

SURVEY OF A DERELICT INDUSTRIAL LANDSCAPE AT SHAPWICK HEATH, SOMERSET

by Margaret Cox and John Rackham

Introduction

In January 1992, Fisons Plc announced their intention to donate the freehold of their lowland raised mires to English Nature. Areas to be donated include Thorne Moors, Hatfield Moor, Wedholm Flow, Glasson Moss, and approximately 1,400ha of the Somerset peat moors. The conveyancing of this land has, perhaps fortunately, been delayed and is, at the time of writing, expected to be completed early in 1994. This discussion follows on from that reported by Cox (1992).

The proposed change in ownership has resulted in proposals for dramatic changes in the management of, initially, some 3000ha of this combined area which is to be rehabilitated as wetland specifically for wildlife and ecological interests. The remaining land is to be leased back to Fisons, or their successors, for continued drainage and peat extraction, prior to its ultimate handover to English Nature for conservation purposes.

The handover is expected to be piecemeal and could take as long as twenty years to complete. This is probably no bad thing as present understanding of rehabilitation methods is basic and the short, medium and long-term results remain uncertain. It is feared by many that the current 'window of opportunity' for conservation may lead to the hurried implementation of ill-considered proposals. Perhaps those engaged in such schemes should consider the philosophy advocated by Niering (1990):

'Considering the natural ontogeny of wetlands over centuries and millennia, human efforts in the creation of viable, functional wetland ecosystems should be approached with trepidation and humility'.

However English Nature is aware of the limitations of knowledge and experience in this respect and holds regular workshops designed to provide a forum for sharing experiences and ideas and to examine the success or otherwise of current schemes on raised mires in areas such as Cumbria and Wales. The first author has been fortunate to attend two of these, examining vegetational change and management on raised mires and hydrological management.

In Somerset, the areas due to go into eventual conservation management include Ashcott Heath, Ham Wall, Canada Farm, Westhay Moor and Shapwick Heath. One of the first areas to be rehabilitated as a wetland will be that of Shapwick and Ashcott Heaths, near Glastonbury.

The area

Shapwick and Ashcott Heaths are a conjoined area of 270ha centring on NGR ST435400. The site is immediately north of the Polden Hills and 2km south of the village of Westhay and Meare. The area is, for the most part, a National Nature Reserve. It includes two Scheduled Ancient Monuments (400 and 399), the early Neolithic Sweet Track and the Burtle Batch (a Mesolithic site) and is adjoined by a further two Scheduled Ancient Monuments (397 and 398) which include areas of the Meare Heath Track, the Withy Bed Copse Track, Nidon's Track, Viper's Track and the Platform site. The Heaths also contain the palaeoenvironmental record for the area; this is known to vary across the site although in some areas what is known is incomplete. Many historic sites, ranging from duck decoy pools, to canals and railways, are known from

this area; these are described in detail by McDonnell (1992).

English Nature intends that this area should be allowed to flood naturally, via a rise in ground water levels due to the cessation of pumping. Some engineering works are likely to be required to create the necessary boundaries to maintain hydrological integrity within certain areas.

While the proposed management regime and the resulting rise in the water table is likely to be generally beneficial to the archaeological resource in the area, it raises two major areas of concern; firstly the loss of the industrial heritage and secondly the creation of problems in the curation of known prehistoric sites. These two categories of concern break down into the following specific factors:

Potential threats to extant archaeology

- (i) The flooding: hence loss of the industrial landscape and its associated structures.
- (ii) Landscaping and engineering works may include the levelling of irregular ground surfaces; including old peat workings and droves.
- (iii) The alluvium/peat interface may be destroyed in some areas to facilitate the extraction of clay for the creation of bunds.
- (iv) Flooding will encourage *Phragmites* and *Typha* colonisation in some areas. The ensuing rhizome activity will not only cause immense physical damage to organic structures but can also alter chemical and microbial conditions within the peat substrate. The latter is due to the introduction of oxygen into the rhizosphere (as discussed by Anderson (1985), Armstrong *et al.* (1992) and Cox *et al.* (forthcoming)).
- (v) In areas of open water, water movement and wave action will lead to erosion of high peat.

These are the areas likely to contain archaeology.

An archaeological survey

An outline of a suitable archaeological response to these proposals is described in Cox (1992) and Cox *et al.* (forthcoming). This paper seeks to discuss only the survey of the resource which was carried out in 1993, as recommended by McDonnell (1992).

A topographical survey of Shapwick Heath was funded by the Royal Commission of the Historical Monuments of England and Somerset County Council; the survey was undertaken between December 1992 and March 1993 by the Survey Section of Gifford and Partners who are experienced in surveying historic landscapes, historic buildings and monuments. Late in 1993, English Nature commissioned a topographical and contour survey of Ashcott Heath to complement that of Shapwick Heath and once again Gifford and Partners were commissioned.

The purposes of the survey of Shapwick Heath were threefold. Firstly it was intended to provide a record of the industrial landscape (1:2500) which will be at best flooded, and at worst destroyed by English Nature's proposals for wetland restoration of the area. This includes information regarding the location of existing industrial structures such as peat diggers' huts (see Figure 18), and a large scale survey (1:500) of representative areas of early and late twentieth-century peat cuttings.

Secondly, detailed measured surveys (1:50) were undertaken of the old Eclipse Peat Factory (c. late 1950s) and other associated buildings (see Figure 19). These are situated to the east of the Shapwick to Westhay road (which forms the western boundary of the survey area). This peat processing complex is the last surviving of its era in the Somerset Levels. It is anticipated that these buildings may be demolished

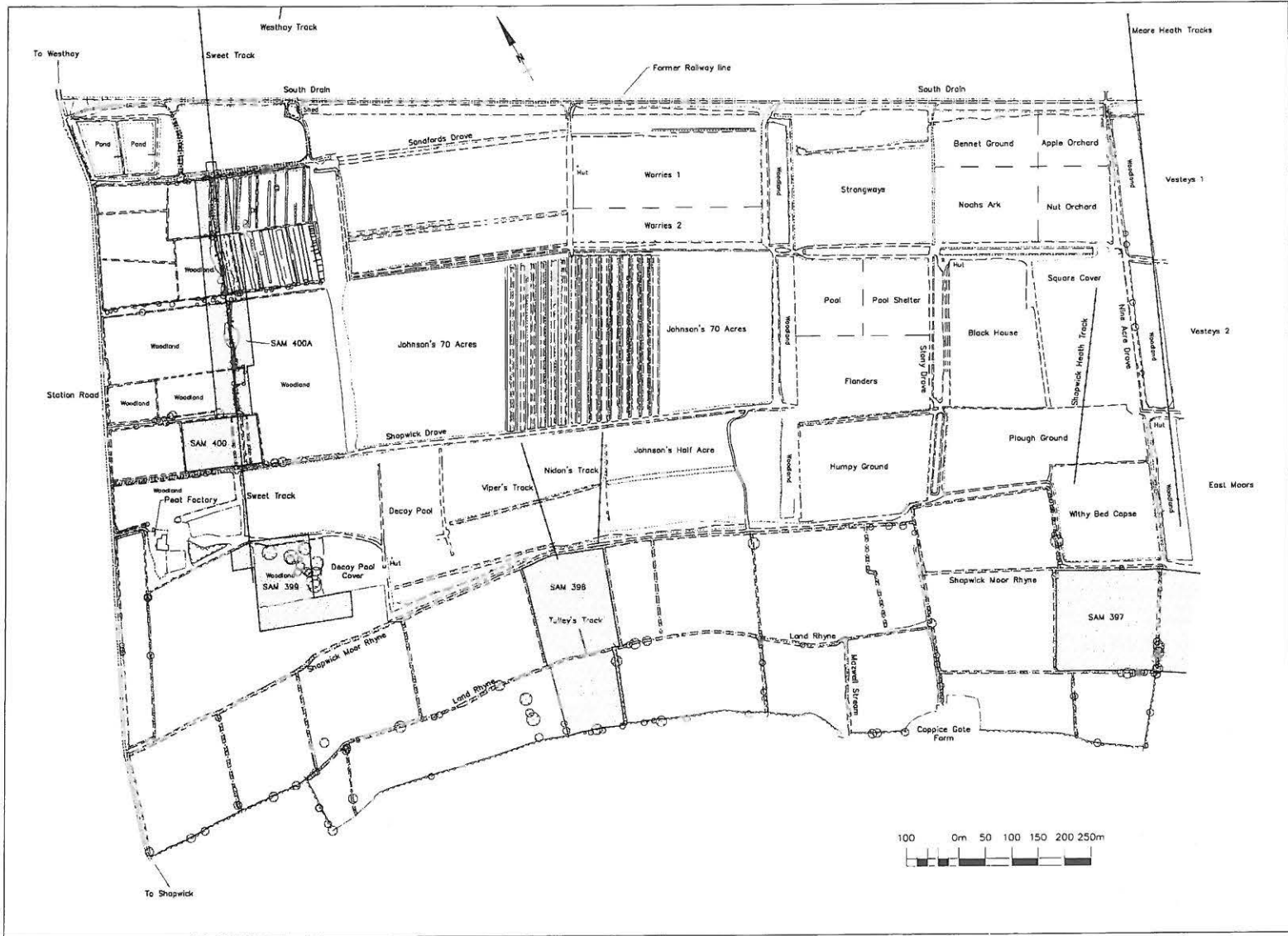


Figure 18. Shapwick Heath: Topographical survey.

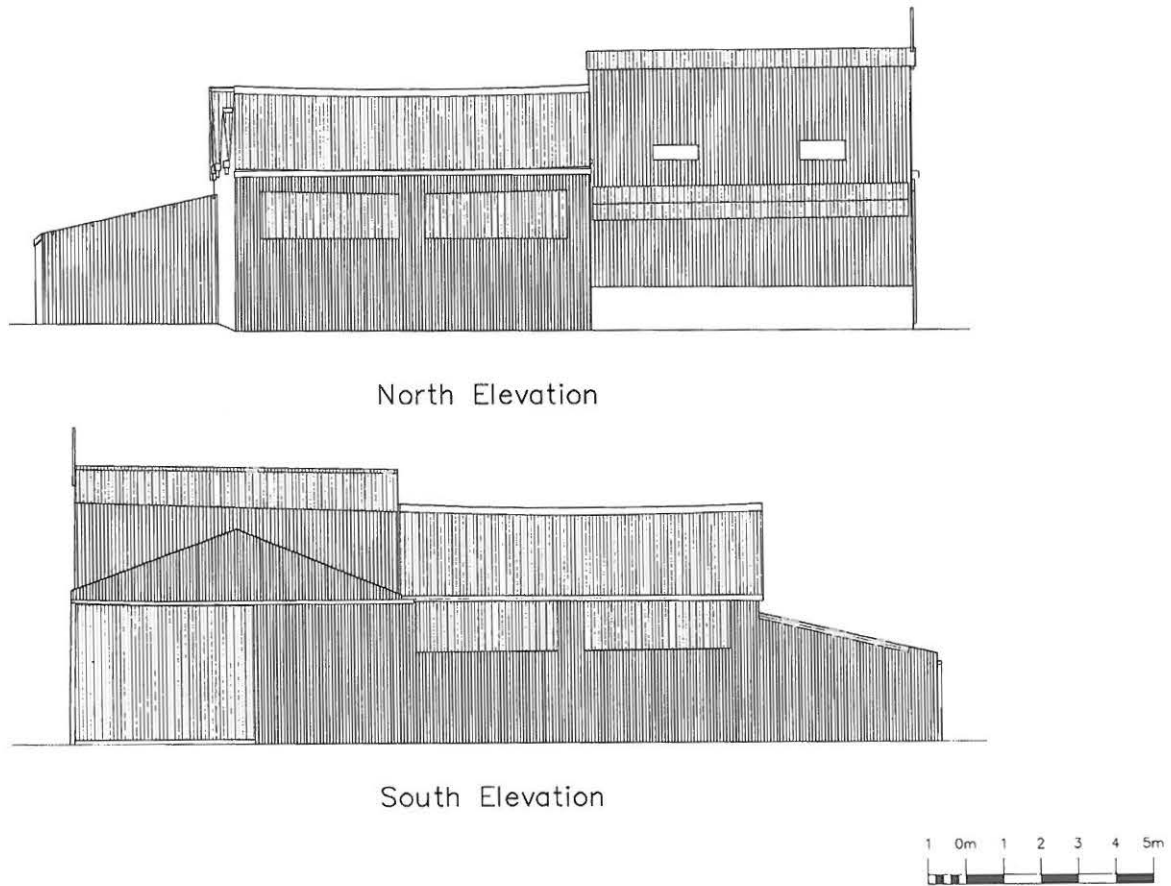


Figure 19. Shapwick Heath: The Eclipse Peat factory.

when ownership passes to English Nature, should no protective designation be afforded to them in the meantime.

The third aim was to provide a more detailed survey (1:500) of those areas of known archaeological interest, including a sample area of the perched woodland through which the Sweet Track runs. This is specifically to provide enough detailed and accurate topographical data to facilitate effective curation of sites should their continued survival be considered by the curators (English Heritage and Somerset County Council) to be important. Detailed topographical surveys are particularly important in waterlogged peat based deposits because in peat soils hydrological conductivity is largely horizontal (although in lower layers conductivity is extremely low). Disturbance to the integrity of hydrological

conductivity in the upper layers (where such monuments as the Sweet Track are believed to survive) can be caused by old peat cuttings and ditches. Clearly, effective curation of such sites requires an in-depth knowledge of the surface topography.

A further component of this survey has been the insertion of three accurately levelled permanent ground markers which will serve as reliable and accessible datum points. These are sited at strategic points across Shapwick Heath. These permanent ground markers are constructed of 48mm hollow heavy galvanised steel interlocking units of 1m lengths, each with bronze marker heads (100mm). They have been inserted to depths of either 5 or 6m which allows penetration of at least 3m into the alluvium. Each has an anchor fixing system to prevent any movement, either natural or

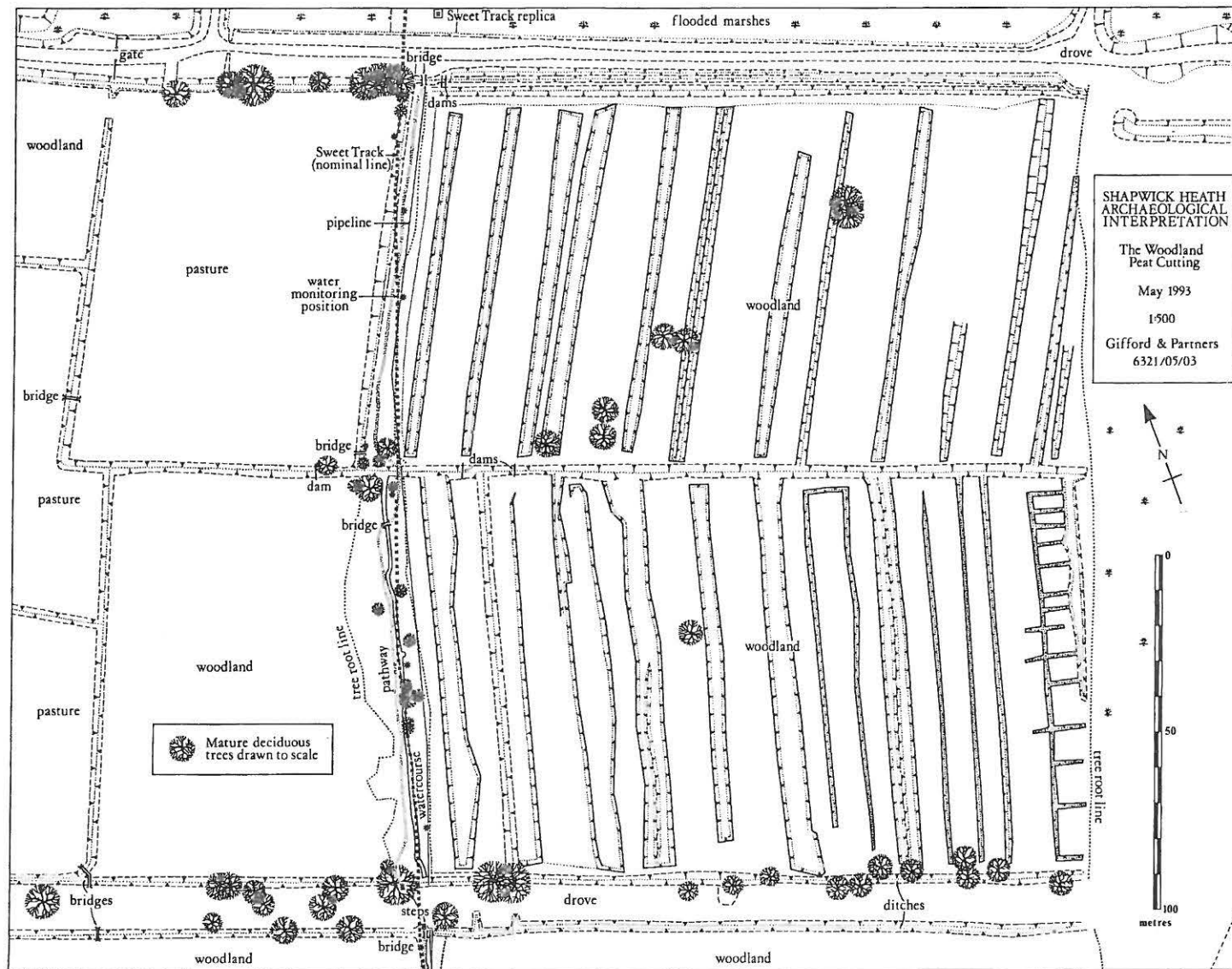


Figure 20. Shapwick Heath: Perched woodland showing pre-1940 cuts.

manual. They should be relevelled annually to assess their value as a method of establishing datum points in the area, and to ensure their accuracy and reliability.

Survey methods

The survey was connected within the Ordnance Survey National Grid in order to provide absolute co-ordinates enabling the survey to be easily and economically extended at any time in the future. In the first instance, a high order horizontal control network of 17 survey stations covering a total length of 10km was fixed between Ordnance Survey Trigonometrical Stations and around the perimeter of the site. This allowed for working from the whole to the part. The network was further broken down into a number of minor control traverses which were then used for topographical data acquisition. In all over 100 individual survey stations were used.

The main horizontal control network was adjusted using least square adjustment software (Star*Net) with due allowance for a local scale factor. The minor horizontal traverse control and all topographical detail points were computed in Ground Modelling Systems PanTerra software after transferring of the main horizontal control co-ordinates and levels.

All field data acquisition was undertaken by a number of teams using Geodimeter Total Stations connected to Husky Hunter data loggers which allowed for the direct downloading of all observations. Vertical control was established with connections to local Ordnance Survey bench marks. A total of 12 bench marks were investigated of which only 2 were found to be within the required tolerance; both were positioned on Lias outcrops adjacent to the survey area. The 10km spirit levelling was carried out using a Wild Precise Automatic level with double levelling circuits in all instances.

The survey information gathered is

held as a 3-dimensional computer database of approximately 20,000 individual points with each separately identified by topographic feature. This will allow for further analysis, if required, to produce prospective models or additional drawings without any further site data collection. In all a total of 20 drawings at various scales were produced in Autocad with each separate topographical feature being layer structured. Since there are negligible differences in level throughout the site, different line styles were used to depict changes in topography.

Peat factory

A closed loop control traverse was initially fixed around and within the factory. Structural features were then surveyed and this allowed the overall shape of the building to be fixed. Further details were then measured by direct taping methods. Inaccessible features were fixed by theodolite intersection. Within the factory complex a total of 7 plans and 12 elevations were produced.

Results

The overall survey of Shapwick Heath is shown in Figure 18. This provides a detailed record of the area prior to its future inaccessibility and/or loss.

The extended 1:500 survey of an area of the perched woodland revealed the pattern of pre-1940s peat cutting which had taken place prior to the encroachment of the woodland (see Figure 20). This relict land surface was not apparent to the naked eye due to the very minor differences in levels, typically 150mm, and the dense low level cover of vegetation. It was interesting to observe in this area that there had been two separate phases of peat cutting. Not only were they cut in different directions, but they also indicated that different methods had been used as each type had a different

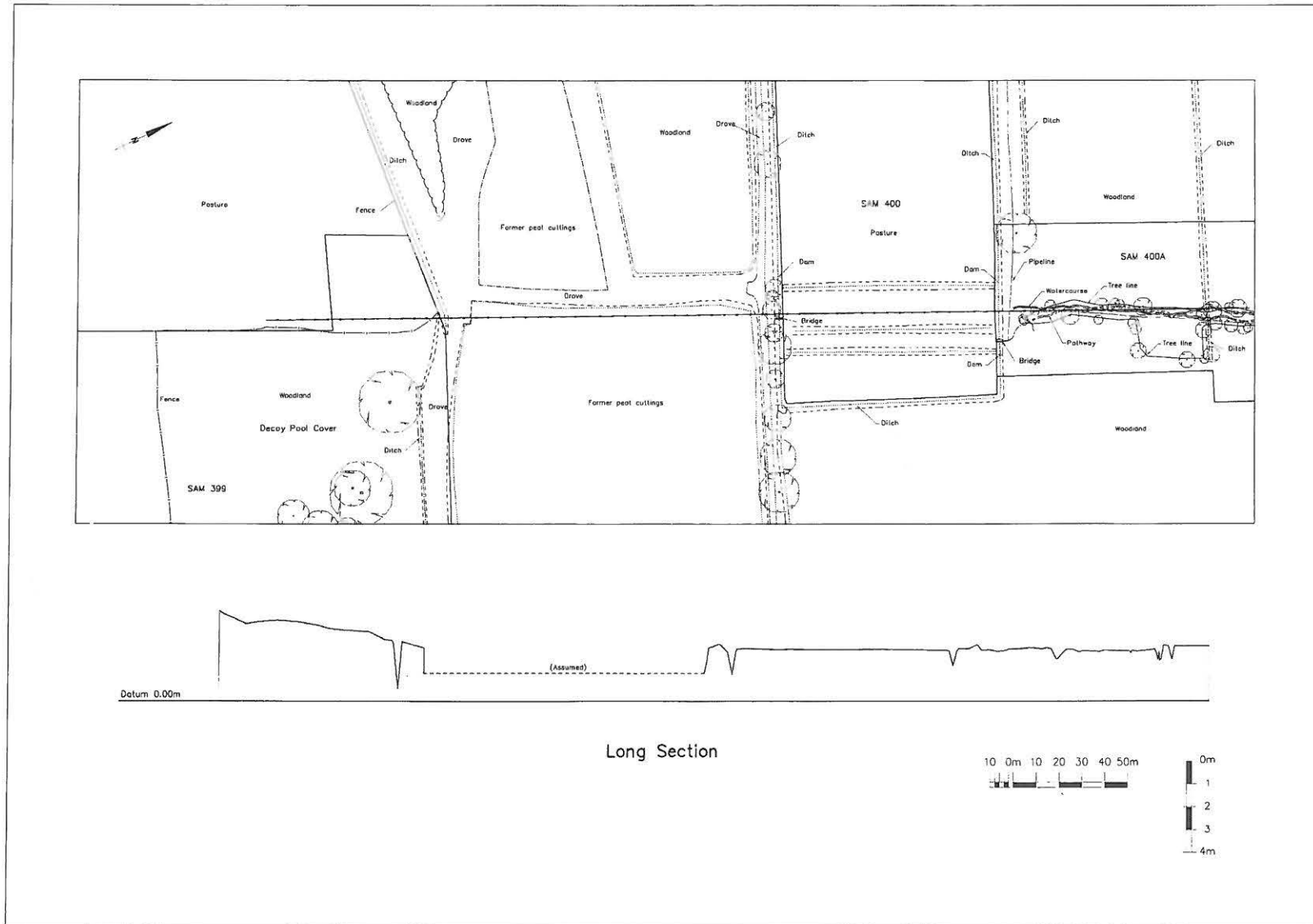


Figure 21. Shapwick Heath: Survey and corresponding vertical section of the southern end of the Sweet Track site.

profile.

Detailed survey (1:500) was undertaken of the area of Scheduled Ancient Monument 400, the area through which the Sweet Track runs. Figure 21 shows a vertical section taken along the southern half of the route of the Sweet Track. Using CAD such sections can be produced for different profiles as required. Such capabilities will facilitate scientific curation and monitoring of the monument should this be considered worthwhile.

Conclusion

In conclusion, the appropriate use of topographical and measured building survey as a recording method can greatly enhance the compilation of the archaeological record, particularly when it is under threat of destruction, albeit for a worthwhile cause. Without accurate survey, it is unlikely that effective curation of wetsites in degraded ecosystems can be undertaken. Both monitoring and management are dependent upon accurate knowledge of what already exists, be that specific topographical data or the microbial and chemical status of the substrate.

Acknowledgements

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