathetically should be encouraged. Contractors carrying out work on behalf of the Regional Council should be obliged to report all finds to the Regional Archaeologist, in order that the information can be incorporated into regional and national inventories, as well as being reported to the Receiver of Wreck and Historic Scotland.

RECOMMENDATIONS

It is recommended that, in respect to the construction of the St Andrews outfall, Fife Regional Council takes the following steps:

1. ensure that the contractors are instructed to report all finds (whether they perceive them to be important or not) to the Regional Archaeologist, and the discovery of any new wreck sites in Scotland should be reported to Historic Scotland,

2. contractors should be made aware of the Code of Practice for Seabed Developers (JNAPC 1995) which sets out recommended procedures for consultation and co-operation between seabed developers and archaeologists,

3. the specification for the contract work should include provision for the implementation of contingency plans to enable an adequate response to the unexpected discovery of archaeological remains.

CONCLUSIONS

Although few well documented sites are known to be present in the vicinity of the study area it would be appropriate to take a precautionary approach to the possible impacts of the construction of the outfall at St Andrews. The sources retrieved by this study have been generally restricted to the later historic period (18th Century onwards) and the biases of original recording, archive survival and accessibility means that this evidence cannot be considered as complete. The inevitable conclusion is that more ship losses would have occurred than have been documented.

Due to the limited time available for the study only secondary sources have been used and only a brief, foreshore site visit has been made. The paucity of information and current knowledge on the prehistoric, Roman and Medieval maritime history of Fife in general and the study area in particular; on the preservation of material remains underwater; and on the effects of commercial development of the seabed on the submerged cultural resource; dictate that this report presents merely an overview of the archaeological potential of the area. Only by devising field survey by suitably qualified archaeologists can the actual, as opposed to the potential, archaeological resource of the area be assessed.

Finally, it is felt appropriate to suggest that Fife Regional Council works towards the development of a policy regarding the treatment of archaeological remains in the marine zone off Fife with respect to development proposals. It seems inevitable that such proposals will increase in scale and number in the future and therefore the risk to what is essentially a completely unquantified resource can only become greater at the same time.

INDIVIDUALS AND INSTITUTIONS CONSULTED

Deanna Groom, Royal Commission on the Ancient and Historical Monuments of Scotland
Fife Regional Council Archaeology Service
St Andrews University Photographic archive
Historical Abstracts Database, St Andrews University
Dallas Mechan, Kirkcaldy Museum & Art Gallery
Marion Wood, St. Andrews Museum
Cmdr. Denis Fairfax, Scottish Fisheries Museum, Anstruther
Sue Bradman, Crail Museum and Heritage Centre
Neil Dobson, local diver
Michaela Merrett-Jones, Robens Institute, University of Surrey
Various local fishermen in the area

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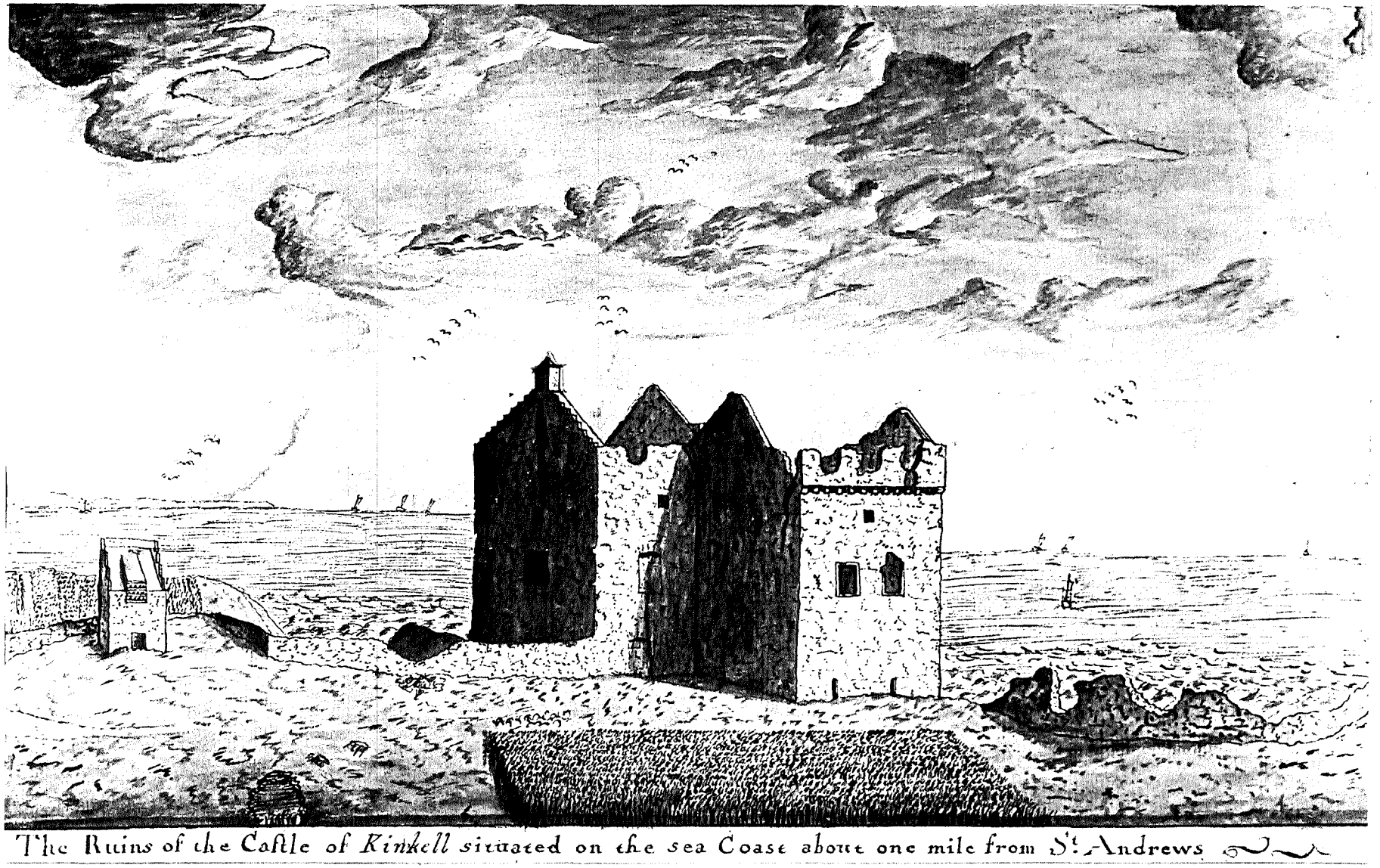
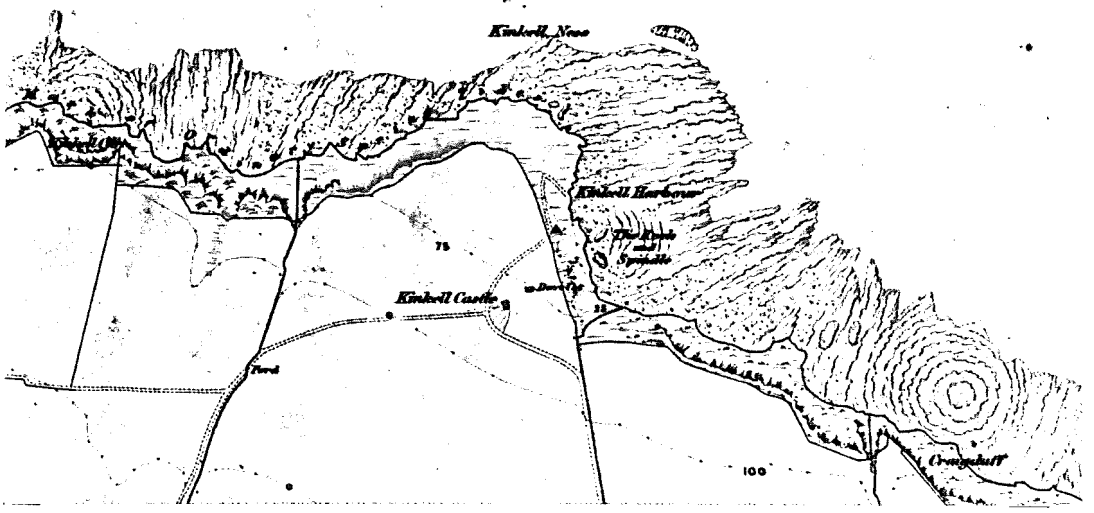
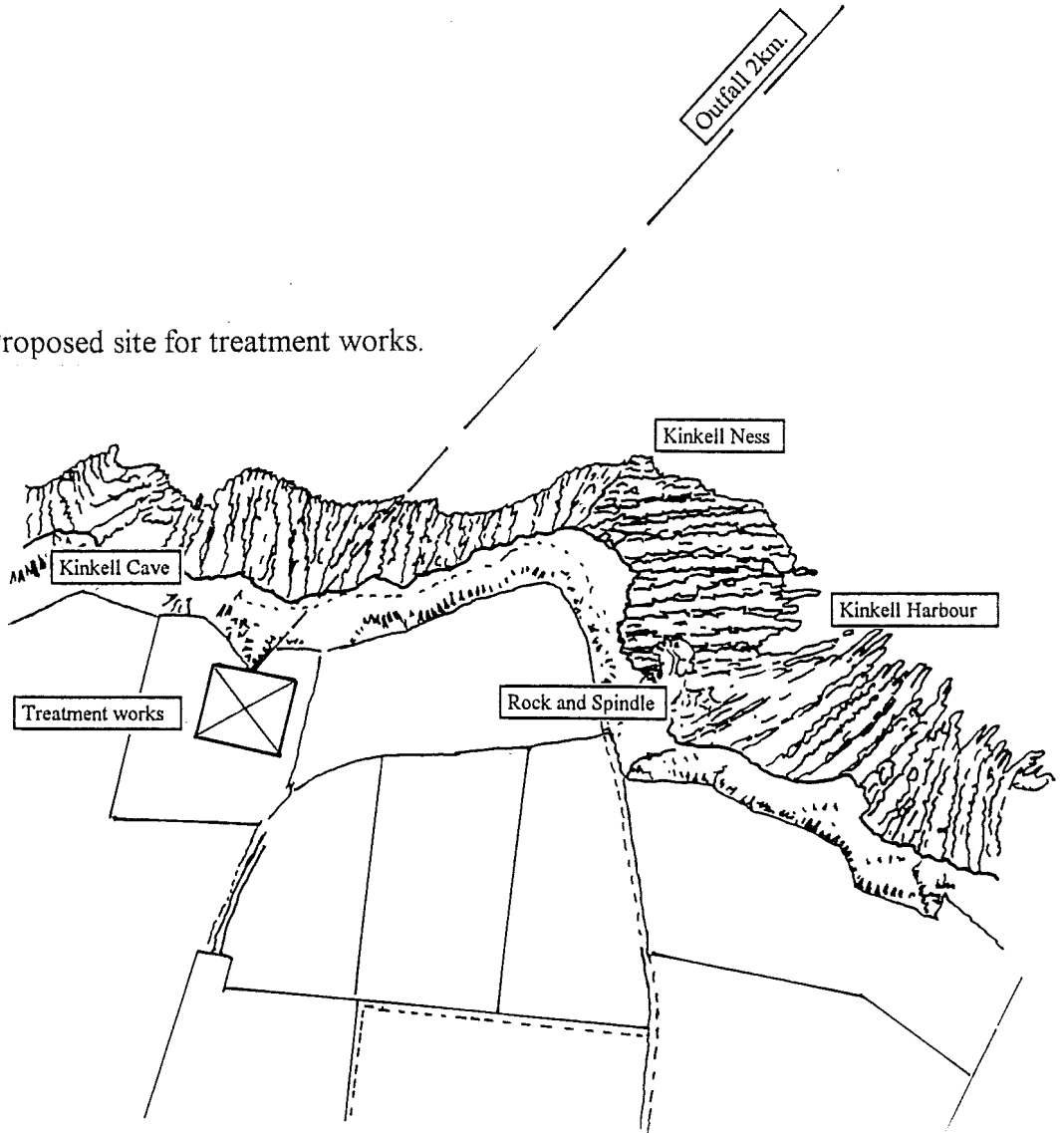


Figure 1. Kinkell Castle 1767, engraving by John Oliphant.

Figure 2.



[A] Ordnance Survey map 1854.



[B] Proposed site for treatment works.