Essex Historic Grazing Marsh Project

February 2014

Essex County Council

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1 INTRODUCTION

1.1 Background

As a distinctive and complex historic environment, coastal grazing marshes are a major heritage asset, contributing to the special landscape character of many parts of the English coast, and of the Essex coast in particular. They are also sensitive to change; once ubiquitous around the Essex coast, enormous losses took place in the second half of the 20th (approximately 72% have been lost since the 1930s) largely as a result of agricultural improvement (RSPB, 1990). By the end of the 1990s it was estimated that there were around 6500 hectares of surviving coastal grazing marsh in the county, which represents some 5.5% of the national resource (Essex Biodiversity Project, 1999).

Over the last 25 years, certain key areas of extant grazing marsh have been brought into conservation ownership, mainly by bodies whose prime concern is with nature conservation. Essex County Council, often working in partnership with English Heritage, has arranged detailed surveys of those reserves (approximately 2000 hectares in total) leading to an enhanced understanding of their historic significance and a more integrated approach to their management (Barker, 2000; Pattison and Barker 2000; Medlycott and Gascoyne, 2006; Clarke *et al*, 2007; Gascoyne *et al*, 2010). More recently, work on the provision of green infrastructure as part of the Thames Gateway initiative, facilitated by ECC Historic Environment Branch, has led the RSPB to adopt an integrated approach to the management and presentation of major marshland reserves in the south Essex marshes. However, work in preparing historic environment input into the development of the second Shoreline Management Plan (SMP2) has (in addition to the rather surprising fact that, initially at least, surviving grazing marsh seems to be considered a target for managed realignment schemes) demonstrated that the historic environment significance is not well understood and its geographical distribution poorly mapped, with only partial information incorporated into the HER. Accordingly it proved rather difficult to properly accommodate the significance of the historic environment of extant grazing marsh into the SMP. Despite the ready supply of HER, HLC and HEC data, the Environment Agency and their consultants found it difficult to assimilate the information or incorporate it effectively into the consideration of management options. HER data was often not detailed enough and generally lacked any explicit assessment of significance or sensitivity to change. Similar problems were encountered with HLC data which identified a good deal (though not all) of the extant grazing marsh, but again lacked any obvious assessment of significance or

sensitivity to change. Whilst the HEC did have an assessment of sensitivity applicable to consideration of the SMP, assessment of significance was not explicit and issues of scale meant it was difficult to align with the SMP's Policy Development Zones.

This project aimed to rectify that situation, providing assessment of the heritage significance and vulnerability which will operate effectively at scales appropriate to the SMP. The project creates a uniform, accessible assessment providing a golden thread linking HER, HLC and HEC. This will enable a more effective engagement with coastal flood risk management and other land management issues. The results of the project will be integrated into the SMP Action Plan and it is anticipated that the project could provide an exemplar for historic grazing marsh assessment in other parts of England, carried out on a broad scale but delivering results focussed enough for effective engagement with the SMP.

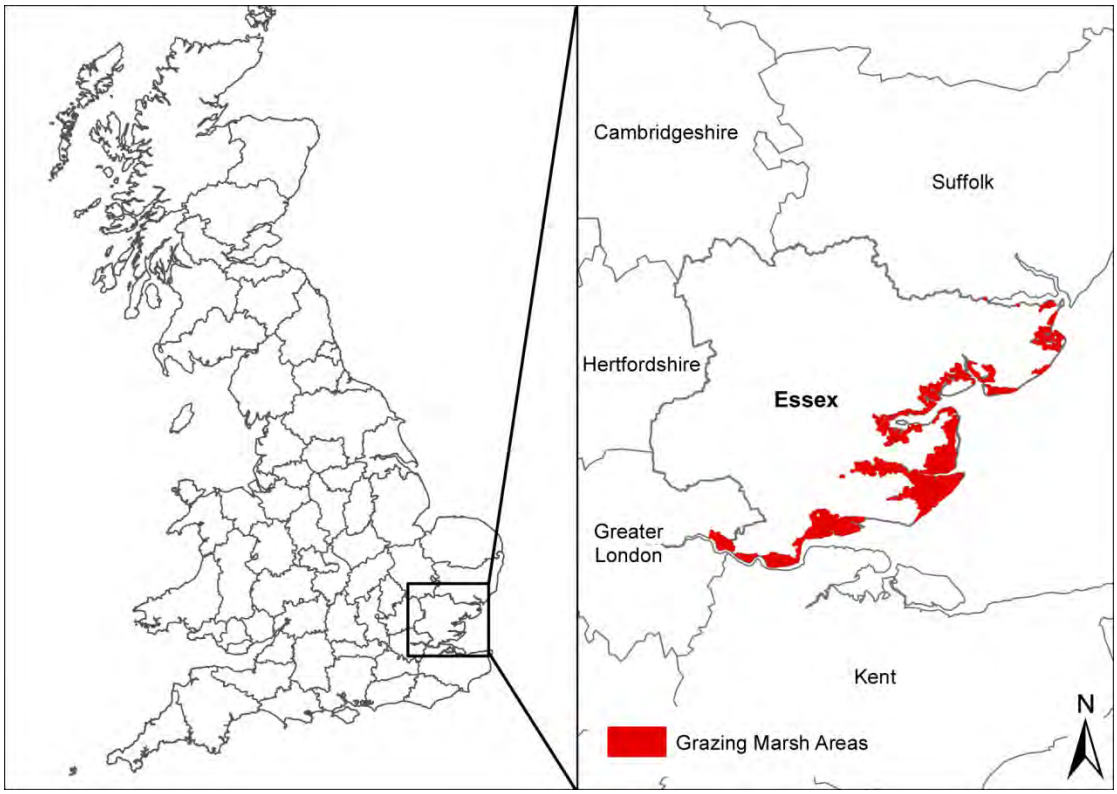


Fig. 1 Distribution of coastal grazing marshes in Essex

1.2 Methodology

The former extent of historic coastal grazing marsh in the county was identified and a digital map layer created in ARC GIS using the Chapman and André Map of Essex (1777), the OS 25 inch and 6 inch 1st editions and HLC data. Meta-data attached to this layer recorded information regarding current and former land-use and character, degree of survival, and anticipated survival of archaeological remains. Linked to this was a narrative text. This GIS layer of former grazing-marsh was then used to inform the search for surviving grazing marsh using web-based aerial photographic imagery including Google Earth and Bing maps, together with modern OS maps and LiDAR data held by the Environment Agency.

Following identification of the extant marshes, a digital map layer was created in ARC GIS and each extant marsh was assessed for known and previously unrecorded historic environment features to assist in the preparation of historic environment character descriptions for each marsh. This used information derived from the EHER, HLC and HEC, as well as web-based aerial photographic imagery including Google Earth and Bing maps, together with modern OS maps and LiDAR data held by the Environment Agency. In addition an assessment was made of the intangible heritage of each marsh, including place-names (using historic mapping and the results of the Essex Place-names project), folklore (through a literature search), cultural role, etc. The Historic Environment Character descriptions for each surviving marsh established both their current character and how this has changed and developed over time.

A basic characterisation of the grazing-marsh vegetation was undertaken, based on a review of SSSI and LoWS citations. This evaluated the local, regional and national biodiversity significance of the grassland ecological resource and established the threats to it. This data fed into the character analysis for each individual marsh area.

The digital mapping of former and extant historic grazing marshes was used to update the Essex HLC data (a copy of the original data will be kept unchanged), and the Historic Environment Character Zone digital layers and descriptions, so as to improve understanding and interpretation.

A simple values-based methodology for assessing the significance of surviving historic grazing marshes in Essex has been developed and applied to each of the surviving historic grazing marshes in order to generate individual scores for

Significance. The English Heritage Conservation Principles (2008) formed the basis for establishing a values-based scoring system.

An assessment of the current threats to each of the surviving historic grazing marshes from the SMP2, including assessment against the chosen management policies, agricultural improvement and neglect was undertaken and an analysis on the vulnerability of the historic grazing marsh resource in Essex completed.

New HER records for each of the surviving grazing marshes have been created that include: historic environment character description, Significance scoring, links to the GIS, HECZ and updated HLC, aerial photograph(s).

A sample of surviving historic grazing marshes were chosen for field survey in order to 'ground truth' the results of the desk-based work and the characterisation descriptions modified where necessary. These included Old hall, Tollesbury and Langenhoe Marshes. The ground-truthing established the validity of the use of GoogleEarth as a survey methodology, with the only archaeological features identified on the ground that had not been picked up by the aerial imagery being an area of stetch cultivation on Langenhoe Marsh.

2 THE HISTORIC ENVIRONMENT OF COASTAL GRAZING MARSHES IN ESSEX

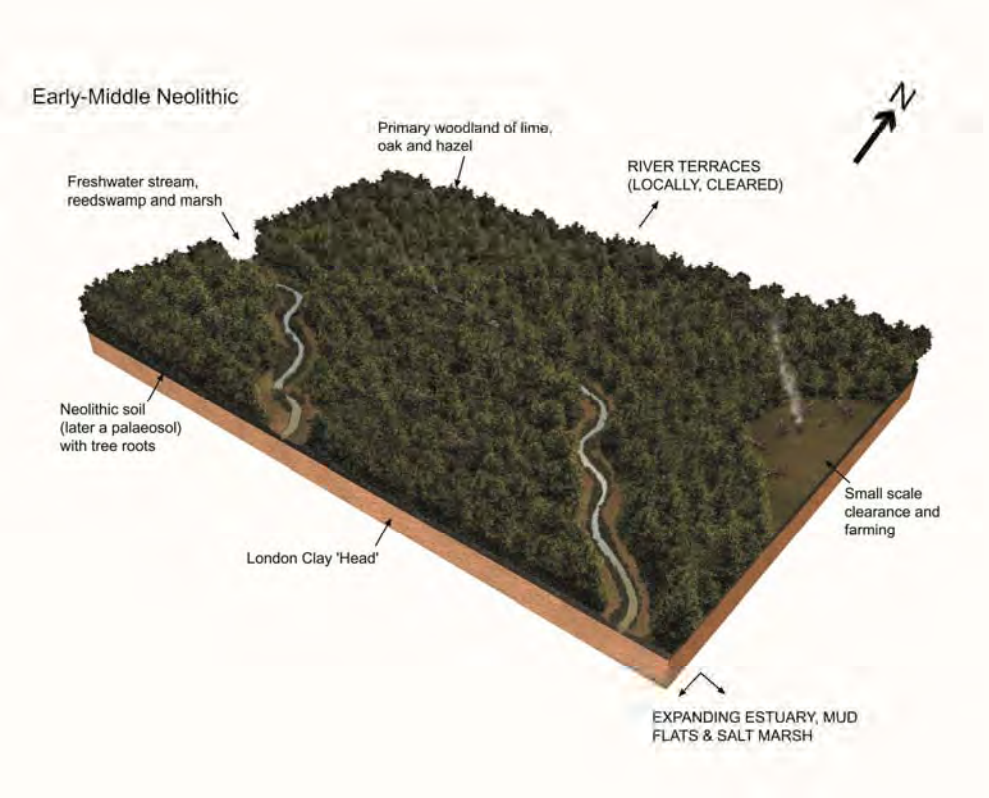
2.1 Historic Overview of the Coastal Landscape and Economy

The following is only a brief summary of the archaeology and history of the Essex coastal marshes. The Hullbridge Survey (Wilkinson and Murphy 1995) synthesised the palaeogeography of the Essex coast, and an overview of the archaeology of the Essex coast is provided by Murphy and Brown (1999). Rippon (2000, 2011) has written extensively on the medieval exploitation of the Essex coastal wetlands.

2.1.1 Mesolithic period

During the early Holocene, large areas of the North Sea basin were dry land, with an extensive coastline and estuaries (Coles 1998). As a result of rapid melting of ice-

sheets, sea-levels were rising at rates of up to 2m per century, resulting in shoreline changes of exceptional speed and complexity. Radiocarbon-date for the Boreal peats ('moorlog') collected from the present sea-bed indicate that between 9500 and 9000 BP sea-level was approximately 45m below the present mean sea level. Reflective seismic profiling suggests that the offshore zone of Essex was an undulating lowland drained by a complex Pleistocene valley system. Places like Canvey Island and Foulness Island, although still relatively close to the proto-Thames and proto-Crouch estuaries respectively, would have been 30-50km from the open ocean. The areas of Mesolithic deposits on the southern coast of Essex are now under several metres of alluvium.



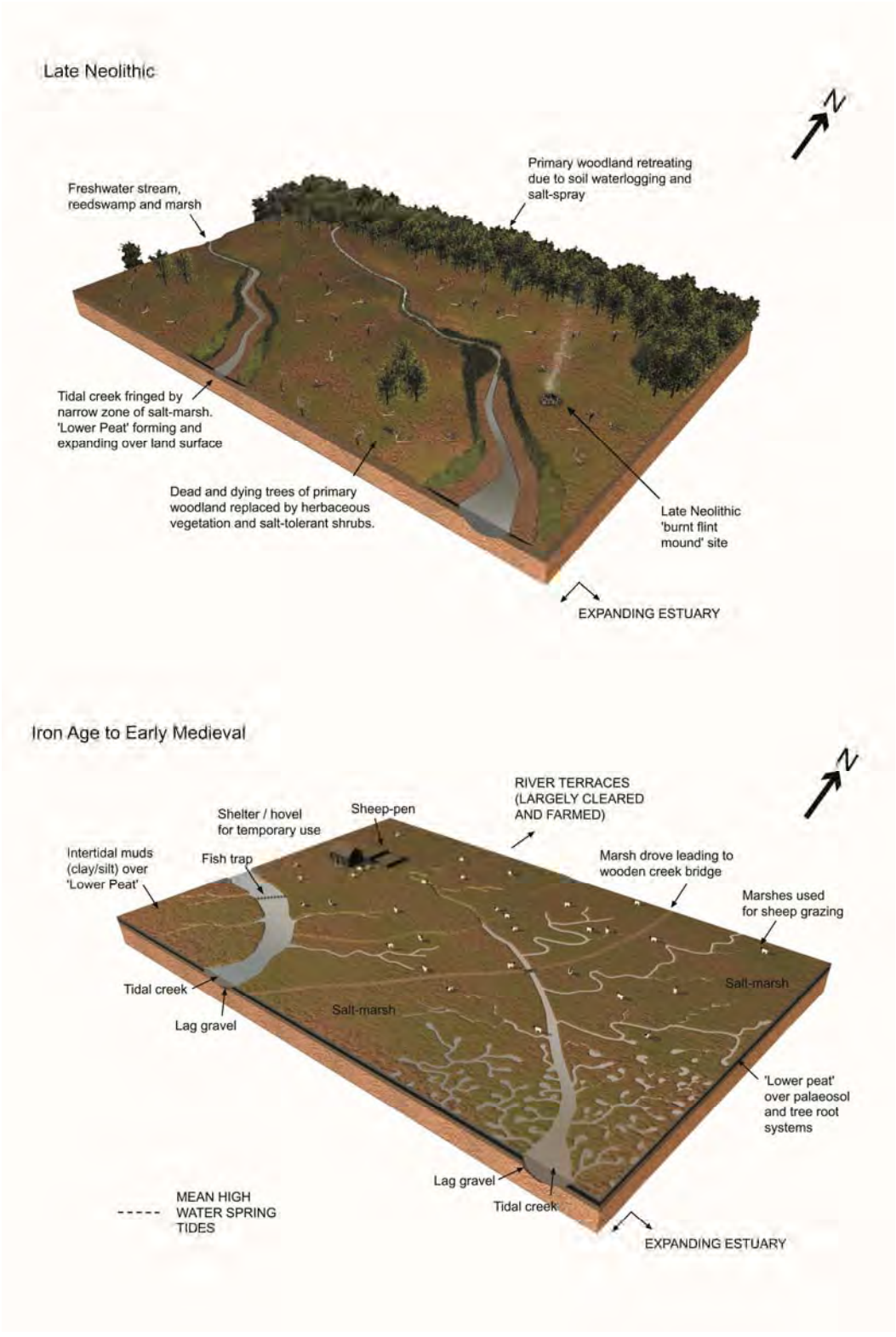


Fig. 2 3D computer sketch of the changing coastal landscape from the early Neolithic to the early medieval period (illustrator Roger Massey-Ryan)

2.1.2 Neolithic period

By the beginning of the Neolithic the coast of Essex approximated that of to-day, the high water mark was between 5.5 and 7m below the present high water mark, in the Blackwater estuary Neolithic high water seems to have approximated to the present low water level. However to the south the situation is more complicated, the area around Foulness, Burnham and Bradwell formed a complex environment of tidal sand flats, upper tidal silt flats, occasional beach ridges of sands, gravel and shell with intervening estuaries. The Neolithic sites identified on the foreshore during the Hullbridge Survey occur within the period of the Tilbury III regression, dated between *c*.4930 and 3850BP. On Canvey and Foulness the Neolithic deposits are deeply buried whilst in the Blackwater Estuary they are partially exposed within the inter-tidal zone.

2.1.3 Bronze and Iron Ages period

The Thames III transgression ensured that the present inter-tidal zone was unsuitable for permanent settlement, although the settlement itself may well have only moved a short distance from the dampest areas of the inter-tidal fringe. The archaeological evidence of the Essex estuaries at this period is dominated by wooden structures, comprising platform of brushwood or timber, hurdle bridges and small lengths of trackway. The manufacture of salt had also begun by the Middle Bronze Age. The later Bronze and Iron Ages were times of significant expansion of settlement and agriculture along the river and estuary terraces (Brown 1996) and the these settlements would have made use of the varied resources provided by the estuaries, the intertidal wooden structures would represent some of this activity. Most of the wooden structures fall within the period of the Thames III and IV transgressions, and there is a gap in the archaeological record corresponding to the period of the intervening Tilbury 4 regression, suggesting that in the Late Bronze Age or early Iron Age the inter-tidal zone and associated wooden structures would have been located below the present low water mark.

2.1.4 Late Iron Age and Roman period

The characteristic site of the Essex coastal zone is the Red Hill, which came into existence in the Late Iron Age and continued until the third century AD. The known distribution of these is biased towards the north-east of Essex and may reflect the demand for salt by the city of Colchester. The line of Red Hills along the coast marks the approximate inland limits of the salt-marsh. There is some evidence for drying out of the coastal marshes during the Roman period, possibly either from localised drainage schemes or marine regression. The presence of extensive areas of a Roman land surface along the north and south banks of the Thames (Spurrell 1889) suggests Roman occupation a little above high water level, *c*.0.3m OD, in this

area. Roman coastal occupation has largely been dated to between the first to mid third centuries AD and the mid-late third century seems to have been marked by a period of coastal transgression. In addition widespread freshwater flooding has been noted in the Fens (Gurney 1986) in the mid/late third century and this may also have occurred in the Essex river floodplains in this period.

2.1.5 Saxon period

There is considerable evidence for Saxon seaborne activity around the Essex coast. The Greater Thames Estuary, as the entrance to London, was a focus of maritime activity, both before the fall of Roman Britain and in the Saxon/Viking wars, as evidenced by the battles of Maldon and Benfleet. In addition there is a clustering of Minsters (including Barking, Tilbury, South Benfleet and Southminster), royal *vill* at at Brightlingsea and *burh* sites (Maldon, Colchester) along the coast. Timber fish-traps have been recorded in the Blackwater, Colne and Stour estuaries, these have been radio-carbon dated to the Middle Saxon period (Strachan 1998, Ingle and Saunders 2011).The line of the Saxon coast is not clear, however it is thought probable that it was still in a period of transgression at the beginning of the Saxon period, before regressing out to approximately its present form by the middle Saxon period (it cannot have been significantly different at this period or the fish-traps would not have functioned). By the late Saxon period the coastal marshes appear to have been principally used for sheep-pasturage. There is no evidence to date that they were embanked.

2.1.6 The medieval and post-medieval periods

The saltings of the Essex coast are comprised of silts washed down to the sea by rivers and re-deposited along the shore by the tide. Salt water vegetation then establishes itself on the deposit and the soft mud gradually develops into saltings. During the ebb tide sediments carried by the sea are trapped by the plants, further raising the ground level until only the highest tides are able to immerse the saltings. At this stage the vegetation is well established and gradually becomes good coarse pasture, rich in iodine and other mineral salts, which sheep in particular thrive on. If at this stage the salt-marsh is ‘inned’, by the construction of a sea-wall, rainwater will gradually wash the salt deposits form the land into the bordering drainage channels, and gradually the salt-water vegetation would be replaced by fresh-water plants, the resultant alluvial top-soil is highly fertile. The coastal marshlands lack trees and other deep-rooted plants, as a few feet below the surface the ground is still impregnated with salt. In addition there is a constant threat of inundation by the sea, as the drying land, behind the sea-wall shrinks and settles to a lower level than the saltings on the seaward side of the wall.

Throughout the medieval period the Essex marshland sheep were prized as a source of dairy produce, in particular cheeses. Sheep's milk was available only in summer, as it was believed that if milking continued into autumn the ewes would have difficulties conceiving. In 1594 John Norden (Smith 1970) described the Rochford Hundred, in which Foulness lay, as yielding *'milke, butter and cheese in admirable aboundance: and in those partes are the greate and huge cheeses made, wondred at for their hundreds and thicknes'*. There is some suggestion that the consumption of ewes' milk cheese was largely an acquired taste (Cracknell 1959), restricted to the poor who could not afford the better cows' milk cheese, however the cheese had long-lasting properties and was used extensively on ships. However, the decline in dairy farming and the rise of arable agriculture had begun by the middle of the sixteenth century, and appears to have been largely due to changing fashions in food, with dairy produce (in particular sheep's milk)) dropping in the social scale in favour of meat consumption. The rich marshland grazing was also used for the fattening of livestock, particularly during the summer months, before being taken to London for slaughter.

The term 'marsh' in medieval documentation appears to have been used for both saltmarshes and reclaimed land, the practise of distinguishing between the two only became common practice during the sixteenth century (Rippon 2000). This makes it hard to establish from the documentary evidence the extent of marshland reclamation in Essex in the medieval period. Rippon argues that the cultivation of crops or cutting of hay indicates at least some flood protection and that the records therefore imply that many Essex marshes had been embanked to a certain extent, particularly along the Thames. However, the extent of actual settlement on the Essex marshes for the medieval period is difficult to establish. There are two potential settlement-indicative place-names elements commonly associated with the Essex marshes, that is 'cote' and 'wick'. 'Wicks' were dairies, cheese-making sheds and shepherds huts. The name occurs in considerable numbers, particularly in the south-east of the county., with few examples to the west of Corringham. They often lay on slightly raised areas, including on top of Roman red hills. In some cases the individual marshes and sheepwalks took the name of their associated wicks. The distribution of names associated meadows, such as 'mead' and 'ham' are more common to the west of Corringham, suggesting local variations in land-use. The term 'cote' appears to have had two meanings in the context of coastal marshes, either as a dairy or a raised refuge for sheep or as a salt-producing site, both relating to the seasonal use of these coastal marshes, they are largely found on the eastern marshes of the county. The place-name 'worth' (alternatively 'ward', werde' and 'wood') is also common, it derives from the Old English *warod/werod* meaning a coast or bank. They are largely found to the east of Corringham and are mainly 13th century or later in date. It is suggested therefore that they may reflect that

reclamation of the marshes occurred rather later in south east Essex than on the Thameside marshes (Rippon 2000).

Essex's coastal position and proximity to the huge market in London for agricultural produce, particularly fresh dairy and meat produce encouraged the development of many small ports, hythes and quays. A survey of 1575 of 'all the Ports, Creeks and Landing places in England and Wales' recorded 135 such places in Essex in comparison to 29 in Suffolk and just 18 in Kent. In Essex the meat trade with London was established by the 14th century, and cereals and hay were also shipped in along the Thames. In addition there was direct trade from Thameside manors to the continent, as in 1367 when John Burgeys of Fobbing obtained a royal warrant to ship 60 weys of cheese to Flanders (Rippon 2000).

Catastrophic flooding is known to have occurred at irregular intervals, including the Great Martinmas Tide of 1099 when the Anglo-Saxon Chronicle recorded that *'the sea-flood sprung up to such a height and did so much harm as no man remembered that it ever did before'*. It seems that the twelfth, thirteenth and fourteenth centuries was a period subjected to a series of great storms, and it was this that precipitated the regularisation of sea-defences. By 1210 the 'law of the marsh' set out the important principle that each man should contribute to the upkeep of the defences from which he benefited, in proportion to his land or rights on the marsh, this principle endured till the passing of the Land Drainage Act of 1930. In addition to the Great Martinmas tide of 1099 (see above), there was also a Great Martinmas tide of 1236 recorded by Matthew Paris, the St Albans Chronicler, when *'there burst in astonishing floods of the sea, by night, suddenly, and most mightily wind resounded, with great and unusual sea and river floods together, which especially in maritime places, deprived all ports of ships, tearing away their anchors, drowned a multitude of men, destroying flocks of sheep and herds of cattle, plucked out trees by the roots, overturned dwellings, dispersed beaches'*. The winter of 1376-77 was also particularly bad, the Abbey of Barking recorded that *'by the flooding of the Thames they have lost great part of the profit of their possessions at Berkying and elsewhere in Essex'.* By the end of the thirteenth century supervision of the coastal defences was in the hands of the king's justices and other dignitaries appointed to temporary commissions on walls and ditches.

In the fourteenth century over 50 Essex commissions were enrolled, largely concerned with the banks of the upper reaches of Thames-side. These commissions had the power to compel any negligent land-owner to fulfil their obligation to repair and maintain their share of the defences. Archaeological

investigation of one of the sea-walls on Foulness Island has dated its construction to the late fifteenth century (Crump 1981). In 1532 'A Generall Acte concernynge Commissions of Sewers to be directed in all partes within the Realme' laid down a standard for the powers and duties of the commissioners and court of sewers, including allowing the commissioners to organise the repairs themselves, as distinct from compelling others to do so. The sixteenth century was marked by a series of catastrophic tides (Smith 1970), two in 1551, and others in 1552, 1564, 1565 and 1570. There was more limited flooding in 1663 and 1690, but the next really serious tide was on the 16th February 1736, the Gentleman's Magazine recorded *'A general inundation cover'd all the marshes and lowlands in Kent, Essex, Suffolk, Norfolk and Lincolnshire, and some thousands of cattle were destroy'd with several of their owners in endeavouring to save them. The tide being brought in by a strong wind at N.W. was the highest of any for 135 years past …The little isles of Candy (Canvey) and Fowlnesse, on the coast of Essex, were quite under water, not a hoof was saved thereon, and the inhabitants were taken from the upper parts of their houses into boats'.*

In the early post-medieval period the Essex marshes were notorious for the prevalence of the ague or malaria, carried by the *Anopheles* mosquito which breeds on stagnant water. In 1594 John Norden (Smith 1970) said of the coastal marshlands *'I can not comende the helthfulnes of it: And especiallie nere the sea coastes, Rochford, Denge, Tendring hundreds and other lowe places about the creekes, which gave me a most cruell quarterne fever'.* The ague was not generally fatal to those born and bred on the coast, but could be so to those that came in from outside. It is not mentioned prior to the sixteenth century and its advent may have been linked to increased trade with the Orient and Africa. The disease declined rapidly in the nineteenth century for a variety of reasons, including the introduction of quinine (Dobson 1980) and the increased drainage of the marshes (see below).

The second half of the 18th century and the 19th century saw further embankment, often distinguishable from preceding periods of enclosure, by their rectilinear drainage pattern. In the spirit of the age medals were awarded by the Society of Arts for land-owners who enclosed new land from the sea. Not all of these new enclosures were successful, as at Bradwell-on-Sea where nothing remains of the late 18th century reclamations. There was serious flooding along the Essex coast on 'Black Monday', 29th November 1897, and again in 1901, 1903, 1904, 1905, 1906, and again in 1928. However it was on the 31 January – 1st February 1953 that the worst flooding recorded to date occurred on the low-lying coastal areas of eastern England and Holland, in Essex alone more than 76 sq. miles were flooded, drowning 119 people and 12,356 homes, with 21,000 people made homeless.

The 1930s Land Utilisation Survey records that, except for arable on the Foulness and the western limits of the Dengie flats, the marshes were grazed by livestock (Scarfe 1942). The development of hollow or under-draining, 20 to 30 inches below the surface, at the end of the eighteenth century, made tillage of the Essex marshland a more practicable and profitable proposition, but extensive and permanent conversion of grazing marsh to arable did not take place until the second half of the twentieth century.

2.2 Biodiversity character of historic coastal grazing marshes

The UK Biodiversity Action Plan describes the 'coastal and floodplain grazing marsh' Priority Habitat as periodically inundated pasture, or meadow with ditches, which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities.

In Essex the main concentrations of grazing marsh are located in coastal areas created from reclaimed saltmarsh. The Essex Biodiversity Action Plan (2011) estimates that there is 6,500 hectares of grazing marsh in Essex, which constitutes an estimated 5.5% of the national resource of coastal and floodplain grazing marsh.

Many coastal and floodplain grazing marshes are comprised of relatively species-poor pasture, but historic sites tend to support floristically diverse areas of grassland having avoided significant modification as a result of agricultural improvement. They are characterised by the abundance of the grass meadow barley together with a distinctive assemblage of herbs – typically present in low numbers - such as narrow-leaved bird's-foot trefoil, strawberry clover, hairy buttercup, spiny restharrow, sea clover and grass-leaved vetchling.

Historic grazing marshes are of international importance for the wintering waterfowl they support, including dark-bellied Brent geese and black-tailed godwit, with 2340 hectares designated as Special Protection Area (SPA).

They also provide habitat for nationally important Priority Species such as least lettuce, saltmarsh short-spur beetle and water vole; and 2940 hectares of historic grazing marsh lie within Sites of Special Scientific Interest (SSSI). A further 1160 hectares are considered of County importance and notified as Local Wildlife Site (LoWS). Altogether a total of 4100 hectares of historic grazing marsh has some form of protection under wildlife legislation or national planning policy.

2.3 Historic Environment features of coastal grazing marshes

2.3.1 Characteristic (contemporary) features of coastal grazing marsh

2.3.1.1 Sea walls and borrow dykes

A ubiquitous feature of the Essex coastal grazing marshes are the flood defences that were fundamental to the process of reclamation that resulted in their creation, consisting of earthen embankments usually with a drainage ditch on the landward side (known as 'the Delph"/"Delf" or "borrowdyke": Cracknell 1959, 21; Grieve 1959, 6). These striking and omnipresent features of the coastal and estuarine landscape, designed to protect the salt marshes from tidal flooding, have been of great economic importance in protecting grazing marsh since at least the early medieval period, although those that retain their original function have usually been considerably changed by raising and repair. Only a small percentage of the undeveloped coast of Essex is not protected in this way. From time to time the remains of earlier flood defences survive as extant earthworks or field boundaries marking the line of an embankment that has now been removed. In places the sequence of reclamation that these successive sea walls represent is also visible as differences in elevation between the reclaimed land surfaces with the areas that were reclaimed later having a higher ground surface than the earlier reclamations as they continued to be flooded and receive silt deposition, after the adjacent embanked areas. Despite their extent, sea walls have received little detailed study (Allen 1997), although some work has been done, for example on Foulness, where the timber framework of a former seawall, inland of the present one, has been dated by dendrochronology to the 15th century (Crump 1981). More recently, Rippon has attempted to define a typology of sea walls within the South Essex marshes, identifying four broad types (Rippon and Wainwright 2011).

2.3.1.2 Counter walls

A number of earthen embankments within coastal grazing marshes cut across earlier field boundaries and former channels and creeks and appear to have been constructed as “counter walls” to control flooding. Elsewhere, what are called “counter walls” may in fact be former sea walls that no longer function as such once a new sea wall has been built to seaward of them. When new sea walls were built it was expressly forbidden to demolish the old wall since the “counter walls” as they were called provided a second line of defence if the main wall was breached (Cracknell 1959, 15).

Fig. 3 Counter wall, Bowers Marsh, Fobbing, formerly a medieval sea-wall

2.3.1.3 Farmsteads

A distinctive feature of the Essex coastal grazing marshes in the 18th and 19th centuries was its settlement pattern that consisted almost entirely of individual farmsteads. Estate maps and the Tithe maps of *c*.1840, show that these farms were associated with compact land-holdings, often defined by former tidal creeks. Many of the marshland settlements were surrounded by substantial circular ditches evident on early maps and aerial photographs. The circular form of these ditches suggests they were created in a landscape with few other features, rather than taking a more rectilinear form which is often the case where ditched enclosures are superimposed on an existing field system (Rippon, 2011). Prior to the 18th and 19th centuries,

settlements appear to have been largely restricted to individual farmsteads located at the marsh edge; at the interface between dryland and wetland. These would be linked to navigable across the marsh by long tracks. The successive stages of reclamation of the marsh can to an extent be identified by the expansion of farmsteads from the dryland to the marsh-edge and then onto the marsh itself. In addition to the ditched farmsteads, a smaller number of farms also lay on raised mounds out on the marshes, though it is not clear whether the mounds were medieval in date or represent Romano-British “red hills” (salterns) that were re-used in the medieval period as dairies or seasonal shepherd’s camps, as has been inferred from excavated examples (e.g. Rodwell 1965).

Fig. 4 Oozedam Farm, Fobbing Marsh, Fobbing, the gentle slope of the farmstead mound is visible in the foreground.

2.3.1.4 Agricultural buildings

A number of field barns are recorded on 1st edition OS maps, it is presumed that they provided shelter for livestock, and possibly somewhere to store supplementary fodder. Isolated field barns are rare within the Essex landscape as a whole, either on the dryland or the marsh. No surviving examples have been recorded within the marshes studied, although their former location can sometimes be ascertained from spreads of tile or the presence of encircling drainage ditches.

2.3.1.5 Irregular field boundaries (former creeks)

A characteristic of the older Essex marshes are the irregular field boundaries, formed by narrow steep-sided drainage ditches, averaging between 60cm and 1.5m deep. These had their origins as former creeks and can be extremely sinuous in form. They vary more in width than the regular field boundaries, reflecting their natural origin. They tend to represent the earlier phases of reclamation and as a consequence are most often found on the dryland/wetland boundary. Subsequent rationalisation of the fieldscape can lead to subdivision of the original irregular fields with linear drainage channels or the straightening of the boundaries themselves (Fig. 5). Fields with this sort of boundary are more likely to have descriptive field names such as Oozedam Marsh, Small Gains or Great Barn Field.

Fig. 5 GoogleEarth image of Bradwell Marshes, Dengie peninsula. The curved boundaries reflect old creek patterns, with the resulting large fields subsequently sub-divided by narrow linear drainage ditches. This image also shows a number of former creeks showing as soilmarks, cropmarks and as shallow earthworks.

2.3.1.6 Regular field boundaries

The straight field boundaries found in the marshes tend to be the most recent, dating from the late 18th to the 20th centuries. Like the irregular boundaries they are formed by narrow steep-sided drainage ditches, averaging between 60cm and 1.5m deep. On farms with 'progressive' farmers or where steam ploughs were in use, there was

also a period of straightening formerly irregular field boundaries. For example, in marshland east of Benfleet railway station an estate map of Kersey Marsh Farm dated 1722 (ERO D/DGs/P7) shows fields with sinuous boundaries, whereas another of the same area in 1816 (ERO D/DGs/P9) shows larger fields with straight boundaries. In addition straight boundaries were sometimes inserted as sub-divisions within larger irregular fields (Fig. 6). The dating of this sub-division of fields varies from marsh to marsh, though on Pitsea Marsh they post-date an estate map of 1654 (ERO D/DU 561/1) and in the far west of Canvey Island they pre-date a map of 1771 (ERO D/DGe P14).

Fields with regular field boundaries are more likely to have purely functional fieldnames, such as 14 Acres.

Fig. 6 GoogleEarth image of Burnham Marsh on the south-east corner of the Dengie peninsula showing the interface between the older irregular field boundaries and the 19th century reclamation with it s regular field boundaries, and the distribution pattern

of isolated farmsteads on the older reclaamation and along the interface between the two periods of reclamation

2.3.1.7 Tracks/Causeways (raised/ditched)

Roads were not a common feature of the marshland landscape in the 19th century, which is in sharp contrast to the adjacent dryland areas (Rippon 2011). It is noticeable how many roads run across the drylands to the marsh-edge and then stop (e.g. Castle Lane and Snipes Lane in Hadleigh, and Marsh Lane in Fobbing). Where roads do carry on across the marshes they are often on raised embankments that in many cases appear to be former sea walls (e.g. Manor Way in Bowers Gifford, and Manor Way in Stanford le Hope). This scarcity of roads on the Essex marshes can partly be explained by topography: the large number of tidal creeks that would have been difficult to cross, and the location of the marshes on the edges of the settled areas. It may also reflect the pastoral land-use and pattern of land-ownership (which was dominated by very large, compact land-holdings): roads are essential in landscapes of mixed land-use and scattered land-holding, where livestock need to be driven through the landscape without straying into arable crops or onto another farmer's land, but not necessary in a pastoral landscape where all the fields are in the same ownership. On Canvey the pattern of roads is very different, with a number of long, straight roads, post-dating field boundaries with sinuous or meandering lines that clearly follow former saltmarsh creeks, but pre-dating the straight field boundaries that represent the later subdivision of these landscapes. It would appear, therefore, that they were constructed soon after the embankment of these landscapes, and before the marshes were fully drained and enclosed into fields probably during the Dutch reclamation of the early 17th century.

Fig. 7 Raised causeway across Langenhoe Marsh, Colchester

2.3.1.8 Fleets and creeks

The distinction between a fleet and a creek is largely one of scale, with fleets being the larger of the two. Both comprise natural salt-water channels or inlets, usually highly sinuous in plan either containing open water or silted-up or as buried palaeochannels. Whilst both can be navigable, a fleet is more likely to have had both an access and an egress point. Both types of natural feature are abundant in the Essex marshes.

Fig. 8 Fleets and creeks on Potten and Havengore Island in the Foulness Archipelago

2.3.1.9 Cultivation/drainage earthworks

Cultivation and drainage earthworks comprise extensive traces of ridging that derive from the remains of former ploughing, or an attempt to improve drainage in areas of pasture analogous to the 'gripes' found extensively around on the Severn Estuary wetlands (Rippon 2006, 27). In Essex this form of earthwork is known as 'stetch'. The surviving ridges are visible on LiDAR images and on GoogleEarth (Fig. 9).

Within the Thames, they show a patchy distribution apparently unrelated to recent human activities. With the exception of Vange Wick there is very little in the marshlands west of Holehaven and Vange Creeks. Conversely, there are concentrations on Bowers Marsh and south-east to South Staines, and across the non-urbanised or industrialised areas of Canvey Island, as well as parts of Hadleigh Marsh. Elsewhere along the coast, ‘stetch’ cultivation earthworks have been identified on the ground at marshes such as Howland Marsh, St Osyth, and Horsey Island in Hamford Water; aerial photographic evidence suggest the practice was common on marshes all along the coast.

Fig. 9 Stetch on Bowers Marsh, Pitsea

Elsewhere there are traces of the relict saltmarsh surface, complete with creek systems, a very rare feature in reclaimed wetlands that have mostly been subject to ploughing (Fig. 8). On the saltmarshes on the northern side of Canvey Island the

Ordnance Survey First Edition Six Inch maps show short stretches of embankment on these marshes representing former reclamations that have now been abandoned.

2.3.1.10 Earthwork banked/ditched enclosures

Ditched and or embanked enclosures are recorded on many of the marshes. These were used chiefly as livestock pens and occasionally as habitation enclosures (Fig. 10). The ditched examples often incorporate elements of the natural creek system, the interior is usually slightly raised, a consequence of the dumping of material derived from the cutting of the ditches or cleaning out of the creek, which has the added advantage of providing a degree of protection to livestock at times of flooding. Embanked enclosures are much rarer; there is an example called 'Ships Lock' on the Abbots Hall saltings, little Wigborough on the 1st edn. OS map and another on the saltings known as Horse Island to the west of Canvey Island.

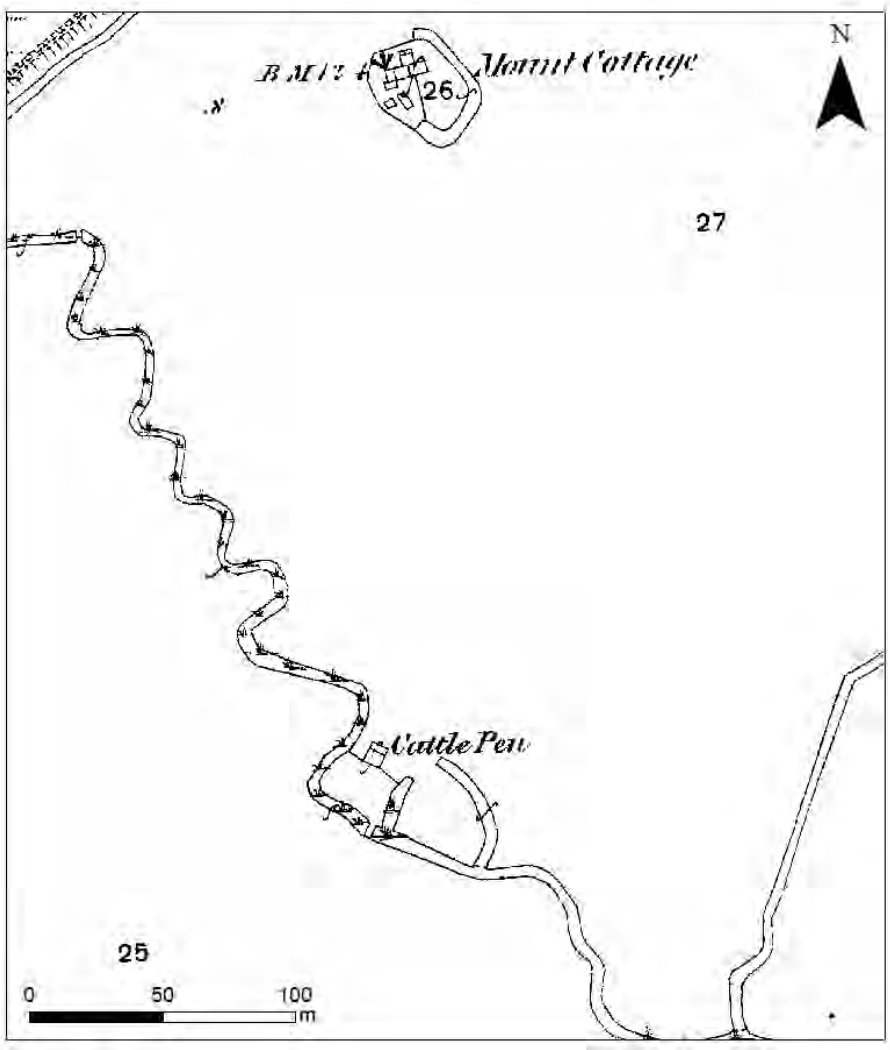


Fig. 10 Ditched livestock and habitation enclosures on the 1st edn. OS map for Old Hall marshes, Tollesbury

2.3.1.11 Earthwork mounds: Salterns

Medieval salt manufacturing sites have been confidently identified in a number of marshland sites in Essex, including Marsh Farm, South Woodham Ferrers, Tollesbury Wick and at Morris Farm, Stow Maries. The latter has been surveyed in detail, the report notes that this is the single survivor of a group of works that once clustered around the head of Clements Green creek (Barker 2003).

Fig. 11 GoogleEarth image of Morris Farm, Stow Maries

2.3.1.12 Earthwork mounds; Habitation sites/livestock refuges

A number of habitation sites or livestock pounds/refuges are sited on low earthwork mounds. These were either formed by the re-use of a former Red Hill or saltern site, or by the deliberate deposition of dredged material from the creeks or ditches and/or rubbish (building materials, farmyard waste etc.). The difference in height is often very slight, only becoming apparent when the surrounding area is flooded.

2.3.1.13 Decoy Ponds

The most striking evidence for the use of the marshes for wildfowling are the decoy ponds, often starfish-shaped in plan, which were once a common feature of the Essex marshes. Relatively few survive, many having been destroyed in the 1950's and 1960's when so much traditional grazing marsh was converted to arable. Early aerial photographs often show decoys in some detail and still in use. More recent air survey has revealed the distinctive cropmarks produced by features when backfilled (Strachan, 1998).

Fig. 12 Old Hall Marshes duck decoy, Tollesbury

2.3.1.14 Sluices

Water entering the reclaimed marshes as precipitation or run-off from the adjacent dryland areas was collected in the field boundary ditches and discharged into major channels known as "Commissioners Dykes" which did not belong to the owners of the property through which they ran (Rippon 2011). These watercourses in turn discharged their waters through sluice gates beneath the sea walls. These sluices are typically located at the head of recesses in the sea walls that offer some protection from storm surges.

2.3.2 Characteristic non-contemporary features associated with coastal grazing marsh

Buried land-surfaces have been recorded on several grazing-marsh sites, these generally are recorded as a result of erosion of the marsh edge and are most visible as a consequence in the inter-tidal zone, but occasionally have also been recorded during excavations. In date the buried land surfaces range from the Neolithic to the Roman period. The nature of the buried land surfaces depends on how they formed; thus those that developed as a consequence of gradual marine inundation, as at The Stumble and Rolls Farm in the Blackwater take the form of peaty deposits, whilst those that derive from shorter term events, such as individual flooding episodes can take the form of spreads of sand or crushed shells, examples of which have been encountered during excavations on the Dengie peninsula marshes.

The Essex HER currently has 426 salt-making sites (Red Hills) recorded around the Essex coast, and this number is increasing as a consequence of aerial survey and excavation. They are conspicuous sites, due to either because of their associated red earth deposits or because they form slight mounds in a very flat landscape. The earliest excavated example appear to be Mid Bronze Age in origin (Germany 2004), but the majority can be dated to the Late Iron Age and Roman periods; some, as already noted, were re-used during the medieval period. At the London Gateway Stanford Wharf Nature Reserve a number of Red Hills were excavated, together with their wider landscape of creeks and marsh and associated infrastructure (Biddulph *et al* 2011).

The coastal grazing marshes have also attracted other forms of archaeological monument that are not linked to their primary function as grazing-marshes. As remote locations, with a low population level, but easy access to water-borne transport they have proved attractive as an area for industrial activity, particularly for the more hazardous activities such as explosive manufacturing and oil refineries. Smaller scale industrial activity includes lime kilns on the wharfs and quays, as well as coal and night-soil heaps.

In addition there are numerous defensive structures, ranging from the forts at Tilbury and Coalhouse, Martello towers, pill-boxes, bombing decoys and extensive grids of anti-landing ditches.

Fig. 13 Roman Red Hill under excavation on Bradwell Marshes, Bradwell-on-Sea (Ennis and Atkinson 2013)

2.4 Intangible heritage

As a distinctive and complex historic environment, coastal grazing marshes are a major heritage asset, contributing to the special landscape character of many parts of the Essex coast. The intangible heritage forms one element of its historic environment character, as the name suggests it is most commonly used to describe things that are recognized but not easily quantified, such as traditions (often oral), social practices and traditional knowledge.

In the case of the historic grazing marshes of Essex the intangible heritage includes the form of place-names, the historical pattern of land-ownership and links to specific historic events, activities or people, such as the site of the Battle of Maldon or wild-fowling.

2.4.1 Place-names and land-ownership patterns

A distinctive feature of the Essex marshes are its place-names, notably *–wick*, *-cote*, and *–ward* that all relate to resource management in a wetland environment (Reaney

1935, Rippon 2011). The place-name *wick* on the Essex marshes is specifically associated with dairies, particularly sheep's cheese-making. Originally the place-name seems to have been attached to the farm before broadening out to cover discrete areas of grazing. Examples include Middlewick on the Dengie Marshes and Skinners Wick on Goldhanger Marsh. The place-name element *–cote* has two meanings in these marshland landscapes: as a salt production site as at Saltcote and as a dairy/raised refuge area for sheep (Rippon 2000, 205). The marshland place-name *werde*, subsequently *warde*, *werth*, and finally *worth* or *ward* refers to an embanked area (Reaney 1935, 148). Unlike *wick* names that occur across all the Essex marshes, the distribution of *werde* names is restricted to the eastern part of the county, occurring in the extensive marshlands of Barstaple, Rochford and Dengie Hundreds (Fig. 14).

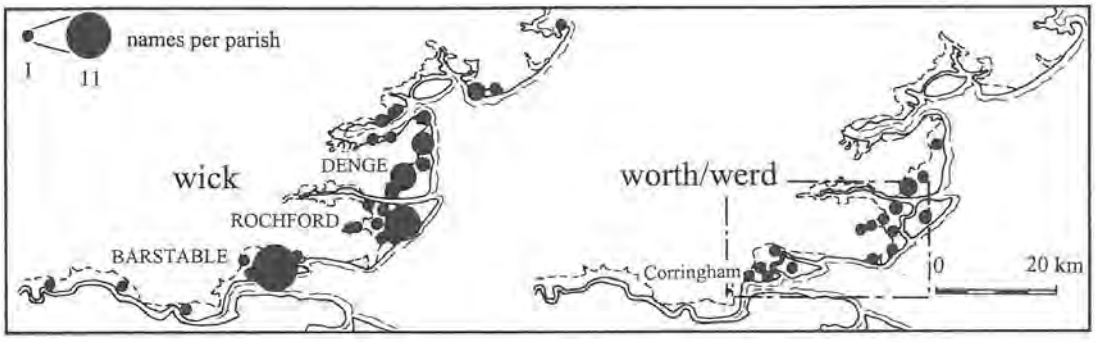


Fig. 14 Distribution of 'wick' and 'worth'/'werd' place-names on the Essex coastal-marsh (taken from Rippon, 2000, fig.70)

The pattern of land-ownership is also integral to any understanding of the Essex marshes. Medieval and post-medieval inland parishes could hold valuable marshland grazing and conversely marshland parishes held inland woods (Fig. 15), the result being a patchwork of disparate parochial land-holdings. On a smaller scale the field-scape of the individual farms is interesting. The older farms tend to be sited on the dry land or on the dry land/marshland edge, with permanent settlement on the marsh only occurring after it had been enclosed and drained.

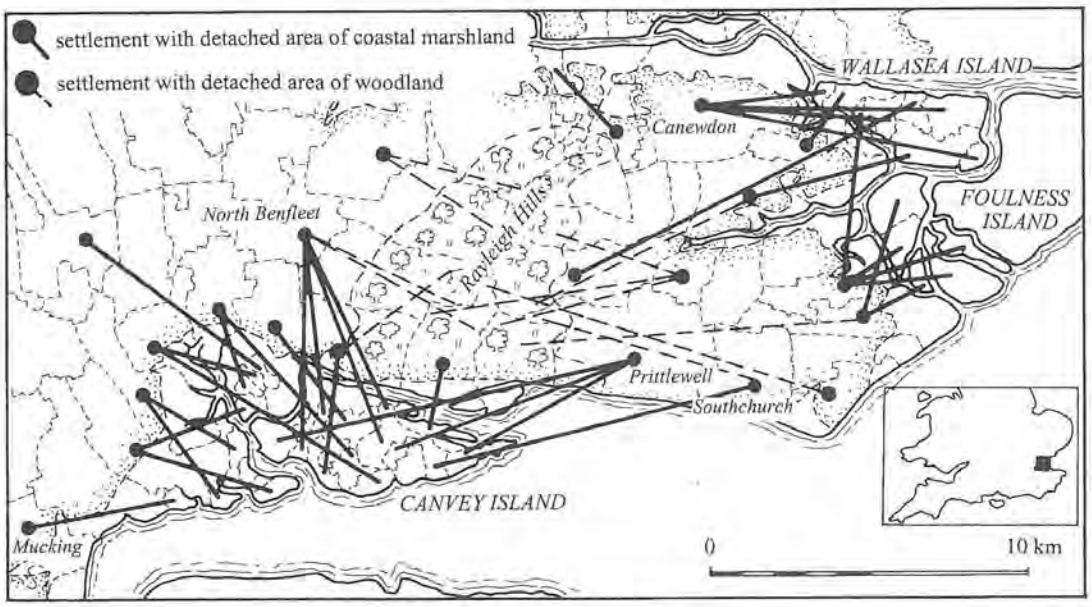


Fig. 15 Detached parochial marshes and woodlands in south-east Essex (Rippon 2000 fig. 69, after Rackham 1986 fig. 14)

2.4.2 Literature and art

The character of the Essex marshlands and its people and wildlife is captured in a wide range of literature and art, including the writings of J. Baker (2005), Sabine Baring-Gould (1969), James Wentworth Day (1946, 1979), and Marjorie Alingham, as well as more recent work by Jonathan Raban, Jules Pretty (2011) and Robert MacFarlane (2008, 2012) and the art of Constable and Guy Taplin.

Most early observations of the people and their landscape were matter of fact. Commenting on the Essex estuaries in the 18th century, Daniel Defoe focuses on the abundant natural produce available for London tables: *"In this inlet of the sea is Osey or Osyth Island, commonly called Oosy Island, so well known by our London men of pleasure, for the infinite number of wild-fowl, that is to say duck, mallard, teal and widgeon, of which there are such vast flights, that they tell us the island, namely the creek, seems covered with them, at certain times of the year…" (Defoe, 1722)*

By the 19th century, Sabine Baring Gould, in his novel *Mehalah*, looks lyrically at the Essex wetlands, describing their intrinsic character admiringly and for its own sake. He describes The Ray, the marshy land between Mersea Island and the mainland, the beauty of the marshland vegetation and deep sense of loneliness and isolation of the place: "*Between the mouths of the Blackwater and the Colne, on the east coast*

*of Essex, lies an extensive marshy tract veined and freckled in every part with water. At high tides the appearance is that of a vast surface of Sargasso weed floating on the sea, with rents and patches of shining water traversing and dappling it in all directions. The creeks, some of considerable length and breadth, extend many miles inland, and are arteries whence branches out a fibrous tissue of smaller channels, flushed with water twice in twenty-four hours. At noontides, and especially at the equinoxes, the sea asserts its royalty over this vast region …. A more desolate region can scarcely be conceived, and yet it is not without beauty. In summer, the thrift mantles the marshes with shot satin, passing through all gradations of tint from maiden's blush to lily white. Thereafter a purple glow steals over the waste, as the sea lavender bursts into flowers, and simultaneously every creek and pool is royally fringed with sea aster." (*Baring-Gould, 1969,10).

As the vicar at East Mersea church for several years, Baring-Gould had obviously spent many hours observing and recording the landscape around him. It is not from the land, however, but from the sea that so much of this long, sinuous coast reveals itself. Several authors have discovered that the best way to explore the Essex coastline, although not necessarily the safest, is in a small sailing boat. The most obvious of these is Maurice Griffiths, yacht designer and journalist, who in 1932, wrote 'The Magic of the Swatchways', 'swatch' being an East Anglian word for the narrow navigable channels that wind between the land and the numerous changing mud and sandbanks that define its seaward edge. The book describes almost every creek and channel between Brightlingsea and Paglesham, every bar and sandbank between Colne Point and Maplin, and every mood of the sea. Many of the features of that time, the fishing boats and barges, a thatched roof, the calling cattle on Foulness are now just ghosts, and yet the character of the places has not fundamentally changed.

During the first half of the 20th century, S. L. Bensusan wrote prolifically about life on the Dengie peninsula in an area of the Essex countryside that he called 'Marshland', and which is known to his literary fan's as 'Bensusan country'. Most of Bensusan's 'Marshland' output took the form of short stories, that appeared in various magazines, collected over the years into volumes, together with three full length novels, for which he was conferred the title of 'laureate of the Essex marshlands' by the *Manchester Guardian*. His work recalls a lost way of life among the towns and villages of the area, along the coast and marshland, and in doing so illuminates some of the features of the Essex marshes (Bensusan 1947). Perhaps most importantly, it is in Bensusan's writing's that the reader can get a feel for the local dialect of this part of the rural Essex, with its own idioms and vocabulary, although it is difficult to know how accurately he observed and recorded the speech of the

marshes, and whether, in so doing, he may have preserved what has become a largely dead language.

Although Arthur Ransome is primarily associated with the Lake District, one of his Swallows and Amazons adventures, *Secret Water,* is set in the marsh island/mud-flat landscape of Hamford Water and Horsey Island, where he captures the disorientating effect of a landscape where the boundaries between sea and land are at their most fluid (Ransome 1939).

In the 1950s John Betjeman, in his collected poems, reflected on the Essex he knew at the beginning of the 20th century.

Far Essex, - fifty miles away

The level wastes of sucking mud

Where distant barges high with hay

Come sailing in upon the flood.

Like many observers before and after him, the dramatic quality of the traditional working boats, the barges, smacks and 'bawleys' (a corruption of boiler from the tradition of boiling the shellfish on board), as well as the empty mudflats, captures his imagination.

Fifty years after Maurice Griffiths, Jonathan Raban, author and journalist, coasting around Britain in a small yacht, chose to explore and also to overwinter on the wild marshlands of Dengie: *"On my first circuit of the islands, three years before, I'd steered clear of this meagre and featureless coast as being too untrustworthy to do business with. The sea lathered over its maze of offshore sandbars; church towers marked on the chart were lost among trees that looked like lines of crouching mangroves in a swamp; I'd investigated the narrow swatchways leading inshore through the sands, and headed north for the broad, safe channel into Harwich".* (Raban 1995)

Having mastered his sailing-boat and gained the courage to enter the Blackwater, however, he becomes beguiled. *Essex had hardly any vertical dimension at all; its character lay in voluptuous horizontals – the looping sea walls, the crescent*

sandbars, the curving throats of the river mouths …. Land and sea were constantly changing places. As the tide shrank away through the culverts between banks of cord-grass, it left large islands of shining mud, looking more liquid than the ruffled water round their shores. When the sea came back, flooding in over the salt marshes, drowning the islands and opening sandy footpaths to navigation, it was arrested only by the ancient earthwork of the sea wall… (Raban 1995).

Even under cultivation, the marshes have retained many of their seascape qualities:

…the face of the England that I could see from the window was fat – a landscape of amazing plenty. The billowing sea waves of growing corn went on for miles. When the combine harvesters moved in, they worked all night, stealing across the marshes in isolated pools of brightness like illuminated trawlers. (Raban 1995).

Fig. 16 Hadleigh Castle by John Constable

John Constable, although associated most with the landscapes of the Dedham Vale, painted the ruins of Hadleigh Castle on its striking bluff overlooking the Thames estuary at Hadleigh. The bright light that has attracted painters down the years to Dedham Vale is present on the Essex coastal marshes, with a combination of what Ronald Blythe describes as ‘high skies and low landscape’. Collections around the country include: Harold Wyllie’s ‘Tilbury, Essex’; Mark Fisher’s impressionistic landscape paintings ‘Essex Marshes’, and ‘Cattle Resting in Marshland’, and H G

Alnutt's 'From Belton Hills Looking West', which includes swathes of the Thameside marshes at Hadleigh http://www.bbc.co.uk/arts/yourpaintings/paintings .

Fig. 17 Essex Marshes by Mark Fisher

Today, the wildness and history of the coastal marshlands still exerts an influence on local artists following the tradition of F. Hamilton Jackson and L.Burleigh Bruhl, whose growing numbers, provide material for the art galleries of coastal towns and villages. Martin Newell, poet and musician, the self-styled 'Wild Man of Wivenhoe', has brought to a contemporary audience some of the legends and tales that haunt the East Anglian coast. He recounts the tale of the mythical ghost dog of eastern England, in Black Shuck, evocatively illustrated by local artist James Dodds (Newell and Dodds 1997)

He rises from the blackness

And races through the lanes

To reach the lonely estuary track

And sneaks along the sea walls

The saltings and the flats

With no one but the wind to call him

back

The ancient folktale from which this poem originates can grip the imagination if you walk alone along the remote tracks and footpaths that are even now the only routes to the marshes and sea in this remote and tranquil landscape.

The imaginative appreciation of the historic grazing marshes and wider landscape of the Essex coast that they contribute to, which is captured in this literature and art, is likely to articulate the things that many residents and visitors feel about it, and is subtly, but crucially dependent on the maintenance of its historic character.

2.5 The contribution of historic coastal grazing marshes to 'sense of place'

Linked to the intangible heritage of coastal grazing marshes, is the strong 'sense of place' associated with them. Sense of place is generally taken to be the subjective and emotional meaning attached to the physical setting of a place by a person or group. It is one of the three fundamental aspects of the most commonly held definition of place as a ' meaningful location', with the other two identified as 'location' i.e. the actual position of a place on the earth's surface, and 'locale', meaning the material setting within which people conduct their lives (Creswell 2004, 7). Places said to have a strong "sense of place" have a strong identity and character that is deeply felt by local inhabitants and by many visitors. Sense of place is a social phenomenon that exists independently of any one individual's perceptions or experiences, yet is dependent on human engagement for its existence. Such a feeling may be derived from the natural environment, but is more often made up of a mix of natural and cultural features in the landscape, and generally includes the people who occupy the place.

Research commissioned by English Heritage has shown that 'the historic environment contributes towards a distinctive sense of place, and a sense of

continuity, which can support a greater sense of people's self-esteem and place attachment. The historic environment can also be understood as a setting for people's daily lives, giving rise to a less conscious experience of place' (Graham et al 2009, 1).

2.5.1 Perceptions and attitudes

Traditionally, wetland landscapes like the coastal marshes of Essex have been perceived as 'marginal'; only exploited at times when people were forced by conditions to do so (Rippon, 2000, 3). However, in more recent decades, archaeologists have moved away from the idea of 'marginality', with all its negative connotations, to demonstrate the importance of the resources embodied in the Essex marshes for medieval and post medieval communities (e.g. Murphy and Brown 1999, 18-19; Williams and Brown, 1999, 14-16), and historical evidence provides crude indications that past connections between people and the landscape of historic grazing marshes along the Essex coast are likely to have been stronger than they are today. For example, the 1811 census return suggests 54% of the population of Essex was employed in agriculture at the start of the 19th century (Wormell 1999). Today that figure stands at roughly 1.3% (Defra Annual Census of Agriculture – June 2001), demonstrating that the marshes provide a setting to the daily working lives of far fewer people than they once did. Cartographic evidence, such as the 1777 Chapman and Andre map of Essex, and 1st edition Ordnance Survey maps, illustrates the multitude of lanes and byways that physically linked the edges of the coastal marshes to adjacent 'dryland' areas. Physical access, perhaps more so than visual access, is of course key to peoples 'sense of place', and whilst many of these historic route-ways survive as public rights of way, in some parts of the county, such as the north shore of the Thames, access links have been severed or interrupted by modern transport infrastructure, thus disconnecting people from the marshes. Conversely, it has been speculated that evidence within Elizabethan archives for a lower incidence of sheep theft from the marshes, than from other parts of the county, may have been due to their inaccessibility (Emmisson, 1991, 50). Historically, territorial links to the marshland landscapes were demonstrably stronger; research by Steve Rippon (2000) has shown that areas of the South Essex marshes were once parts of parishes located some distance away (the same parishes had detached areas of heathland and woodland on nearby high ground). One example is Laindon, a medieval parish that has now been subsumed within the 1950s New Town of Basildon, but which once held a substantial part of the coastal marshes on Canvey Island. These links illustrate the complex land management strategies that existed in the past (integrating the grazing livestock on dryland and wetland areas) and could be taken to suggest that the connections between people and these landscapes are likely to have been stronger than now.

Various metrics and questions have been developed as approaches to the measurement of people's sense of place, and its associated constructs, including place identity, place dependence, and place attachment (e.g. Jorgenson and Stedman 2001, 235). However, Graham *et al*, warned that when attempting to measure sense of place, the values attached by people to the historic environment are 'multiple, can be changeable, and will not necessarily map onto those identified by official bodies' (2009, 5). They concluded that when considering how to explore the connections between the historic environment and sense of place, any methodology should: 'delineate and seek to understand the historic environment as it works on an individual, social and place-level', and that other factors such as, 'social networks and relationships between people also need to be understood' (*ibid*).

From this, it is apparent that developing a methodology for assessing the contribution of historic coastal grazing marshes in Essex to people's sense of place is far beyond the scope of the present study, and unsurprisingly there is little evidence in the readily available literature that any such attempt has been made to date. In the south of the county Plumb Associates undertook a public consultation on the draft Vision, Gateway Plan and proposals for the Thames Estuary Footpath that had been prepared as part of the Interreg funded MaxiGreen Project (Plumb Associates 2012). A key aim of the consultation was to try to reach a wide mix of local people to include existing users and those who currently do not visit the South Essex Marshes in order to understand the barriers that were limiting current use of the area. The consultation results confirmed that there is a lack of awareness of the South Essex Marshes, both its extent and the opportunities it provides for visitors. There was however an interest in both highlighting to visitors the area and its attractions (both its heritage and wildlife). The physical, as opposed to social or perceived, barriers to accessing the south Essex marshes held by the RSPB were reviewed by Wood in 2009 (Wood 2009).

It is necessary therefore, to look to other forms of evidence in order to try to acquire some indication of the potential meaning and importance of historic grazing marshes to the people and communities that can be expected to have varying levels of connection to them.

In the last ten years or so a new form of writing about the spirit of place has emerged; mixed genre works of travelogue, ecology, history, conversation and memoir, with affinities to the work of contemporary psycho-geographers, such as Iain Sinclair and Will Self, who themselves cover more urban terrain (Hunt 2009), and acknowledgment of earlier literary influences like J.A. Baker, Richard Mabey, Roger

Deakin and W.G.Sebald. Chief amongst the writers in this nascent literary movement has been Robert MacFarlane, author of *The Wild Places* (2007) and *The Old Ways* (2012), who in a series of essays for the *Guardian Review* entitled 'Common Ground', linked writers to particular landscapes, and emphasised the importance of their concern with the local and of knowledge about place (Watts 2012). Several of these authors, including Macfarlane, write from East Anglia, and have included the Essex coast in their works. For the purposes of this study, these writers were therefore considered worthy of at least a cursory examination as a potential source for understanding the contemporary meaning of the coastal grazing marshes to people in Essex.

In his essay *350 miles: An Essex Journey,* Ken Walpole recognises the influence of the Essex coast on his, and other writers early sense of place (notably the historian Simon Schama), and in his introductory chapter acknowledges the role of history, which 'lies embedded along the coastline in many forms and guises' (2005). Walpole considers the Essex coast be 'one of the most complex and historically rich landscapes to be found', which is 'crucial to the unique identify of the county' (*ibid*). As part of the 'Memory Maps' collaboration between the University of Essex and the V&A museum, Phillip Terry wrote a series of 33 poems entitled 'Elementary Estuaries' in an attempt to build up an archive of places, sights, sounds, textures, sensations, people, birds and animals of the estuarine landscapes of the Essex coast. Terry understands that these landscapes 'carry traces of our Island's history', and Poem VII in the series takes its inspiration from the Battle of Maldon, whilst Poem XIX references archaeological features, including the wrecks of barges and Roman salterns, and the conservation management of grazing marshes, with their characteristic anthills, designated for their nature conservation importance (http://www.vam.ac.uk/content/articles/m/memory-maps-elementary-estuaries-philip-terry/).

Robert Macfarlane also featured the Essex coast, but not specifically its grazing marshes, in his search for wildness in the British Isles, re-visiting J.A. Baker's hunting ground of the Chelmer Valley and Dengie peninsula (2007, 271-298). Macfarlane has been accused of 'de-historicising the landscape in his writing, in an effort to create a conceit of empty wilderness' (Jamie 2008), but in the shadow of the Saxon chapel of St Peter's, Bradwell-on-Sea, he describes meeting an elderly couple who visit there 'every weekend', demonstrating a strong emotional attachment to the place. In his topographical writing on the coast of eastern England, Jules Pretty describes similar encounters, including one on a Dengie sea wall with a father and daughter who have gone there as 'just an escape' (2011, 82). Later on his journey, he spends the day with a wildfowler on the northern side of Hamford Water,

and recognises the importance of these coastal habitats to the wildfowlers who use them, suggesting that 'this land is their identity' (ibid). However, in the south of the county, along the industrialised north shore of the Thames at West Tilbury, Pretty recognises a diminished interest in the specificities of place and writes: 'now the lost places of these marshes of Essex seem to be just shadows, covered by roads and factories and retail experiences' (2011, 26). James Canton, in his exploration of the Essex landscapes that have inspired some of England's greatest literary figures, echoes this during his illusive search for William Defoe's Tilbury Tile factory: 'What had changed was Chadwell Marsh. In the late 17th century, Defoe's freshly built Brick House was one of only three buildings here….Now there was an industrial park and a monumental container port, not to mention the sprawling town of Tilbury further down the road' (2013, 127). Downriver, on the edge of Fobbing Marsh, Jules Pretty also identifies a disconnection between people and the marshes, even those that have survived the suffocation of landfill and industrialisation: 'I come upon a couple who start guiltily, and have no idea of a route across the marshes when I ask. They stare. Why would anyone want to go across there?' (*ibid*, 37).

In order to better comprehend the functional and emotional relationships between past populations and coastal grazing marshes in the county, their perceptions of, and attitudes towards them, it may be that a phenomenological approach, combined with more traditional historical, geographical and archaeological methods, would be beneficial. Such research could potentially serve as a backdrop, against which the results of measurements of contemporary 'sense of place', and its associated concepts could be viewed, helping us to better understand the current value of historic grazing marsh to communities in Essex.

2.6 The significance of historic coastal grazing marsh in Essex

'Significance' is the sum of the cultural and natural heritage values of a place (English Heritage 2008), and is a means by which the importance of a place and its component parts can be measured and compared. Understanding significance makes it possible to assess how the qualities that people value are vulnerable to harm or loss, and to develop proposals that will protect or enhance the cultural and natural values of a place.

In statutory terms, the significance of historic coastal grazing marshes in Essex has been primarily recognised through their nature conservation designations.

For the historic environment, statutory protection is much more limited. Individual heritage assets located on historic coastal grazing marshes have been designated as scheduled monuments, due to their national importance, and these can convey

direct protection to an area of grazing marsh, such as the scheduled area of Coalhouse Fort (see East Tilbury Marsh in Section 3), or indirect protection through the contribution an historic coastal grazing marsh makes to the setting of a scheduled monument. The site of the Battle of Maldon is registered within the Register of Historic Battlefields due to its national importance, and also conveys protection to the grazing marsh that falls within its boundary. Otherwise, the only designation that relates to the historic environment of coastal grazing marsh in Essex is the Hadleigh Marshes Special Landscape, which is held as a development policy in Castle Point Borough Council's Adopted Local Plan (1998).

Whilst some historic grazing marshes and their associated heritage features have been assessed as special, or of national importance, this report demonstrates that historic character resides more widely in the typical and commonplace throughout the marshes. As an aid to logical decision-making, particularly in relation to future iterations of the Shoreline Management Plan, different stages of the planning process, and the prioritization of funding that may be available for positive conservation management e.g. via future agri-environment schemes, the current project has attempted to analyse the significance of each surviving historic coastal grazing marsh in more detail. This understanding of the significance of historic coastal grazing marshes can then inform and influence day to day management of the marshes and decisions about their future, taking account of the full range of heritage values that contribute to their significance.

A simple values-based methodology for assessing the Significance of surviving historic coastal grazing marshes in Essex was required to be developed and then applied to each of the surviving marshes in order to generate individual scores for Significance. The English Heritage Conservation Principles (2008) were chosen as the basis on which the scoring system would be developed, as a way of understanding the complexity of the historic environment through a logical consistent approach. The Conservation Principles define a family of values that in combination can be used to describe and understand the significance of a place at a range of scales. Four types of value were adopted by English Heritage under the following definitions:

Evidential Value, which derives from the potential of a place to yield evidence about past human activity.

Historical Value, which derives from the way in which past people, events and aspects of life can be connected through a place to the present.

Aesthetic Value, which derives from the way in which people draw sensory and intellectual stimulation from a place.

Communal Value, which derives from the meanings of a place for the people who relate to it or for whom it figures in their collective experience and memory.

Consideration of these high level values contained within Conservation Principles, and those inter-related heritage values that may be most appropriately attached to historic coastal grazing marshes and its characteristic features, led to the identification of a range of values by which the significance of the marshes would be assessed. Whilst the full range of heritage values that may be encompassed within an historic coastal grazing marsh have been considered, those values that contribute to the significance of the marshes as historic landscapes, are given particular weighting. This method of scoring is intended as a simple, but consistent, means of engaging with issues of value, importance and relative significance. It is not designed to be definitive and is likely to be subject to change as new information becomes available and understanding develops. The seven criteria that have been used and their associated high level values are shown in Table 1.

Criteria	**High level heritage value(s)**
Archaeological potential	Evidential Value
Archaeological association	Evidential Value
Group Value (association)	Evidential Value; Historical (illustrative) value
Diversity	Historical (illustrative) value; Aesthetic value
Amenity	Communal Value
Historical Association	Historical (associative) Value, Aesthetic value
Biodiversity	Evidential Value

Table 1 Significance criteria that have been used and their associated high level values

Each historic coastal grazing marsh has been scored on the full range of criteria for which separate scores are retained within the GIS metadata. Each criterion has been scored with a rating of 0, 1, 2, or 3, with the exception of diversity, which has been weighted by scoring using a rating of 0, 2, 4, 6, in recognition of the importance of characteristic historic landscape features to the historic environment significance of grazing marshes.

The criteria are discussed below with each of the individual criterion described along with the rationale behind them.

2.6.1 Archaeological Potential

Archaeological Potential is assessed with respect to the expected average circumstances within the area of marsh. The score considers the nature of the heritage assets based on current evidence, and indicates the likelihood of further assets being present given the chronology/time-depth of any given marsh and the levels of known disturbance that may have adversely affected them.

Description	**Rank**	**Score**
There is a general absence of known historic environment assets e.g. 19th century sea wall only; significant 'improvement' has taken place thus reducing the potential for surviving heritage assets within the marsh; potential for other surviving historic environment assets is limited e.g. potential for deeply buried deposits only due to 19th origin of the marsh.	Very Low	0
There are very few known historic environment assets and/or the assets have limited archaeological potential e.g. post medieval sea wall & borrow dyke, WWII anti-landing ditches and the marsh has been 'improved' e.g. through 19th/20th century drainage and cultivation reducing the potential for surviving heritage assets	Low	1
There is a moderate range of known heritage assets e.g. post medieval sea wall, borrow dyke, red hill, and	Medium	2

raised causeway, but chronology/time depth of land claim and/or understanding of the features present, or of those in adjacent marshes/creeks, indicates a current lack of knowledge is probably the result of lack of investigation rather than absence of features. Disturbance to the marsh is very limited e.g. one or two 'straight' drainage ditches.		
Current evidence indicates that a range of high quality assets survive, or are likely to survive, within the area of marsh e.g. buried prehistoric land surface, red hill, medieval counter walls, raised track-way, decoy pond, medieval sea wall, borrow dyke, post medieval farmstead, WWII anti-landing ditches	High	3

2.6.2 Archaeological (non-contemporary) Association

This criterion relates to whether the marsh has a non-contemporary spatial association with known archaeological sites. Non-contemporary is taken to mean prior to the medieval period or post 1880 after which new coastal grazing marshes were generally not created. Examples of strong associations with non-contemporary archaeological sites where a high score would be achieved include: a scheduled red hill or World War II defences. A medium score might come from non-designated, plough flattened red hills, or where prehistoric or roman timber structures have been previously identified. A low score could equate to limited or poorly recorded finds of earlier archaeological material e.g. during ditch clearance work. Marshes with no recorded spatial association with non-contemporary archaeological features would score lowest.

Archaeological Association	**Rank**	**Score**
No known association with non-contemporary archaeological features	Negligible	0
The marsh has limited association with non-contemporary archaeological features	Low	1

The marsh has a strong association with one or more non-contemporary archaeological features	Medium	2
The marsh has a strong association with one or more designated or other nationally important, non-contemporary archaeological features	High	3

Fig. 18 Anti-landing ditches and bomb craters on Fobbing Marsh in 1947

2.6.3 Group Value (contemporary association)

The value of a marsh may be enhanced by its spatial and/or functional association with other features of broadly the same date, e.g. other historic grazing marsh, listed agricultural buildings, and other sites on the Essex Historic Environment Record (EHER) such as timber jetties that are physically adjacent to the marsh, or where the marsh marks a significant historic boundary such as of an historic parish pre-dating 1850.

An historic grazing marsh which is still linked to another area(s) of historic grazing marsh, a medieval farmstead containing listed buildings on the edge of the marsh, or a scheduled red hill re-used during the medieval period, or a marsh that includes a parish boundary would score highly. A marsh with only limited links to contemporary features such as a surviving sea wall of an adjacent area of improved grazing marsh would score low.

Fig. 19 'Ships lock', Abbots Hall

Group Value (association)	**Rank**	**Score**
Limited associations between historic landscape features and other historic assets of broadly the same date	Low	0
Direct associations between more than one historic landscape feature or other significant historic asset of broadly the same date	Medium	1
The marsh has associations between a moderate range of contemporary historic landscape features and other historic assets of broadly the same date	High	2

The marsh has strong associations between a range of designated contemporary historic landscape features, and/or a wide range of non-designated contemporary historic landscape features/other historic assets of broadly the same date	Very high	3

2.6.4 Diversity (of characteristic features)

This criterion relates to the range of characteristic, component historic landscape features that an historic grazing marsh is made up of, not all of which will be demonstrated equally well at different marshes. A marsh which has a wide range of characteristic historic landscape features including sea walls, borrow dykes, counter walls, raised causeways, relict salt marsh, creeks etc will have high diversity. A marsh that just has a sea wall and borrow dyke will have low diversity.

Diversity	**Rank**	**Score**
Limited range of characteristic historic landscape features e.g. sea wall only	Low	0
Moderate range of characteristic historic landscape features	Medium	2
Good range of characteristic historic landscape features	High	4
Extensive range/concentration of characteristic historic landscape features	Very high	6

2.6.5 Amenity

This relates to the actual or potential amenity value of a marsh based on the level and ease of physical access to a marsh, and the size of the local population that may access it. In this instance, access is used as a proxy for measuring the communal values that are likely to be attached to a particular marsh, which would be beyond the scope of the present study i.e. the greater physical access there is to a marsh and the greater the number of people with access to it increases the likelihood of social values being attached to the it.

Fig. 19 Access to coastal grazing marshes is often limited to a footpath along the sea wall

Description	**Rank**	**Score**
No direct public access/use and away from population centre/visitor facilities	Negligible	0
Limited public access/use e.g. single footpath and/or away from population centre/visitor facilities	Low	1
Moderate public access/use e.g. small nature reserve and within walking distance (1km) of a village/visitor facilities	Medium	2
High level of public access/use e.g. well used nature reserve and within walking distance (1km) of a town/visitor facilities	High	3

2.6.6 Historical Association

The historical associative value of a marsh derives from its association with a notable family, person, event, or movement. Being at the place where something momentous happened e.g. the Battle of Maldon, can increase and intensify understanding through linking historical accounts of events with the place where they happened – provided, of course, that the place still retains some semblance of its appearance at the time. Marshes are also associated with the development of other aspects of cultural heritage, such as literature, art, music or film. Associative value also attaches to places closely connected with the work of people who have made important discoveries or advances in thought about the natural world.

Fig. 20 Reconstruction painting of the Battle of Maldon (illustrator Iain Bell)

Description	**Rank**	**Score**
No direct historical associations with a family, person, event or movement; no known literary, film, artistic or	Low	0

musical associations of local importance or; Indirect historical association with a family, person, event or movement and/or literary, film, artistic or musical associations of local importance		
Direct historical association with a family, person, event or movement and/or literary, film, artistic or musical associations of local importance; or indirect historical association with a family, person, event or movement, and/ or literary, film, artistic or musical associations of regional importance	Medium	1
Direct historical association with a family, person, event or movement, and/ or literary, film, artistic or musical associations of regional importance; or indirect historical association with a family, person, event or movement, and/or literary, film, artistic or musical associations of national or international importance	High	2
Direct historical association with a family, person, event or movement, and/or literary, film, artistic or musical associations of national or international importance	Very High	3

2.6.7 Biodiversity

The natural heritage values of a marsh can contribute to its illustrative value, for example through the survival of distinctive grazing marsh flora, and the interdependence of associated species.

Description	**Designation**	**Rank**	**Score**
Highly improved, low botanical diversity supporting a low diversity of other taxa. Very low structural diversity.	No site designation	Low	0
Slightly improved with low-medium biodiversity with some locally important species. Low structural	Locally designated (LoWS, LNR	Medium	1

diversity.	etc)		
Unimproved, with a medium-highly diverse flora with locally and some nationally important species. Medium structural diversity. Supports some other important taxa.	Nationally designated (SSSI, etc)	High	2
Unimproved, with a highly diverse flora with nationally important species. High structural diversity. Supports other nationally important taxa.	Internationally designated (SAC, SPA, RAMSAR, etc)	Very High	3

Fig. 21 Old grassland of historic grazing marshes are typically characterised by the ant hills of the Yellow Meadow Ant

2.7 Losses of coastal grazing marsh: former coastal grazing marsh in Essex

This project has identified a total area of 24,420 hectares of land that can be identified as having once been reclaimed land and coastal grazing marsh.

In her seminal work on the 1953 flood disaster in Essex, Hilda Grieve surveyed the historical sources for the development of coastal defences in the county, and changes in the use of the associated marshes, from the Middle Ages through to the night of that fateful event (Grieve, 1959). Grieve demonstrated that, from the 12th century onwards, there is documentary evidence for areas of natural saltings, always used as grazing for sheep, being embanked, and thus converted to grazing marsh. However, the inadequacy of historical records concerning this activity before the mid-18th century (Gramolt, 1960, 16) means that it is unlikely that the maximum extent of coastal grazing marsh in the county will ever be determined accurately.

Grazing marshes have had a varied history. Many have undergone drainage, levelling and ploughing. During the 1980's several studies undertook to identify the extent of losses of grazing marsh in coastal areas of Essex (Williams and Hall, 1987; Thornton and Kite, 1990; RSPB, 1989), Greater London and Kent, due primarily to the importance of this habitat for wildlife. These culminated in an attempt to bring together the results of these studies to produce a composite set of data and maps illustrating the decline in grazing marsh between the 1930s and 1980s around the whole Greater Thames estuary area (RSPB, 1990). Despite overlaps in their coverage, the different sources of data used, and methodological differences in their approach, such as some studies mapping land outside the sea wall, the data showed that the greatest losses had occurred in Essex, with over 50% of the 24500 ha of grazing marsh present in the 1930s gone by the 1960s, and only 28% (c.6860 ha) still present in the 1980s (ibid).

Between 1935 and 1989, 1613 hectares of grazing marsh along the Essex section of the Greater Thames Estuary were converted to arable production (RSPB, 1990). The most dramatic phase of arable conversion was around the Second World War and with a second phase following the Great Flood of January 1953. There was another rapid period of conversion following Britain's entry into the European Economic Community. Whilst small areas have subsequently reverted back to marshland, particularly as a result of agri-environment schemes including the Essex coast Environmentally Sensitive Area, and Environmental Stewardship, most have remained in arable cultivation. Losses have also occurred through urbanisation, but to a far lesser degree than arable conversion. A steady increase in urban land use took place between 1947 and 1960, mainly in land adjacent to existing centres of population such as Maldon, Burnham and West Mersea. Urbanisation results not only in the loss of habitat, and heritage assets but of the open and linear character of the marshlands, with buildings and ornamental tree planting causing fragmentation of once uninterrupted landscapes and views.

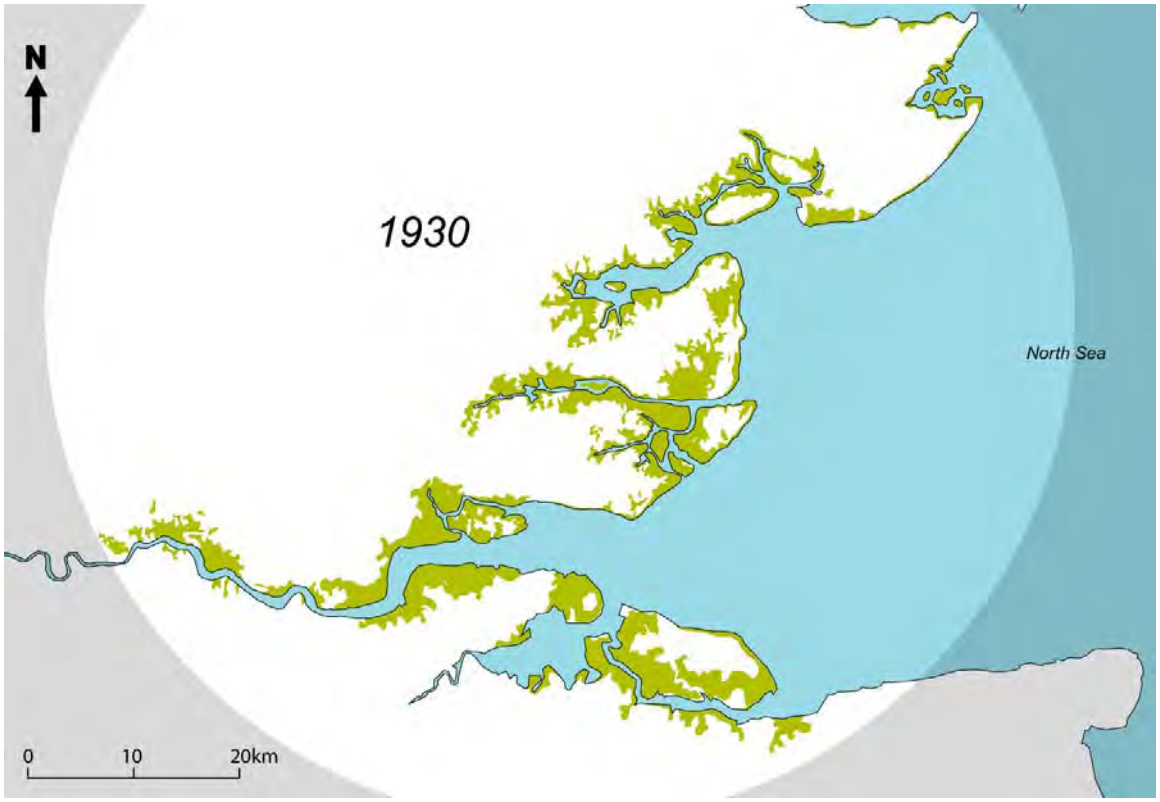


Fig. 22 Extent of coastal grazing marsh in 1930 (based on RSPB 1990)

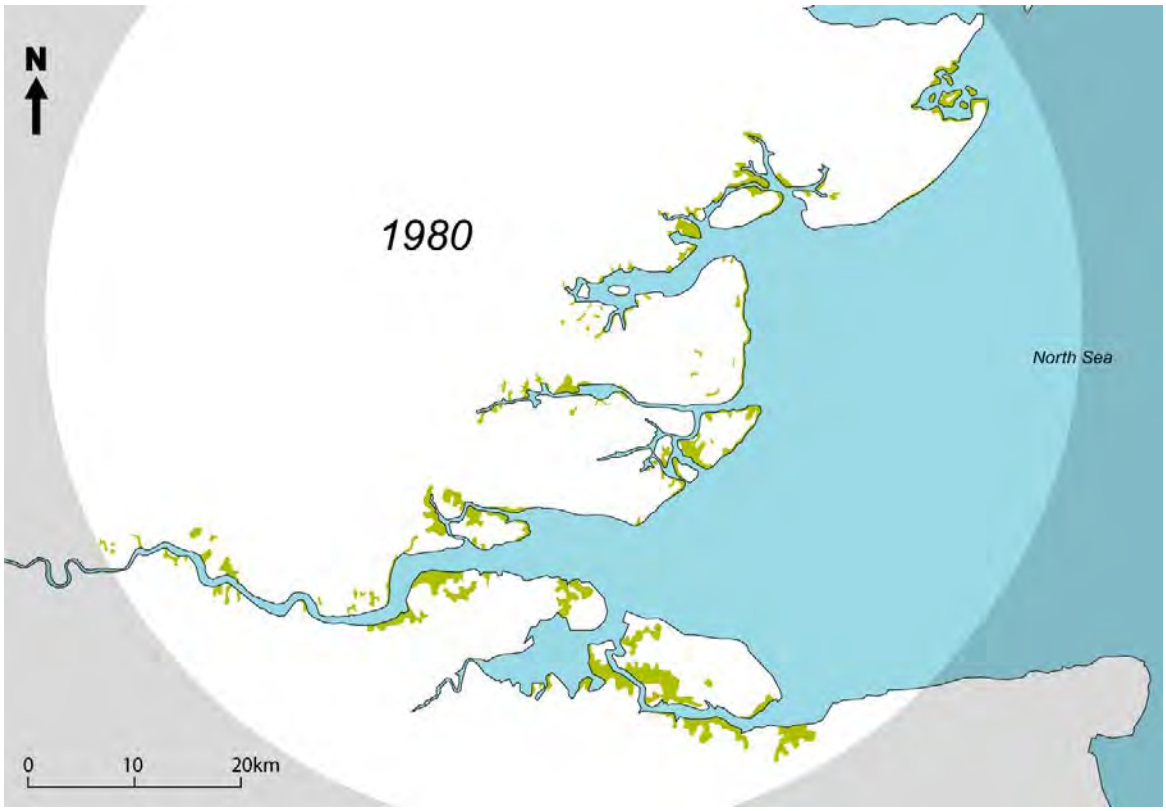


Fig.23 Extent of coastal grazing marsh in 1980 (based on RSPB 1990)

2.7 Vulnerabilities of historic coastal grazing marsh and drivers of change

2.7.1 Urbanization

In order to maintain the Essex coast, as a place that people wish to live, work and visit, with a viable economy, modern sustainable development is necessary, and should be planned for and managed. This will inevitably require development in and around our coastal grazing marshes, which can lead to direct and indirect adverse impacts on the significance of these historic landscapes. Impacts may affect a particular marsh, but there may also be a cumulative effect, on ensembles of marshes.

Remaining marshes that are not designated, or only designated locally, are at risk of land-take in the future, especially those that are adjacent to developed land. This is a risk at Wennington Marsh, where remaining marshes are situated between the A13 and the Channel Tunnel Rail Link, a prime position for development. Even designated sites can be threatened by large infrastructure developments. The A13 has bisected Rainham, Wennington & Aveley Marsh, which is part of the Inner Thames Marshes SSSI. Although the flyover was intended to avoid the marsh, disturbance from construction and pollution from the traffic has resulted in the degradation of the marshland biodiversity into an unfavourable declining condition, as well as an impact of the setting of the marsh as an historic landscape.

Major coastal infrastructure projects, as well as having an impact on historic marshland e.g. through the construction of new transport links, also include the requirement to provide compensatory habitat, for example when salt marsh lost through development is recreated elsewhere. This can have an even greater impact than the development itself, a recent example being the London Gateway development. Future coastal developments in Essex include the proposed port facilities at Bathside Bay and a new Thames Crossing between Essex and Kent, intended to relieve pressure on the existing Dartford river crossing and enhance economic links between the two counties. Only well informed and carefully considered spatial and physical planning, within the context of legislation, the National Planning Policy Framework, and local planning policy, can secure the historic environment significance of the counties remaining coastal grazing marshes, while meeting the social and economic needs of new industrial areas, ports, settlement and related infrastructure.

2.7.2 Green Infrastructure

Associated with increased urbanisation will be less obvious impacts, resulting from changes in the size and proximity of the population to coastal grazing marshes, and initiatives to encourage enhanced access to, public enjoyment of these areas. Demography and other social parameters such a unemployment rates, the housing market and mobility, and patterns of commuting, can all have effects on grazing marshes, their maintenance and character. Capital works associated with enhanced recreational and visitor facilities, such as car parks, and nature reserve infrastructure will sometimes directly damage areas of grazing marsh, and can result in changes to the natural patterns of erosion in an area. Inappropriate uses, and increased recreational use, can put historic landscape features and archaeological sites at risk in a number of ways. Visitor activities such as horse riding, motor bike scrambling and fire lighting can directly disturb archaeological deposits and the legibility of earthworks, and often cause the ground surface to break up and expose deposits to more destructive, agents of erosion. Conversely, declining population levels in and around our coastal grazing marshes could threaten awareness of their heritage values, and people's sense of belonging and place. There have been numerous successful green infrastructure initiatives in recent years, carried out within the Thames Gateway, stemming from the *South Essex Green Grid*, *Parklands* and more recent activity around the Greater Thames Nature Improvement Area and European funded projects like *MaxiGreen*.

2.7.3 Natural Environment Initiatives

Many projects undertaken within the framework of green infrastructrure initiatives have stemmed from the desire to enhance existing habitats and to create new ones, such as the establishment of a nework of new nature reserves by the RSPB in the south Essex marshes. Significant areas of coastal grazing marsh are now in the ownership of conservation charities, like the Essex Wildlife Trust, RSPB and National Trust, which usually manage these areas to maximise their value for wildlife. Agri-environment schemes such as Environmental Stewardship, have also supported individual land owners in the creation of new habitat on their holdings. Creation of scrapes, ditches, reservoirs and visior infrastructure can all have negative impacts on heritage assets or the historic character of the marshes, and require careful planning and mitigation. Fortunately, Essex County Council and English Heritage have worked closely with these organisations in recent decades, to ensure that the evidence base upon which such decisions are made is robust. Opportunities to enhance the significance of the historic environment, and peoples enjoyment of it have also arisen as a result.

Some remaining historic marshes are within international sites designated for their bird fauna, and as such are not managed as grazing marshes. Wildfowl such as Brent Geese are able to feed on improved marshes, and many support thousands of wildfowl every year. Marshes like those on Cudmore Grove, Mersea Island are managed specifically for Brent Geese due to their designation as a SPA & Ramsar site, with high water levels and a shorter sward than would be found in a traditional grazing marsh. This can cause a loss of scarce herbs and valuable invertebrate species. However, improvement is less than would occur if the site were undesignated and these marshes are still highly valuable for biodiversity, even if typical grazing marsh species are vulnerable as a result of management.

2.7.4 Climate Change/Sea level rise (including SMP)

Climate change and sea level rise will be a cause of significant change to the counties coastal grazing marshes, both through the potential impact of natural flooding events i.e. breaches of the sea walls caused by storms, and the human responses to them embodied in the Essex and Suffolk Shoreline Management Plan, such as managed realignment. Despite engagement of the historic environment sector and nature conservation organisations in the process of preparing the current SMP, the most significant areas of coastal grazing marsh in Essex (as identified during this project) have been chosen for managed realignment during the period of the plan to 2105, including Old Hall Marshes, and Tollsbury Wick. Whilst some of the natural environment values attached to these marshes may be replaced or regained over time, these are complex and sensitive historic environments, representing a finite resource that once lost or damaged cannot be replaced.

Like grazing marsh, saltmarsh is also a UKBAP habitat and it is also declining at a rapid rate due to sea-level rise. Many schemes for restoring saltmarsh involve managed realignment. Managed realignment causes the loss of grazing marsh through coastal squeeze. The incursion of the sea behind the ancient enclosures that first formed the grazing marshes causes the marshes to revert to saltmarsh. However, the grazing marsh can often not extend further landwards to compensate for this due to a new line of defences behind it, resulting in the ‘squeeze’ of the marsh into narrower areas. Eventually these areas will be completely reverted to saltmarsh. In areas where the new defences are relatively close to the breached line of defence, the grazing marsh may be excluded immediately, as the entire area will be flooded on breach of the old defences. Where marshes will remain protected from flooding with current line of defence held, they may become subject to drying out rather than flooding. Climate change is predicted to cause a lowering of the freshwater water table, leading to lower extent and duration of surface water, drying

out of ditches and shorter duration of high winter water levels. This is likely to cause a loss of the ‘periodic inundation’ that is a defining characteristic of grazing marshes.

Fig. 24 An area of early managed realignment at Tollesbury. A number of red hills were recorded in the area prior to breaching the sea wall in 1995

2.7.5 Agriculture and the loss of traditional management

The majority of remaining historic grazing marshes in Essex that have not been designated for their importance to biodiversity have been improved for agriculture in recent decades, and have lost their marsh biodiversity as a result. Marshes such as these can no longer be classified as UKBAP grazing marsh. This high pressure for change means that any marsh that is not nationally or internationally designated is highly vulnerable to agricultural improvement, even if it has nationally important plant species.

Changes to current agricultural regimes on the coastal grazing marshes resulting from CAP reform, alterations in commodity prices and the introduction of new crops,

has the potential to result in losses to the historic character of the grazing marshes, individual heritage assets within them, and their biodiversity, as a consequence. The expansion of arable cultivation, intensification of livestock grazing, water extraction, new agricultural buildings and changing crop types could all have a negative impact. Statutory controls, cross-compliance rules and incentives for conservation have increased in recent decades, but may yet prove insufficient to secure the historic and natural significance of the grazing marshes. Grazing marshes that are managed for hay or silage are usually fertilised, causing the loss of many herb and invertebrate species. This has happened at Paglesham, where heavy improvement has greatly reduced the species diversity. Grazing marshes are also subject to pesticide drift and run-off from adjacent agricultural fields. Marshes that are adjacent to arable land are often of a lower species richness than those further away, as a consequence.

Grazing marshes were traditionally grazed by both cattle and sheep at a low density. Due to agricultural changes, many extant grazing marshes are no longer managed in a traditional manner. Inappropriate mowing, and overgrazing are common issues. Both cause the vegetation structure and species composition to change, with many characteristic grazing marsh species such as Strawberry Clover replaced with common grasses such as Rye Grass. This reduces foraging habitat for rare invertebrates, such as of the Carder Bee *Bombus muscorum,* a UKBAP species restricted to a few grazing marsh grasslands in Essex.

Overgrazing leads to a short sward, reducing nesting habitat for invertebrates and reducing the number of herb species. It also causes poaching of the ditch banks and high cattle numbers can lead to eutrophication of ditch water, as happened in the past at Old Hall Marshes. Poaching by livestock can also damage archaeological earthworks such as red hills and counter walls, resulting in the loss of archaeological deposits and reducing their legibility as monuments.

Some of the most important areas of grazing marshes for plants and invertebrates are the ‘foldings’ between the landward slope of the enclosing sea wall and the corresponding borrow dyke. Foldings can be up to 30m wide and constitute a large proportion of available invertebrate and floral habitat. Many foldings are considered as part of the sea wall, and are subject to a strict management regime of a short mowing in July or August, resulting in the loss of flowering herbs and nesting and foraging habitat for invertebrates such as *B. muscorum.* The foldings are therefore vulnerable to losing their floral and invertebrate diversity through mismanagement.

Under-grazing can also result in damage to archaeological earthworks and historic landscape features. Scrub encroachment will reduce the legibility of earthworks, and built structures, and provide cover for rabbits resulting in disturbance to below ground archaeology through burrowing. Red hills appear to be particularly vulnerable to rabbit burrowing, due to their composition and the fact that they are raised above normal flood levels.

Fig. 25 Rabbit burrowing on a Red Hill, Langenhoe Marsh

3 Characterisation of the historic coastal grazing marsh resource

The characterisation analysis formed the initial stage of this project, with the methodology developed from work carried out elsewhere in the county by Essex County Council on the characterisation of the historic environment (e.g. ECC 2009). The detailed methodology is presented later in this report, and the results of the characterisation are presented within the GIS data and the descriptions within the following section. Although the characterisation drew on existing approaches, in terms of its subject and style, the characterisation work undertaken for this project was novel and challenging, being more focussed and detailed in scope, whilst also encompassing the natural environment.

3.1 Historic Environment Character Descriptions for surviving coastal grazing marsh in Essex

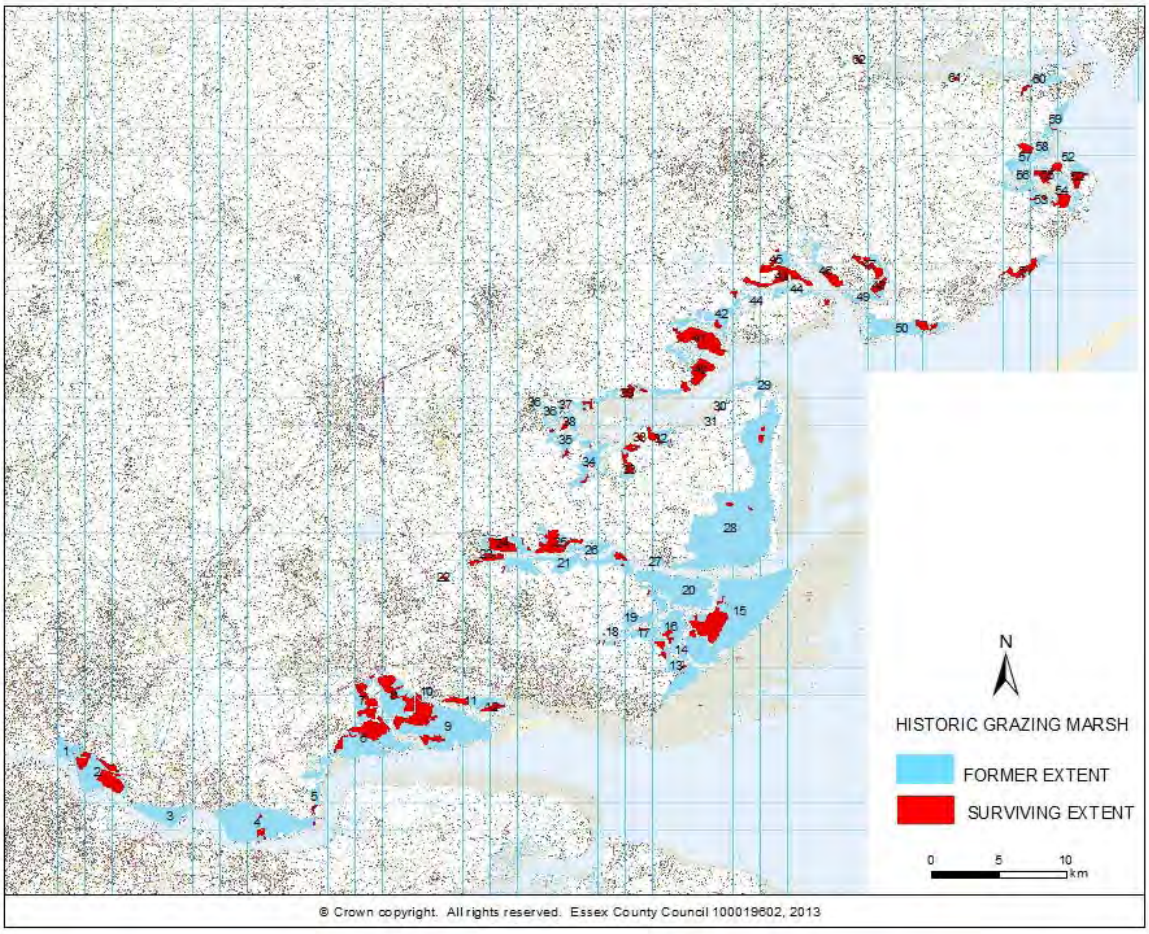


Fig. 26 Distribution of coastal grazing marshes in Essex showing the surving extent

3.1.1 MARSH 2

Marsh 2.1 Rainham, Wennington and Averly Marshes

Summary:

Part of 'Rainham level' during the late medieval period. There is a mixture of straight and curving drainage ditches throughout the marsh. Features from the former WWI Purfleet rifle range survive in places, including surface remains of targets and track-ways. The marsh's setting has been almost entirely compromised by modern industrial development and transport infrastructure. Current land use is grazing. The marsh is dominated by common grasses but includes rare species, such as stiff-saltmarsh grass *Puccinellia rupestris.*

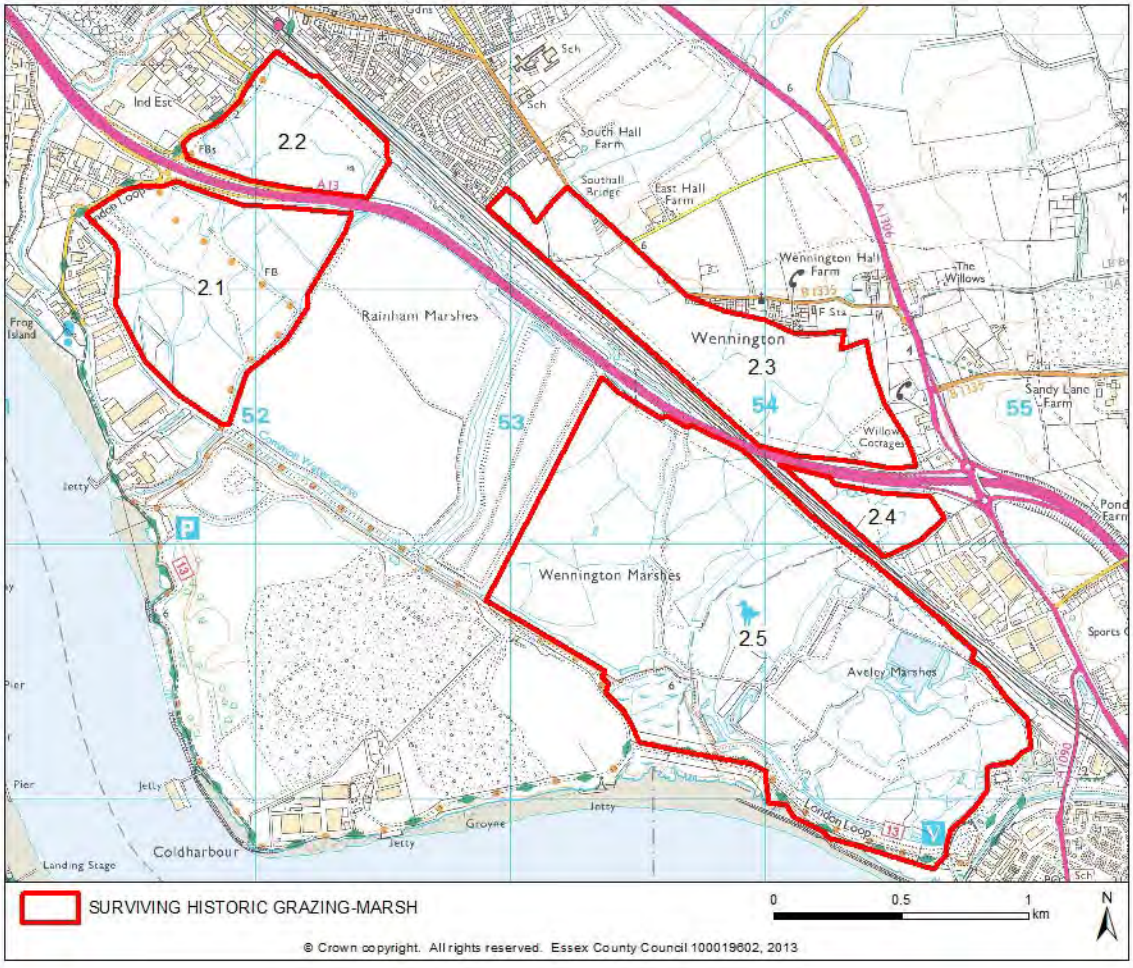


Fig. 26 Marsh 2 - Rainham, Wennington and Averly Marshes

Historic environment character:

This area of marsh is open, but sub divided by a mixture of straight and curving drainage ditches, the latter representing remnants of old creeks. The marsh includes areas of short grazed grass and un-grazed areas of scrub. The marsh is considered medieval in origin and reclamation was completed by the time of the Chapman and Andre map of 1777. During the late medieval period the marsh was part of 'Rainham Level'. The 1st edition OS map shows track-ways and a sheepfold. During the 20th century, the marsh was part of the MOD Rainham rifle ranges with adjoining land to the south east, which originated during WW1. These are first depicted on the 3rd edition OS map and appear to have been established without destroying the overall character of the marsh. Surface remains of rifle range structures survive. During WWII light anti-aircraft guns were located on the site to defend the Murex Works at Rainham, and aerial photographs indicate that one or more anti-landing ditches were constructed on the marsh. The marsh's setting has been severely compromised by modern industrial development and the A13 road to the north, which separates it from associated marshland (2.2). On its east side, the marsh is separated from the site of an adjacent silt lagoon constructed in the 1970s by a modern earthwork bank and ditch and is crossed by at least one surfaced cycleway with associated bridges.

Character of vegetation:

Mix of un-grazed and grazed areas. Nationally rare divided sedge *Carex divisa is* extensive. The marsh is dominated by common grasses such as red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*. Wet drains are dominated by common reed *Phragmites australis,* contain locally rare aquatic species such as lesser pondweed *Potamogeton pusillus* and threadleaved water-crowfoot *Ranunculus trochophyllous*; and nationally rare soft hornwort *Ceratophyllum sumbersum* and brackish water-crowfoot *Ranunculus baudotii.* One creek contains stiff-saltmarsh grass *Puccinellia rupestris,* a rare plant only known in the London region from this and a few neighbouring sites. A pond/depression contains nationally rare species such as saltmarsh rush *Juncus gerardii* and marsh dock *Rumex palustris.*

Threats:

There are no immediate threats to the marshes natural and historic environment as the land is within a Natural England Environmental Stewardship scheme. However there is a risk of neglect of surface structures associated with the former rifle range, and deposition of pollutants from traffic along the A13.

Thames 2100 Rainham Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including local fluvial flood storage. Front runner choice of Option 2 (Flood storage) in 2070 would result in loss of the grazing marshes.

Significance:

Values	Description	Rank	Score
Archaeological Potential	Limited known historic environment assets but reclamation is considered medieval in origin and modern disturbance to the marsh is fairly limited	Medium	2
Archaeological Association	Remains of WWI military rifle range and WWII defences	Medium	2
Group Value (Association)	Formerly connected to Wennington Marsh to the east but now disconnected from areas of adjacent grazing marsh by highways / former slurry pool	Low	0
Diversity	Some sinuous ditches/former creeks, military structures	Low	0
Historical Association	Association with infantry training for WWI, with the WWII defence of London	High	2
Biodiversity	Nationally designated, high quality grazing marsh.	High	2
Amenity	Cycle route across the marsh and proximity to built-up area	Medium	2
Overall significance			**10**

Marsh 2.2 Rainham, Wennington and Averly Marshes

Summary

Part of ‘Rainham level’ during the late medieval period. There is a mixture of straight and sinuous drainage ditches throughout the marsh. Features from the former WWI Purfleet rifle range survive in places, including surface remains of targets and track-ways. The marsh’s setting has been almost entirely compromised by modern industrial development and transport infrastructure. Current land use is grazing. The marsh is dominated by common grasses, but includes nationally rare divided sedge *Carex divisa*.

Historic environment character

The marsh is considered medieval in origin and reclamation was completed by the time of the Chapman and Andre map of 1777. During the late medieval period the marsh was part of ‘Rainham Level’. The 1st edition OS map shows a track-way and a sheepfold. During the 20th century, the marsh was part of the MOD Purfleet rifle ranges, with adjoining land to the south east, which originated during WWI. The ranges are first depicted on the 3rd edition OS map and appear to have been established without destroying the overall character of the marsh. Surface remains of rifle range structures survive. During WWII light anti-aircraft guns were located on the site to defend the Murex Works at Rainham. The marsh’s setting has been severely compromised by modern industrial development, the A13 road to the south, which separates it from associated marshland (2.1), and CTRL railway line to the north. It is open, sub divided by channels with remnants of old creeks. Mostly short grass used for grazing.

Character of vegetation

Open, short, tussocky grassland dominated by common grasses including red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*. Nationally rare divided sedge *Carex divisa* also present.

Threats

There are no immediate threats to the marshes natural and historic environment as the land is within a Natural England Environmental Stewardship scheme. However there is a risk of neglect of surface structures associated with the former rifle range,

vehicular erosion from misuse, and deposition of pollutants from traffic along the A13.

Thames 2100 Rainham Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including local fluvial flood storage. Front runner choice of Option 2 (Flood storage) in 2070 would result in loss of the grazing marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Limited known historic environment assets but reclamation is considered medieval in origin and modern disturbance to the marsh is fairly limited	Low	1
Archaeological Association	Remains of WWI military rifle range and site of WWII anti-aircraft defences	Medium	2
Group Value (Association)	Disconnected from areas of adjacent grazing marsh by a main road.	Low	0
Diversity	Some sinuous ditches/former creeks, military structures	Low	0
Historical Association	Association with infantry training for WWI, with the WWII defence of London	High	2
Biodiversity	Nationally designated, high quality grazing marsh	High	2
Amenity	Cycle path and close to built-up area	Medium	2
Overall significance			**9**

Marsh 2.3 Rainham, Wennington and Averly Marshes

Summary

Part of ‘Rainham level’ during the late medieval period. There is a predominance of sinuous drainage ditches throughout the marsh representing the courses of old creeks. The marsh’s setting has been compromised by modern development and transport infrastructure, although it retains its relationship with the historic settlement of Wennington. Current land use is grazing. The marsh is dominated by common grasses, but includes nationally rare divided sedge *Carex divisa*.

Historic environment character

The marsh is considered largely medieval in origin, with some later reclamation into the mid to late 17th century, and was certainly completed by the time of the Chapman and Andre map of 1777. The marsh includes the former course of Wennington Creek, marked as a ‘Common Sewer’ on the OS 1st edition. During the late medieval period the marsh was part of ‘Rainham Level’. The 1st edition OS map shows, track-ways and a number of sheepfolds. During WWII light anti-aircraft guns were located on the site to defend the Murex Works at Rainham. The marsh is located to the north of the CTRL railway line, and south of Wennington Road, and the village of Wennington. It is open, sub divided by sinuous channels that highlight the courses of old creeks. There is some indication of surface earthworks representing cultivation or drainage over parts of the marsh. There are some later, straight drainage ditches and track-ways, leading to small buildings/yards and a number of modern electricity pylons. The marsh is mostly short grass used for grazing.

Character of vegetation

Open, short, tussocky grassland dominated by common grasses including red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*. Nationally rare divided sedge *Carex divisa* also present.

Threats

The marsh is undesignated, and threats to the historic environment character and biodiversity are high, including drying out, lack of traditional management, pollution from the railway, land take for development, and conversion to agriculture.

Thames 2100 Rainham Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including local fluvial flood storage. Front runner choice of Option 2 (Flood storage) in 2070 would result in loss of the grazing marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Limited known historic environment assets but reclamation is considered medieval in origin	Low	1
Archaeological Association	Site of WWII heavy anti-aircraft battery	Low	1
Group Value (Association)	Disconnected from areas of adjacent grazing marsh by the CTRL railway, but the marsh retains its association with the historic settlement of Wennington, including the medieval parish church, and also the course of the former parish boundary	Medium	1
Diversity	Some sinuous ditches/former creeks	Low	0
Historical Association	Association with the WWII defence of London	High	2
Biodiversity	Un-designated, low quality grazing marsh	Low	0
Amenity	Close to built-up area	Low	1
Overall significance			**6**

Marsh 2.4 Rainham, Wennington and Averly Marshes

Summary

A small triangle of surviving marsh situated between the A13 flyover and CTRL The area was part of ‘Rainham level’ during the late medieval period. There are one or two sinuous drainage ditches representing the courses of old creeks. The marsh’s setting has been totally compromised by modern industrial development and transport infrastructure. Current land use is grazing. The marsh is dominated by common grasses, but includes nationally rare divided sedge *Carex divisa*.

Historic environment character

The marsh is considered medieval in origin, and was certainly completed by the time of the Chapman and Andre map of 1777. During the late medieval period the marsh was part of ‘Rainham Level’. The 1st edition OS map shows that the marsh was originally connected to Wennington Road to the north by a double ditched causeway/track. The marsh is open, sub divided by two or more surviving ditches that highlight the courses of old creeks. There is a circular pond that may have originated as a WWII bomb crater. A modern electricity pylon is located in one corner and one of the ditches is crossed by a modern bridge. The marsh is roughly 50% short grass used for grazing, and 50% un-grazed. The areas of shorter grass appear to have been poached by livestock.

Character of vegetation

Important for the nationally rare divided sedge *Carex divisa*. Short grazed area mostly dominated by common grasses such as red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*.

Threats

Threats to the marsh are high. Part of the area is severely degraded by the construction of the A13 flyover. There are risks of pollution from the A13 flyover and inappropriate management. Drying out of marsh and silting up of ditches.

Thames 2100 Rainham Marshes Policy Unit potential impact on historic environment resulting from required enhancements to drainage system on marshes, including local fluvial flood storage. Front runner choice of Option 2 (Flood storage) in 2070 would result in loss of the grazing marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Limited historic environment assets but medieval in origin	Low	1
Archaeological Association	No known archaeological associations	Negligible	0
Group Value (Association)	Disconnected from areas of adjacent grazing marsh by the A13 flyover and CTRL railway.,	Low	0
Diversity	Limited sinuous ditches/former creeks	Low	0
Historical Association	No confirmed associations	Low	0
Biodiversity	Low quality grazing marsh but one nationally rare species	Medium	1
Amenity	Visual amenity only from A13/CTRL	Negligible	0
Overall significance			**2**

Marsh 2.5 Rainham, Wennington and Averly Marshes

Summary

An extensive area of surviving grazing marsh, situated to the south of the A13 and CTRL, and adjacent to the River Thames to the south. The area now forms the RSPB's Rainham Marshes reserve. The marsh has numerous sinuous boundaries,

representing the lines of former creeks, and extensive military structures remaining from the WWI Purfleet rifle range, and later WWII anti-aircraft defences, although a significant number of these structures have been demolished, following archaeologically recording. The area was part of 'Rainham level' during the medieval period. Current land use within the reserve is grazing and nature conservation. The marsh is dominated by common grasses, but includes a number of nationally rare species such as divided sedge *Carex divisa, which* is extensive.

Historic environment character

The marsh is considered medieval in origin, and was certainly completed by the time of the Chapman and Andre map of 1777, with a small area along the southern boundary added between 1799 and 1837. During the late medieval period the marsh was part of 'Rainham Level'. The area retains its physical association with the River Thames to the south,.and Mardyke to the east. The 1st edition OS map shows a number of sheepfolds dotted across the marsh, together with track-ways. The sea wall survives on the southern side along the line shown on the 1st edition map. The area also encompasses the former channel of Wennington Creek. Drainage ditches throughout the area retain a sinuous form highlighting their origin as creeks. Areas of stetch cultivation are evident from aerial photographs and some parts of the marsh have been affected by the RSPB's efforts to increase wetland habitat on its reserve. There are significant earthworks and built structures associated with the Purfleet rifle ranges and later anti-aircraft defences dating to WWII. Modern reserve infrastructure includes a visitor centre, multi-user paths etc. The marsh is mainly grazed but there are some un-grazed areas.

Character of vegetation

Mix of ungrazed and grazed areas. Nationally rare divided sedge *Carex divisa* extensive. Marshes dominated by common grasses such as red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, crested dog's-tail *Cynosurus cristatus* and perennial rye-grass *Lolium perenne*. Wet drains dominated by common reed *Phragmites australis,* contain locally rare aquatic species such as lesser pondweed *Potamogeton pusillus* and threadleaved water-crowfoot *Ranunculus trochophyllous*; and nationally rare soft hornwort *Ceratophyllum sumbersum* and brackish water-crowfoot *Ranunculus baudotii.* One creek contains stiff-saltmarsh grass *Puccinellia rupestris,* a rare plant only known in the London region from this and a few neighbouring sites. The pond/depression contains nationally rare species such as saltmarsh rush *Juncus gerardii* and marsh dock *Rumex palustris.*

Threats

The biodiversity of the area managed by the RSPB for nature conservation is unthreatened, but the historic environment of the reserve could be negatively affected by nature conservation, or recreational impacts, as it has been in the past during the creation of the reserve and its infrastructure.

Thames 2100 Rainham Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including local fluvial flood storage. Front runner choice of Option 2 (Flood storage) in 2070 would result in loss of the grazing marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Current evidence indicates that a range of high quality assets survive, or are likely to survive, within the area of marsh	High	3
Archaeological Association	Remains of WWI military rifle range and WWII anti-aircraft defences	High	3
Group Value (Association)	The parish boundary runs through the site.	Medium	1
Diversity	Sinuous ditches/former creeks throughout and sea wall on southern boundary with the River Thames, military structures	Low	0
Historical Association	Association with infantry training for WWI and air defence during WWII The parish boundary between Wennington and Avely runs through the site.	High	2
Biodiversity	Nationally designated, high quality grazing marsh with a number of nationally rare species	Very High	3

	present		
Amenity	High level of public access and interpretation due to use as RSPB reserve	High	3
Overall significance			**15**

3.1.2 MARSH 4

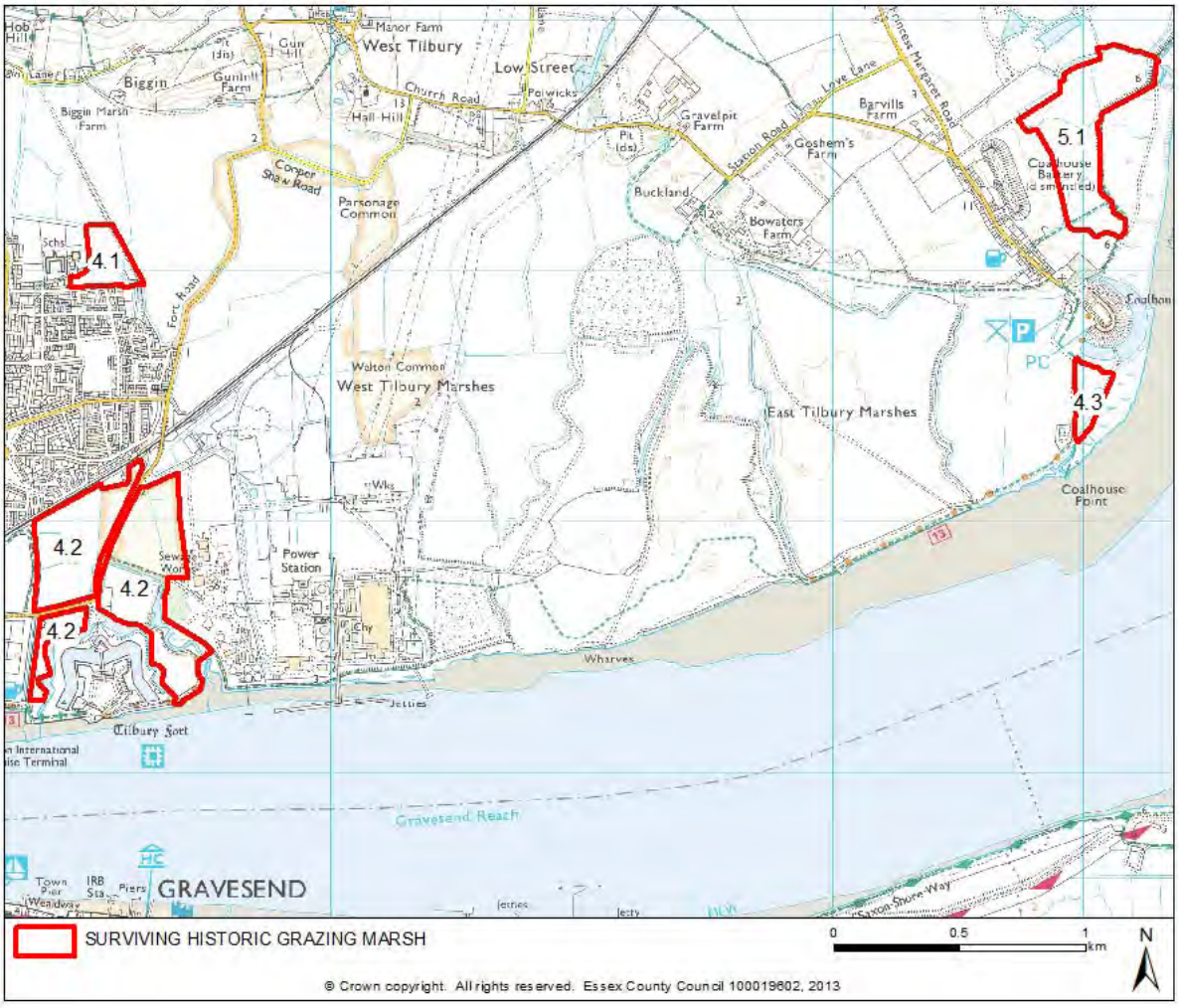


Fig. 27 Marsh 4 - Tilbury Marshes

4.1 Tilbury Marshes

Summary

A small, heavily improved grazing marsh, situated on the north-west edge of the built up area of Tilbury, with cultivated land to the north and east. The marsh contains a surviving counter wall and ditch. Cropmarks have revealed the below ground presence of WWII anti landing ditches. The vegetation is improved grassland and current land use is grazing and recreation.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777, and is recorded as Chadwell Marsh on the 1st edition map, which shows an 'Old Counter Wall' along its eastern side. The counter wall survives as a significant earthwork bank with ditch on the east side, and the areas western boundary is formed by a sinuous ditch representing the line of a former creek. Anti-landing ditches crossed the area during WWII, and have been recorded on cropmarks, but do not appear to be visible as surface features. The marsh is mainly used for grazing and informal recreation by residents of the adjacent housing estate.

Character of vegetation

Improved grassland. Dominated by Bent grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Meadow grass *Poa spp.* and Red fescue *Festuca rubra.*

Threats

The marshland biodiversity of the area has already been lost. The greatest threat to the historic environment is probably from residential development, although surviving features appear to be affected by poaching and erosion resulting from overgrazing and recreational pressure.

Thames 2100 Purfleet, Grays and Tilbury Policy Unit: there would be a potential impact on historic environment resulting from required enhancements to drainage system on marshes, including fluvial flood storage. Front runner choice of Option 1.4 (Improve existing system) to 2070 could result in similar impacts.

Significance

Values	Description	Rank	Score
Archaeological Potential	Very few known historic environment assets, including counter wall and WWII anti-glider ditches in 'improved' grassland	Low	1
Archaeological Association	Presence of WWII anti-landing ditches known from cropmarks	Low	1
Group Value (Association)	Linked to a continuation of the counter wall in arable fields to the north	Low	0
Diversity	Sinuous ditch/former creek and counter wall	Low	0
Historical Association	Association with anti-invasion measures during WWII	High	2
Biodiversity	Highly improved	Low	0
Amenity	High level of public access	High	3
Overall significance			**7**

4.2 Tilbury Marshes

Summary

An area of much improved grazing marsh sited to the north of Tilbury Fort. The part of the marsh adjacent to the fort is designated as part of the scheduled area of the fort. It includes the former site of Tilbury market place, which was sited adjacent to the ferry crossing and the World's End inn. The marsh also contains ditches linked to the forts water-filled moat and is bisected by the road to the fort.

Historic environment character

Tilbury Fort dates to the 16th century, it was initially constructed as part of Henry VIIIs defences of the east coast and fulfilled a similar role, with consequent updating and

expansion until the end of the Second World War. It is now owned and managed by English Heritage. The marsh was partially reclaimed by the time of the Chapman and Andre map of 1777, which shows a complex system of water-filled ditches and moats skirting around the perimeter of Tilbury Fort. The fort is reached by a road, which also served a ferry-crossing across the Thames. The part of the marsh between the fort and the road and the fort and Bill Meroy Creek is designated as part of the scheduled area of the fort. It includes the former site of Tilbury market place, which was sited adjacent to the ferry crossing and the World's End inn. To the north of the fort the marsh includes part of Tilbury Fort common and an adjacent piece of land subdivided into small fields by straightish water-filled ditches, traces of these survive. There are cropmarks of anti-glider ditches to the north of the fort. Flint implements are recorded from the vicinity of Tilbury common. The land has been heavily improved.

Character of vegetation

Improved grassland. Dominated by Bent grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Meadow grass *Poa spp.* and Red fescue *Festuca rubra.*

Threats

The marshland biodiversity of the area has already been lost. The greatest threat to the historic environment is probably from residential development, although surviving features appear to be affected by poaching and erosion resulting from overgrazing and recreational pressure.

Thames 2100 Purfleet, Grays and Tilbury Policy Unit: there would be a potential impact on historic environment resulting from required enhancements to drainage system on marshes, including fluvial flood storage. Front runner choice of Option 1.4 (Improve existing system) to 2070 could result in similar impacts.

Significance

Values	Description	Rank	Score
Archaeological Potential	Part of the marsh is within the Scheduled area	High	3
Archaeological	Presence of WWII anti-landing	Low	1

Association	ditches known from cropmarks		
Group Value (Association)	Linked to the use of the fort, the common and the ferry	High	3
Diversity	Ditch/former creek and counter wall, road	Medium	2
Historical Association	Association with anti-invasion measures since 16th century	Very High	3
Biodiversity	Highly improved	Low	0
Amenity	High level of public access in part, rest viewable from road	High	3
Overall significance			**15**

4.3 East Tilbury Marshes

Summary

A small area of relict grazing marsh located in public open space on the southern edge of Coalhouse Fort. The marsh is designated as part of the scheduled area of the fort and includes a late 19th century Quick-Fire battery built on the sea wall. The marsh also contains ditches linked to the forts water-filled moat and its western boundary is formed from the raised embankment of a former tramway.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777, which also shows a track-way leading to a coal wharf on the adjacent saltings. This was later replaced by a raised embankment supporting a tramway, now a surfaced path. The sea wall and borrow dyke survive altered by the addition of a Quick-Fire battery in the late 19th century, comprising earthworks and concrete structures. The northern end of the marsh is adjacent to the water-filled moat of Coalhouse Fort and makes a significant contribution to its setting. The marsh forms part of the public open space associated with Coalhouse Fort and has a number of external interpretation panels.

Character of vegetation

Relict grazing marsh contains a mix of nationally rare species such as divided sedge *Carex divisa*, Sea Barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum*, Hairy Buttercup *Ranunculus sardous*, Lady's bedstraw *Galium verum*, Narrow-leaved Bird's-foot trefoil *Lotus glaber* and Sea-spurreys *Spergularia* spp. Also a small area of diverse saltmarsh containing Saltmarsh Rush *Juncus geradii*, Glassworts *Salicornia* spp., Sea aster *Aster tripolium*, Annual sea-blite *Suaeda maritima* and nationally and regionally rare Stiff saltmarsh-grass *Puccinellia rupestris*.

Threats

The marshland biodiversity may be threatened by the lack of traditional management. The historic environment is relatively unthreatened, although the Quick-fire battery may suffer from further neglect.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including fluvial flood storage. Front runner choice of Option 1.4 (Improve existing system) in 2070 could result in similar impacts.

Significance

Values	Description	Rank	Score
Archaeological Potential	The marsh is designated as a scheduled monument and includes a late 19th century Quick-fire battery and embankment of a former tramway, together with post medieval sea wall, borrow dyke and ditches linked to the moat of Coalhouse Fort	High	3
Archaeological Association	Late 19th century/early 20th century Quick-Fire battery	High	3
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Coalhouse Fort (scheduled	Very High	3

	monument), built in the mid-19th century, which replaced earlier fortifications. A coal wharf was located on the adjacent saltings accessed via a track-way along the line of the later tramway		
Diversity	Sea wall, borrow dyke and ditch/former creek, military structures	Low	0
Historical Association	Association with anti-invasion measures since the time of Henry VIII up to the 20th century. General Gordon supervised final stages of Coal house Fort	Very High	3
Biodiversity	Mixture of nationally rare species	High	2
Amenity	High level of open public access with a raised surface footpath along the top of the former tramway on the western boundary of the marsh	High	3
Overall significance			**17**

3.1.3 MARSH 5

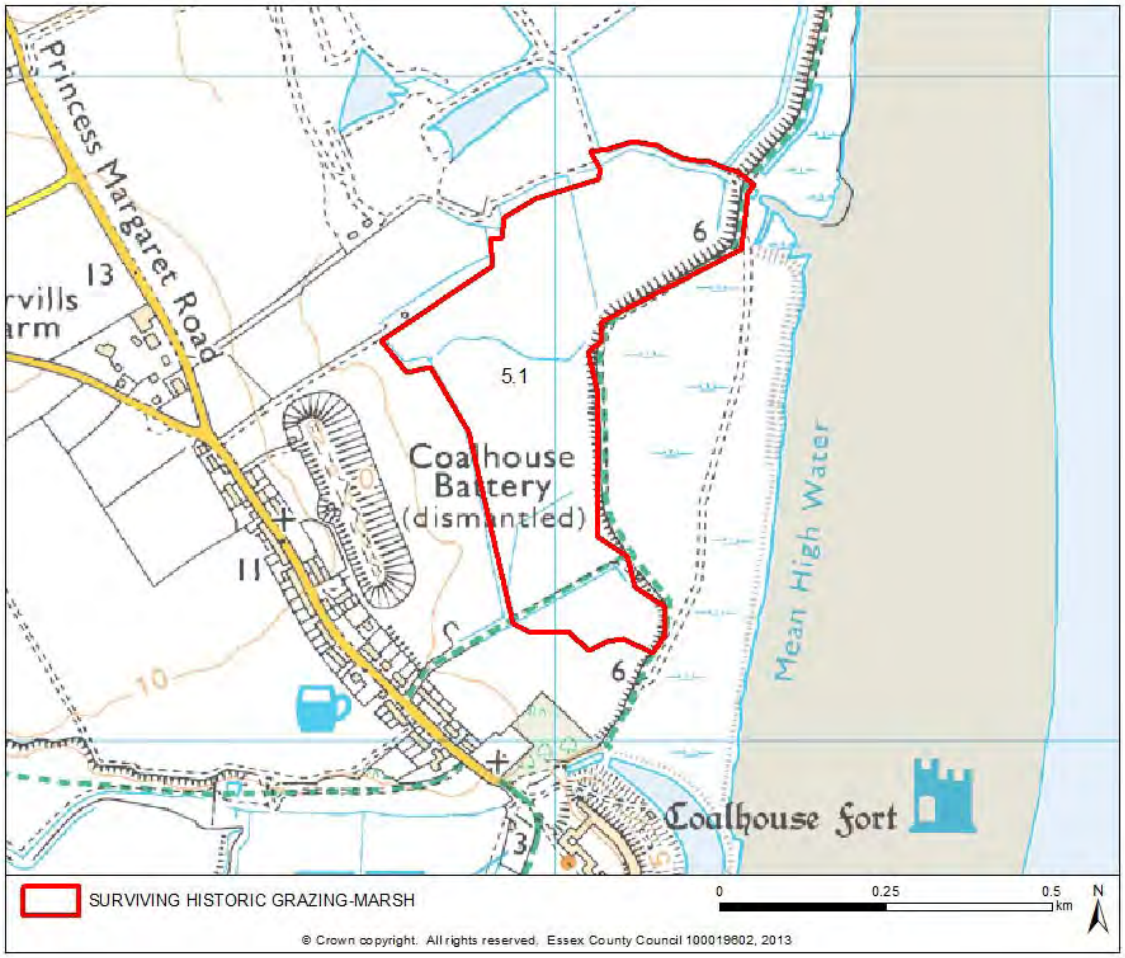


Fig. 28 Marsh 5 – Mucking Marshes

Marsh 5.1 Mucking Marshes

Summary

An area of 'improved' grassland located to the east of East Tilbury and north of Coalhouse Fort. A sea wall survives on the eastern edge of the area, and a number of straight and sinuous drainage ditches remain. Second World War anti landing ditches have been recorded as cropmarks.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although has been altered.

Two track-ways leading from the settlement at East Tilbury to the marsh also survive. The drainage ditches are mostly regular with one central sinuous ditch and one sinuous ditch along the northern boundary surviving. Cropmarks of WWII anti landing ditches have been identified from aerial photographs. The saltings to the east shown on the 1st edition map have since been reclaimed. Coalhouse Fort lies adjacent to the south and Coalhouse Battery to the west. Both are scheduled monuments. North of the marsh is a large quarry.

Character of vegetation

Along the sea wall is grassland dominated by Sea couch *Elymus pycanthus*. The rest of the area is improved agricultural grassland dominated by Bent grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Meadow grass *Poa spp.* and Red fescue *Festuca rubra.*

Threats

The marsh has already been largely converted to agriculture but may be further threatened by continued agricultural improvement. The sea wall may be affected by recreational pressure and associated infrastructure.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from required enhancements to drainage system on marshes, including fluvial flood storage, outfall improvement and local flood defences. Front runner choice of Option 1.4 (Improve existing system) in 2070 could result in similar impacts.

Significance

Values	Description	Rank	Score
Archaeological Potential	There are few recorded heritage assets and the area has been subjected to agricultural 'improvement'	Low	1
Archaeological Association	WWII anti-landing ditches	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of,	Medium	1

	Coalhouse Fort and Coalhouse Battery (scheduled monuments). It remains connected to the settlement of East Tilbury by two track-ways, which ran from the village to the marsh.		
Diversity	Sea wall, ditches/former creeks, military structures	Low	0
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Undesignated and heavily improved.	Low	0
Amenity	Public access limited to footpath along sea wall but close to village of East Tilbury and	Medium	2
Overall significance			**7**

3.1.4 MARSH 6

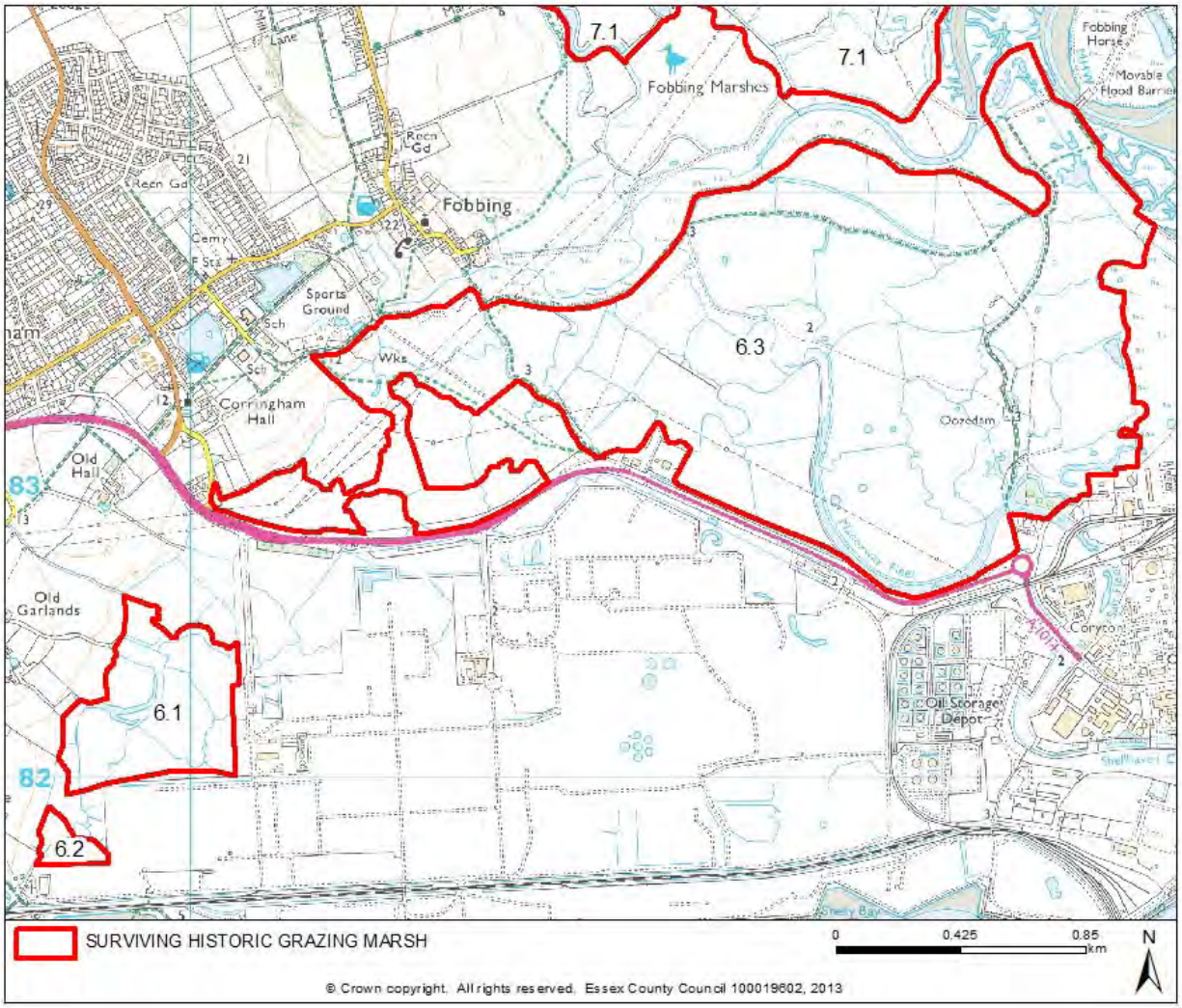


Fig. 29 Marsh 6 – Corringham and Fobbing Marshes

6.1 Corringham and Fobbing Marshes

Summary

An area of 'improved' grassland located south of Corringham Hall and parish church, close to the gravel terrace. A number of straight and sinuous drainage ditches remain. An old sea wall/counter wall survives as a significant earthwork, and historic 'Manor Way' from Garland's Farm to the west is also extant. Stetch cultivation

earthworks indicate improvement. The marsh's setting has been compromised by modern industrial development and related transport infrastructure. Current management is grazing. The marsh includes a number of nationally rare plant species such as Sea Barley *Hordeum marinum.*

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 but early reclamation is likely to have taken place by the 13th century. An historic route-way, Manor Way, from Garland's Farm to the east survives as a double ditched causeway across the marsh, as does an old sea wall/counter wall, which still stands a significant linear earthwork, and may be medieval in origin. Most drainage ditches are sinuous although there are occasional straight drains. Part of marsh was only recently lost to London Gateway road development, which is now large scale industrial development out to the sea wall. Archaeological investigations at Garlands Farm identified medieval agricultural activity at the marsh edge.

Character of vegetation

Marsh contains nationally rare plants such as Sea barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum*, Sea Clover *Trifolium squamosum* and Stiff saltmarsh-grass *Puccinellia rupestris*. Drain fauna has not been studied but likely to be similar to that in neighbouring areas.

Threats

The marsh may be further threatened by continued agricultural improvement, or pressures resulting from the adjacent London Gateway development. The biodiversity of the marsh is threatened by a lack of traditional management. Earthworks may be affected by livestock poaching, with erosion evident around supplementary feeders etc.

Thames 2100 Lower Estuary Urban/Industrial and marshland Policy Unit: potential impact on historic environment resulting from required provision of freshwater compensatory habitat, although Fobbing is currently favoured site.

Significance

Values	Description	Rank	Score
Archaeological Potential	Earthworks of salt manufacturing site identified on HER and position immediately adjacent gravel terrace increases likely potential e.g. for Roman salt making sites as demonstrated by discoveries on the London Gateway development habitat creation scheme. There are known medieval deposits in the immediate vicinity. Rare for earthworks to survive	High	3
Archaeological Association	No known associations	Negligible	0
Group Value (Association)	Marsh is associated with, and physically connected to Great Garlands farm to the east via the Manor Way. Parish boundary between Corringham and Standford Le Hope runs across the marsh.	Medium	1
Diversity	Sea wall, ditches/former creeks, military structures	Medium	1
Historical Association	No known associations	Low	2
Biodiversity	Locally designated with some nationally rare species.	High	2
Amenity	No direct public access but marsh is adjacent to new industrial development and visible from main road.	Low	1
Overall significance			**10**

6.2 Corringham and Fobbing Marshes

Summary

A small area of historic grazing marsh located to the south east of the London Gateway development, which has separated it from 6.1 to the north by construction of a new road. The marsh is bordered by a mixture of straight and sinuous drainage ditches. Internal sinuous creeks also survive but parts of the marsh appear to have been cultivated in the past with 'stetch' visible on aerial photographs. Current management is grazing. The marsh includes a number of nationally rare plant species such as Sea Barley *Hordeum marinum.*

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The drainage ditches are mostly straightened with one central sinuous ditch and one sinuous ditch along the western boundary surviving. Internally there are also what appear to be fossilised creeks but there is also evidence for 'stetch' cultivation or linear surface drains on the northern portion of the marsh, visible on aerial photographs.

Character of vegetation

Small area, but of national importance. Contains a mix of nationally rare species such as Sea barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum*, Sea Clover *Trifolium squamosum* and Stiff saltmarsh-grass *Puccinellia rupestris*.

Threats

The marsh is threatened by land-take for development.

Thames 2100 Lower Estuary Urban/Industrial and marshland Policy Unit: potential impact on historic environment resulting from required provision of freshwater compensatory habitat, although Fobbing is currently favoured site.

Significance

Values	Description	Rank	Score
Archaeological Potential	Limited archaeological potential	Low	1

Archaeological Association	No known associations	Low	1
Group Value (Association)	No known associations	Negligible	0
Diversity	Ditches/former creeks	Negligible	0
Historical Association	No known associations	Low	0
Biodiversity	Locally designated but with nationally rare species.	High	2
Amenity	No direct public access but marsh is adjacent to new industrial development and visible from main road.	Low	1
Overall significance			**5**

6.3 Corringham and Fobbing Marshes

Summary

One of the largest areas of historic grazing marsh in Essex, located to the south and east of the village of Corringham and historic fishing port of Fobbing, with a complex and largely intact historic environment. The marsh includes a significant central area that is likely to be medieval in origin. There are considerable earthwork remains, ranging from probably roman salterns, to raised causeways, old seawalls or counter walls, settlement mounds and extensive ‘stetch’ cultivation. The marsh includes a number of historic farmsteads, a birckworks and the route of the Corringham Light railway that used to serve the docks at Shellhaven and Knocktown explosives factory. Second World War anti landing ditches, bomb craters and anti-aircraft battery have been recorded as earthworks and cropmarks, and a spigot mortar, pill box and scheduled bombing decoy survive. The Manor Way fleet survives as a significant palaeochannel and many creeks remain as sinuous, water-bodies, along with later, straight drainage ditches. The marshes are managed by grazing and contain a number of nationally rare and protected plant species, including Least Lettuce *Lactuca saligna*.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and a large central area of Fobbing Marsh is likely to be 13th century in origin. The sea walls depicted on the 1st edition OS map along Fobbing Creek survives, although has been altered, and significant lengths of contemporary, or potentially earlier sea walls or counter walls also survive. Earthwork mounds may represent late Iron Age or Roman salt making sites. An unusually large D-shaped earthwork is likely to have been used as a cattle refuge. The site of Oozedam farm is likely to be 16th century in origin and the modern farmhouse sits on a substantial settlement mound, which straddles a raised trackway. The sites of Little Ilford Farm and Great Ilford farm are also likely to have been 16th century in origin. Brick building foundations survive at the site of Great Ilford farmhouse, and there is extensive evidence of 'stetch' cultivation across the marsh. Evidence for industrial activity includes the earthworks of brickworks and remnants of a dismantled light railway that ran from Corringham to the docks at Shellhaven and the Knocktown explosives factory. Cropmarks of WWII anti landing ditches have been identified from aerial photographs and as earthworks on the ground, along with an anti-aircraft gun site and a large number of bomb craters left over from attacks on the refinery during WWII. A spigot mortar and pill box are located on the marsh along with the night shelter of a bombing decoy which is designated as a scheduled monument.

Character of vegetation

One of the largest areas of relict grazing marsh in Essex. Contains nationally rare and protected Least Lettuce *Lactuca saligna*. Also contains nationally rare Sea barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum*, Sea Clover *Trifolium squamosum* and Stiff saltmarsh-grass *Puccinellia rupestris*. Common species such as Hairy Buttercup *Ranunculus sardous* also present.

Threats

Part of the marsh has been affected by habitat creation associated with the London Gateway development. Earthworks are suffering from erosion by livestock and the sea wall at Fobbing may be affected by recreational pressure. The scheduled 'night shelter' has suffered from vandalism/graffiti.

Thames 2100 Lower Estuary Urban/Industrial and marshland Policy Unit: potential impact on historic environment resulting from required provision of freshwater compensatory habitat at Fobbing from 2020. Also impacts on existing sea

walls from maintenance/improvements to sea defences and potential impacts from improvements to marsh drainage system of ditches and creeks.

Significance

Values	Description	Rank	Score
Archaeological Potential	A wide range of high quality heritage assets is recorded across the marsh	High	3
Archaeological Association	Possible red hill salt making sites, WWII anti invasion measures, including Scheduled bombing decoy and evidence of WWII bombing.	High	3
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the WWII bombing decoy, which is a scheduled monument. The marsh remains connected to the settlements of Fobbing and Corringham. Fobbing wharf was in operation before the early 16th Century. Great Ilford Farm also had a wharf.The marsh is also adjacent to the site of the Kynochtown explosives factory, which originated in the 19th century. Adjacent marshland is located to the north east.	High	2
Diversity	Palaeochannel/fleet, sea wall and borrow dyke, counter walls, raised track-ways, relict creeks and ditches, farmsteads, cattle refuges/earthwork mounds, ‘stetch’ culivation	Very high	6
Historical Association	Evidence of WWII anti-invasion measures	Very High	3

Biodiversity	Overall value is High but part of the marsh is Very High (internationally designated and important), and part is Medium (locally designated and semi-improved).	High	2
Amenity	A number of public footpaths cross the marsh, which is close to the villages of Fobbing and Corringham.	Medium	2
Overall significance			**21**

3.1.5 MARSH 7

7.1 Fobbing and Vange Marshes

Summary

An area of historic grazing marsh located to the north east of Fobbing and west of Vange Creek. The marsh includes a combination of well preserved relict marsh, and agriculturally 'improved' areas. There are significant earthwork remains, including raised track-ways, settlement mounds, probable salterns, ditched livestock enclosures and extensive 'stetch' cultivation, as well as the sites of two farmsteads. Parting Gut survives as a significant palaeochannel along one side of the marsh, and many creeks survive as sinuous water bodies,along with later, straight drainage ditches. The marshes are managed through grazing and as nature reserves by RSPB and EWT, and contain a number of nationally rare plant species such as Sea barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum* and Sea wormwood *Artemesia maritime*, which grow along the sea walls.

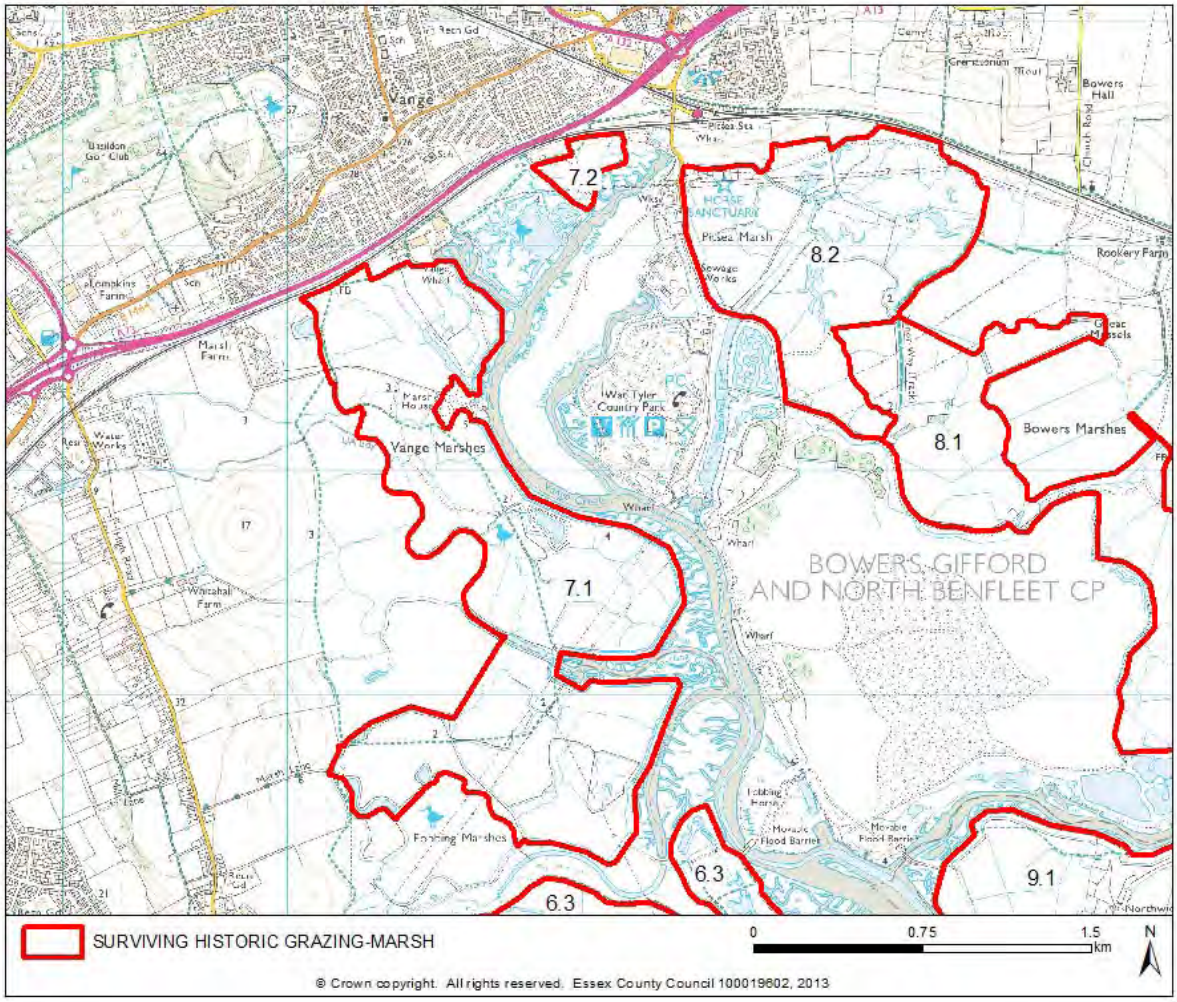


Fig. 30 Marsh 7 – Fobbing and Vange Marshes

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and parts are likely to be 17th century in origin. The sea walls depicted on the 1st edition OS map along Vange Creek survives, although has been altered. Parting Gut remains as a partly infilled water body and marks the historic boundary between Fobbing and Vange. Earthwork mounds may represent late Iron Age or Roman salt making site, and two ditched earthwork mounds probably represent livestock enclosures. There is also a raised track-way in the northern part of the marsh, which links Vange Wick Farm to the village of Vange on the adjacent dryland. The site of Vange Wick farm and Naze Wick farm are likely to be 19th century in origin. Brick building foundations and a sub rectangular earthwork survive at the site of Vange Wick farmhouse, and there is extensive evidence of 'stetch' cultivation, and other

forms of surface drainage across the marsh. Cropmarks of WWII anti landing ditches have also been identified from aerial photographs and as earthworks on the ground and are extensive. A mixture of sinuous former creeks, and straight drainage ditches can be found across the marsh.

Character of vegetation

A mix of Crested Dog's-tail *Cynosurus cristatus*, Ryegrass *Lolium perenne*, Common Bent-grass *Agrostis capillaris*, and Timothy grass *Phleum pretense* dominate on the marsh, with Strawberry clover *Trifolium fragiferum ,*Grass Vetchling *Lathyrus nissolia*, Autumn Hawkbit *Leontodon autumnalis* and Yarrow *Achillea millefolium*. Nationally rare Sea barley *Hordeum marinum*, Slender Hare's-ear *Bupleurum tenuissimum* and Sea wormwood *Artemesia maritima* grow along the sea walls. Common reed *Phragmites australis*, Sea club-rush *Bolboschoenus maritimus* and Common spike-rush *Eleocharis palustris* in drains.

Threats

Mostly under conservation ownership/control, so the major threat to historic environment would be from habitat creation schemes or associated infrastructure such as reservoirs to maintain water levels.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: there would be a potential impact on historic environment resulting from required creation of new compensatory habitat in Fobbing and Vange Marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Range of high quality heritage assets surviving	High	3

Archaeological Association	Extensive WWII anti-landing ditches	Medium	2
Group Value (Association)	Marsh is associated with Gouldings Farm and Vange Wharf and is connected to village of Vange by raised track-way. Also associated with further tracts of marshland to the south.	Medium	1
Diversity	Sea wall, ditches/former creeks, earthwork livestock enclosures, farmstead sites, raised track-way	High	4
Historical Association	Evidence of WWII anti-invasion measures	High	2
Biodiversity	Majority of the area is locally designated with some nationally rare species. The remainder is undesignated.	High	2
Amenity	Public access along single footpath/nature reserve	Medium	2
Overall significance			**16**

7.2 Fobbing and Vange Marshes

Summary

A small area of grassland located to the east of Vange Wharf alongside Pitsea Creek, currently managed by the RSPB as a nature reserve. The site includes surviving earthworks of a farmstead, medieval sea wall and drainage ditch dividing the marsh from adjacent dryland to the north. The area has a diverse, species rich grassland flora.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives with a stepped profile and is likely to be medieval in origin. A well preserved group of earthworks survives on the site of Kiln Farm and a large drainage ditch demarcates the boundary between dryland and marsh. Vange Marsh lies to the west. The marsh was connected to the upland area to the north by a raised trackway built from chalk rubble that led to a coal wharf. Below ground archaeological deposits, including evidence for medieval exploitation (arable cultivation) of the adjacent dryland area and probable red hill deposits are known from monitoring during work on a new dyke for the RSPB reserve

Character of vegetation

Species-rich grassland, sward of Common Bent-grass *Agrostis capillaris*, Creeping Bent-grass *A. stolonifera*, Crested Dog's-tail *Cynosurus cristatus*, Meadow Barley *Hordeum secalinum* and Timothy-grass *Phleum pratense*. Diverse herb flora containing good populations of Wild carrot *Daucus carota*, Black knapweed *Centaurea nigra*, Lady's bedstraw *Galium verum,* Autumn Hawkbit *Leontodon autumnalis*, and Narrow-leaved bird's-foot trefoil *Lotus glaber.* Stawberry clover *Trifolium fragiferum*, Sea Clover *Trifolium squamomosum* and Pepper saxifrage *Silaum silaus* occur less frequently. Common reed *Phragmites australis,* Sea club-rush *Bolboschoenus maritimus* and Common Spike-rush *Eleocharis palustris* along creeks.

Threats

Disturbance to the earthworks from recreational pressure, including horse riding along the sea wall.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: there would be a potential impact on historic environment resulting from required creation of new compensatory habitat in Fobbing and Vange Marshes.

Significance

Values	Description	Rank	Score
Archaeological Potential	Presence of archaeological deposits has been demonstrated in close	High	3

	proximity to the marsh. The sea wall and farm earthworks survive well. Potential for further deposits is high.		
Archaeological Association	No known associations	Low	1
Group Value (Association)	Marsh is associated with Vange Wharf to the west	Medium	1
Diversity	Sea wall, ditches, farmstead	Medium	2
Historical Association	No known associations	Low	0
Biodiversity	Majority of the area is locally designated with some nationally rare species. The remainder is undesignated.	High	2
Amenity	Public access to nature reserve	Medium	2
Overall significance			**11**

3.1.6 MARSH 8

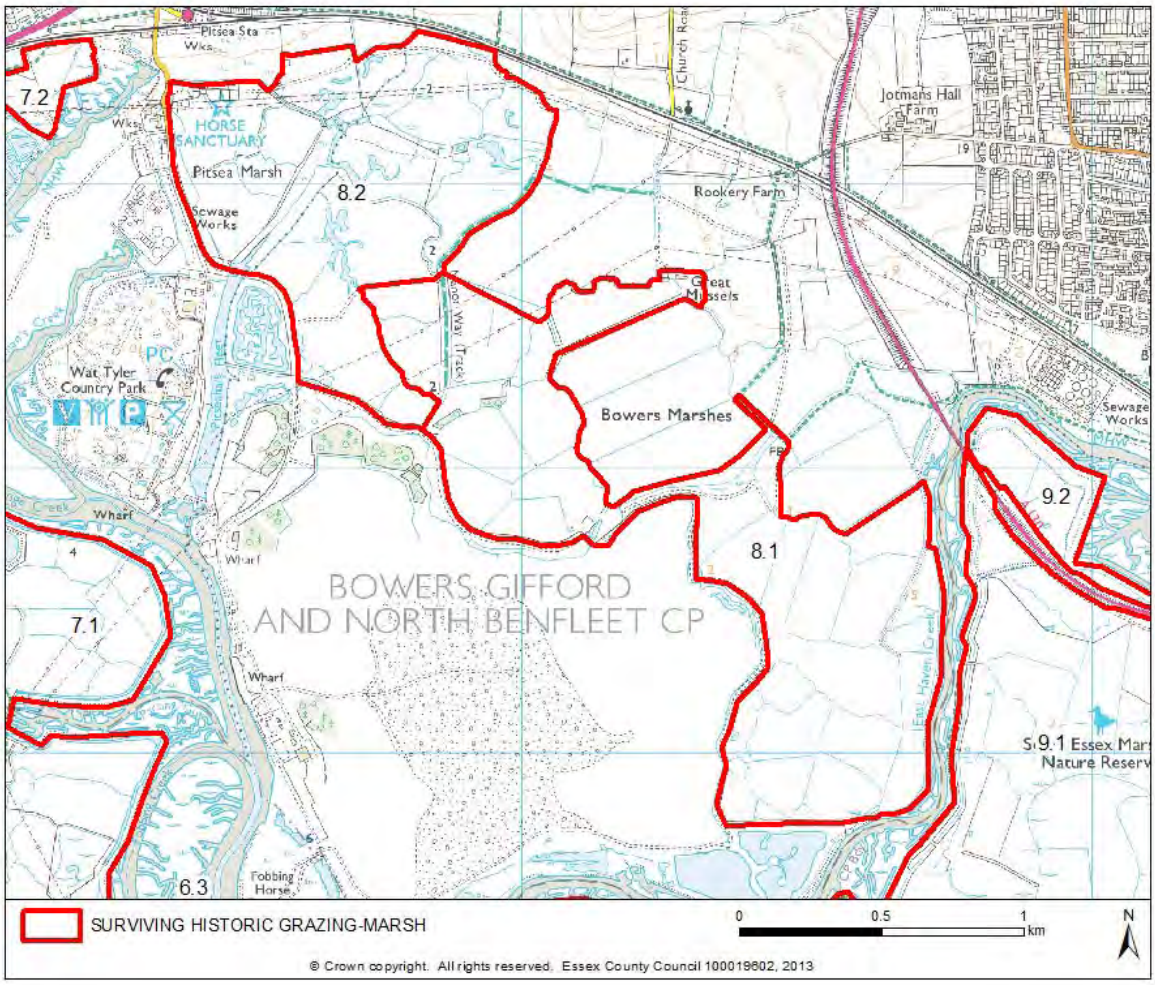


Fig. 31 Marsh 8 - Pitsea Marsh

8.1 Pitsea Marsh

Summary

A large area of extensively 'improved' grazing marsh currently managed as an RSPB nature reserve. A series of sea walls/counter walls survive on the eastern side of the area, adjacent to Haven Creek, and earlier, medieval sea walls survive as substantial earthworks within the interior. Earthworks of late Iron Age or Roman red hills are known, and historic farmsteads are recorded and can be identified on the ground. A range of straight and sinuous drainage ditches remain. Second World War anti landing ditches and bomb craters have been recorded as cropmarks and earthworks. The marsh has a diverse

grassland flora. It has undergone extensive alterations as during creation of the RSPB reserve.

Historic environment character

The marsh was probably reclaimed by the 17th century and is recorded on the Chapman and Andre map of 1777. A series of sea walls/counter walls survive on the eastern side of the area, adjacent to Haven Creek, clearly illustrating the process of reclamation. One of the sea walls includes ramps that would have provided access for livestock to the salt marsh. Earlier, medieval sea walls survive as substantial earthworks within the interior, and 'Manor Way' survives as a double ditched track way that linked the marsh to the dry land to the north. The marsh contains the historic boundary between Laindon and Bowers Gifford, Earthworks of late Iron Age or Roman red hills survive along the northern edge of the marsh, and were encountered as below ground deposits during investigations ahead of a new RSPB visitor car park. A range of straight and sinuous drainage ditches remain, and a number of post medieval farmsteads are known, including Great Mussels, on the marshland edge, and North Staines and South Staines, which are thought to be 16th or 17th century in origin. Second World War anti landing ditches and bomb craters have been recorded as cropmarks and earthworks. The marsh has been extensively altered during construction of new habitat for the RSPB nature reserve.

Character of vegetation

Diverse grazing marsh, with 27 grass and 65 herb species recorded at the site. Typical grass species are Common couch-grass *Elymus* repens, Creeping bent-grass *Agrostis stolonifera*, Crested Dog's-tail *Cynosurus cristatus* and Meadow Barley *Hordeum secalinum.* Noteable species are Red Bartsia *Odontites verna* which supports BAP bumblebee species, and nationally rare Stiff saltmarsh-grass *Puccinellia rupestris*. Hairy buttercup *Ranunculus sardous* and narrow-leaved bird's-foot trefoil *Lotus glabor* occur frequently. Marsh speedwell *Veronica scutellata,* a plant rare in Essex, occurs in the drains. Common reed *Phragmites australis reedbed* (a BAP habitat*)* dominates the drain vegetation. Typical grazing marsh drain species such as Soft hornwort *Ceratophyllum submersum*, Fat Duckweed *Lemna gibba,* Brackish water-crowfoot *Ranunculus baudotii* and Fennel pondweed *Potamogeton pectinatus* also occur.

Threats

As a new nature reserve, the historic environment of the marsh is threatened by further habitat creation and construction of visitor infrastructure.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from creation of intertidal habitat sites on Bowers marsh from 2020 onwards.

Significance

Values	Description	Rank	Score
Archaeological Potential	Presence of below ground archaeological deposits has been demonstrated in close proximity to the marsh. The sea walls/counter walls survive well and there are a number of farmstead sites. Potential for further deposits is high.	High	3
Archaeological Association	WWII anti-landing ditches	Low	1
Group Value (Association)	Marsh is associated with adjacent marshland area to the north west.	Medium	1
Diversity	Sea wall, ditches/former creeks, farmsteads, track way	Medium	2
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Nationally designated.	High	2
Amenity	Public access around large	Medium	2

	nature reserve		
Overall significance			**13**

8.2 Pitsea Marsh

Summary

An area of historic grazing marsh located to the west of Wat Tyler Country Park. Pitsea Hall Fleet survives as a significant water body in the centre of the marsh and there is extensive relict marshland with fossilised creeks, some of which retain water, and straight drainage ditches. The grassland sward has been negatively affected by over grazing.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and comprises a large area of grazing marsh that has been improved in places. Some areas show evidence of 'stetch cultivation, but many sinuous drains and relict creeks also survive. Sea walls and many sinuous drains survive as well as straight drains. A large water-filled fleet runs north-south into the centre of the surviving marsh. There is a range of other fleets surviving, one with an earthwork causeway. The Manor Way is an historic routeway along the eastern side of the marsh. The site of a barn (Marsh Barn) is recorded on the 1st edition OS map on the northern edge of the area, now gone. During the second World War the area was criss-crossed with anti-landing ditches. Counter walls survive well.

Character of vegetation

Patchy grassland sward. Common couch-grass *Elymus repens*, Ryegrass *Lolium perenne*, Creeping Bent-grass *Agrostis stolonifera*, Marsh Foxtail *Aloepecurus geniculatus*, Crested Dog's-tail *Cynosurus cristatus* and Meadow Barley *Hordeum secalinum* all locally abundant. Red Bartsia *Odonites verna* occurs which supports BAP bumblebee species.

Threats

The biodiversity is threatened by drying out and silting up of the water-bodies, and over grazing. Surviving earthworks could be affected by livestock erosion or extension to adjacent nature reserve.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from creation of intertidal habitat sites on Bowers marsh from 2020 onwards.

Significance

Values	Description	Rank	Score
Archaeological Potential	There is likely to be good survival of features within the grazing marsh but there has been a lack of investigation to date in comparison to adjacent areas.	Medium	2
Archaeological Association	WWII anti-landing ditches	Low	1
Group Value (Association)	Marsh is associated with adjacent marshland to the east, and site of Pitsea Hall to the north	Medium	1
Diversity	Ditches/former creeks, relict salt marsh, raised track-way	Medium	2
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Part nationally designated, part locally. Supports BAP invertebrate species.	High	2
Amenity	Public access limited to new access from RSPB reserve and landfill access road	Medium	2
Overall significance			**12**

3.1.7 MARSH 9

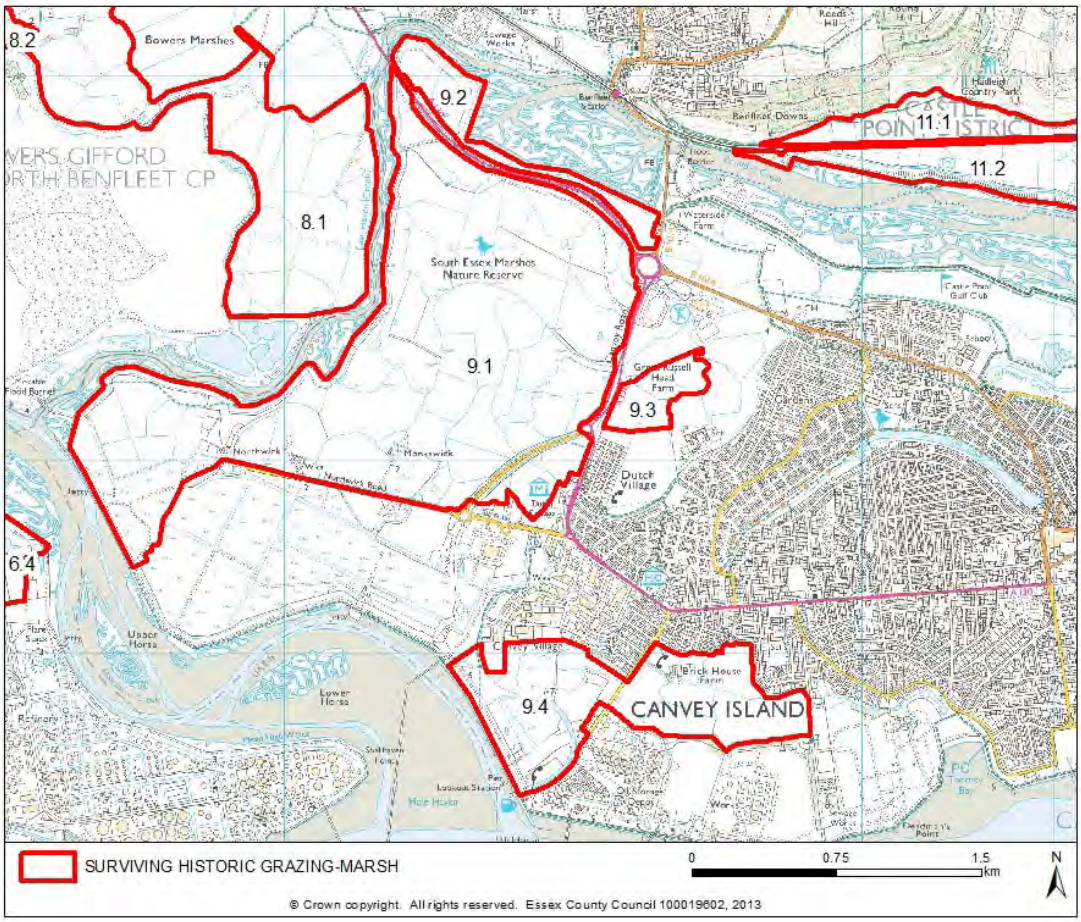


Fig. 32 Marsh 9 – Canvey Marsh

9.1 Canvey Marsh

Summary

An area of 'improved' marshland located on the west side of Canvey Island adjacent to East Haven Creek. A substantial sea wall survives on the western and north edges of the area, and a number of straight and sinuous drainage ditches remain. The earlier 'dutch' sea wall survives as a significant earthwork. A number of post medieval farmsteads are recorded. Second World War anti landing ditches have been recorded as cropmarks, and a scheduled heavy anti-aircraft gun site is located in the south of the marsh. The grasslands include some nationally rare plant species.

Historic environment character

The marsh was reclaimed, with the involvement of dutch engineers, during the early 17th century. Today it consists of large area of improved grazing marsh with extensive areas showing signs of 'stetch' cultivation, and other surface drainage earthworks. Some areas have undergone considerable improvement, but early sea walls and/or counter walls survive, including the original 'Dutch' wall, and many sinuous drains survive, as well as straighter drains. There are also earthwork mounds that may represent 'red hiill' salt making sites, and ditched livestock enclosures. A number of post medieval farmsteads are known, including Monks Wick and Pantiles. A number of cattle pens are recorded on the 1st edition OS map. Former administrative boundaries in the area are complex, with marshland falling within a number of detached parishes, including South Benfleet, North Benfleet, Bowers Gifford, Rochford and Prittlewell. During the Second World War the northern area was criss-crossed with anti-landing ditches, a heavy anti-aircraft gun battery was constructed on the southern side of the marsh and a search light battery in the north east corner. A V2 crash site is also recorded and bomb craters survive. Today the marsh has become an RSPB nature reserve. Its setting has been largely compromised by adjacent road infrastructure, industrial and housing development.

Character of vegetation

Large expanse of grazed grassland, dominated by *Agrostis* spp. Diverse herb flora including Narrow-leaved bird's-foot trefoil *Lotus glaber*, Red Clover *Trifolium pretense,* Common vetch *Vicia* sativa and two orchids Common-spotted orchid *Dactylorhiza fuschii* and Southern marsh *D. praetermissa*. Slender Hare's-ear *Bupleurum tenuissimum* has a good population. Nationally rare Small Red Goosefoot *Chenopodium chenopodioides* has been recorded at the site.

Threats

Some areas of grassland outside the RSPB reserve are threatened by overgrazing and and drying out. This could also result in erosion of surviving earthworks. The WWII scheduled anti-aircraft gun site is suffering from neglect and negative land use.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from creation of intertidal habitat sites on West Canvey marsh from 2020 onwards.

Significance

Values	Description	Rank	Score
Archaeological Potential	A moderate range of features, including farmsteads, early sea wall, possible red hill and WWII structures	Medium	2
Archaeological Association	WWII anti-landing ditches, scheduled heavy anti-aircraft gun site and V2 crash site	Medium	2
Group Value (Association)	Association with further marshland areas to the north and east, plus continuation of 'dutch' sea wall. Adjacent to 'Dutch' cottage.	Medium	1
Diversity	Sea wall, ditches/former creeks, farmsteads	Medium	2
Historical Association	Associated with reclamation of Canvey Island by Cornelius Vermuyden and WWII defences	High	3
Biodiversity	Locally designated, with some nationally rare species.	High	2
Amenity	Public access to nature reserve and adjacent to Dutch Cottage museum	Medium	2
Overall significance			**14**

9.2 Canvey Marsh

Summary

A small area of ‘improved’ grassland located to the south of Benfleet Creek and east of East Haven Creek. A sea wall remains in use along the northern edge of the area, and there are a number of straight and sinuous drainage ditches and relict salt marsh, but also areas of ‘stetch’ cultivation. The grassland sward is semi-improved.

Historic environment character

The majority of the marsh was probably reclaimed, with the involvement of dutch engineers, during the early 17th century, when it formed part of a larger area of reclamation on West Canvey. The north western portion of the marsh is from a later episode of reclamation. A circular sheep fold and cottage surrounded by ditched enclosure are recorded on the first edition OS map. A sea wall and counter wall survive, along with areas of relict salt marsh but much of the marsh has been ‘improved’ and there are surviving earthworks of ‘stetch’ cultivation. WWII anti-landing ditches extended into the area from the south. Today the marsh has been separated from the marshland to the south by a modern fly over, but forms part of the RSPB reserve.

Character of vegetation

Semi-improved. Sparse and flower-rich sward in drier areas dominated by Fescues *Festuca spp.,* Bent-grasses *Agrostis spp*, and herbs such as Yarrow *Achillea millefolium*, Yellow wort *Blackstonia perfoliata,* and Bee Orchid *Ophrys apifera*. Red Clover *Trifolium pretense,* Strawberry Clover *T. fragifera* and Narrow-leaved bird’s-foot trefoil in lower-lying patches. Glassworts *Salicornia* spp. found along drains.

Threats

The marshland biodiversity is threatened by drying out. There is the potential for erosion of sea wall from recreational pressure.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: potential impact on historic environment resulting from creation of intertidal habitat sites on West Canvey marsh from 2020 onwards.

Significance

Values	Description	Rank	Score
Archaeological Potential	Few known heritage assets	Low	1
Archaeological Association	WWII anti-landing ditch	Low	1
Group Value (Association)	Associated with marshland to the south	Low	0
Diversity	Sea wall, ditches/drains	Low	0
Historical Association	Associated with reclamation of Canvey Island by Cornelius Vermuyden and WWII defences	High	3
Biodiversity	Locally designated, with some nationally rare species.	High	2
Amenity	Public access to RSPB nature reserve	Medium	2
Overall significance			**8**

9.3 Canvey Marsh

Summary

A small area of improved and relict grazing marsh, with a mixture or straight and sinuous drainage ditches, which includes the site of an historic farmstead and the earthworks of a scheduled Roman red hill. The grassland is improved with evidence of ‘stetch’ cultivation.

Historic environment character

The marsh was probably reclaimed, with the involvement of dutch engineers, during the early 17th century, when it formed part of a larger area of reclamation on Canvey Island. The marsh boundaries demarcate boundaries between several detached parishes. The marsh includes the site of Russell Head Farm, depicted on the 1st edition OS map, with associated track-ways. The area show signs of 'stetch' and include straight drainage ditches. However sinuous ditches/fossilised creeks survive and the eastern side of the marsh includes the earthwork remains of one or more Roman red hills (salterns), which are designated as a scheduled monument. Today, the setting of the marsh has been largely compromised by housing development, a school and playing fields.

Character of vegetation

Improved grassland dominated by Fescues *Festuca* spp. and Bent-grasses *Agrostis* spp. Red clover *Trifolium pretense* present.

Threats

Threatened by lack of traditional management and land take for development, including a proposed housing scheme.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: no identifiable impact

Significance

Values	Description	Rank	Score
Archaeological Potential	Presence of scheduled monument, and potential of other associated remains in vicinity; post medieval farmstead	High	3
Archaeological	Scheduled Red Hill	High	3

Association			
Group Value (Association)	Marsh is associated with surviving marshland to the west, although separated from it by main road.	Low	0
Diversity	Former creeks	Low	0
Historical Association	Associated with reclamation of Canvey Island by Cornelius Vermuyden	High	2
Biodiversity	Undesignated, highly improved.	Low	0
Amenity	No designated public access but close proximity to large population	Medium	2
Overall significance			**10**

9.4 Canvey Marsh

Summary

An area of marsh located on the south side of Canvey Island adjacent to an oil refinery. The marsh contains areas of both 'improved' grasslands and relict grazing marsh with fossilised creeks and earthworks or red hill salt making sites. Sites of two farmsteads with post medieval origins remain occupied, and there is evidence for 'stetch' cultivation or other surface drainage. A WWII pill box survives. A modern road (Roscommon Way) extension has reduced the northern extent of the western area of the march. The grassland is mainly improved but includes the nationally rare Stiff-saltmarsh grass *Puccinellia maritima* in its Western part.

Historic environment character

The marsh was probably reclaimed, with the involvement of dutch engineers, during the early 17th century, when it formed part of a larger area of reclamation on Canvey Island. The line of the sea wall survives along the southern western part of the marsh, although has been considerably altered. The marsh boundaries demarcate boundaries between several detached parishes. A large curving fleet survives as a body of water towards the centre of the marsh. The marsh includes the sites of at least two farms, including Brick House Farm, depicted on the 1st edition OS map, which remain in occupied today. The area show signs of 'stetch' and includes straight drainage ditches. However sinuous ditches/fossilised creeks survive and the western side of the marsh includes the earthwork remains of one or more Roman red hills (salterns), one of which has also produced evidence for early Anglo-Saxon re-use. A WWII pill box survives as a standing structure. Today, the setting of the marsh has been largely compromised by housing development and an oil refinery.

Character of vegetation

Semi-improved grassland dominated by Red Fescue *Festuca rubra* and Bent-grasses *Agrostis* spp. In Western half, Bird's-foot trefoil *Lotus* spp. is abundant and Red Clover *Trifolium pretense* and Strawberry Clover *T. fragifera* occur. Sea club-rush *Bolboshoenus maritimus* found along sea wall. Nationally rare Stiff-saltmarsh grass *Puccinellia maritima* also found in Western part.

Threats

Potential threat from development

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: Potential impact from replacement of sea walls.

Significance

Values	Description	Rank	Score
Archaeological	Potential for below ground	Medium	2

Potential	archaeology associated with one or more red hills in the south western part of the marsh, former fleet and fossilised creeks		
Archaeological Association	WWII pill box	Low	1
Group Value (Association)	Limited contemporary associations	Low	0
Diversity	Sea wall, ditches/former creeks, fleet	Medium	2
Historical Association	Associated with reclamation of Canvey Island by Cornelius Vermuyden	High	2
Biodiversity	Western half locally designated with some nationally rare species, eastern half undesignated and improved.	Medium	0
Amenity	Public access along sea wall and close proximity to large population	Medium	2
Overall significance			**8**

3.1.8 MARSH 11

11.1 Hadleigh Marsh

Summary

The northern part of Benfleet and Hadleigh marshes, located to the north of the London to Southend Railway line, which demarcates its southern

boundary. The marsh includes both straight drainage ditches and former creeks, some of which remain water-filled. Other features include earthworks from a post medieval brickworks and probable WWII defences. One or more earth mounds may be 'red hill' salt making sites. The marsh is located within Hadleigh Country Park and includes rare plant species occurring in the drains, such as Beaked tasselweed *Ruppia maritime.*

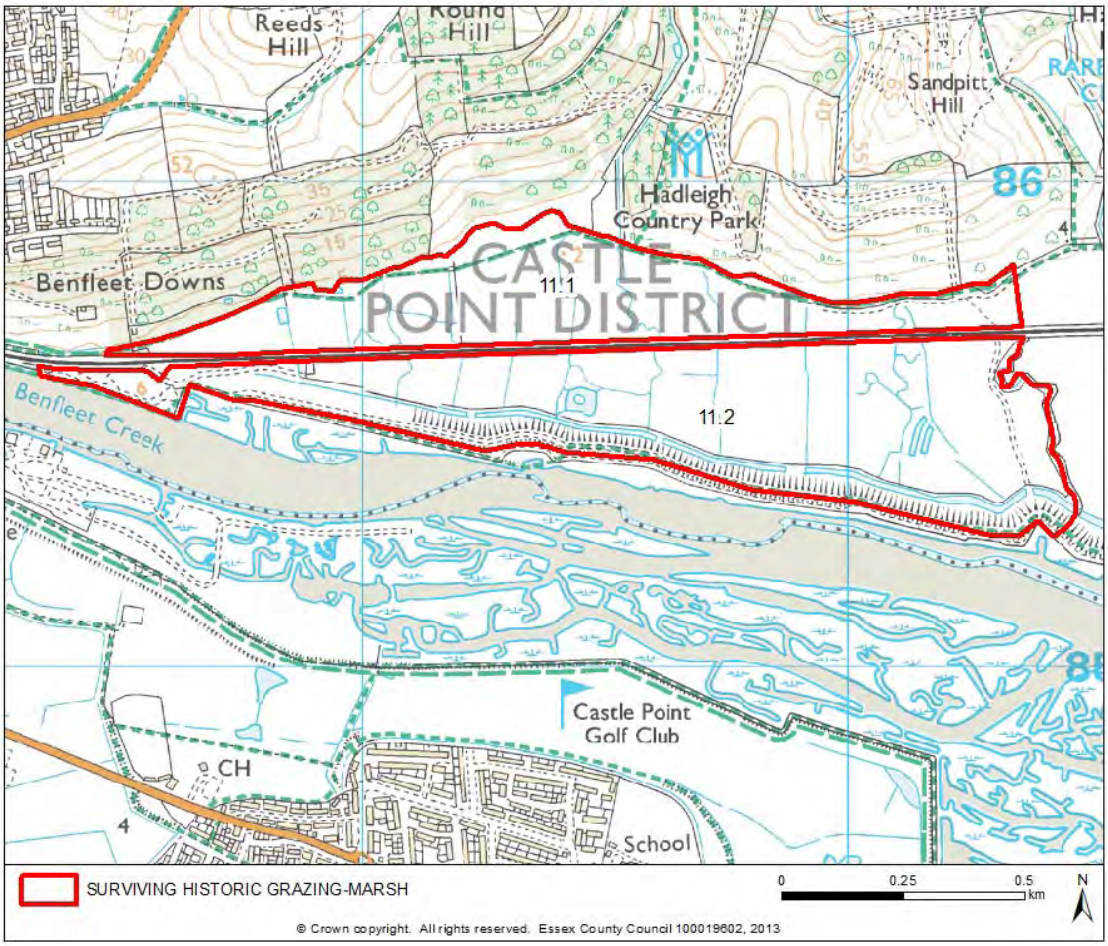


Fig. 33 Marsh 11 – Hadleigh Marsh

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and is likely to have been reclaimed around the same time as the marshes further to the east, documented in the late 17th century. The marsh includes a mix of straight drainage ditches and sinuous, dry and water-filled former creeks. One or more earthwork mounds may represent the remains of Roman 'red hills', which are known in the former marsh to the east below

Hadleigh Castle. Earthworks of a post medieval brickworks and possible WWII home guard defences also survive. There is also evidence for WWII anti-landing ditches and, there is good survival of 'stetch' cultivation earthworks. Today the marsh is located within Hadleigh Country Park and has been included in the legacy project for the London 2012 Olympic Games Mountain Bike Course.

Character of vegetation

Dominated by grasses such as Red Fescue *Festuca rubra*, Meadow foxtail *Alopecurus pratensis,* Cock's foot *Dactylis glomerata*, False oat-grass *Arrhenarherum elatius* and Bent-grasses *Agrostis* spp. Herbs such as Sea Clover *Trifolium squamosum*, Strawberry Clover *T. fragiferum* and Hairy buttercup *Ranunculus sardous* also present. Sea club-rush *Scirpus maritimus* and rare species Beaked tasselweed *Ruppia maritima* and Brackish water-crowfoot *Ranunculus baudotii* occur in drains.

Threats

Threatened in the long-term by drying out, and erosion from increased recreational activity.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: No identifiable impact. Defences maintained.

Significance

Values	Description	Rank	Score
Archaeological Potential	Potential of surviving archaeological deposits especially along the marsh edge and in proximity to Kersey Farm, and any surviving red hills.	Medium	2
Archaeological Association	WWII earthwork defences/anti-landing ditches	Low	1

Group Value (Association)	Marsh is associated with an historic farmstead (Kersey Farm) located to the north on the marsh edge and documented from the medieval period. Also associated with marsh to the south.	Medium	1
Diversity	Ditches/former creeks	Low	0
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Designated SPA and Ramsar site.	Very High.	3
Amenity	Public access is good and increasing, with a new multi-user trail extending into the marsh, and good links to public transport.	High	3
Overall significance			**12**

11.2 Hadliegh Marsh

Summary

The southern part of Benfleet and Hadleigh marshes, located to the south of the London to Southend Railway line, which demarcates its northern boundary. The marsh includes both straight drainage ditches and former creeks, some of which remain water-filled. Other features include earthworks from possible fish ponds. One or more earth mounds may be 'red hill' salt making sites. The marsh is located within Hadleigh Country Park and includes rare species such as Beaked tasselweed *Ruppia* in the drains; Sea couch *Elymus pungens* dominates along the sea wall.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and is likely to have been reclaimed around the same time as the marshes further to the east, documented in the late 17th century. The marsh comprises the southern half other surviving Benfleet and Hadleigh marshes, located to the south of the London to Southend railway line, and bounded on the southern side by the sea wall. The marsh includes a mix of straight drainage ditches and sinuous, dry and water-filled former creeks. One or more earthwork mounds may represent the remains of Roman 'red hills', which are known in the former marsh to the east below Hadleigh Castle. At the eastern end of area a number of earthworks are visible forming a sequence of upstanding features either associated with drainage or fish ponds. There is good survival of 'stetch' cultivation earthworks and evidence for WWII anti-landing ditches. Today the marsh is located within Hadleigh Country Park and has been included in the legacy project for the London 2012 Olympic Games Mountain Bike Course.

Character of vegetation

Grazing marsh dominated by grasses such as Red Fescue *Festuca rubra*, Meadow foxtail *Alopecurus pratensis,* Cock's foot *Dactylis glomerata*, False oat-grass *Arrhenarherum elatius* and Bent-grasses *Agrostis* spp. Herbs such as Sea Clover *Trifolium squamosum*, Strawberry Clover *T. fragiferum* and Hairy buttercup *Ranunculus sardous* also present. Sea club-rush *Scirpus maritimus* and rare species Beaked tasselweed *Ruppia maritima* and Brackish water-crowsfoot *Ranunculus baudotii* occur in drains. Sea couch *Elymus pungens* dominates along the sea wall with Sea barley *Hordeum marinum*, rare Slender hare's ear *Bupleurum tenuissimum* and Seaside red goosefoot *Chenopodium botryoides* also found.

Threats

Erosion resulting from increased recreational pressure and long-term threatened by saltwater flooding due to sea-level rise.

Thames 2100 East Tilbury and Mucking Marshes Policy Unit: No identifiable impact. Defences maintained.

Significance

Values	Description	Rank	Score
Archaeological Potential	Potential of surviving archaeological deposits especially with the surviving earthworks at the eastern end of area	Medium	2
Archaeological Association	WWII anti-landing ditches, possible Red Hills	Medium	2
Group Value (Association)	Marsh is associated with marsh to the north	Low	1
Diversity	Sea wall, ditches/former creeks	Low	0
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Designated SPA and Ramsar site.	Very High.	3
Amenity	Public access along footpath and as part of Hadleigh Country Park, with close proximity to large population and good public transport links	High	3
Overall significance			**13**

3.1.9 MARSH 13

13.1 Shoebury Marsh

Summary

Six fields of surviving improved and unimproved grazing marsh located on the mainland at ‘Fleethead’ and the former island of ‘Lambgore Marsh’, which is surrounded on three sides by creeks. The main fleets survive as water filled drains. An historic counter wall is recorded along with the sea walls. A red hill has been identified. The area is dominated by common grasses.

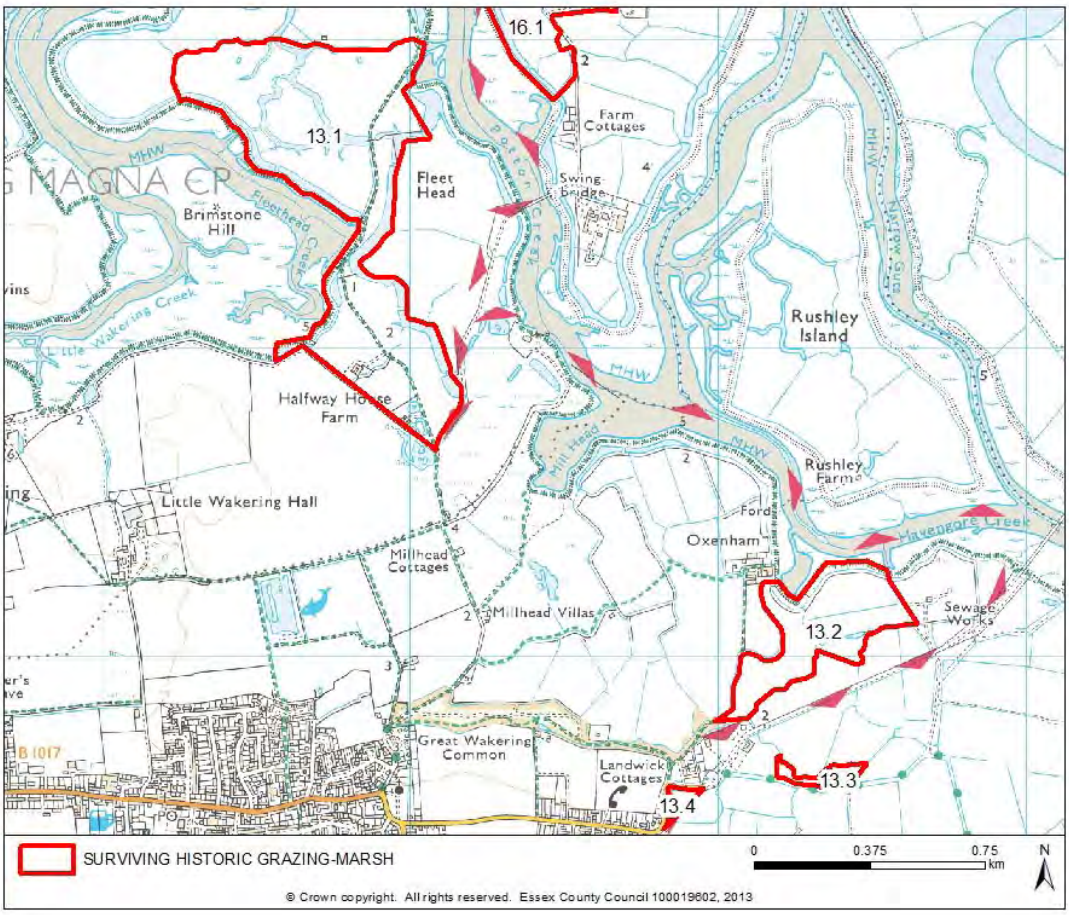


Fig. 34 Marsh 13 - Shoebury Marsh

Historic environment character

Documentary records indicate that ‘Lambgore Marsh’ had not been reclaimed by the late 17th century, but the former salt marsh island is shown as grazing marsh on the Chapman and Andre map of1777. The former island is surrounded on three sides by tidal creeks, and has significant internal water-filled fleets and creeks, as well as fossilised creeks in some areas of unimproved grassland. A substantial sea wall survives on the western side of marsh, and a small stretch of historic sea wall or counter survives at southern end of area. A single red hill is recorded within area. Areas of ‘stetch’

cultivation are identifiable along with other forms of surface drainage. A property 'Halfway house' depicted on the 1st edition OS map is still occupied.

Character of vegetation

Dominated by False oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata* and Red fescue *Festuca rubra.* Less common species occur along the sea wall with the rare divided sedge *Carex divisa*, Sea clover *Trifolium squamosum* and Stiff saltmarsh grass *Puccinellia rupestris* recorded.

Threats

Threatened by saltwater flooding due to sea-level rise.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Fleets still water filled, original sinuous creeks visible from the air. Below ground deposits present with the known red hill.	Medium	2
Archaeological Association	Red Hill recorded	Low	1
Group Value (Association)	Marsh is associated with surrounding marshes; functional association with 'Potton Island' which is recorded as having been reached via 'Lambgore Marsh'	Medium	1
Diversity	Sea wall and borrow dykes, ditches/former creeks, counter	Medium	2

	wall, relict salt marsh		
Historical Association	None known	Low	0
Biodiversity	Part internationally designated and unimproved. Part improved and undesignated.	High	2
Amenity	Good public access along footpaths including sea walls	Medium	2
Overall significance			**10**

13.2 Great Wakering Marsh

Summary

Two fields of improved grazing marsh that retain indications of former creeks located on the main land to the south of Havengore Creek. Sea wall and borrow dyke stand on the northern side of the marsh, southern and western boundaries are sinuous, water-filled former creeks. Interior includes straight drainage, ‘stetch’ cultivation and other linear surface drains. A series of clay extraction pits lies along the southern side and a WWII minefield is recorded along the northern edge. Marsh is designated and includes nationally rare species.

Historic environment character

Marshland in this area was mostly reclaimed in medieval and Tudor times and the marsh was certainly reclaimed by the time of the Chapman and Andre map of 1777. A substantial sea wall and borrow dyke stand on the northern side of the marsh, along Havengore Creek, whilst the southern and western boundaries are sinuous, water-filled former creeks. A water-filled creek also divides the marsh into two fields, but straight drainage ditches, ‘stetch’ cultivation and other linear surface drains are also present in the interior. A series of clay extraction pits lies along the southern side associated with the

post medieval brick fields located to the east. A WWII minefield is recorded along the northern edge.

Character of vegetation

Dominated by false oat-grass *Arrhenatherum elatius*, Cock's-foot *Dactylis glomerata,* Red fescue *Festuca rubra,* and Yorkshire-fog *Holcus lanatus*. Suffocated clover *Trifolium suffocatum* and curved hard-grass *Parapholis incurva* also found. Sea couch *Elymus pycanthus* dominates along the sea wall.

Threats

Potential threat from conversion to arable agriculture and other associated improvements.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Some potential associated with sea wall, which may be medieval in origin but general absence of known features	Low	1
Archaeological Association	Post medieval clay pits	Low	1
Group Value (Association)	Marsh is associated with, marshland islands to the north and post medieval farmstead (Oxenham) recorded on 1st edition OS map, which is still occupied	Medium	1

Diversity	Sea wall, borrow pit, ditches/former creeks,	Medium	2
Historical Association	Association with anti-invasion measures	High	2
Biodiversity	Nationally designated with some nationally rare species.	High	3
Amenity	Public access limited to footpath along sea wall	Low	1
Overall significance			**11**

13.3 Great Wakering Marsh

Summary

A single field of improved grazing marsh bounded on the north side by a sinuous drainage ditch, with limited biodiversity interest.

Historic environment character

Marshland in this area was mostly reclaimed in medieval and Tudor times and the marsh was certainly reclaimed by the time of the Chapman and Andre map of 1777. Marsh is bordered by a road to the south and sinuous drainage ditch to the north. It was previously connected to a farmstead located to the east called 'Land Wick', which is shown on the 1st edition OS map.

Character of vegetation

Improved grassland. Dominated by Fescues *Festuca spp.* and Bent-grasses *Agrostis spp.*

Threats

Marsh has already been converted for agriculture. Further threatened by saltwater flooding due to sea-level rise.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Absence of known heritage assets.	Low	0
Archaeological Association	None known	Negligible	0
Group Value (Association)	Marsh is associated with abandoned farmstead of 'Land Wick'	Medium	1
Diversity	Former creek	Low	0
Historical Association	None known	Low	0
Biodiversity	Heavily improved	Low	0
Amenity	Single field and public access along adjacent road only	Low	1
Overall significance			**2**

3.1.10 MARSH 15

15.1 Foulness, Havengore and New England Islands

Summary

A small area of improved grazing marsh located on the west side of Foulness Island, adjacent to the River Roach. Substantial sea wall and borrow dyke, with occasional sinuous ditch/former creek demarcating other external boundaries, and visible in the interior. 'Stetch' cultivation and other linear surface drains are also visible as earthworks. Improved grassland vegetation.

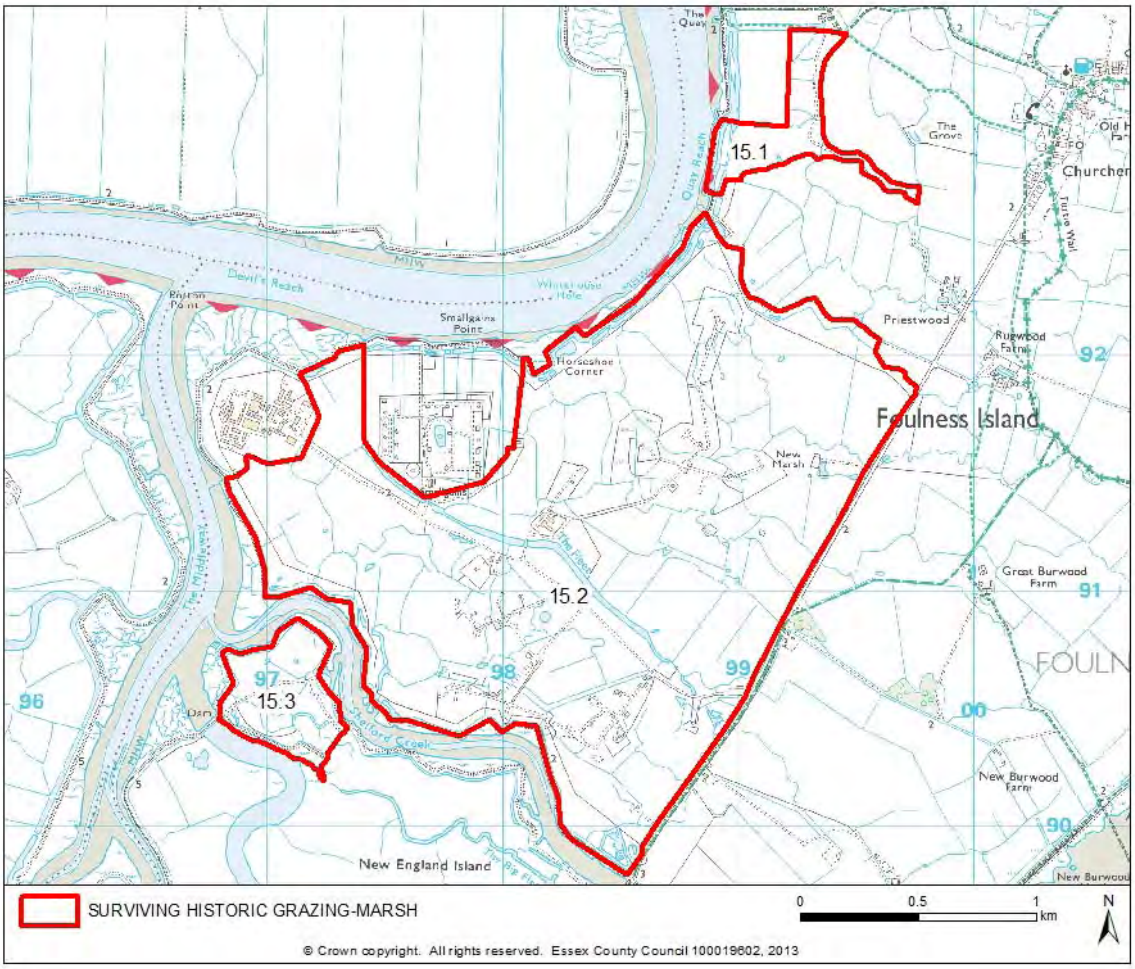


Fig. 35 Marsh 15 – Foulness, Havengore and New England Islands

Historic environment character

Reclamation of the marshes on Foulness Island is well documented from the 17th century and the marsh was certainly reclaimed by the time of the Chapman and Andre map of 1777.

This fragment of marshland comprises two fields of surviving improved grazing marsh, within former creeks visible on aerial photographs, and fossilised in the surviving field boundaries. A large sea wall survives on the western side of area with a large borrow dyke inside sea wall and another sea wall internal to that. 'Stetch' and other linear surface drainage is visible within the area. On its northern edge, the marsh is connected to a listed farm complex shown on the 1st edition OS map as Monkton Barn. Track-ways and a sheepfold are also depicted on 1st edition OS map.

Character of vegetation

Impoved grassland, with Red Fescue *Festuca rubra* and False oat-grass *Arrhenatherum elatius* common. Botanical interest along the sea wall with Sea couch *Elymus pycnanthus* dominant, and common reed *Phragmites australis* dominant in ditches. Rare plants such as Slender hare's-ear *Bupleurum tenuissimum* and Sea clover *Trifolium squamosum* also occur along the sea wall

Threats

Biodiversity is threatened by possible contamination associated with military use and a lack of traditional management. Long-term, the marsh is threatened by saltwater flooding due to sea-level rise.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score

Archaeological Potential	Sea walls and borrow dyke	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Marsh is associated with other marshes on the island and Grade II Listed farm complex.	Medium	1
Diversity	Sea wall, borrow dyke, ditches/former creeks,	Low	0
Historical Association	None known	Low	0
Biodiversity	Undesignated, but with nationally rare species in ditches.	Medium	1
Amenity	Public access limited to footpath along northern edge. Within military exclusion area.	Negligible	0
Overall significance			**3**

15.2 Foulness, Havengore and New England Islands

Summary

A large area of 'improved' grassland located in the south west corner of Foulness Island within a military complex, with standing buildings and structures associated with the former atomic weapons establishment on the island. The marsh is surrounded on three sides by sea walls and borrow dykes. Former creeks can be identified as sinuous drainage ditches, but straighter drainage ditches and linear surface drains are also present. A range of heritage assets are recorded including a scheduled Roman red hill/burial mound, medieval moat and WWII 'Diver' site. Biodiversity is of national importance.

Historic environment character

Reclamation of the marshes on Foulness Island is well documented from the 17th century, and there had been extensive reclamation along the south coast

around Shelford Farms in the course of the 17th century or earlier; the marsh was certainly reclaimed by the time of the Chapman and Andre map of 1777. The marsh includes a large area of unimproved grazing marsh with surviving evidence of sinuous and straight drainage ditches. The sea wall and borrow dyke stands on three sides, and sinuous ditches and drains survive across area, as do straight linear drains and an extensive network of surface linear drains. A water-filled fleet runs through the middle of the marsh. A scheduled Roman tumulus survives on the south side of the marsh, although it has been levelled; possible burial placed inside red hill. There is also the remains of a medieval moated site, and farmstead (Great Shelford) shown on the 1st edition OS map and other farmsteads and individual buildings called Little Shelford, Little Burwood, Pond Marsh and White House. The farm at New Marsh is still occupied. A WWII 'Diver' site is located north of Shelford Creek. A wide range of military structures, including buildings and earthworks e.g. blast mounds, are spread across the marsh, many still in use, which relate to the cold war former atomic weapons establishment. They are linked by concrete track-ways.

Character of vegetation

Red Fescue *Festuca rubra* and Bent-grasses *Agrostis spp* dominate with rare Divided sedge *Carex divisa* present. Sea wall dominated by Sea couch *Elymus pycnanthus* with nationally rare Slender Hare's-ear *Bupleurum tenuissimum,* Sea Barley *Hordeum maritimum* and Sea clover *Trifolium squamosum* also present. Sea club-rush *Scirpus maritimus* and Common reed *Phragmites australis* dominant in ditches and drains with nationally rare Soft hornwort *Certophyllum submersum* present. Adjacent saltmarsh dominated by Common saltmarsh-grass *Puccinellia maritima,* Sea Purslane *Halimione portulacoides* and Common sea-lavender *Limonium vulgare*. Rare Stiff saltmarsh-grass *P. rupestris* and lax-flowered sea lavender *L. humile* also found.

Threats

Threatened by saltwater flooding associated with sea-level rise and contamination from military activity.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Fleet, sea defences, scheduled roman 'tumulus', medieval moated site and farmsteads; WWII and Cold War military structures.	High	3
Archaeological Association	Scheduled Roman 'tumulus', WWII 'Diver' Site; Cold War military structures	High	3
Group Value (Association)	Marsh is associated with other marshland on Foulness Island; timber post alignments and oyster pits outside sea walls;	Medium	1
Diversity	Sea wall, ditches/former creeks, farmsteads	High	4
Historical Association	Association with anti-invasion measures and Cold War defence	High	2
Biodiversity	Nationally designated with nationally rare species.	High	2
Amenity	Public access limited to short length of footpath along sea wall and visibility from road along eastern side	Low	1
Overall significance			**16**

15.3 Foulness, Havengore and New England Islands

Summary

An area of largely unimproved grazing marsh located at the west end of New England Island. A sea wall and borrow dyke surrounds the marsh on three sides. Internally there are numerous sinuous former creeks, and fewer straight linear ditches fed by surface drains. Evidence for ‘stetch’ cultivation is visible on aerial photographs. The area is the only known site in the Uk for Annual sea purslane *Halimione pedunculata.*

Historic environment character

New England Island was reclaimed by the end of the 16th century, with an ‘old’ sea wall in place at that time, and the sea walls were reconstructed during the course of the 17th century. The marsh includes a seal wall and borrow dyke on three sides, with numerous sinuous creeks and ditches internally. There are also a few straight linear ditches on the interior, which a straight linear surface drains have been fed into. There is some indication of ‘stetch’ cultivation visible on aerial photographs. Outside of the sea wall, there are oyster beds recorded in the salt marsh.

Character of vegetation

This area is the only known site in the UK for Annual sea purslane *Halimione pedunculata.* Saltmarsh dominated by Common saltmarsh-grass *Puccinellia maritima,* Sea purslane *Halimione portulacoides* and Common sea-lavender *Limonium vulgare.* Sea aster *Aster tripolium* and Annual sea-blite *Suaeda maritima* dominant at lower levels. Diverse mix of rare plants associated with the saltmarsh including Stiff saltmarsh-grass *Puccinellia rupestris,* lax-flowered sea lavender *L. humile,* glassworts *Salicornia perennis* and *S. pusilla,* golden samphire *Inula crithmoides* and shrubby sea-blite *Suaeda vera.* Sea walls dominated by Sea couch *Elymus pycnanthus* with nationally rare Slender hare’s-ear *Bupleurum tenuissimum,* Sea Barley *Hordeum maritimum* and upright chickweed *Moenchia erecta* also common. Common reed *Phragmites australis* dominant in ditches.

Threats

Biodiversity is threatened by contamination associated with military use and a lack of traditional management. Long-term the marsh is threatened by saltwater flooding due to sea-level rise.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Early sea defence, and creeks	Medium	2
Archaeological Association	None Known	Negligible	0
Group Value (Association)	Marsh is associated with adjacent marshland and oyster beds in salt marsh	Medium	1
Diversity	Sea wall, ditches/former creeks, relict salt marsh	Medium	2
Historical Association	None Known	Low	0
Biodiversity	Very High. Internationally designated SPA and Ramsar site. Only known site in the UK for Annual Sea-Purslane.	Very High	3
Amenity	No public access	Negligible	0
Overall significance			**8**

3.1.11 MARSH 16

16.1 Potton Island

Summary

An area of ‘improved’ grazing marsh located on the south west side of Potton Island, adjacent to Potton Creek and within the MOD ranges. A sea wall and borrow dyke demarcate the western side, with sinuous boundaries of former creeks demarcating the other sides of the marsh. Recorded heritage assets include a ‘red hill’ saltern and earthworks of a moated site. A farmstead site at Great Potton remains in use. The marsh comprises areas of fossilised salt marsh, and ‘improved’ areas with ‘stetch’ cultivation and linear drainage ditches. The vegetation is characterised by improved grassland species.

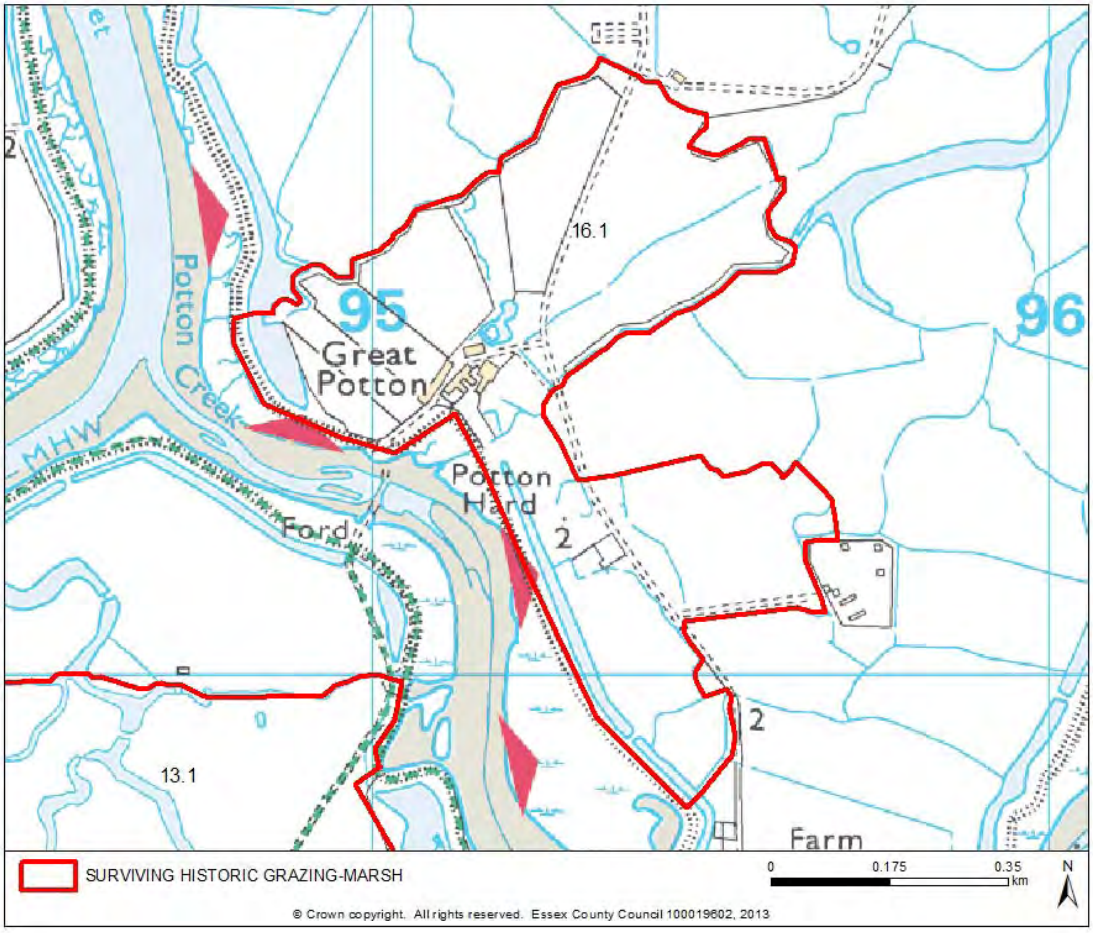


Fig. 36 Marsh 16 Potton Island

Historic environment character

This part of Potton Island was reclaimed by the late 16th century, and the whole island had been reclaimed by 1700. Historically a ferry linked the farm at Great Potton to Lambgore Island. A sea wall and borrow dyke survive on the western side of the marsh adjacent to Potton Creek. Potton Hard is marked on the 1st edition OS map, along with the farmstead at Great Potton, which is still in use, and another farmstead at Little Potton, where only the earthworks of a possible moated enclosure (pre-cursor to Little Potton?) are visible. Earthworks of a 'red hill' or possible livestock enclosure survive along the northern boundary. The marshland contains areas of fossilised salt marsh, with sinuous creek, and other areas that have been improved with linear drainage ditches and 'stetch' cultivation. Today the marsh is located within MOD ranges. A ford stands at the old ferry crossing. The name 'Potton' is thought to mean deep creek.

Character of vegetation

Improved grassland dominated by False oat-grass *Arrhenatherum elatius,* Cock's-foot *Dactylis glomerata*, Red fescue *Festuca rubra*, and Yorkshire-fog *Holcus lanatus.*

Threats

Biodiversity is threatened by continued improvement and contaminated soil from military activity but the marshland biodiversity has already been largely lost through inappropriate management and military use. There

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score

Archaeological Potential	Early sea defences. Potential for historic farm sequence with existing farm, and enclosures/moats related to earlier farm complex. Also presence of red hill indicative of late Iron Age /Roman activity.	High	3
Archaeological Association	Red hill salt making site	Low	1
Group Value (Association)	Marsh is associated with adjacent areas of marshland e.g. Lambgore Island	Medium	1
Diversity	Sea wall, ditches/former creeks, medieval moated enclosure, relict salt marsh, post medieval farmstead	High	4
Historical Association	None known	Low	0
Biodiversity	Undesignated, improved grassland.	Low	0
Amenity	No public access, visible from tidal creeks	Negligible	0
Overall significance			**9**

3.1.12 MARSH 17

17.1 Barling Marsh

Summary

An area of unimproved grassland located on the southern side of the Roach Estuary. A sea wall survives on the western and southern edge of the area following the line of a stream/drain. A number of sinuous drainage ditches remain as shallow earthworks. Grazing marsh vegetation includes some nationally rare species.

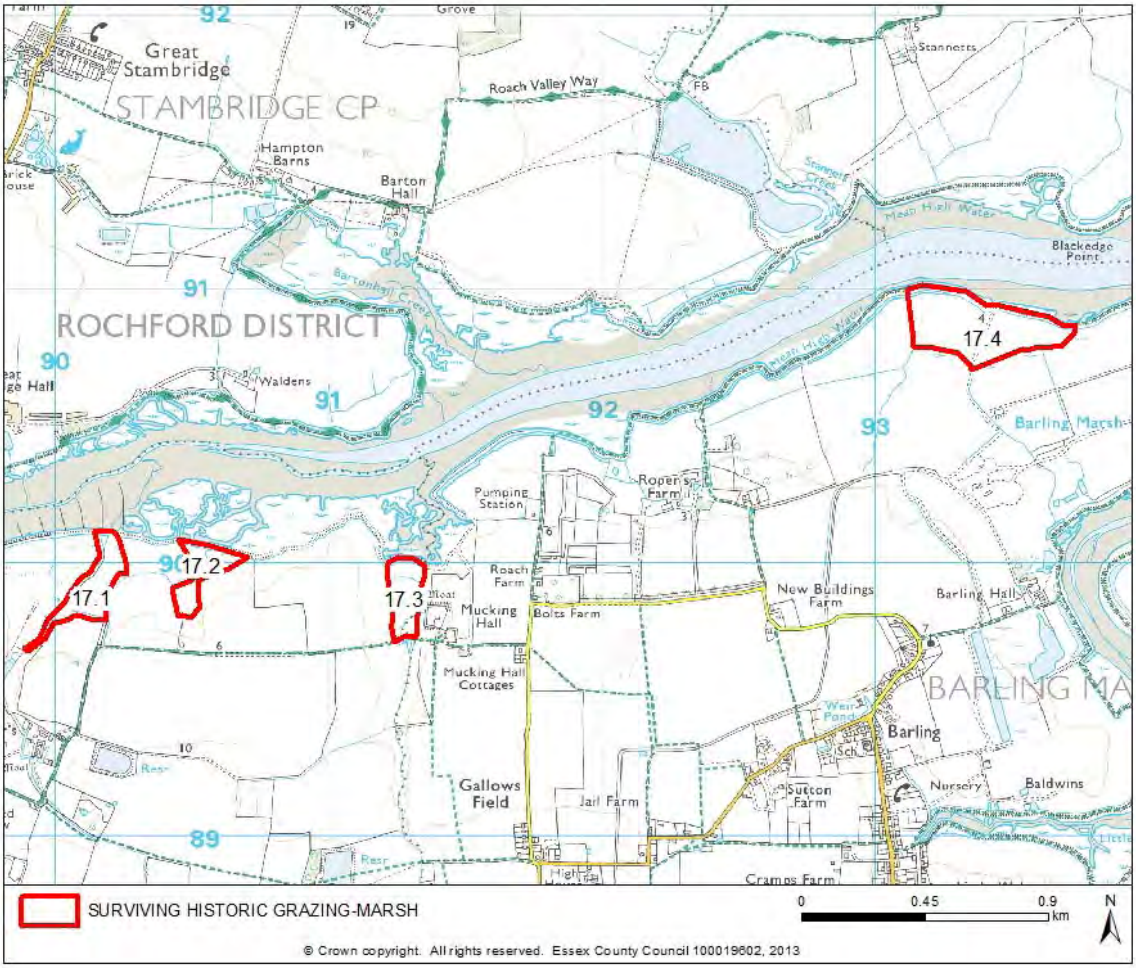


Fig. 37 Marsh 17 – Barling Marsh

Historic environment character

This small area of grazing marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives. Two track-ways leading from the settlement at East Tilbury to the marsh also survive. The drainage ditches are sinuous they drain into the

principal drainage ditch/stream which forms the western edge of the site. This stream originates in the higher ground to the north of Southend. The saltings to the north shown on the 1st edition map are still in existence, but reduced in extent. No archaeological features or finds have been recorded for the site, the site of a 17th century octagonal 'Dutch Cottage' was excavated to the south in 1933 (EHER 9566).

Character of vegetation

Characteristic Essex grazing marsh habitat with some nationally rare species. Marsh area dominated by Common Saltmarsh Grass *Puccinellia maritime*. Sea Purslane *Atriplex portulacoides,* Common Sea Lavender *Limonium vulgare* and Thrift *Armeria maritime* frequent. Lax-flowered Sea-Lavender *Limonium humile* and Shrubby sea-blite *Suaeda vera*, nationally rare species, are also present. Narrow-leaved Bird's-foot trefoil *Lotus tenuis*, Grass Vetchling *Lathyrus nissolia* and nationally rare Sea Barley *Hordeum marinum,* Sea Clover *Trifolium squamosum,* and Slender Hare's-ear *Bupleurum tenuissimum* found along sea wall. Common Reed *Phragmites australis* and Sea Club-rush *Bolboschoenus maritimus* in creeks and gullies. Important for nationally rare species.

Threats

Threatened by lack of traditional management

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	No evidence of known archaeological deposits present. Sea wall survives well.	Low	1

	.		
Archaeological Association	No known archaeology	Negligible	0
Group Value (Association)	Marsh is associated with, and contributes to the rural landscape of the south bank of the Roach.	Low	1
Diversity	Sea wall, ditches/former creeks,	Low	0
Historical Association	Possible association with 'Dutch Cottage' to south	Low	0
Biodiversity	Designated SPA	Very High	3
Amenity	Public access limited to footpath along sea wall	Low	1
Overall significance			**6**

17.2 Barling Marsh

Summary

A small area of unimproved grassland located on the southern side of the Roach estuary. A sea wall survives on the northern edge of the area, and a number of straight and sinuous drainage ditches remain, some of which contain water. The southernmost portion contains a small low mound. Three Roman coins were recovered from the vicinity of the mound. The marshland is important for nationally rare species of plant.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, as does a semi-circular creek. The drainage ditches are mostly sinuous with one central

straight ditch across the southern portion of the marsh. The saltings to the north shown on the 1st edition map are still extant.

Two small linked areas of unimproved grazing marsh, with some tree growth on the southern block. There are numerous sinuous gullies visible on the aerial photographs, cut by a single straight drainage ditch. A sea wall survives on the northern side. In the southern triangle there are records of a mound, with Roman coins associated. The mound has been tentatively identified as an 'Dutch cottage' mound, but what the evidence for this attribution is not clear, and given the presence of the Roman coins it may actually be a Red Hill. The 1st edition OS map shows a possible sluice gate on the semi-circular creek, perhaps allowing it to function as a duck decoy pond.

Character of vegetation

Lower marshes along creeks/gullies dominated by Glasswort *Salicornia spp.,* Annual sea-blite *Suaeda maritima* and Sea Aster *Aster tripolium*. Common saltmarsh grass *Puccinellia maritima* dominant on higher-lying areas with Sea Lavender *Limonium vulgare* and Sea Purslane *Atriplex portulacoides* common. Lax-flowered Sea-Lavender *Limonium humile* and Shrubby sea-blite *Suaeda vera*, nationally rare species, are also present. Narrow-leaved Bird's-foot trefoil *Lotus tenuis*, Grass Vetchling *Lathyrus nissolia* and nationally rare Sea Barley *Hordeum marinum,* Sea Clover *Trifolium squamosum,* and Slender Hare's-ear *Bupleurum tenuissimum* found along sea wall. Common Reed *Phragmites australis* and Sea Club-rush *Bolboschoenus maritimus* in creeks and gullies. Important for nationally rare species.

Shoreline Management Plan:

Hold the line to 2105

Threats

Threatened by lack of grazing and inappropriate management.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sinuous ditches, sea wall and mound survives well. High potential for further archaeological deposits associated with mound likely. Probable salting site.	Medium	2
Archaeological Association	Mound, Roman coins, sea wall	Medium	2
Group Value (Association)	Marsh is associated with, and contributes to the setting of the immediate rural landscape of the Roach estuary	Low	1
Diversity	Sea wall, ditches/former creeks, mound,	Medium	2
Historical Association	Possible association with Dutch drainage	Low	0
Biodiversity	Designated SPA	Very High	3
Amenity	Public access limited to footpath along sea wall.	Low	1
Overall significance			**11**

17.3 Barling Marsh

Summary

A small area of ‘improved’ grassland located on the southern bank of the Roach estuary. A sea wall survives on the northern edge of the area, and a number of gently curved drainage ditches remain. The marsh is located

immediately to the west of the medieval moated site of Mucking Hall. Sea wall vegetation includes nationally rare Sea Barley *Hordum marinum.*

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although has been altered. The drainage ditches are gently curved in form, they divide the marsh into four segments. Traces of former sinuous creeks are also visible on the aerial photographs. The saltings to the north shown on the 1st edition map are still extant.

The medieval moated site of Mucking Hall lies immediately to the east, the main farmhouse and two of the farmyard buildings are Listed.

Character of vegetation

Most of the area is dominated by Creeping Bent *Agrostis stolonifera*, Perennial Rye-Grass *Lolium perenne*, Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum*. Much botanical interest lost due to improvement; however Narrow-leaved Bird's-foot trefoil *Lotus tenuis*, Grass Vetchling *Lathyrus nissolia* and nationally rare Sea Barley *Hordeum marinum,* Sea Clover *Trifolium squamosum,* and Slender Hare's-ear *Bupleurum tenuissimum* found along sea wall.

Threats

Threatened by further improvement and scrub encroachment

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	**Rank**	**Score**

Archaeological Potential	No evidence of known archaeological deposits present. Sea wall survives well. Proximity to Mucking Hall. .	Low	1
Archaeological Association	No known associations	Negligible	0
Group Value (Association)	Shown on early maps as marshy area adjacent to moated site. There is a possibility for earlier occupation/activity as it lies close to the moated site.	Medium	1
Diversity	Sea wall, ditches/former creeks	Low	0
Historical Association	Association with Mucking Hall	Low	0
Biodiversity	Designated SPA	Very High	3
Amenity	Public access limited to footpath along sea wall	Low	1
Overall significance			**6**

17.4 Barling Marsh

Summary

A small area of heavily ‘improved’ grassland located on the southern bank of the Roach estuary. A sea wall survives on the northern edge of the area.

Excavations and watching-briefs in the adjacent Barling Magna Quarry site have recovered features and finds dating from the prehistoric, Roman and medieval periods.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although has been altered. Two track-ways leading from Barling Hall to the marsh also survive. Only the drains that define the marsh boundaries survive, these have been straightened. A narrow band of saltings to the north is shown on the 1st edition map, these are still extant. There has been some earthmoving in the very recent past within the marsh area, these include a small pond and a number of shallow scrapes.

To the immediate south is Barling Magna Quarry, where large-scale extraction of brick-earth has taken place. A series of small-scale excavations and watching-briefs have been undertaken within the quarry. These have recorded features and finds dating from the prehistoric, Roman and medieval periods, they include Bronze Age field boundaries, a Roman salt-making site and an extensive area of medieval linear field-systems. The salt-making site was located immediately adjacent to the surviving marsh and probably marks the boundary between marsh and dryland. The gravels which underlie the brickearths date to the Ipswichian period (120,000-140,000 BP).

Character of vegetation

Most of the area is dominated by Creeping Bent *Agrostis stolonifera*, Perennial Rye-Grass *Lolium perenne*, Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum*.

Threats

Threatened by the digging of scrapes and ponds, and the potential for larger-scale disturbance due to the proximity of the quarry, and lack of grazing.

Shoreline Management Plan:

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	No current evidence of archaeological deposits being present on the area, adjacent area rich in archaeological remains however.	Low	1
Archaeological Association	No known earlier or later archaeology but Prehistoric/Roman and medieval archaeology in adjoining fields	Negligible	0
Group Value (Association)	Marsh is associated with, and contributes to the rural landscape of the Roach estuary.	Low	1
Diversity	Sea wall, track	Low	0
Historical Association	None known	Low	0
Biodiversity	Improved and no designation	Low	0
Amenity	Public access limited to footpath along sea wall.	Low	1
Overall significance			**3**

3.1.13 MARSH 19

19.1 Paglesham Marsh

Summary

A small area of heavily ‘improved’ grassland located to the west of Paglesham Creek . A sea wall survives on the western, eastern and south-eastern edge of the area, the marsh is bisected by track.

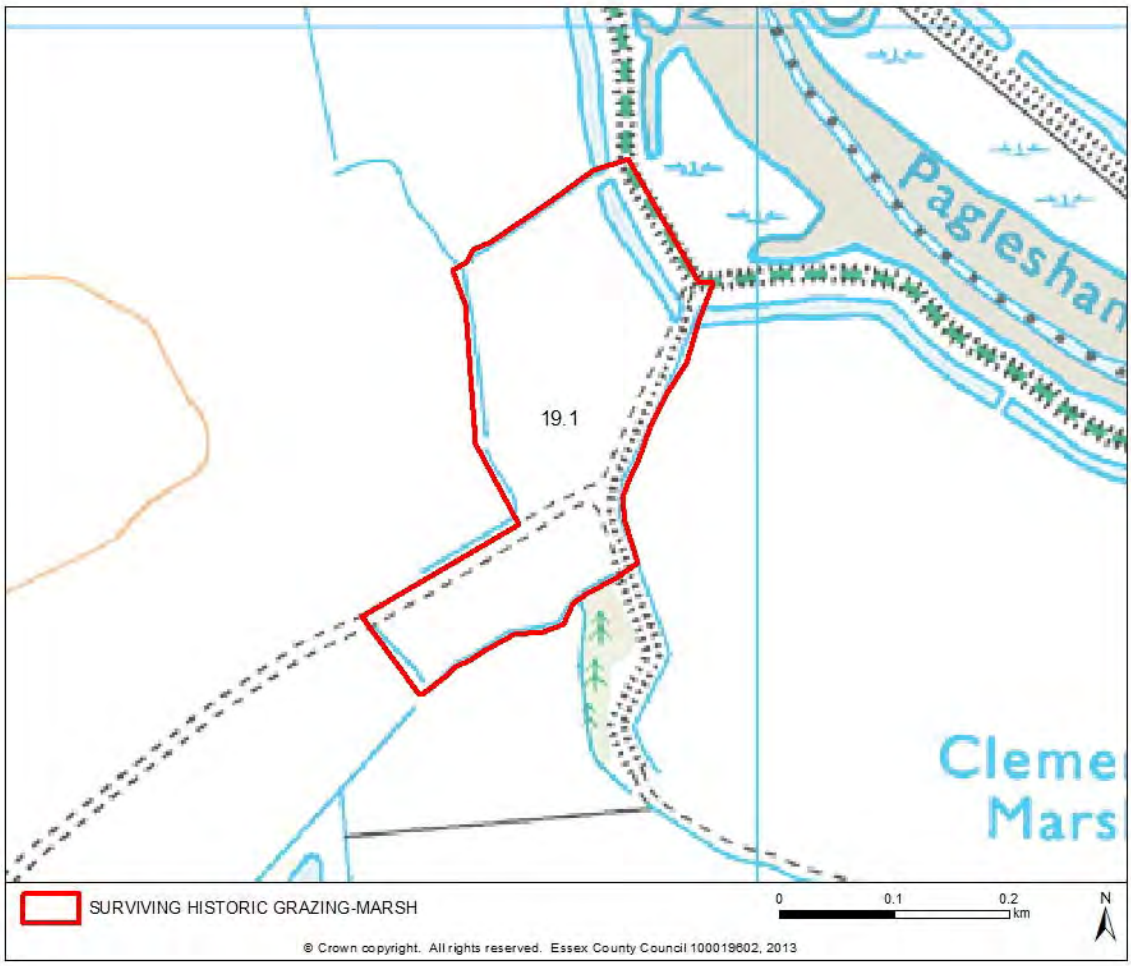


Fig. 38 Marsh 19 – Paglesham Marsh

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although this has been altered. Only the perimeter drainage ditches survive.

To the west of the site are the crop-marks of a probable Roman farmstead, whilst to the south a series of prehistoric ring-ditches and extraction pits are recorded to the north of the medieval East Hall.

Character of vegetation

Heavily improved grassland of little botanical interest. Dominated by Creeping Bent *Agrostis stolonifera*, Perennial Rye-Grass *Lolium perenne*, Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum*.

Threats

Marsh biodiversity already largely lost. Further threatened by continued inappropriate management, and

Shoreline Management Plan

Subject to managed realignment planned from 2025.

Significance

Values	Description	Rank	Score
Archaeological Potential	No evidence of archaeological deposits being present on the marsh but Roman and prehistoric remains in vicinity.	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Marsh is associated with, and contributes to the setting of rural Paglesham	Low	0
Diversity	Sea wall,	Low	0
Historical Association	No known historical association	Low	0

Biodiversity	Improved and no designation	Low	0
Amenity	Public access limited to footpath along sea wall, there are also modern farmtracks to Paglesham Churchend and East Hall	Low	1
Overall significance			**2**

3.1.14 MARSH 21

21.1 South Fambridge and Canewdon Marsh

Summary

An area of 'improved' grassland located on the southern side of Canewdon Marsh, adjacent to the former Old Fleet creek. The marsh contains the site of Lower Raypits Farm, which is thought to be post-medieval in origin. A sea wall survives on the southern edge of the area, and a number of sinuous former creeks survive as very shallow earthworks.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. The marsh contains the site of Lower Raypits Farm, which is thought to be post-medieval in origin. The 1st edition OS map shows a reasonable substantial farm complex of barns and stock-yards, and a pond. The pond survives, but the majority of the farmyard has been lost. The Old Fleet to the south survives as a substantial drainage feature, it once almost made Canewdon marshes an island.

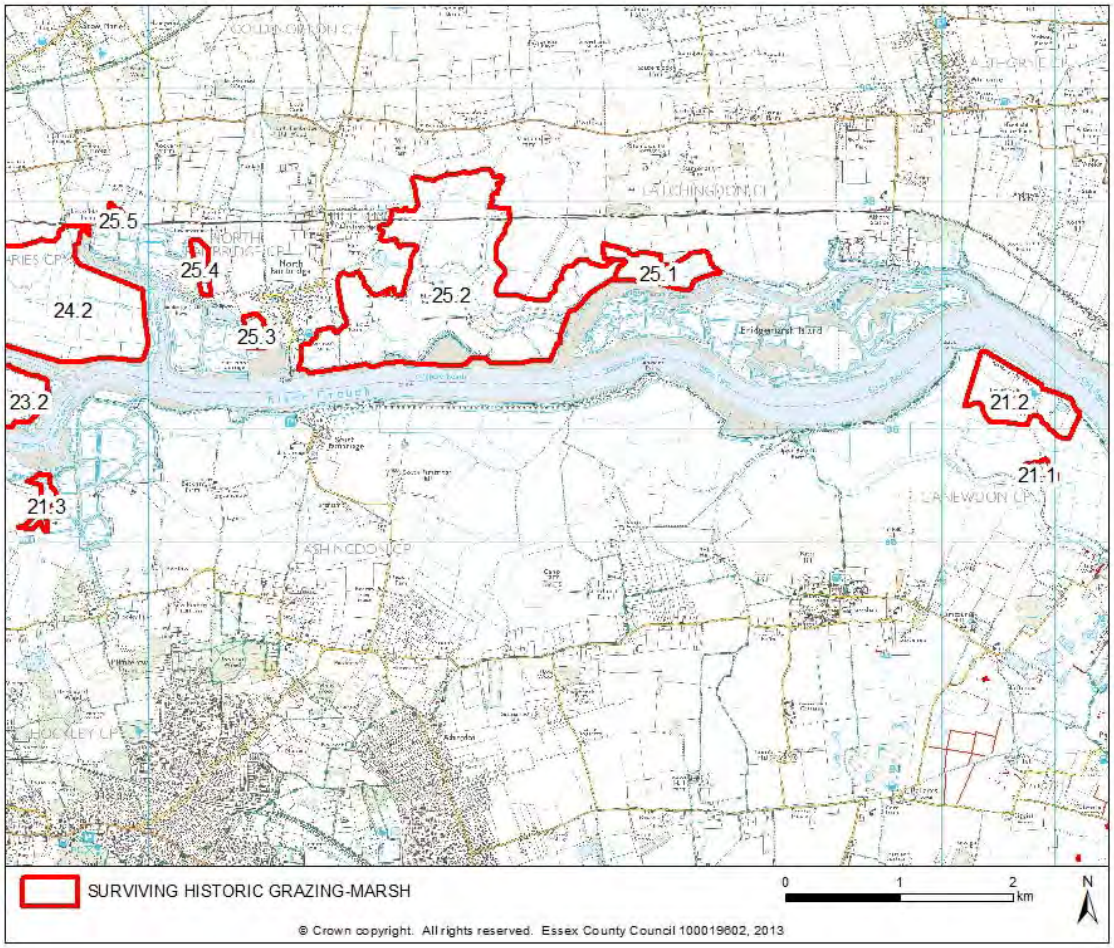


Fig. 39 Marsh 21 - South Fambridge and Canewdon Marsh

Character of vegetation

Improved grassland dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-Grass *Lolium perenne,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum.*

Threats

Marsh biodiversity already largely lost. Further threatened by continued inappropriate management.

Shoreline Management

Managed Realignment planned from 2025.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea defence, possible earlier settlement evidence.	Low	1
Archaeological Association	Lower Raypits farmstead	Low	1
Group Value (Association)	Marsh is associated with Lower Raypits Farm and wider landscape	Medium	1
Diversity	Sea wall, former farmstead	Low	0
Historical Association	No known historical association	Low	0
Biodiversity	Improved and no designation	Low	0
Amenity	Public access limited to footpath along sea wall	Low	1
Overall significance			**4**

21.2 South Fambridge and Canewdon Marsh

Summary

An area of significantly ‘improved’ grassland located on the southern bank of the Crouch estuary, it is an Essex Wildlife Trust Nature Reserve and there has been extensive disturbance related to the excavation of scrapes and water-filled channels. The site of the small post-medieval farmstead of Lands End survives as a sheep-fold, as does the sea wall adjoining the river frontage, and a number of straight and sinuous drainage ditches.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. A track-way linked the small post-medieval farmstead of Lands End to the sea-wall and a landing-place on the river. The farm buildings are no longer extant, a sheep-fold now occupies the locaton, this is slightly raised above the surrounding area and is presumably built on the demolished remains of its predecessor. The drainage ditches are mostly regular with one central sinuous ditch. The aerial photographs show evidence of extensive drainage having been put in. Outside the seawall a row of oyster pits is visible in the saltings and the survey has recorded a wooden post structure of unknown date.

Since 2012 the Essex Wildlife Trust has undertaken extensive work in the form of the digging of scrapes and water-filled channels in order to re-wet the site and provide a wider range of habitats for wading species.

Character of vegetation

Grassland much improved and lacking botanical interest. Dominated by Creeping bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne*, Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum.* Occasional Hairy Buttercup *Ranunculus sardous* and Spiny rest-harrow *Ononis spinosa.* Sea club-rush *Bolboschoenus maritimus* found along the sea wall. Fennel pondweed *Potamogeton baudotii* and Beaked tasselweed *Ruppia maritima* common in drains. The vegetation of this site is likely to change in response to the extensive works currently being undertaken.

Threats

The marsh biodiversity already been largely lost but the site is important for birds. Has been severely impacted on by the creation of scrapes and other habitiat improvement works and this is likely to continue.

Shoreline Management Plan

Threatened by Managed Realignment proposed for 2025.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea defence, possibility of occupation around Lands End (possible farm).	Medium	1
Archaeological Association	None identified	Negligible	0
Group Value (Association)	Marsh is associated with, and contributes to the setting of the Crouch estuary; oyster pits	Medium	1
Diversity	Sea wall, ditches/former creeks, site of post-medieval farm	Medium	2
Historical Association	No known historic association	Low	0
Biodiversity	Internationally designated SPA and Ramsar site.	Very High	3
Amenity	Essex Wildlife Trust site, publicly accessible at all times	High	3
Overall significance			**10**

21.3 South Fambridge and Canewdon Marsh

Summary

An area of formerly ‘improved’ grassland located on the corner between the River Crouch and Brandyhole Creek. A sea wall survives on the eastern edge of the area, although it is not clear whether this is original. It has been breached and new salt-marsh is developing within the grazing-marsh area. There are a number of small pools.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. Bartons Farm was located just outside the marsh area, it was first recorded in 1327 and is no longer extant. A sea wall survives on the eastern edge of the area, although it is not clear whether this is original, it is not shown on the 1st edn. OS map. It has been breached at the north-eastern corner and new salt-marsh is developing within the grazing-marsh area. There are a number of small pools within the marsh area, and the former drains are eroding out in a ladder-like pattern.

Character of vegetation

Area has been subject to managed realignment carried out in 2003. Near the sea wall a saltmarsh community dominated by Sea purslane *Atriplex portulacoides* with Sea saltmarsh-grass *Puccinellia maritima* and Sea Aster *Aster tripolium.* This grades into Sea Couch grassland *Elytrigia atherica,* then into a small area of grassland dominated by Creeping Bent *Agrosits stolonifera,* Marsh Foxtail *Alopecurus* and Yorkshire Fog *Holcus lanatus.* Salsify *Tragopogon porrifolius*, Wild Carrot *Daucus carota,* Narrow-leaved bird’s-foot trefoil *Lotus tenuis* and Smooth Tare *Vicia tetrasperma* occur. Nationally rare Sea barley *Hordeum marinum* grows in disturbed and low-lying patches.

Threats

Highly threatened by saltwater flooding and spread of saltmarsh. Only a small amount of grazing marsh vegetation remains and this is likely to be lost in the near future.

Shoreline Management Plan

No active intervention from present day

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea defence	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Site of medieval farm adjacent to marsh; marsh is associated with, and contributes to the setting of, the Crouch estuary	Medium	1
Diversity	Sea wall	Low	0
Historical Association	No known historical association	Negligible	0
Biodiversity	Locally designated with some nationally rare species.	Medium	1
Amenity	Public access limited to footpath along sea wall and potentially along track from Hockley	Low	1
Overall significance			**4**

3.1.15 MARSH 22

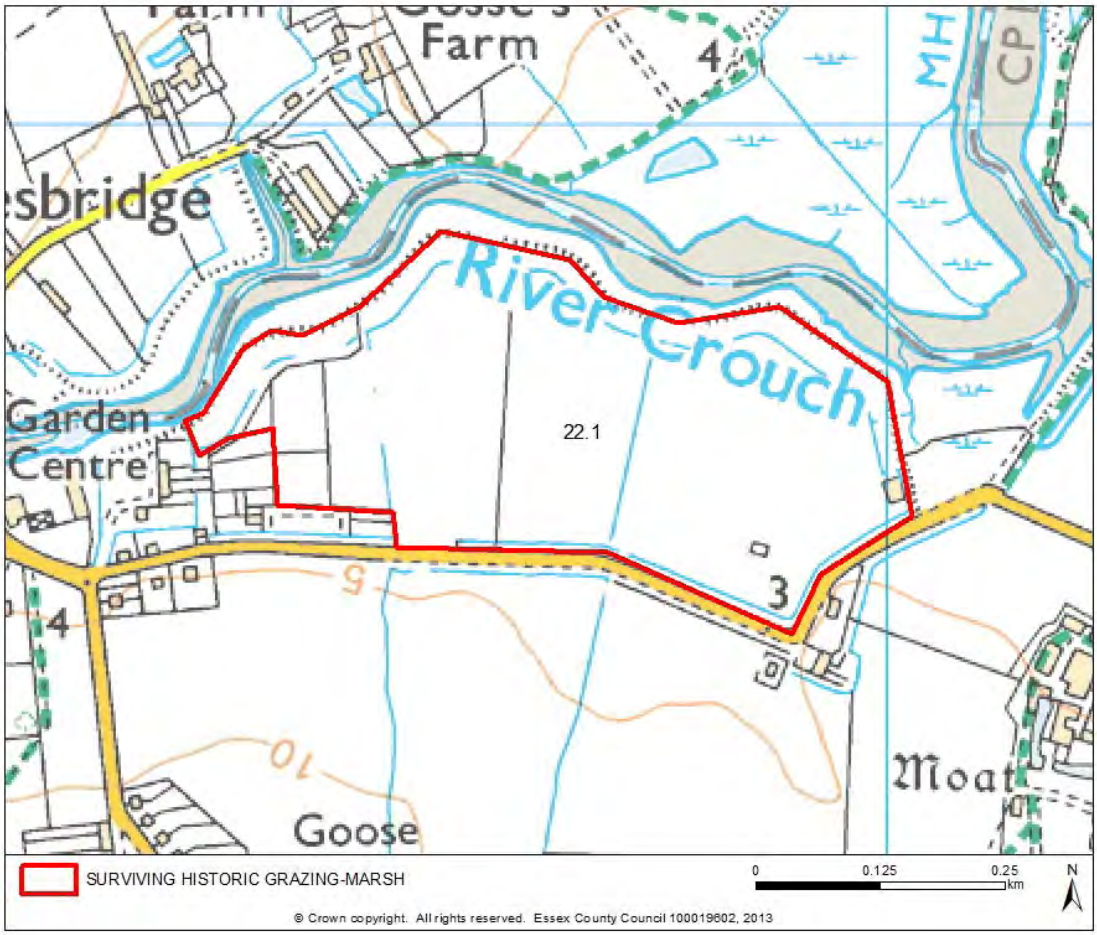


Fig. 40 Marsh 22 - Battlesbridge Marsh

22.1 Battlesbridge Marsh

Summary

An area of 'improved' grass and scrub subdivided into paddocks located on the southern bank of the upper reaches of the Crouch Estuary, immediately to the east of Battlesbridge. A sea wall survives on the northern edge of the area, and a number of straight drainage ditches remain.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. The regular drainage ditches subdivide the marsh into four equally sized fields, these are depicted on the 1st edn. OS. There is further modern subdivision in the form of fences to create paddocks for horses. One of the fields is reverting to scrub. The roofless remains of a small rectangular structure, probably a field barn, survives at the eastern end of the marsh, this is depicted on the 3rd edn. OS (1922). In addition there are a number of small modern stables.

To the west is the historic settlement of Battlesbridge, located at the lowest crossing-point of the River Crouch. To the east on the salt-marsh a Red Hill is eroding out of the marsh edge. To the north the Hullbridge survey of the inter-tidal deposits in the crouch recorded features and finds dating from the prehistoric to the post-medieval period.

Character of vegetation

Agricultural grazing, Grassland vegetation dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum.* Occasional Hairy buttercup *Ranunculus sardous* and Spiny rest-harrow *Ononis spinosa.* One field is reverting to scrub.

Threats

The marsh vegetation has already been largely lost. The site is further threatened by drying out, lack of traditional management and grazing, and scrub and woodland encroachment.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score

Archaeological Potential	Sea wall only, but multi period activity in the near vicinity	Low	1
Archaeological Association	Field barn on 2nd edition OS map	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of the historic settlement of Battlesbridge and the upper reaches of the Crouch Estuary	Medium	1
Diversity	Sea wall, ditches	Low	0
Historical Association	No known historical association	Low	0
Biodiversity	Limited. Undesignated	Low	0
Amenity	Public access limited to footpath along sea wall and views from road, close to village of Battlesbridge	Low	1
Overall significance			**4**

23.1 Woodham Ferrers Marsh

Summary

A small area of unimproved grazing-marsh containing the remains of a medieval saltern which comprises mounds, linear earthworks, and tanks. The site lies within the Marsh Farm Country Park and is protected as a Scheduled Monument. It is located on the north bank of the Crouch estuary.

3.1.16 MARSH 23

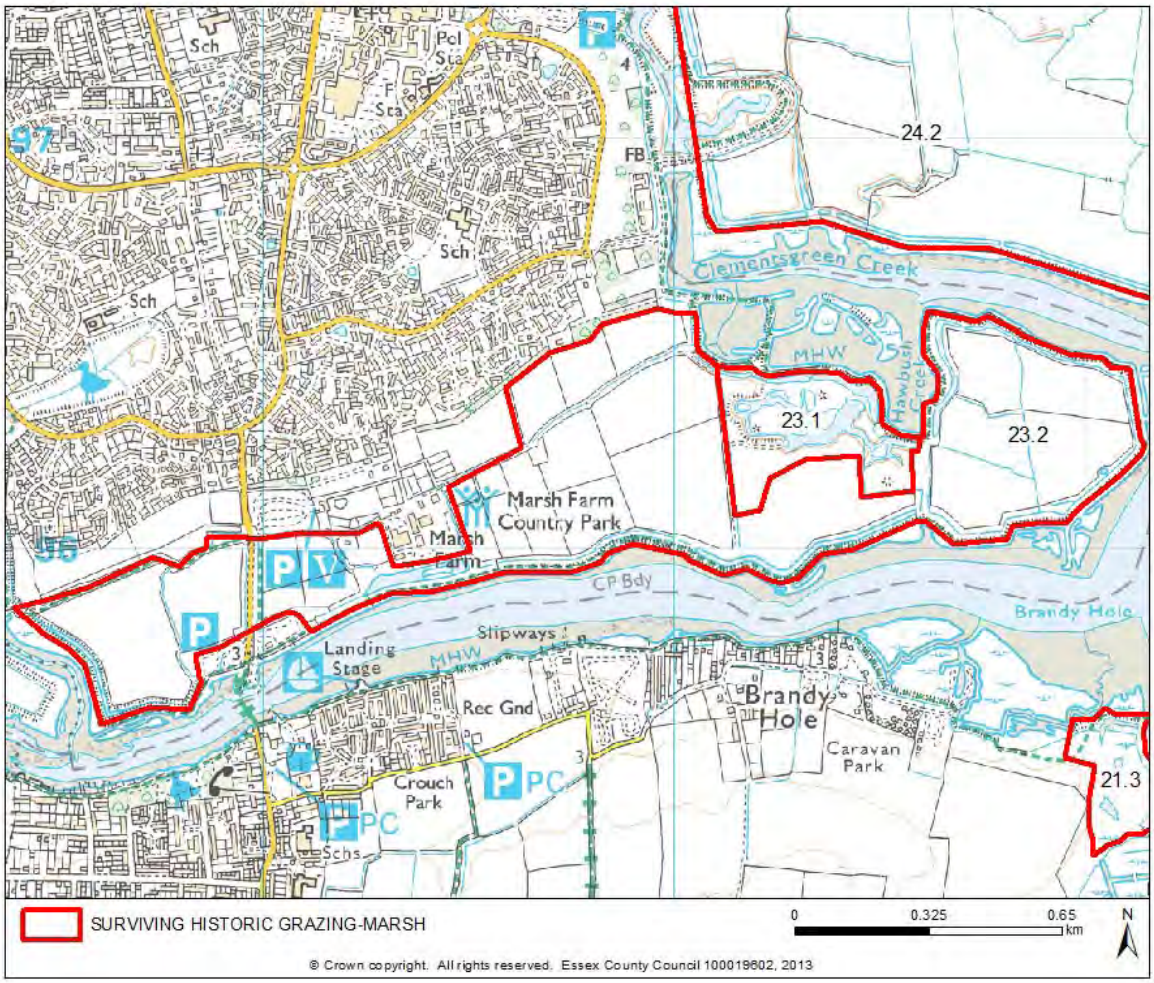


Fig. 41 Marsh 23 - Woodham Ferrers Marsh

Historic environment character

This area defined is unimproved grazing marsh. However the majority of the area is occupied by the earthworks of a rare surviving medieval saltern which comprises mounds, linear earthworks, and tanks. The saltern is of national importance and has been designated as a scheduled monument. A sea-wall separated the marsh from Hawbush Creek and Clementsgreen creek, which in turn flow into the Crouch Estuary. The seawall, which is depicted on the Chapman and Andre map of 1777 and on the 1st edition OS map, survives in part. However, the northern half of the marsh has been lost through managed realignment, and the sea-wall here is 20th century in date. The site was linked by a ditched trackway to the main Woodham Ferrers road. The surviving drainage sitches and fleet are sinuous in form.

To the south of the site, eroding out of the inter-tidal zone are the remnants of an ancient, probably prehistoric, land-surface.

Character of vegetation

Dominated by Sea Couch *Elymus pycnanthus*, with Glasswort *Salicornia spp.* Annual Sea-blite *Suaeda maritima* and Sea Aster *Aster tripolium* at lower levels, and Sea Purslane *Atriplex portulacoides* at higher levels. Narrow-leaved bird's-foot trefoil *Lotis tenuis,* Grass Vetchling *Lathyrus nissolia* and the nationally rare Sea Barley *Hordeum marinum,* Sea Clover *Trifolium squamosum,* Curved-Hard-grass *Parapholis incurve*, Slender Hare's-ear *Bupleurum tenuissimim* grow along the sea wall and berms. Drier areas are dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum* with Hairy buttercup *Ranunculus sardous* and Spiny-restharrow *Ononis spinosa.*

Threats

The site is Scheduled, which provides a measure of protection. The biodiversity of this site is relatively unthreatened, although drying-out periods of prolonged dry weather is possible. Grazing of the site is intermittent which is allowing scrub to begin to encroach.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Scheduled medieval saltings extend across much of the area and probable prehistoric land-surface in adjacent inter-tidal zone	High	3

Archaeological Association	None identified although prehistoric land surface in adjacent area	Low	0
Group Value (Association)	Marsh is associated with, and contributes to the setting of the estuary landcsape	Medium	1
Diversity	Sea wall, ditches/former creeks, medieval saltern	Medium	2
Historical Association	Association with medieval salt industry	Medium	2
Biodiversity	Designated SPA and Ramsar site.	Very High	3
Amenity	Within Marsh Farm Country Park	Medium	2
Overall significance			**13**

23.2 Woodham Ferrers Marsh

Summary

A large area of improved grazing marsh part of which is located within Marsh Farm Country Park. It runs along the north bank of the Crouch Estuary, with Fen Creek forming its western boundary and Clementsgreen Creek its eastern boundary. Formerly it was subdivided into fields with largely sinuous boundaries, but these have been replaces by modern rectangular paddocks associated with the Country Park's farming activities.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it

has been altered. A pair of agricultural barns fronting onto a stockyard, labelled as Lower Barn is shown on the 1st edn. OS map (1881), it was still present by 1938, but is no longer extant. To the north of this area is an extensive medieval saltern (23.1), and the ditched track which led to it once crossed this marsh. The fields within this area have been cultivated in the past although are now laid to grass. Formerly it was subdivided into fields with largely sinuous boundaries, but these have been replaces by modern rectangular paddocks associated with the Country Park's farming activities, the original ditches are visible as cropmarks. Cropmarks also survive of the flattened earthworks associated to the scheduled medieval saltern site. Numerous Mesolithic flints have been recovered from the inter-tidal area, where they are eroding out from old buried land-surfaces, it is thought that these land-surfaces extend under the present grazing marsh.

Character of vegetation

Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-Grass *Lolium perenne,* Red Fescue *Festuca rubra,* and Meadow Barley *Hordeum secalinum.* Occasional Creeping Thistle *Cirsium arvense.* Common cord-grass *Spartina anglica* also present.

Threats

The site has been improved and largely levelled. The biodiversity is relatively unthreatened, although there is the potential for drying out during periods of prolonged dry weather. The area is a Country Park and there is a possibility that activities associated with the commercial development of the site will have an impact.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Trackway to the Scheduled medieval saltings to the north	High	3

	crossed the site and prehistoric land surface recorded in adjacent estuary inter-tidal zone		
Archaeological Association	Large number of Mesolithic flints founds along the foreshore of the Crouch estuary	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Crouch Estuary and scheduled salterns (23.1)	Medium	1
Diversity	Sea wall	Low	0
Historical Association	Association with medieval salt-making industry	Medium	2
Biodiversity	Part internationally designated SAC, SPA and Ramsar site. Part undesignated.	Very High	3
Amenity	Mostly falls within Marsh Farm Country Park. Public access also along sea-wall.	Medium	2
Overall significance			**12**

3.1.17 MARSH 24

24.1 Stow Marsh

Summary

An area of unimproved grazing marsh containing the earthworks of a surviving medieval saltern. The archaeological remains, although not currently Scheduled, are of national importance. It is located at the head of Clementsgreen Creek which feeds into the upper reaches of the Crouch Estuary.

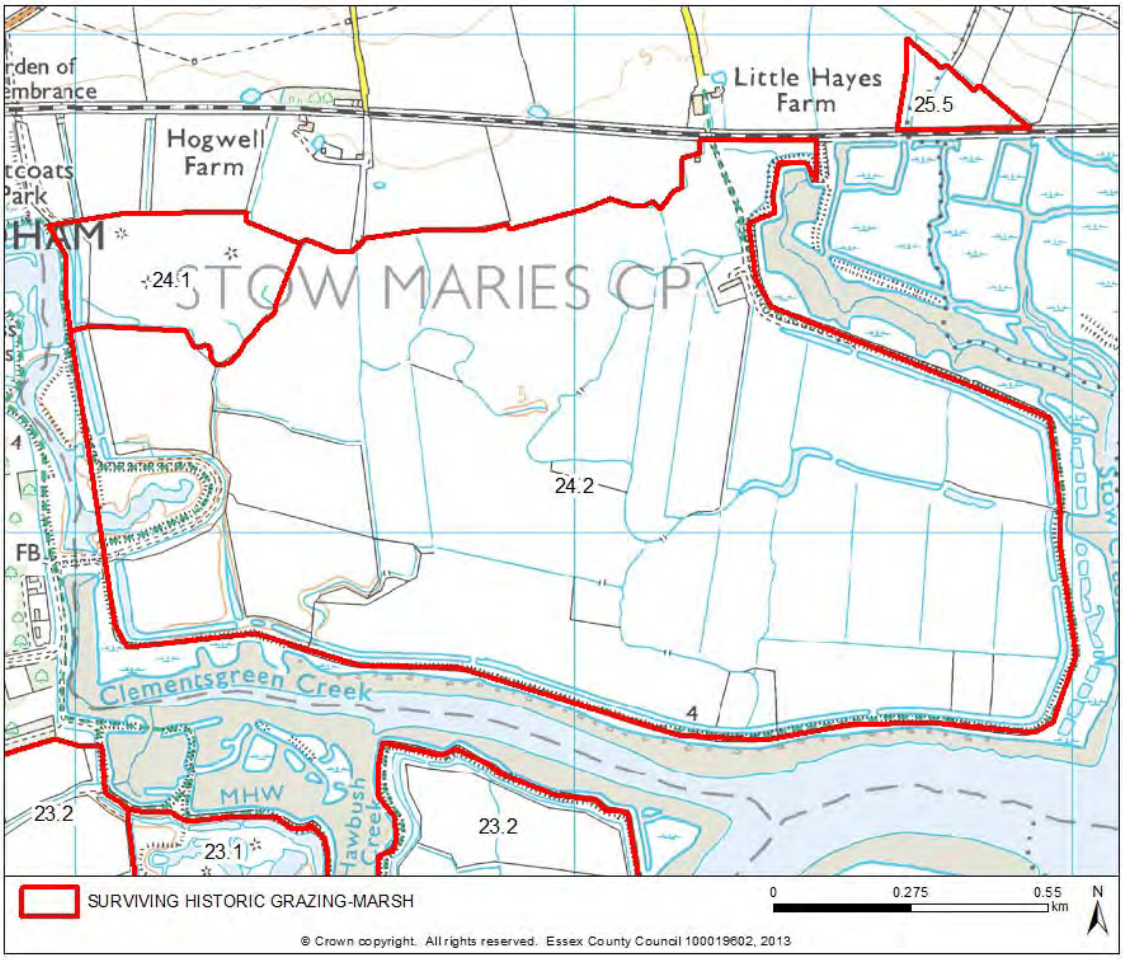


Fig. 42 Marsh 24 – Stow Marsh

Historic environment character

A small area of unimproved grazing marsh located at the head of the tidal Clementsgreen Creek, at the point where it borders the dryland. It is linked to the dryland by Hogwell Chase road, and by a farm track to Hogwell Farm. The area contains the extensive earthworks of a medieval saltern, which comprises mounds, linear earthworks, and tanks. There is a high potential of surviving archaeological deposits throughout the area. The site is of national importance and should be considered for Scheduling, a survey of the earthworks was carried out in 2002 by the RCHME. The sea-wall bordering the creek is shown on the Chapman and Andre map of 1777, and again on the 1st edition OS map where some of the earthworks are also depicted. Some drainage features are visible on the aerial photos in the south-eastern corner of the site.

Character of vegetation

Grazing marsh landward of the sea wall, characteristic but declining habitat in Essex. Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum* with rarer Hairy Buttercup *Ranunculus sardous* and Spiny rest-harrow *Ononis spinosa*

Threats

Threatened by drying out and lack of traditional management. There is some livestock erosion/poaching.

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Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Medieval saltings extend across much of the area.	High	3
Archaeological Association	No other known archaeological association	Low	1
Group Value (Association)	Marsh is associated with the wider medieval salt-making landscape around Clementsgreen Creek	Medium	1
Diversity	Sea wall, saltern earthworks	Medium	2
Historical Association	The medieval salt-making	Medium	1

	industry		
Biodiversity	Undesignated.	Low	1
Amenity	Public access limited to footpath along sea wall which is easily accessible from town of South Woodham Ferrers	Medium	2
Overall significance			**11**

24.2 Stow Marsh

Summary

A large area of improved grazing marsh sited between Clementsgreen Creek and Stow Creek on the northern bank of the Crouch Estuary. Aerial photographs indicate the area has been ploughed for many years although is now under grass. Some sinuous creeks are still visible especially at the western part of area, the remainder are straight drains. The pattern of fields has remained the same since 1st ed OS.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. In the north-east corner of the marsh was a complex of barns, stockyards, a landing-stage, windpump and coal-yard, these are recorded on the 1st edn. OS map, and part of the complex is still extant. Associated are with the landing-stage are the wrecks of two ships. It was accessed by a trackway from Little Gayes Farm which is located immediately to the north on the dryland side of the dryland/marsh interface. The drainage ditches comprise a mix of sinuous and regular ditches, with the former surviving best in the western half of the area. The pattern of fields has remained the same since 1st ed OS. The only archaeological features recorded within this area comprises two bomb sites. A number of sites were identified on the foreshore by the Hullbridge survey, including the remains of a

sunken forest. The saltings on the eastern side of the marsh contain a string of oyster pits.

Character of vegetation

Grassland product of arable reversion. Eastern area heavily improved and grazed, Creeping thistle *Cirsium arvense* frequent in this area with short sward of Perennial Rye-grass *Lolium perenne* and Bent-grasses *Agrostis spp.* Rest of the area dominated by Bent-grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum.*

Threats

The marsh vegetation has already been largely lost, but the area is important for birds. The eastern half is threatened by overgrazing. The rest of the area threatened by lack of traditional management and agricultural improvement.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Site of post-medieval landing, coal-yard and barns. Some potential of buried forest and associated land surfaces extending into the area.	Low	1
Archaeological Association	WWII bomb craters	Low	1
Group Value	Marsh is associated with, and contributes to the wider	Medium	1

(Association)	landscape of, the north bank of the Crouch estuary; landing stage and hulks		
Diversity	Sea wall, ditches/former creeks	Low	1
Historical Association	No known historical association	Low	0
Biodiversity	Parts internationally designated as SPA, SAC & Ramsar. Rest is undesignated.	High	3
Amenity	Public access along footpath on seawall from South Woodham Ferrers and public footpath from Little Hayes Farm.	Low	1
Overall significance			**7**

3.1.18 MARSH 25

25.1 North Fambridge Marsh

Summary

An area of ‘unimproved’ grassland located to the north of Bridgemarsh Creek and Island. The earthworks relating to several phases of sea-wall construction as well as numerous former creeks survive. A small pond on the northern edge of the area is modern in date.

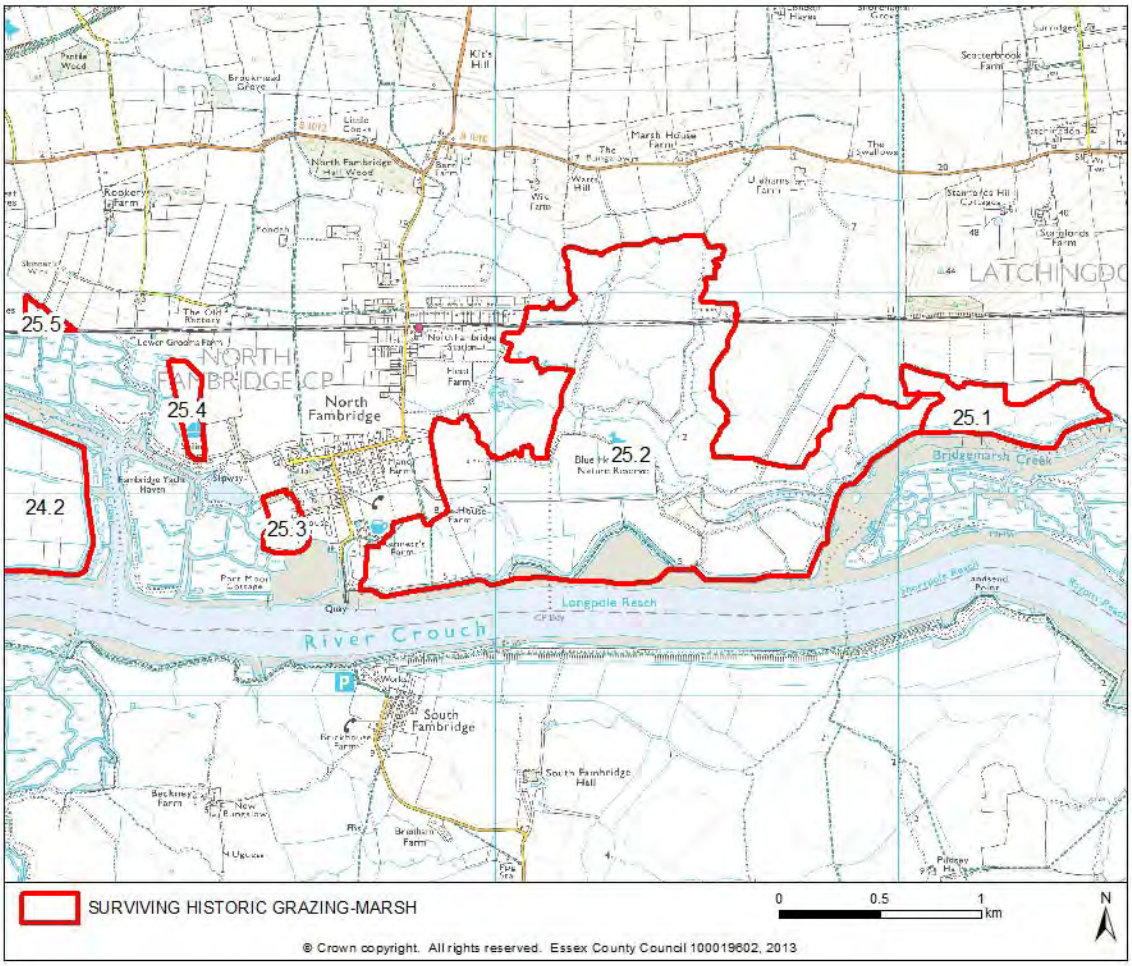

Fig. 43 Marsh 25 – North Fambridge Marsh

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. Within the marsh area there are several phases of earlier sea-wall, surviving as low earth-works. The drainage ditches are sinuous in form, they are depicted on the 1st edn. OS map. The aerial photographs show within this framework a complex network of former creeks and inlets, surviving as very shallow earthworks and differential vegetation growth. The remnants of a post-medieval causeway, comprising rubble and timbers, linking the mainland with Bridgemarsh Island have been recorded at the south-east corner of the marsh in the inter-tidal zone.

Character of vegetation

Grassland dominated by Red Fescue *Festuca rubra,* Meadow Barley *Hordeum marinum,* Creeping Bent *Agrostis stolonifera,* and Perennial Rye-grass *Lolium perenne.* Drains and creeks contain aquatic plants Fennel pondweed *Potamogeton pectinatus* and Beaked tasselweed *Ruppia maritima*, and some rare Soft hornwort *Certophyllum submersum.*

Threats

The vegetation is threatened by run-off and saltwater flooding.

Shoreline Management Plan

Managed Realignment is proposed from 2055.

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Significance

Values	Description	Rank	Score
Archaeological Potential	Potential of archaeological deposits associated with the construction of the sea walls.	Medium	1
Archaeological Association	No known archaeological association	Negligible	0
Group Value (Association)	Post medieval causeway linking mainland to Bridgemarsh Island. The marsh is associated with, and contributes to the setting of, the Crouch estuary	Medium	1
Diversity	Sea wall, ditches/former creeks	Low	1
Historical Association	No known historical association	Low	0
Biodiversity	Internationally designated as SPA and Ramsar, with the	Very High	3

	southern edge also designated as an SAC.		
Amenity	Public access limited to footpath along sea wall	Low	1
Overall significance			**7**

25.2 North Fambridge Marsh

Summary

A large area located on the north bank of the Crouch estuary, now the Essex Wildlife trust's Blue House Farm Nature Reserve. It is bisected by Hydemarsh fleet, now partially silted up. Numerous counter walls survive across it, as do a number of sinuous and straight drainage ditches. Three farms were located on the dryland side of the interface of the marsh and the higher ground. A Red Hill is recorded within the marsh area and there are a range of archaeological deposits recorded on the Crouch foreshore. The area has been significantly 'improved' with ploughing in the recent past on many of the fields.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777, which depicts a large fleet bisecting the marsh area which opened into Bridgemarsh Creek. A complex system of counter-walls lined the fleet and sub-divided the remainder of the marsh into separate compartments. The counterwalls largely survive as low earthworks, and the fleet is still in existence, although reduced in width due to silting. The individual compartments are sub-divided into smaller fields by drainage ditches, these are sinuous in form in the northern half of the marsh and straight in the southern half. Three farms, Hydemarsh, Kennetts and Blue House were located on the dryland side of the interface of the marsh and the higher ground, they are depicted on the 1st edn. OS map. Blue House and Kennetts are still extant. Hydemarsh is shown on the 1777 map (labelled as Blue Marsh), the farmstead enclosure still survives, but no buildings remain. The counterwall at Hydemarsh appears to have also functioned as a raised

causeway, allowing access to the sea-wall and a possible landing-place on Bridgewater Creek. The south-west corner of the marsh abuts the former landing-place for the Fambridge ferry across the Crouch. Parts of the area have been significantly 'improved' with ploughing and drainage in the recent past, although they are now under grass. The area now forms the Essex Wildlife Trust's blue House Farm nature reserve and is important as an over-wintering ground for Brent Geese.

A Red Hill is recorded adjacent to the fleet and there are a range of archaeological deposits recorded on the Crouch foreshore, including Mesolithic flints and a prehistoric land-surface and submerged forest. It is possible that these deposits extend northwards into the marsh area.

Character of vegetation

Very dry, improved site of little botanical interest. Part grazed, part not. Dominated by Bent-grasses *Agrostis spp.* Red Fescue *Festuca rubra* and Perennial Rye-grass *Lolium perenne.* Some invasive *Crassula helmsii* in wet ditches, controlled. Most ditches dry and contain little typical grazing marsh vegetation.

Threats

The grazing marsh vegetation has already been largely lost. The area is threatened by drying out, with overgrazing in some areas and lack of grazing in others. Ditch vegetation threatened by invasive *Crassula helmsii.*

Shoreline Management Plan

Managed Realignment is proposed for 2055.

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Significance

Values	Description	Rank	Score
Archaeological Potential	Potential of archaeological deposits associated with the construction of the sea walls	Medium	2

	and farmsteads. Prehistoric land surfaces and submerged forest may extend into area. Red hill.		
Archaeological Association	Single red hill may be one of many.	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the crouch estuary; adjoining post-med farms	Medium	1
Diversity	Sea wall and counterwalls, fleet, ditches/former creeks, Red Hill	High	4
Historical Association	No known historic association	Low	0
Biodiversity	Designated SPA and Ramsar, with a small portion in the south of the area also designated as an SAC.	Very High	3
Amenity	Blue House Farm Nature Reserve – accessible at all times	High	3
Overall significance			**14**

25.3 North Fambridge Marsh

Summary

A small area of highly improved grassland sited between Fambridge and an area of managed retreat. There is no sea-wall. A small circular pond dating to the 1920s is shown on the 3rd en. OS map, it is still extant.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777, at which date it formed the inward portion of a larger marsh. The majority of this marsh has been lost to managed retreat, leaving this small area of grassland at the marsh/dryland interface. There is no sea-wall between the managed retreat and the grassland. The only surviving feature is a small circular pond, now surrounded by trees, which is depicted on the 1920s 3rd edn. OS map.

Character of vegetation

Agricultural grazing, little botanical interest. Dominated by Perennial Rye-grass *Lolium perenne,* Bent-grasses *Agrostis spp.,* Red Fescue *Festuca rubra* and Meadow Barley *Hordeum marinum.*

Threats

The grazing marsh vegetation has already been largely lost. It is further threatened by lack of traditional management

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Small area of land with no indication of archaeological potential	Very Low	0
Archaeological Association	No known archaeological associations	Negligible	0
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Crouch estuary;	Low	0

Diversity	Early modern pond	Low	0
Historical Association	No known historical association	Low	0
Biodiversity	Designated SAC, SPA and Ramsar. Very important for bird species.	Very High	3
Amenity	Public access limited to perimeter of field (linking gap between sea-wall path)	Low	1
Overall significance			**4**

3.1.19 MARSH 28

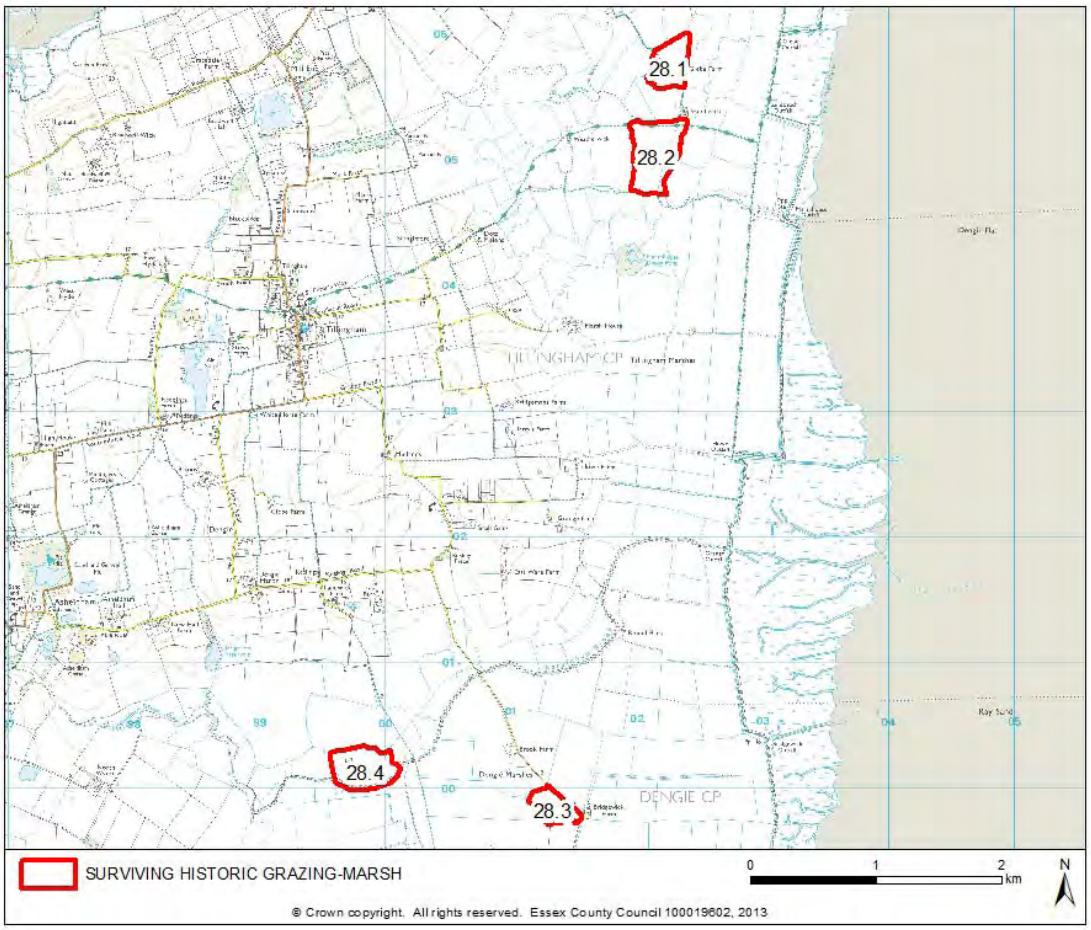

Fig. 44 Marsh 28 – Dengie Marsh

28.1 Dengie Marsh

Summary

A small area of improved grassland containing Glebe Farm, which comprises a single large barn and two smaller sheds attached to walled stock enclosures. A cropmark of a counter- wall is visible on the aerial photographs. The boundaries comprise a mix of sinuous and straight ditches.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. It is centrally sited within what was once a much larger marsh. An earlier counter wall is recorded from aerial photography on the northern edge of the area. The boundaries comprise a mix of straight and sinuous ditches. Glebe Farm is shown on the 1st edn. OS map, there are still buildings there, comprising two narrow sheds with attached stockyards, to the immediate north a large barn has been added. The site is linked by a trackway to Sandbeach to the south and Hockley Farm to the northwest.

Character of vegetation

Grassland, remnant of formerly extensive marsh and locally important. Grassland dominated by Meadow foxtail *Alopecurus pratensis,* soft-brome *Bromus hordeaceus,* cock's-foot *Dactylis glomerata,* Perennial rye-grass *Lolium perenne,* timothy-grass *Phleum pratense* and rough meadow-grass *poa trivialis.* Herbs Grass Vetchling *Lathyrus nissolia* and Spotted medick *Medicago arabica* characteristic of grazing marsh are restricted to ditch edges. Sea club-rush *Scirpus maritimus,* Common reed *Phragmites australis,* reed sweet-grass *Glyceria maxima* and lesser-reedmace *Typha angustifolia* dominant in ditches. Nationally rare species Soft hornwort *Ceratophyllum submersum* and Golden dock *Rumex maritimus* also occur in ditches.

Threats

Biodiversity – Rare ditch vegetation threatened by drying out and agricultural run-off from surrounding fields. Threatened longer term by land-take for agriculture and lack of traditional management.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Small piece of land with cropmark of counter wall. Site of Glebe Farm	Medium	2
Archaeological Association	No known archaeological associations	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Dengie Marshes	Medium	1
Diversity	Former sea wall, ditches/former creeks	Low	1
Historical Association	No known historic associations	Low	0
Biodiversity	Nationally designated.	High	2
Amenity	Public access along footpath	Medium	2
Overall significance			**9**

28.2 Dengie Marsh

Summary

A small area of 'improved' grassland located to the south of Sandbeach farm. The farm is 18th century or earlier in origin. An earlier counterwall is visible on the aerial photography as is traces of the original creek structure. The boundaries within the site comprise a mix of straight and sinuous ditches.

Historic environment character

Sandbeach is first recorded as a placename in 1369, and again in 1437, although at this date the name was possibly purely a geographical description. The marsh was reclaimed by the time of the Chapman and Andre map of 1777, which also depicts Sandbeach Farm immediately to the north of the site. The 1st edition OS map shows both Sandbeach Farm and a small cottage to its west. By this date the boundaries comprise a mix of sinuous and straight ditches, which survive. The site is linked to the dryland and many of the other farms by Hockley Lane, and by a ditched trackway to the sea-wall. An earlier counter wall is recorded from aerial photography in the south-eastern corner of the area, as are a number of sinuous creeks, which survive as slight earthworks throughout the area. There are known to be Red Hills in the vicinity and there is a reasonable possibility of others being present in the survey area.

Character of vegetation

Grassland, remnant of formerly extensive marsh and locally important. Grassland dominated by Meadow foxtail *Alopecurus pratensis,* soft-brome *Bromus hordeaceus,* cock's-foot *Dactylis glomerata,* Perennial rye-grass *Lolium perenne,* timothy-grass *Phleum pratense* and rough meadow-grass *poa trivialis.* Herbs Grass Vetchling *Lathyrus nissolia* and Spotted medick *Medicago arabica* characteristic of grazing marsh are restricted to ditch edges. Sea club-rush *Scirpus maritimus,* Common reed *Phragmites australis,* reed sweet-grass *Glyceria maxima* and lesser-reedmace *Typha angustifolia* dominant in ditches. Nationally rare species Soft hornwort *Ceratophyllum submersum* and Golden dock *Rumex maritimus* also occur in ditches.

Threats

Biodiversity – Rare ditch vegetation threatened by drying out and agricultural run-off from surrounding fields. Threatened longer term by land-take for agriculture and lack of traditional management.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Small piece of land associated with Sandbeach farm Only slightly improved with many low earthworks of creeks surviving and cropmark of counter wall.	Medium	2
Archaeological Association	Red Hills (Roman salterns in the vicinity)	Medium	2
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Dengie marshes and the farm complex of Sandbeach	Medium	2
Diversity	Sea wall, ditches/former creeks,	Low	1
Historical Association	Place-name	High	2
Biodiversity	Nationally designated.	High	2
Amenity	Public access limited to Hockley Lane	Medium	2
Overall significance			**13**

28.3 Dengie Marsh

Summary

A small area of ‘improved’ grassland located to west of Bridgewick Farm. The boundaries comprise the track to the farm, and a mix of straight and sinuous drainage ditches. Second The site overlaps part of a former WWII ‘Diver’ site.

Historic environment character

A small irregular shaped piece of surviving grazing marsh located to the west of the farm complex at Bridgewick Farm. Bridgewick is first mentioned in 1506. The marsh was reclaimed by the time of the Chapman and Andre map of 1777 and Bridgewick Farm is shown on this map. The current buildings on the site comprise a pair of Listed 18th century cottages. Aerial photography shows a number of sinuous creeks surviving as slight earthworks in the southern part of this area. Part of the area shows signs of stetch. There has however been considerable improvement of the site in the form of drainage.

In 1944 part of the site was used as a 'Diver' anti-aircraft gun site (Site No. N33, SW of Bridgewick Farm). An aerial photograph taken in May 1946 shows the site very clearly. There were *c* 40 Nissen huts in four rows, two in a crescent and two straight. These were situated at the north end of the 'Diver' site, in the survey area. Some 150 yards to the south were the guns, in two rows of four. No trace of these remains.

Character of vegetation

Semi-improved. Dominated by Perennial Rye-grass *Lolium perenne* and Common Couch-grass *Elytrigia repens,* with Meadow Barley *Hordeum secalinum* and Creeping bent-grass *Agrostis stolonifera* abundant. Bordering ditch dominated by Sea club-rush *Bolboschoenus maritimus* – ditch vegetation has been badly affected by agricultural run-off.

Threats

Biodiversity – Ditch vegetation threatened by agricultural run-off. Grazing marsh vegetation threatened by agricultural improvement and lack of traditional management. There is some erosion at the field entrance.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological	Former creeks, ditches	Low	1

Potential			
Archaeological Association	WWII ‘Diver’ site	Medium	2
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Dengie Marshes	Low	1
Diversity	Ditches/former creeks, military structures	Low	1
Historical Association	World War II defensive sites	High	2
Biodiversity	Locally designated. Species poor but important as a fragment of permanent pasture in arable landscape, supports invertebrates and birds.	Medium	2
Amenity	No public access, but bordered by Bridgewick Road	Medium	2
Overall significance			**11**

28.4 Dengie Marsh

Summary

A small irregular area of ‘improved’ grassland located to the north of Asheldham Brook, close to the former dryland/marshland interface. The earthworks of a former counter-wall survive, and the marks of former creeks are also visible. There are two probable bomb-craters on the site.

Historic environment character

The marsh lies close the dryland/marsh interface to the south-east of Asheldham and immediately north of the Asheldham Brook. Given its inland position, it must have been one of the earlier marshes reclaimed on the Dengie peninsula. It was certainly reclaimed by the time of the Chapman and Andre map of 1777. The marsh is linked by a trackway to Landwick Farm, which is sited to the north on the drier ground. Landwick is first recorded in

1286. There is a surviving earthworks of a substantial former counterwall, which runs parallel to the Asheldham Brook as well as slighter earthworks relating to creeks. The boundaries of the site are still formed by Asheldham Brook and a mix of straight and sinuous drainage ditches. There are two small circular depressions, one water-filled, that probably represent WWII bomb-craters. There has been a degree of improvement to the grassland, largely through below-ground drainage.

Character of vegetation

Semi-improved and species poor. Dominated by Perennial Rye-grass *Lolium perenne* and Common Couch-grass *Elytrigia repens,* with Meadow Barley *Hordeum secalinum* and Creeping bent-grass *Agrostis stolonifera* abundant. Ditches dominated by Sea club-rush *Bolboschoenus maritimus* – ditch vegetation has been badly affected by agricultural run-off.

Threats

Biodiversity – Ditch vegetation threatened by agricultural run-off. Grazing marsh vegetation threatened by agricultural improvement and lack of traditional management.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Small piece of land with surviving counter wall. Some earthworks of creeks surviving. Represents early phase of reclamation and dating evidence may survive associated with counter wall	Medium	1
Archaeological	WWII bomb craters	Low	1

Association			
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Dengie Marshes, and Landwick Farm	Medium	1
Diversity	Counter wall, ditches/former creeks, bomb craters	Low	1
Historical Association	History of marsh drainage	High	2
Biodiversity	Undesignated, semi-improved.	Low	0
Amenity	No public access, although visible from Landwick footpath	Medium	2
Overall significance			**8**

3.1.20 MARSH 30

30.1 Westwick Marsh

Summary

A small triangular area of semi-improved grazing marsh to the south-west of Bradwell Waterside, adjacent to the Blackwater Estuary. A sea wall survives on the estuary edge of the area, as do the the boundary ditches. The earthworks of former creeks are visible on aerial photographs. The area is associated with the historic farmstead of Westwick.

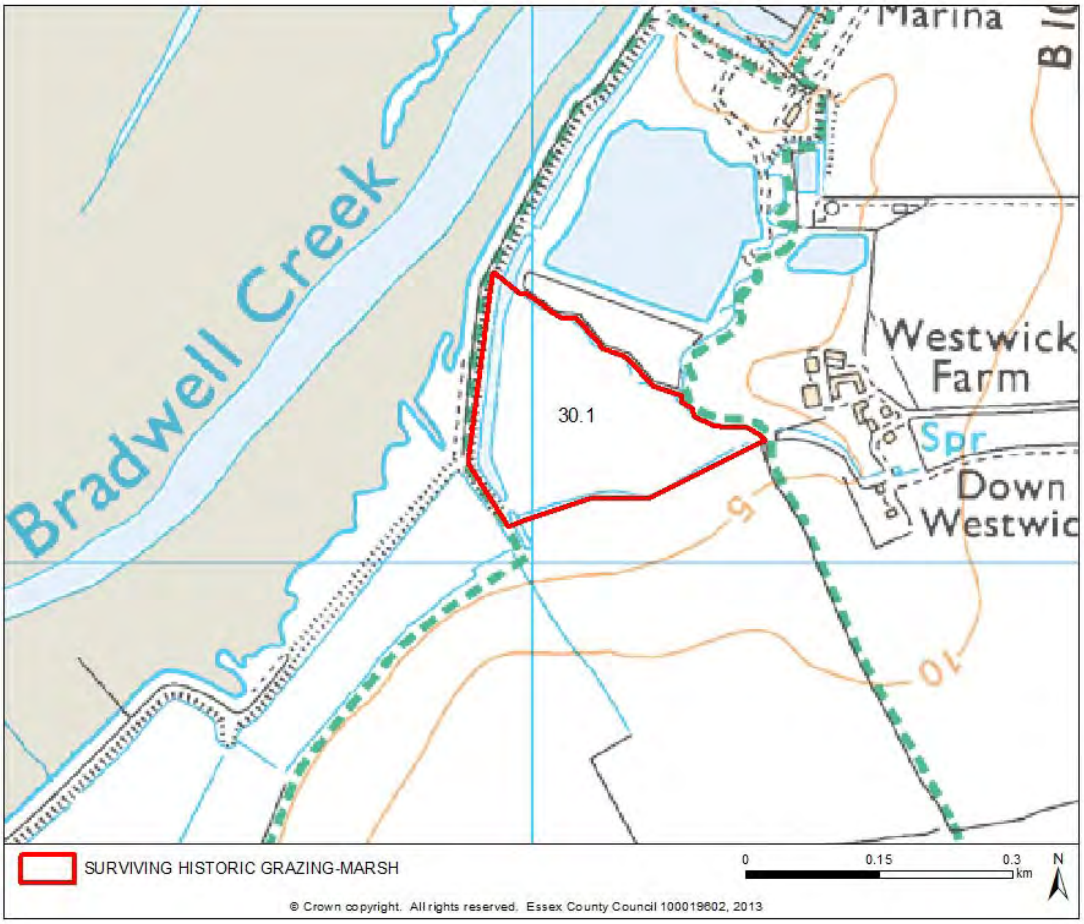

Fig. 45 Marsh 30 – Westwick Marsh

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. The site is linked by a short track to the historic farmstead of Westwick, which is first recorded in 1435. The site was delimited on the inland side by a mix of sinuous and straight drainage ditches, which survive, as do the low earthworks of several sinuous creeks within the marsh area. The earthworks associated with stetch are visible on surface.

Character of vegetation

Along creeks and the large drainage ditch Couch grasses *Elymus spp.* dominate with Sea club-rush *Scirpus maritimus.* Sea Aster *Aster tripolium,* Saltmarsh rush *Juncus gerardii* and Common reed *Phragmites australis* also

occur. Meadow foxtail *Alopecurus pratensis,* Marsh Foxtail *A. geniculatus,* Creeping Bent *Agrostis stolonifera,* Perennial rye-grass *Lolium perenne* and Yellow oat-grass *Trisetum flavescens* dominant across the field. Nationally rare Strawberry clover *Trifolium fragifera* occurs. Glassworts *Salicornia spp.* with patches of Sea Purslane *Atriplex portulacoides* in lower-lying areas of the field. Along the sea wall Lady's bedstraw *Galium verum* and Shrubby sea-blite *Suaeda vera* are frequent. Hawthorn *Crataegus monogyna* around the field boundary.

Threats

Biodiversity – Threatened by drying out, lack of traditional management and scrub encroachment.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Small piece of land with surviving sea wall. Some earthworks of creeks surviving. Associated with historic farmstead	Medium	2
Archaeological Association	No known archaeological associations	Low	2
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Blackwater estuary and historic Westwick Farm	Medium	2
Diversity	Sea wall, ditches/former creeks, stetch	Low	1

Historical Association	No known historical associations	Low	1
Biodiversity	Internationally designated SPA and Ramsar.	Very High	3
Amenity	Public access limited to footpath along sea wall but close to village of Bradwell Waterside	Medium	2
Overall significance			**13**

3.1.21 MARSH 32

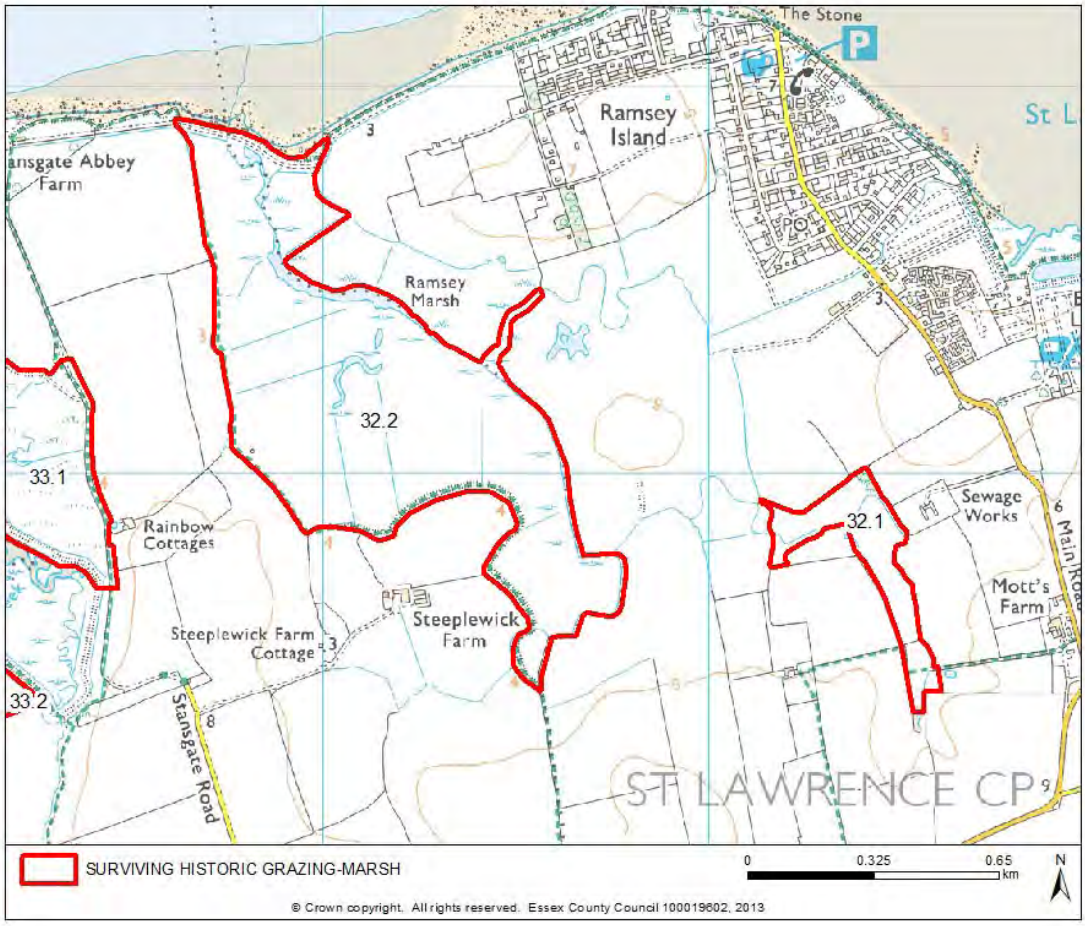

Fig. 46 Marsh 32 – Ramsey Marsh

32.1 Ramsey Marsh

Summary

Three small fields with edges formed from original drainage channels, sited to the south-west of St Lawrence. The grassland has been significantly improved. The area is linked by a track to the historic farmstead of Motts Farm.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. It has been significantly improved and the only features which survive are the drainage ditches around the edge of the area. A trackway links the fields to the historic farmstead of Motts farm to the east, which was first recorded in 1272 and to Kings Farm to the west. The 1777 map shows a duck decoy to the north-west of the site, but this was no longer extant by the time of the 1st edn. OS map.

Character of vegetation

Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra,* Meadow Barley *Hordeum secalinum* and Meadow Foxtail *Alopecurus pratensis.*

Threats

Biodiversity – Threatened by drying out, lack of traditional management and scrub encroachment.

Significance

Values	Description	Rank	Score
Archaeological Potential	No known surviving archaeology	Low	1

Archaeological Association	No known associated archaeology	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Motts Farm	Medium	1
Diversity	Ditches/former creeks,	Low	0
Historical Association	Associated with historic farmstead of Motts Farm	High	2
Biodiversity	Undesignated and improved.	Low	0
Amenity	Public access limited to footpath from Motts Farm to Kings Farm	Medium	2
Overall significance			**7**

32.2 Ramsey Marsh

Summary

Large area of improved grazing marsh on the southern bank of the Blackwater Estuary. A large fleet ran along the east side. The sea wall survives on the northern edge and large counter wall survives down the western side, originally forming edge of marsh area. The remains of a further creek survives as a water-filled feature. Many sinuous creeks are visible on the aerial photograph as cropmarks, although the grassland has been much improved.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The eastern side of the marsh is formed by a large former fleet, Ramsey Creek, now cut off from the sea by the sea-wall but shown as open in 1777. To the north-east of the marsh is the site of the Cluniac priory of Stansgate Abbey, founded in 1112. Human remains have been recorded as

having been recovered from the foreshore, it is presumed that these derive from the Abbey graveyard. The abbey was linked to the marsh by a track which ran parallel to the sea-wall. A second track in the southern corner links to the historic farm of Steeplewick. The sea wall survives on the northern edge and large counter wall survives down the western side, originally forming edge of marsh area. Many sinuous creeks are visible on the 2005 photos, but other photos pre-dating this show the marsh as under arable production. Single cast-iron property boundary marker of 19th century date survives at southern edge of area, marking the former limits of St Bartholemew's Hospital land. A Red Hill has been recorded to the east of the marsh, on the other side of the fleet.

Character of vegetation

Along the channel Couch grasses *Elymus spp.* and Sea club-rush *Scirpus maritimus* are dominant with Sea Aster *Aster tripolium* and Common reed *Phragmites australis.* Hard rush *Juncus inflexus* and Soft rush *J. effuses* also found. Small area of saltmarsh around channel with Glassworts *Salicornia spp,* Sea Purslane *Halimione portulacoides,* Common saltmarsh-grass *Puccinellia maritima* and Common Sea-lavender *Limonium vulgare.* Grazed grassland area dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red Fescue *Festuca rubra,* Meadow Barley *Hordeum secalinum* and Meadow Foxtail *Alopecurus geniculatus.* Some Hairy buttercup *Ranunculus sardous* and Spiny restharrow *Ononis spinosa.*

Threats

Biodiversity – Grazed area threatened by overgrazing. Close to the channel grazing marsh is threatened by saltwater flooding and the spread of salt marsh.

Significance

Values	Description	Rank	Score
Archaeological Potential	Possibility of surviving creeks. Salterns lie to the east.	Medium	1

Archaeological Association	Cluniac Priory	High	2
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Cluniac priory and Blackwater estuary.	Medium	2
Diversity	Sea wall, counter wall, ditches/former creeks, boundary post	Medium	1
Historical Association	Links to Cluniac priory	High	2
Biodiversity	Biodiversity - area of saltmarsh along the creek Very High. Internationally designated as SPA and Ramsar. The remainder of the area is Low – undesignated and improved grassland.	Very High	3
Amenity	Public access limited to footpath along west and north sides	Medium	2
Overall significance			**13**

3.1.22 MARSH 33

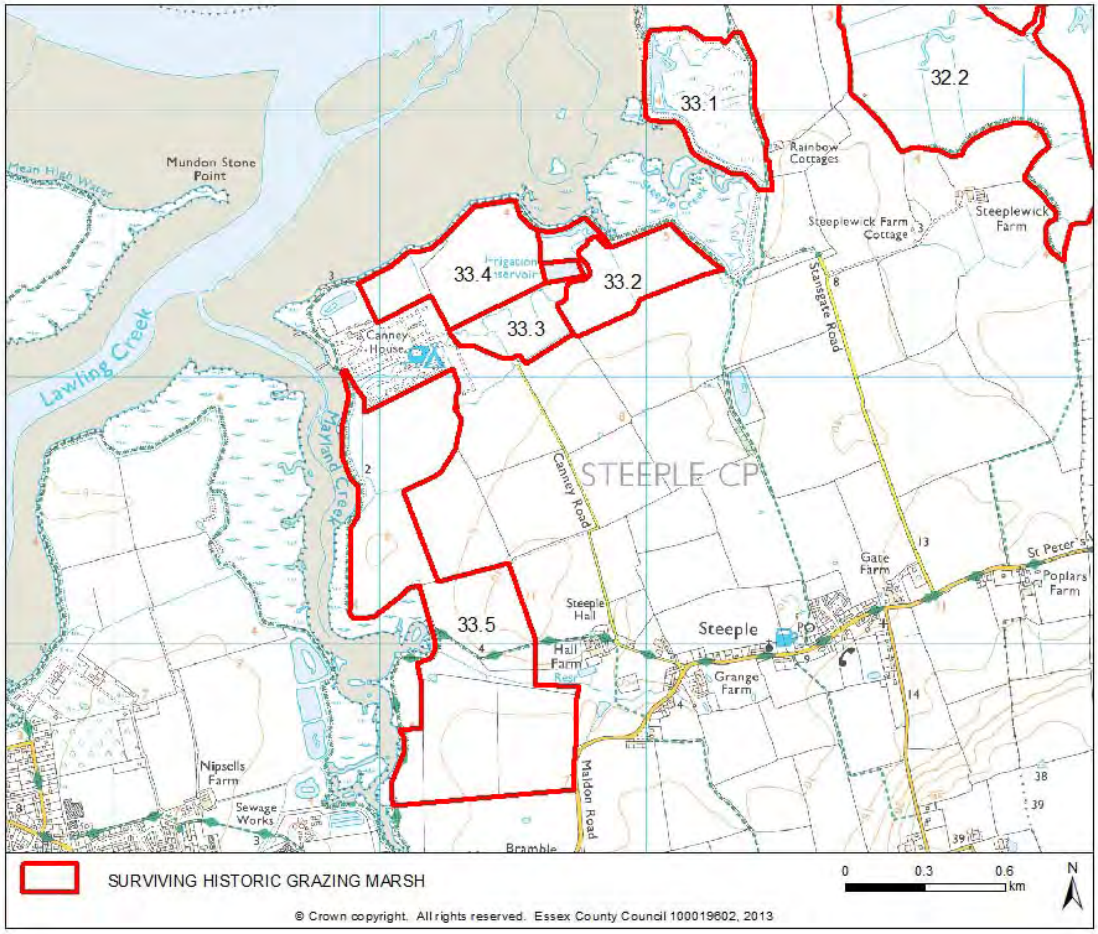

Fig. 47 Marsh 33 – Steeple Marsh

33.1 Steeple Marsh

Summary

A small area of unimproved grazing marsh. Sea walls survive on three sides of the area and internally a range of sinuous creels are present as well as a number of more substantial drainage ditches There are no known archaeological deposits, although there are cropmarks of a possible enclosure in the adjoining field with the medieval Cluniac priory of Stanesgate Abbey sited to the north of these.

Historic environment character

The marsh does not appear to have been reclaimed by the time of the Chapman and Andre map of 1777. It is however enclosed by the time of the 1st edition OS map, the sea-wall relating to this survives, although has been altered. Stansgate Road forms the eastern boundary to the site, linking the marsh to Stansgate Abbey. The aerial evidence suggests that the marshland/dryland interface was located within the site area, with the road some metres inland. Internally a range of sinuous creels are present as are a number of more substantial drainage ditches (also sinuous in form). A number of drains are present. Extensive pre reclamation drainage creeks are visible. There are no known archaeological deposits from the site itself. Hoewever the field to the immediate north. There are no known archaeological deposits, although there are cropmarks of linear features and a possible enclosure in the adjoining field to the north. These may have been associated with the adjacent medieval Cluniac priory of Stanesgate Abbey.

Character of vegetation

High quality grazing marsh. Large amounts of *Ranunculus baudotii* Brackish water-crowfoot and Duckweed *Lemna spp.* in creeks. Vegetation in mosaic pattern, with Meadow grass *Poa spp.* and Velvet Bent *Agrostis tenuis* frequent. Scattered Yorkshire fog *Holcus lanatus,* Hard rush *Juncus inflexus,* Ribwort plantain *Plantago lanceolata,* Buck's-horn plantain *Plantago coronopus,* Autumn hawkbit *Leontodon autumnalis* and Yarrow *Achillea millefolium.* Tussocks of Cock's foot *Dactylis glomerata* and Couch grasses *Elymus spp.*

Threats

Biodiversity – Threatened by lack of traditional management and agricultural run-off. Threatened by Managed Realignment proposed for 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	No archaeological deposits are known to exist within the area but extensive pre reclamation drainage creeks	Medium	2

	are visible.		
Archaeological Association	No known archaeological associations	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Stansgate Abbey and the Blackwater estuary	Medium	2
Diversity	Sea wall, ditches/former creeks,	Low	1
Historical Association	Probable association with Stansgate Abbey	High	2
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Public access along Stansgate Road and along footpath linking road to the footpath along sea wall	Medium	2
Overall significance			**13**

33.2 Steeple Marsh

Summary

An area of heavily 'improved' grassland located next to Steeple Creek on the southern bank of the Blackwater estuary. A sea wall survives on the eastern and northern edge of the area. The site is subdivided by a straight drainage ditch. There are no known archaeological remains from this site.

Historic environment character

The marsh does not appear to have been reclaimed by the time of the Chapman and Andre map of 1777. It is however enclosed by the time of the 1st edition OS map, the sea-wall relating to this survives, although has been altered. The site has been heavily improved, and it was under arable on the 2000 photographs. A single straight drain cuts across area. The 1st edition OS map shows extensive unenclosed saltings in Steeple Creek, these largely survive. The aerial photographic evidence suggests that there was an attempt to enclose a further portion of the saltings at some point after 1881, traces of a seawall and below-ground drainage are visible on the photographs. The attempt must have been short-lived however as it appears on none of the historic maps. There are no known archaeological deposits from the area.

Character of vegetation

Heavily improved. Dominated by bent grasses *Agrostis spp.,* Fescues *Festuca spp.* and Perennial Rye-grass *Lolium perenne.*

Threats

Biodiversity – Grazing marsh vegetation already lost. Threatened by Managed Realignment proposed for 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	No archaeological deposits are known to exist within the area.	Low	1
Archaeological	No known archaeological	Low	1

Association	associations		
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Blackwater estuary	Medium	1
Diversity	Sea wall, ditch	Low	0
Historical Association	No known historic associations	Low	0
Biodiversity	Undesignated and heavily improved.	Low	0
Amenity	Public access limited to footpath along sea wall but close to village of Steeple	Medium	2
Overall significance			**5**

33.3 Steeple Marsh

Summary

An area of slightly 'improved' grassland located on the interface between the dryland and Marsh 33.4 on the south bank of the Blackwater Estuary. A sea wall survives on the north-eastern edge of the area, and sinuous drainage ditch bisects the area, draining via a sluice into Steeple Creek A modern farm reservoir intrudes into this area.

Historic environment character

It is thought that the marsh was reclaimed by the time of the Chapman and Andre map of 1777and the drainage pattern of a single sinuous drainage ditch with sluice at the end remains unchanged. Sinuous creeks associated with earlier grazing marsh are visible at the south western end on the aerial photographs and there are also faint traces of stetch. There are no known archaeological remains from this area.

Character of vegetation

Creek running through area dominated by Sea club-rush *Scirpus maritimus,* with Water pepper *Polygonum hydropiper* and Great Willowherb *Epilobium hirsutum* also occurring. North of the holding pond the field is dominated by Sea couch *Elymus pycnanthis,* Meadow grass *Poa spp.* and Festuca *Festuca spp.* South of the holding pond dominated by Sea Couch, Cock's foot *Dactylis glomerata* and Meadow grasses with scattered Sea Aster *Aster tripolium* and Glassworts *Salicornia* in wet areas. Thistle *Cirsium spp.* frequent.

Threats

Biodiversity – Threatened by lack of traditional management. The marsh and its neighbours are treatened by Managed Realignment proposed for 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	No archaeological deposits are known	Low	1
Archaeological Association	No known archaeological associations	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Blackwater estuary	Low	1
Diversity	Sea wall, ditches/former creeks,	Low	0
Historical Association	No known historical associations	Low	0
Biodiversity	Designated SPA and Ramsar.	Very High	3
Amenity	Public access limited to footpath along sea wall and road to Steeple Bay caravan park – highly visible from caravan park	Medium	2

Overall significance			**8**

33.4 Steeple Marsh

Summary

An area of highly improved grazing marsh on the southern bank of the Blackwater estuary. The sea wall survives at the northern side. A single sinuous drain runs behind the sea wall. No archaeological features are recorded.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The sea wall depicted on the 1st edition OS map survives, although it has been altered. A single sinuous drain runs behind the sea wall. The marsh is now subdivided by a thick hedge with the western end being used as a recreation ground and campsite by Steeple Bay Caravan Park. There are extensive parks of below-ground drainage systems on the aerial photographs. The marsh was linked by a short track to Canney Farm to the west, now subsumed in the Caravan Park. No archaeological features have been recorded from the area, there is however an extant, roughly oval, duck decoy pond in the other half of the recreation ground to the west.

Character of vegetation

Dominated by Bent grasses *Agrostis spp.* and Meadow grasses *Poa spp.,* with frequent Clovers *Trifolium spp.* and Narrow-leaved Bird's-foot trefoil *Lotus tenuis.* Blackthorn scrub along ditch bank.

Threats

Threatened by drying out, scrub encroachment and lack of traditional management. Threatened by Managed Realignment proposed for 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	No known archaeology	Low	1
Archaeological Association	No known archaeological associations	Low	1
Group Value (Association)	Marsh is associated with, and contributes to the setting of, the Blackwater Estuary	Medium	1
Diversity	Sea wall, ditches	Low	1
Historical Association	No known historic associations	Low	0
Biodiversity	Majority of site internationally designated as SPA and Ramsar. Western portion undesignated and heavily improved.	Very High	3
Amenity	Public access to western half as part of Caravan Park, to eastern half is limited to the sea wall footpath.	Medium	2
Overall significance			**9**

33.5 Steeple Marsh

Summary

A large irregular area of highly improved grazing marsh sited to the west of Steeple on Mayland Creek. The sea wall survives on the western side. Internally some straight drainage ditches survive. Small area in the centre close to Hills Farm survives slightly better although still improved. Slipway to the historic landing-place survives. There are a range of oyster pits recorded in front of sea wall.

Historic environment character

The marsh was largely reclaimed by the time of the Chapman and Andre map of 1777, although the area around the creek leading to Steeple and St Lawrence Church seems to have remained open. The reclamation was completed by the time of the the 1st edition OS map survives. The sea wall survives, although it has been altered. The area is subdivided into fields and paddocks, largely by straight ditches. A track-way links the marsh to the historic village of Steeple and the medieval church of St Lawrence. At the end of the track is the site of an old quay, shown on a map of 1748. The slipway for this is till extant. There is an extensive line of oyster pits visible in the saltings in front of the sea wall which could be accessed from the slipway.

Character of vegetation

Highly improved, of little botanical interest. Dominated by Bent grasses *Agrostis spp.*, Meadow grasses *Poa spp.* and Fescues *Festuca spp.*

Threats

Biodiversity – The grazing marsh vegetation is already lost. Further threatened by further agricultural improvement.

Significance

Values	Description	Rank	Score
Archaeological Potential	Historic slipway and landing-place	Medium	2
Archaeological Association	No known archaeological associations	Low	0
Group Value (Association)	Marsh is associated with, and contributes to the setting of, Blackwater estuary and historic settlement of Steeple	Medium	2
Diversity	Sea wall, ditches/former creeks, slipway	Low	0
Historical Association	Historic settlement of Steeple, coastal trade	Medium	2

Biodiversity	Undesignated, heavily improved	Low	0
Amenity	Public access limited to footpath along sea wall but close to village of Steeple	Medium	2
Overall significance			**8**

3.1.23 MARSH 34

34.1 Mundon Marsh

Summary

An area of improved grazing marsh adjacent to Coopers Creek in the Blackwayer Estuary. The marsh is bordered to the east side by sea wall and borrow dyke. The other sides are curving field ditches with hedges. The grazing marsh vegetation has been largely lost.

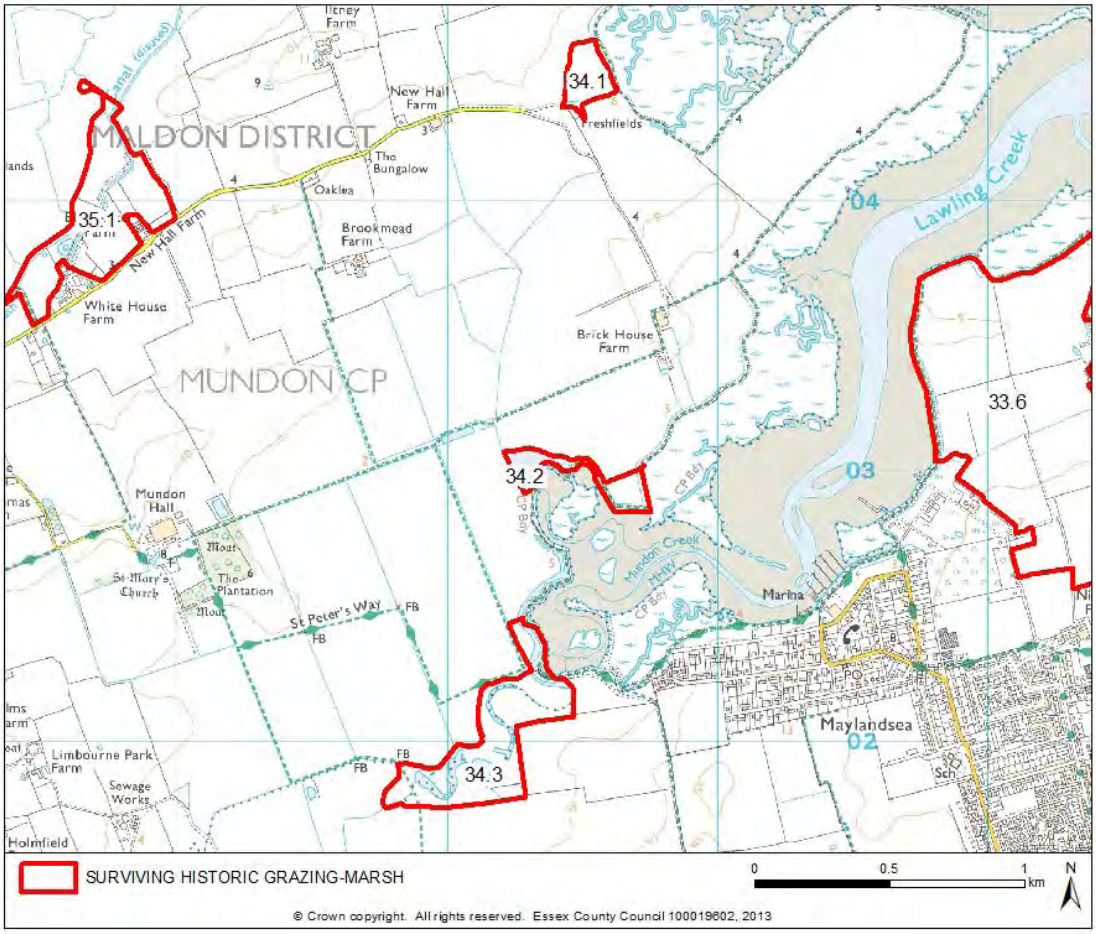

Fig. 48 Marsh 34 - Mundon Marsh

Historic environment character

The marsh area was embanked by 1777. Sea wall and borrow dyke on one side, irregular field ditches with hedges on the other. Adjacent to post medieval farmstead of New Hall Farm. No recorded archaeology in the area of the marsh.

Character of vegetation

Improved grazing marsh. Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.* Marsh Foxtail *Alopecurus geniculatus*, Meadow Barley *Hordeum secalinum* and Meadow foxtail *A. pratensis* also found. Bordered on Eastern and southern edges by hedgerow.

Threats

Threatened by drying out and land-take for agriculture.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall and borrow dyke, proximity to post medieval farmstead (New Hall Farm)	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Wider rural estuary landscape; adjacent to post medieval farmstead of New Hall Farm	Medium	1
Diversity	Sea wall and borrow dyke	Low	0
Historical Association	None known	Low	0
Biodiversity	Improved and undesignated	Low	0
Amenity	Footpath along sea wall	Low	1
Overall significance			**3**

34.2 Mundon Marsh

Summary

An area of improved grazing marsh adjacent to Mundon Creek in the Blackwayer Estuary. The marsh is bordered on three sides by sea wall and borrow dyke. The grazing marsh vegetation has been largely lost.

Historic environment character

The marsh area was embanked by 1777. Sea wall and borrow dyke are characteristic features on three sides. There are oyster beds and traces of an earlier sea wall survive beyond the current sea wall.

Character of vegetation

Improved grazing marsh of little botanical interest. Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.* Small amount of Crested Dog's-tail *Cynosurus cristatus.* Along sea wall and creek large amount of Sea Couch *Elymus pycnanthus* and Common Couch *Elymus repens.*

Threats

Grazing marsh vegetation threatened by further agricultural improvement and lack of traditional management.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall and borrow dyke	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Wider rural estuary landscape, oyster beds, old	Medium	1

	sea wall in estuary		
Diversity	Sea wall and borrow dyke	Low	0
Historical Association	None known	Low	0
Biodiversity	Internationally designated as SAC, SPA & Ramsar. Important for birds.	Very High	3
Amenity	Footpath along sea wall	Low	1
Overall significance			**6**

34.3 Mundon Marsh

Summary

An area of improved grazing marsh on either side of Lawling Creek. Sea wall survives both sides of creek. Creek has been altered for habitat improvements. Vegetation includes UK BAP habitat

Historic environment character

The marsh area was embanked by 1777. Marsh along Lawling Creek with sea walls and section of borrow dyke. No known archaeological remains, but potential for palaeoenvironmental deposits in undisturbed areas of the creek.

Character of vegetation

Dense reedbeds of Common Reed *Phragmites australis* in Western lake and in north of area away from the lake. Also dense stands of Sea club-rush *Scirpus maritimus* in lake and creeks. Grassland is improved, dominated by Bent grasses *Agrostis spp.* with a small area of Crested dog's-tail *Cynosurus cristatus* and Grass Vetchling *Lathyrus nissolia.*

Threats

Threatened by agricultural improvement, drying out, lack of traditional management and disturbance associated with recreational use.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall and creek although affected by later changes	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Wider rural estuary landscape; creek marks the parish boundary	Medium	1
Diversity	Sea wall	Low	0
Historical Association	None known	Low	0
Biodiversity	Locally designated with UK BAP habitat	Medium	2
Amenity	Footpaths, including St Peter's Way along track and sea wall	Medium	2
Overall significance			**6**

3.1.24 MARSH 35

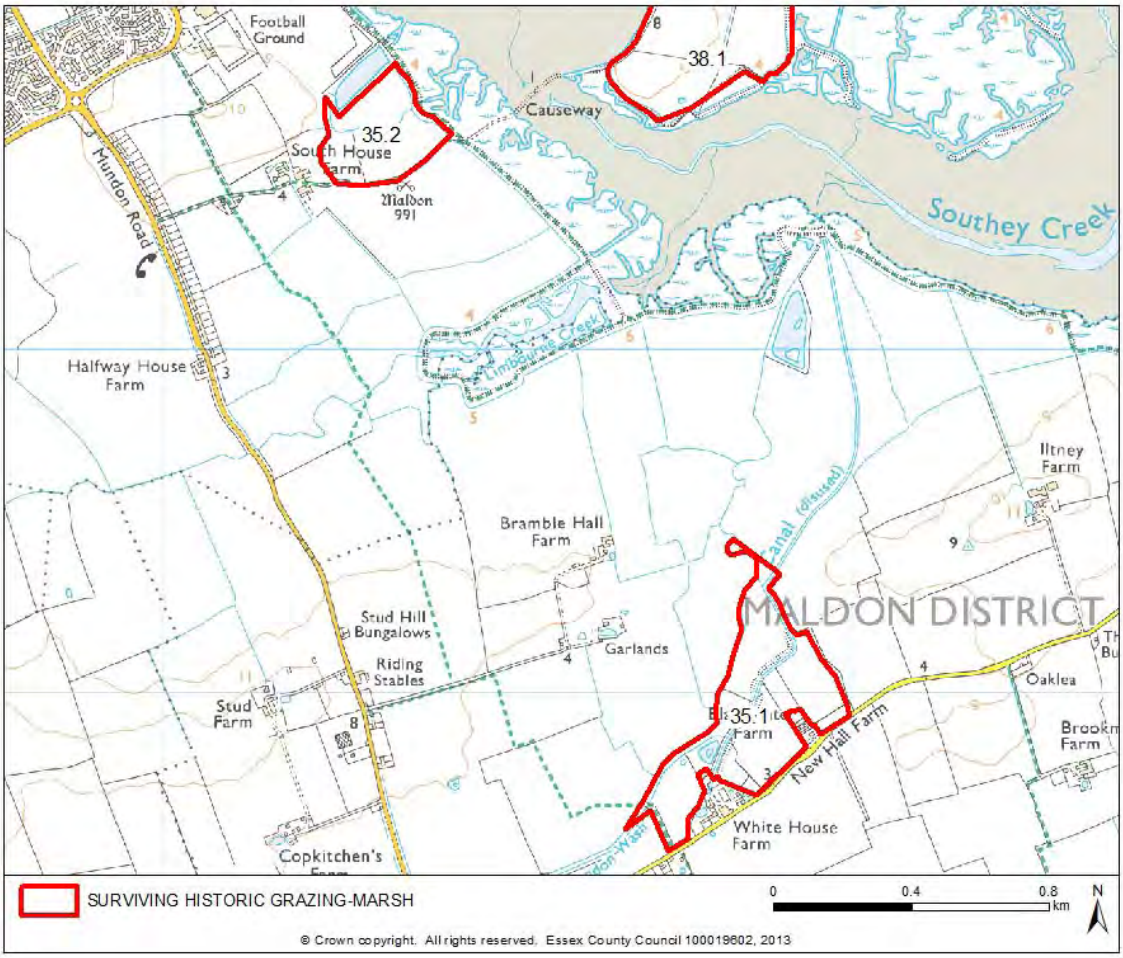

Fig. 49 Marsh 35 – Maldon Marsh

35.1 Maldon Marsh

Summary

An area of improved grazing marsh adjacent to the Blackwater Estuary which runs alongside a canal dug from White House Farm to the estuary. The canal has a 'sea wall' on either side of it. The marshland edge is marked by sinuous and straightened boundary ditches. Former creeks are visible as faint cropmarks in places. The grazing marsh vegetation has been largely lost.

Historic environment character

The marsh area was embanked by 1777. Sea wall and borrow dyke are characteristic features. Former creeks visible on aerial photographs. A post medieval canal dug from White House Farm to the estuary is an unusual feature but was short lived and had gone out of use by the time of the 1st edition OS map. The canal has a 'sea wall' on either side of it. The marshland edge is marked by sinuous and straightened boundary ditches.

Character of vegetation

Improved agricultural grazing land. Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.*

Threats

Grazing marsh vegetation already largely lost. Further threatened by continued agricultural improvement.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall	Low	1
Archaeological Association	None known	Negligible	1
Group Value (Association)	Wider rural estuary landscape; the marsh is directly associated with the canal and South House Farm	Medium	1
Diversity	Former creeks and ditches; ' sea walls'	Low	0

Historical Association	Canal to White House Farm	Medium	1
Biodiversity	Improved and undesignated	Low	0
Amenity	Footpath along short edge of marsh	Low	1
Overall significance			**5**

35.2 Maldon Marsh

Summary

An area of improved grazing marsh adjacent to the Blackwater Estuary and the causeway leading to Northey Island. Characteristic features include the sea wall, borrow dyke, and straight drainage ditches. Former creeks are visible as faint cropmarks in places. The grazing marsh vegetation has been lost. The island is owned by the National Trust.

Historic environment character

The marsh area was embanked by 1777. Sea wall and borrow dyke, together with a central sinuous former creek are the only characteristic features. There are known archaeological remains spanning the prehistoric-post-medieval period in the general vicinity but none from the area itself. The area has been improved and has been ploughed before reversion to grassland. The southern portion, where the causeway to Northey Island reaches land is a registered battlefield and the site of the Battle of Maldon, and features in the epic, internationally important Old English poem. However, in 991 the landscape was very different from that of today. The shoreline was firm and the land dry. The channel between the mainland and Northey Island was only half its present width. Sea-level rise over the last 1,000 years led first to flooding then to the reclaiming of the land by means of a sea wall by 1822. Mud has accumulated on the seaward side, so that the creeks now present give a misleading impression of the nature of the battlefield in 991. The area is owned by the National Trust.

Character of vegetation

Grassland the product of arable reversion. Heavily improved. Dominated by Bent grasses *Agrostis spp.,* Fesuces *Festuca spp.,* Perennial Rye-grass *Lolium perenne* and Meadow grass *Poa spp.* Scattered hawthorn *Crataegus monogyna* along field boundaries.

Threats

Grazing marsh vegetation already largely lost. Further threatened by lack of traditional management and scrub encroachment.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, battle site	Low	1
Archaeological Association	Battle site	Low	1
Group Value (Association)	Wider estuary landscape; the marsh is directly associated with Northey Farm and historic causeway to the mainland, and via a track to South House farm to the west	Medium	1
Diversity	Sea wall, borrow dyke , creek	Low	0
Historical Association	Battle of Maldon	Very High	3

Biodiversity	Improved and undesignated	Low	0
Amenity	Footpath along track and sea wall	Medium	2
Overall significance			**8**

3.1.25 MARSH 37

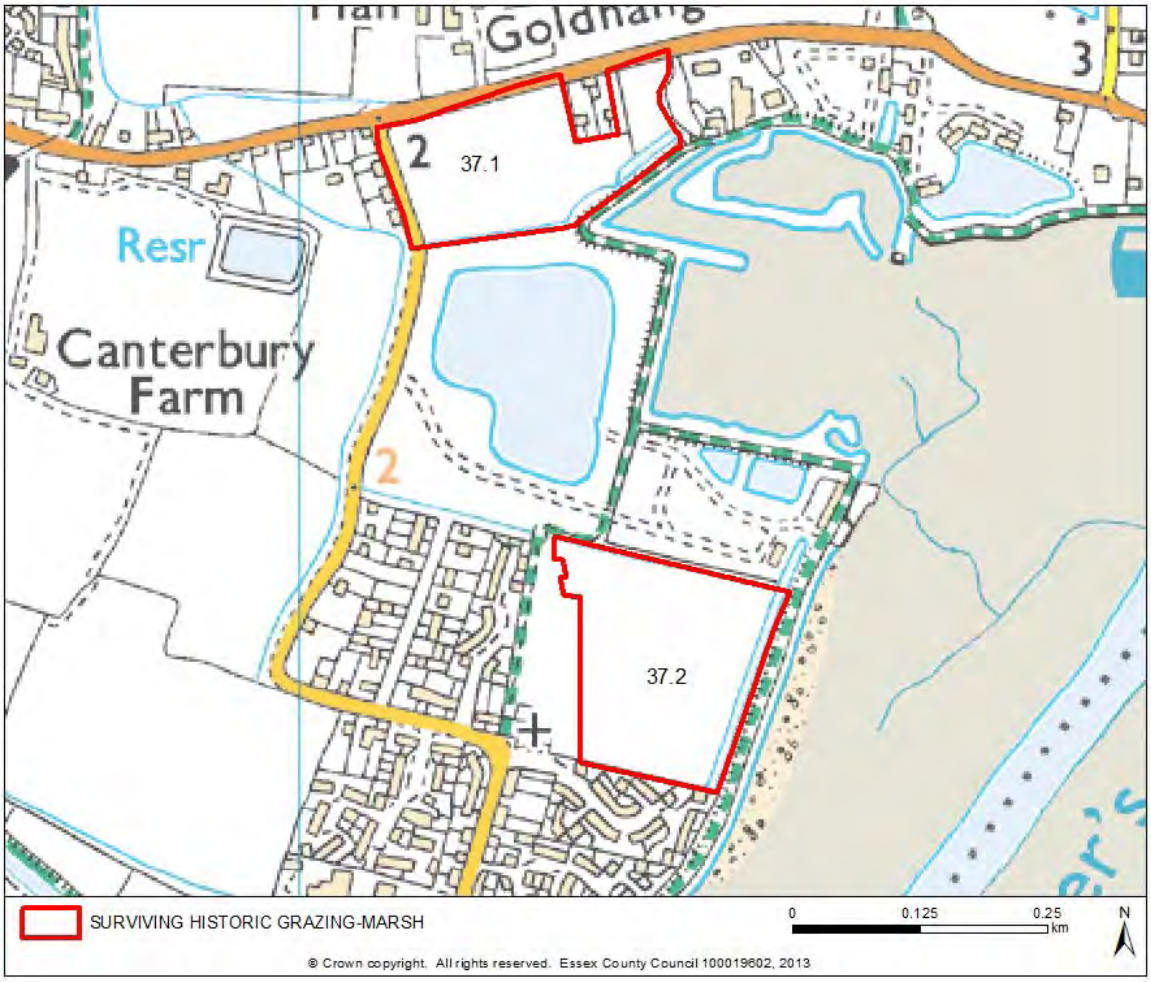

Fig. 50 Marsh 37 – Heybridge Basin

37.1 Heybridge Basin

Summary

A small area of improved grazing marsh in the Heybridge Basin situated between Colliers Reach and the Goldhanger Road. Sea wall has been much altered and the marsh is now largely used as paddocks. The area is bordered by Late Bronze Age settlement site and post-med salt-making site, so there is good potential for below-ground archaeology although none has been recorded in the area to date. Associated with adjacent 'Salt Court' place name.

Historic environment character

The marsh area was embanked by 1777. Today it is has been improved and there is little trace of former salt marsh. The area is divided into paddocks for grazing with straight field boundaries. The sea wall and borrow dyke on the south east side have been much altered. The marsh is surrounded on all other sides by a boating lake, roads and housing such that it's setting has been compromised.

Character of vegetation

Heavily improved, dominated by Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.* Bordered on Western, Northern and Eastern edges by hedgerow.

Threats

Threat of land take for development. Grazing marsh vegetation already largely lost but further threatened by lack of traditional management and scrub encroachment.

Shoreline Management Plan

No active intervention from present and potential impact from new sea wall

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, and prehistoric and post medieval activity in the vicinity	Medium	2
Archaeological Association	None known	Negligible	0
Group Value (Association)	Setting has been compromised; associated with 'Salt Court' malthouse on 1st edition OS map	Low	0
Diversity	Sea wall, borrow dyke	Low	0
Historical Association	None known	Low	0
Biodiversity	Heavily improved and undesignated	Low	0
Amenity	Good public access to park	High	3
Overall significance			**5**

37.2 Heybridge Basin

Summary

A small area of improved grazing marsh in the Heybridge Basin next to Colliers Reach. Sea wall has been much altered. None known archaeology although prehistoric finds have been made in the vicinity and a probable red hill is situated to the north. The area is now used as a park.

Historic environment character

The marsh area was embanked by 1777. Today it is has been improved but traces of former creeks are visible on aerial photographs. The area is used as a park. The sea wall and borrow dyke on the east side have been much altered. The marsh is surrounded on all other sides by a mariner and housing such that its setting has been compromised.

Character of vegetation

Recreational parkland, heavily improved. Botanical interest likely to be low, dominated by Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.* Some Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* scrub.

Threats

Threat of development. Grazing marsh vegetation already largely lost but further threatened by lack of traditional management and scrub encroachment.

Shoreline Management Plan

No active intervention from present

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, and prehistoric/Roman activity in the vicinity	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Setting has been compromised	Low	0
Diversity	Sea wall, borrow dyke	Low	0
Historical Association	None known	Low	0
Biodiversity	Improved and undesignated	Low	0

Amenity	Good public access to park	High	3
Overall significance			**4**

3.1.26 MARSH 38

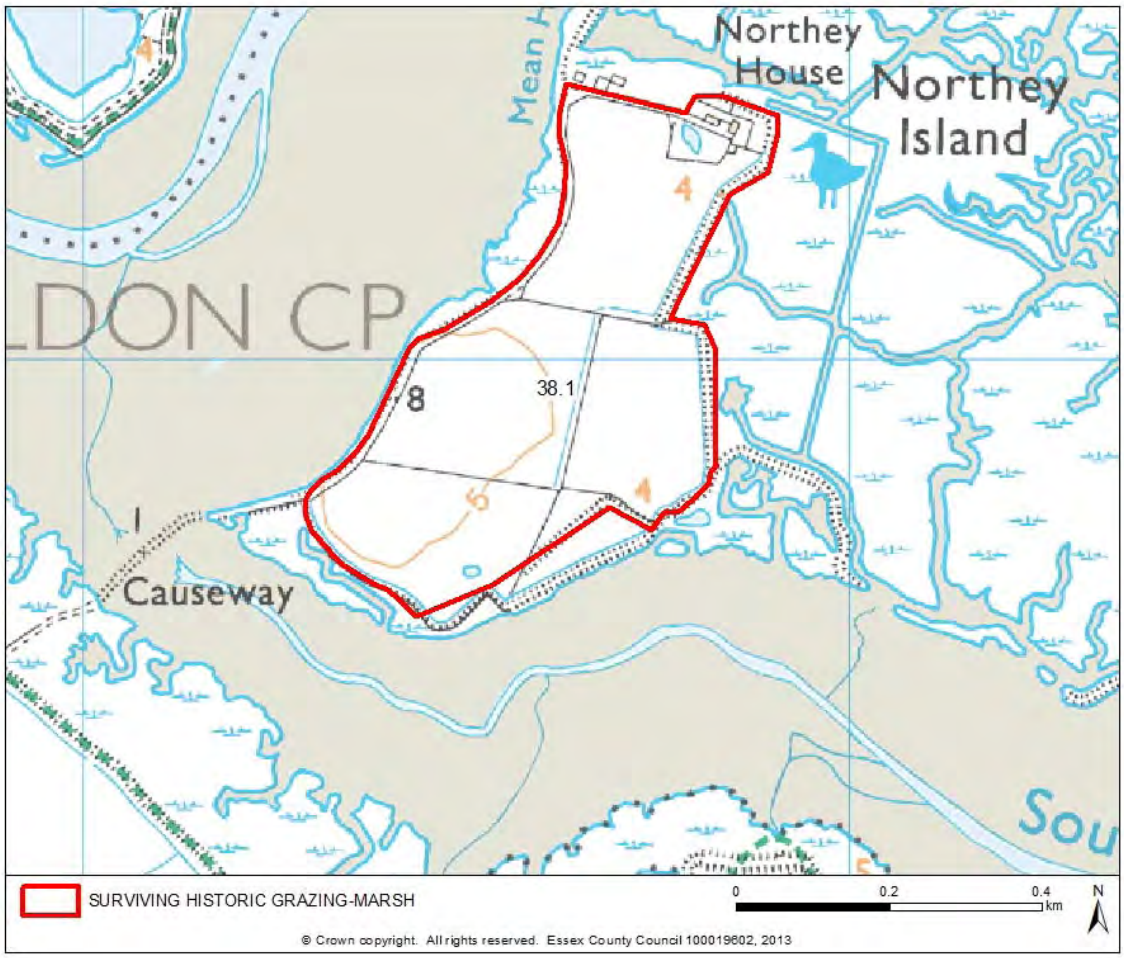

Fig. 51 – Marsh 38 - Northey Island

38.1 Northey Island

Summary

An island of improved grazing marsh within the Blackwayer Estuary. Characteristic features include the sea wall, borrow dyke, and straight

drainage ditches. Former creeks are visible as faint cropmarks in places. The grazing marsh vegetation has been lost. The island is owned by the National Trust.

Historic environment character

The marsh area was embanked by 1777 with fields clearly visible on the 1st edition OS map. Access to the island is via a causeway on the south-west corner, and then along the sea wall to Northey Farm. The farm buildings are marked on the 1777 map. The majority of the island has reverted to salt-marsh, with the remaining area comprising 4 small fields of improved grassland. The Island formed a Viking base during the Battle of the Maldon, 991AD. Buried prehistoric land surfaces have been recorded in the adjacent intertidal zone.

Character of vegetation

Managed as brent goose pasture. Has been improved and is dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* and Red Fescue *Festuca rubra.* Some Meadow Barley *Hordeum secalinum* and Meadow Foxtail *Alopecurus pratensis.*

Threats

Grazing marsh vegetation has been largely lost through improvement but site is very important for brent geese. Threatened by saltwater flooding due to sea-level rise.

Shoreline Management Plan

Hold the Line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, battle site	Low	1

Archaeological Association	Battle site	Low	1
Group Value (Association)	Wider estuary landscape; the marsh is directly associated with Northey Farm and historic causeway to the mainland	Medium	1
Diversity	Sea wall, borrow dyke	Low	0
Historical Association	Battle of Maldon	Very High	3
Biodiversity	Internationally designated as SPA & Ramsar	Very High	3
Amenity	Access to National Trust property on open days	Medium	2
Overall significance			**11**

3.1.27 MARSH 39

39.1 Mill Farm Marsh

Summary

An area of improved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features include the sea wall, borrow dyke, sinuous and straight drainage ditches, stetch cultivation and a decoy pond. Former creeks are visible as cropmarks. The grazing marsh vegetation has been lost.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The improved marshland has been previously ploughed up but is now

under grass again. .The former creeks are visible as faint cropmarks. The area includes a line of at least three red hills, and Roman have also been recorded here. The sea wall and borrow dyke survive along the east and south sides, with a limited number of straight drainage ditches and sinuous ditches marking the line of former creeks along the interior edge. The marsh is linked by a lane to Mell Farm which is sited on the dryland. The area includes three red hills in a line and roman finds are also recorded from the area.

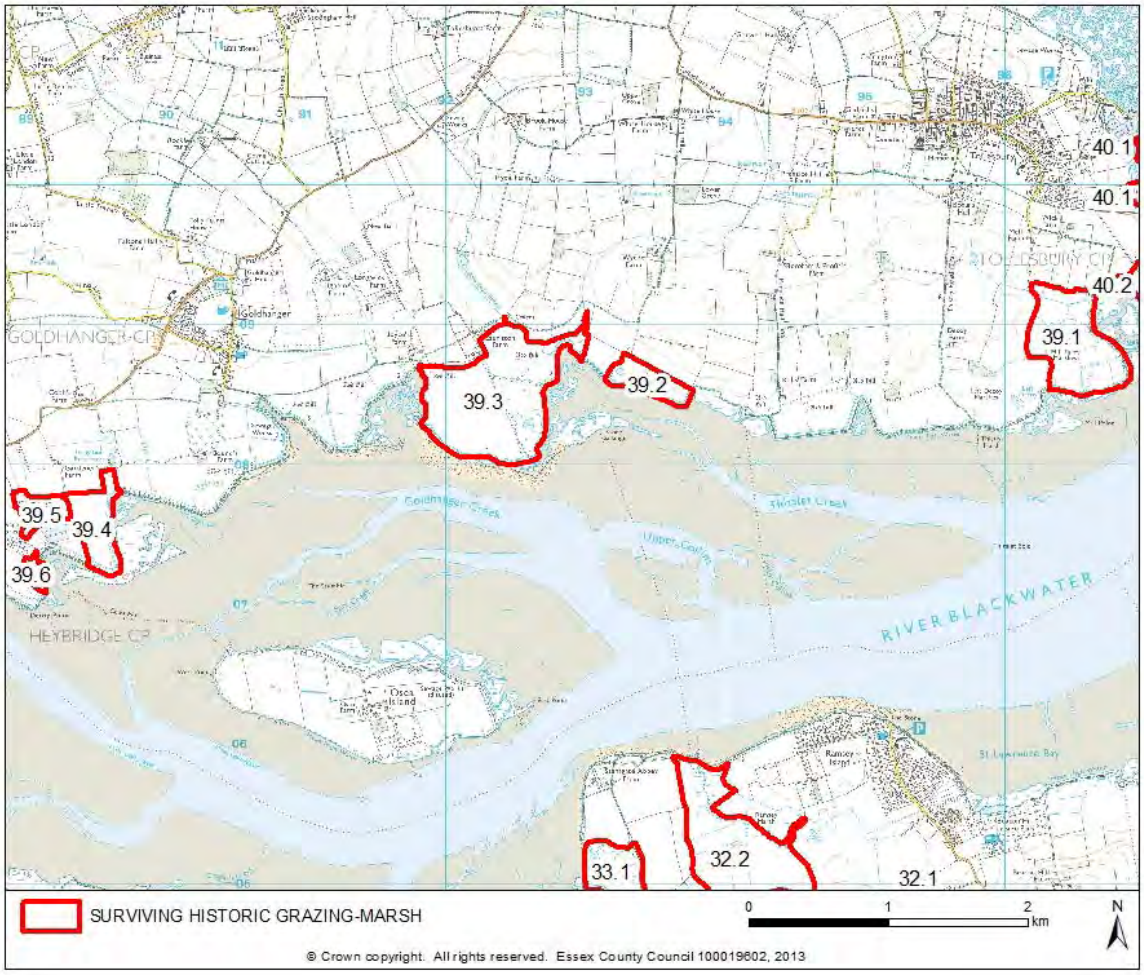

Fig. 52 Marsh 39 – Mill Farm Marsh

Character of vegetation

Rough grassland, product of arable reversion, managed for brent geese, with a bordering drain. Dominated by Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra* in drier areas. Crested dog's tail *Cynosurus cristatus,* Yellow oat-grass *Trisetum flavescens*

and Marsh Foxtail *Alopecurus geniculatus* also occur. Sea Couch *Elymus pycnanthus* occurs along the creek with some Grass Vetchling *Lathyrus nissolia.*

Threats

Threatened by lack of traditional management and drying out.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, red hills and roman finds	High	3
Archaeological Association	Red Hills	Medium	2
Group Value (Association)	Wider estuary landscape; the marsh is linked by a lane to Mell Farm which is sited on the adjacent dryland	Medium	1
Diversity	Sea wall, borrow dyke,	Medium	2
Historical Association	None known	Low	1
Biodiversity	Internationally designated as SPA & Ramsar	Very High	3
Amenity	Access along sea wall	Low	1
Overall significance			**13**

39.2 Goldhanger Marshes

Summary

An area of improved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features include the sea wall, borrow dyke, sinuous and straight drainage ditches, stetch cultivation and a decoy pond. Former creeks are visible as cropmarks. The grazing marsh vegetation has been lost.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The improved marshland has been previously ploughed up but is now under grass again. .The former creeks are visible as faint cropmarks. The area includes a water-filled decoy-pond. The sea wall and borrow dyke survive along with a limited number of straight drainage ditches and sinuous ditches marking the line of former creeks. The marsh is linked by a lane to Skinners Wick Farm which is sited on the dryland.

Character of vegetation

Grassland dominated by Red Fescue *Festuca rubra,* Bent grasses *Agrostis spp.,* Crested dog's-tail *Cynosurus cristatus* and Yorkshire fog *Holcus lanatus.* Patches of Blackthorn *Prunus spinosa* around the pond. Bed of Common reed *Phragmites australis* at western end of site.

Threats

Threatened by lack of traditional management, drying out and scrub encroachment.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, decoy ponds	Medium	2
Archaeological Association	None known	Medium	2
Group Value (Association)	Wider estuary landscape; the marsh is linked by a lane to Skinners Wick Farm which is sited on the dryland	Medium	1
Diversity	Sea wall, borrow dyke, decoy pond, stetch cultivation	Medium	2
Historical Association	Association with wildfowling / Wentworth-Day	Medium	1
Biodiversity	Internationally designated as SPA & Ramsar	Very High	3
Amenity	Access along sea wall	Low	1
Overall significance			**12**

39.3 Goldhanger Marshes

Summary

An area of improved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features include the sea wall, borrow dyke, sinuous and straight drainage ditches, two decoy ponds, one of which is scheduled, and red hills. Former creeks are visible as cropmarks. The grazing marsh vegetation has been lost.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The improved marshland has been previously ploughed up but is now under grass again. .The former creeks are visible as faint cropmarks and some slight earthworks. The area includes two decoy-ponds, one of which has been partially re-excavated by the Blackwater Wildfowlers Club. The other is designated as a scheduled monument and the arms are silted up, but the main body of water remains. There are also two recorded red hills and a former sea wall.

Character of vegetation

Grassland, product of arable reversion. Eastern half seeded in 1999 and managed for brent geese. Species poor, dominated by Perennial rye-grass *Lolium perenne* and Clover *Trifolium repens.* Western half overgrazed, dominated by Perennial rye-grass *Lolium perenne.* Bed of Common reed *Phragmites australis* in pond.

Threats

Vegetation threatened by overgrazing. Also threat from further habitat creation such as scrape creation. Red Hills threatened by rabbit burrowing. Duck decoy threatened by drying out.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, red hills, decoy ponds	High	3
Archaeological Association	Red Hills	Medium	2
Group Value	Wider estuary landscape	Medium	1

(Association)			
Diversity	Sea wall, borrow dyke, decoy ponds	Medium	2
Historical Association	Association with wildfowling / Wentworth-Day	Medium	1
Biodiversity	Internationally designated as SPA & Ramsar	Very High	3
Amenity	Access along sea wall	Low	1
Overall significance			**13**

39.4 Goldhanger Marshes

Summary

An area of improved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features include the sea wall, borrow dyke, sinuous and straight drainage ditches. Former creeks are visible as cropmarks. The grazing marsh vegetation has been lost.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The improved marshland has been previously ploughed up but is now under grass again.The former creeks are visible as faint cropmarks. The marsh has a mixture of straight and sinuous boundary ditches. The sea wall and expanded borrow dyke with causeways over it are the only identifiable earthworks. The marsh is bordered by extensive prehistoric/Roman cropmark landscape to north and Neolithic land-surfaces in the inter-tidal zone to the south.

Character of vegetation

Heavily improved. Dominated by Perennial rye-grass *Lolium perenne,* Red fescue *Festuca rubra* and Bent grasses *Agrostis spp.*

Threats

Grazing marsh vegetation already lost. Further threatened by agricultural improvement.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall and potential from concentrations of prehistoric and roman activity in adjacent areas	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Wider estuary landscape	Medium	1
Diversity	Sea wall, borrow dyke, ditches	Medium	2
Historical Association	None known	Low	0
Biodiversity	Undesignated and improved	Low	0
Amenity	Access along sea wall	Low	1
Overall significance			**5**

39.5 Goldhanger Marshes

Summary

An area of unimproved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features sinuous former creeks and rills, a track-way former decoy pond and red hill. Vegetation is high quality.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The unimproved marshland has good survival of relict creeks and rills, and earthworks including a red hill, possible former decoy pond and track way. The marshland has been separated from the estuary by a sewage works, and areas of improved grassland, such that its setting has been compromised. Unimproved marsh, the former creeks are visible as low earthworks. The marsh is bordered by extensive prehistoric/Roman cropmark landscape to north. Modern agricultural building in north east corner.

Character of vegetation

High quality grazing marsh. Dominated by a mix of Creeping bent *Agrostis stolonifera,* Common bent *A. capillaris,* Crested dog's-tail *Cynosurus cristatus,* Couch grass *Elymus repens,* and Meadow Barley *Hordeum secalinum.* Frequent White clover *Trifolium repens,* Yarrow *Achillea millefolium,* Creeping buttercup *Ranunculus repens* and Autumn hawkbit *Leontodon autumnalis.* Soft rush *Juncus effuses* in lower lying areas.

Threats

Vegetation threatened by drying out and lack of grazing.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Creeks, rills, red hill, track-way, decoy pond, cropmark landscape in adjacent areas	High	3
Archaeological Association	Red Hill	Medium	2
Group Value (Association)	Links to historic track/drove way from Gardners Farm	Medium	1
Diversity	Creeks, track-way, decoy	Medium	2
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	No access	Negligible	0
Overall significance			**11**

39.6 Goldhanger Marshes

Summary

An area of improved and unimproved grazing marsh on the north shore of the Blackwayer Estuary. Characteristic features include sea wall, borrow dyke, sinuous former creeks and rills. The northern portion of the marsh has been improved with extensive ‘stetch’ cultivation earthworks and linear surface drains. The grassland is a mix of good quality grazing marsh, reedbed and improved grassland.

Historic environment character

The marshland was reclaimed by the time of the 1777 Chapman and Andre map. The unimproved marshland has good survival of relict creeks and rills, but no visible earthworks other than the sea wall and a short stretch of burrow dyke. The improved section has extensive ‘stetch’ cultivation over it. The

setting of the marsh has been compromised by a sewage works and caravan park.

Character of vegetation

Mix of good quality grazing marsh and reedbed. Red fescue *Festuca rubra,* Meadow foxtail *Alopecurus pratensis* and Meadow Barley *Hordeum secalinum* common with scattered patches of Creeping buttercup *Ranunculus repens* and Tufted vetch *Vicia cracca.* Some weeds including Creeping thistle *Cirsium arvense* and Curled dock *Rumex crispus.* Dense stands of Common reed *Phragmites australis* and Sea club-rush *Scirpus maritimus.*

Threats

Vegatation threatened by drying out and encroachment of thistle, dock and scrub. Unimproved area threatened by potential improvement.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, borrow dyke , creeks	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Wider estuary landscape	Medium	1
Diversity	Sea wall, borrow dyke, creeks	Medium	2
Historical Association	None known	Low	0

Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Footpath along sea wall	Low	1
Overall significance			**8**

3.1.28 MARSH 40

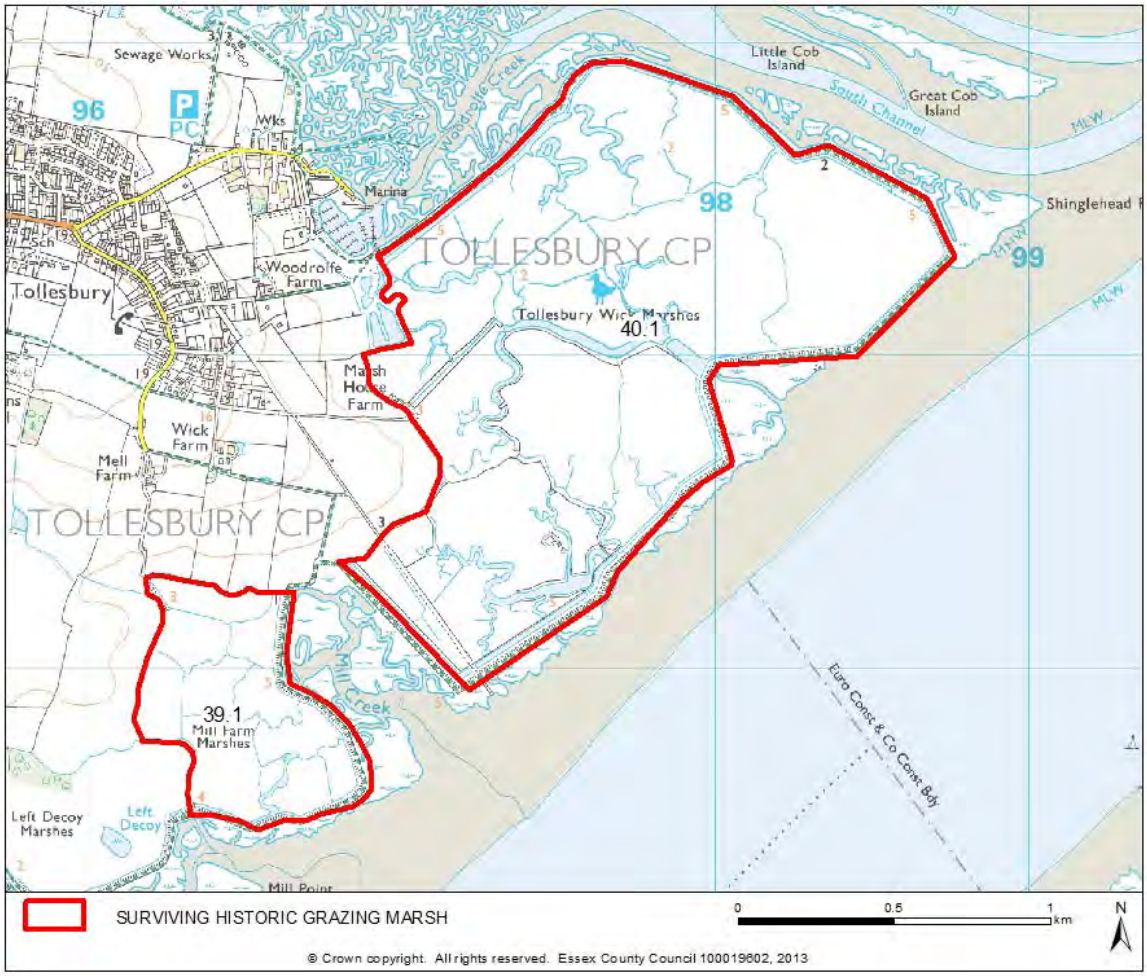

Fig. 53 Marsh 40 – Tollesbury Marsh

40.1 Tollesbury Marshes

Summary

An extensive area of grazing marsh, representing several phases of reclamation and incorporating several marshes, adjacent to the Colne Estuary between Pyefleet Channel and Geedon Creek. Characteristic features include sea wall, borrow dyke, sinuous former creeks and rills, mounds, including red hills, raised cause-ways, counter walls, post medieval railway and WWII defences. The grassland is managed through grazing as an Essex Wildlife Trust reserve with public access, and is of international importance for wildlife.

Historic environment character

Extensive area of grazing marsh in the Blackwater Estuary between Tollesbury Fleet and the River Blackwater, to the east of Tollesbury village. The marsh had been reclaimed by the time of the Chapman and Andre map of 1777. The marsh has large fleets, water filled creeks, extensive relict salt marsh surface and some raised causeways/trackways that cross it. There are slso causeways from the sea wall across the borrow dyke. The majority of the boundaries are sinuous, but some have been straightened. A modern counter-wall has been constructed across this area. A sub-rectangular ditched enclosure, probably for livestock, survives as an earthwork. A concentration of mounds and ponds have the appearance of medieval salt manufacturing site. There are other individual mounds that may represent red hills. A railway embankment was built across the marsh leading to a pier in the 19th century. A WWII minefield was laid in the area and a pillbox is located on the sea wall.

Character of vegetation

Good quality grazing marsh dominated by grasses Creeping Bent *Agrostis stolonifera,* Perennial rye-grass *Lolium perenne,* Red fescue *Festuca rubra,* Meadow barley *Hordeum secalinum* and Meadow foxtail *Alopecurus pratensis.* Crested dog's-tail *Cynosurus cristatus,* Yellow oat-grass *Trisetum flavescens* and Marsh foxtail *A. geniculatus* abundant in wetter areas. Herbs Hairy buttercup *Ranunculus sardous,* Spiny restharrow *Ononis spinosa,* Narrow-leaved Bird's-foot-trefoil *Lotus tenuis,* and nationally rare Sea clover *Trifolium squamosum* and Slender hare's-ear *Bupleurum tenuissimum* frequent. Nationally rare Upright chickweed *Moenchia erecta* on ant hills.

Threats

Well managed with water levels maintained by Essex Wildlife Trust. Threat from habitat creation/improvement.

Shoreline Management Plan

Could be subject to Managed Realignment proposed from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, borrow dyke, ditches, red hills, creeks, fleets, medieval salterns, WWII defences, post medieval railway, raised track-ways	High	3
Archaeological Association	Possible red hills, WWII pill box and mine field, post medieval railway	Medium	2
Group Value (Association)	Marsh House Farm and wider marshland landscape; oyster beds	Medium	1
Diversity	Sea walls, borrow dyke, drains, raised causeways, creeks, fleets, counter walls, earthwork mounds an poinds/medieval salterns, counter walls, livestock enclosure	Very High	6
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Good public access around	High	3

	sea wall to EWT reserve		
Overall significance			**18**

3.1.29 MARSH 41

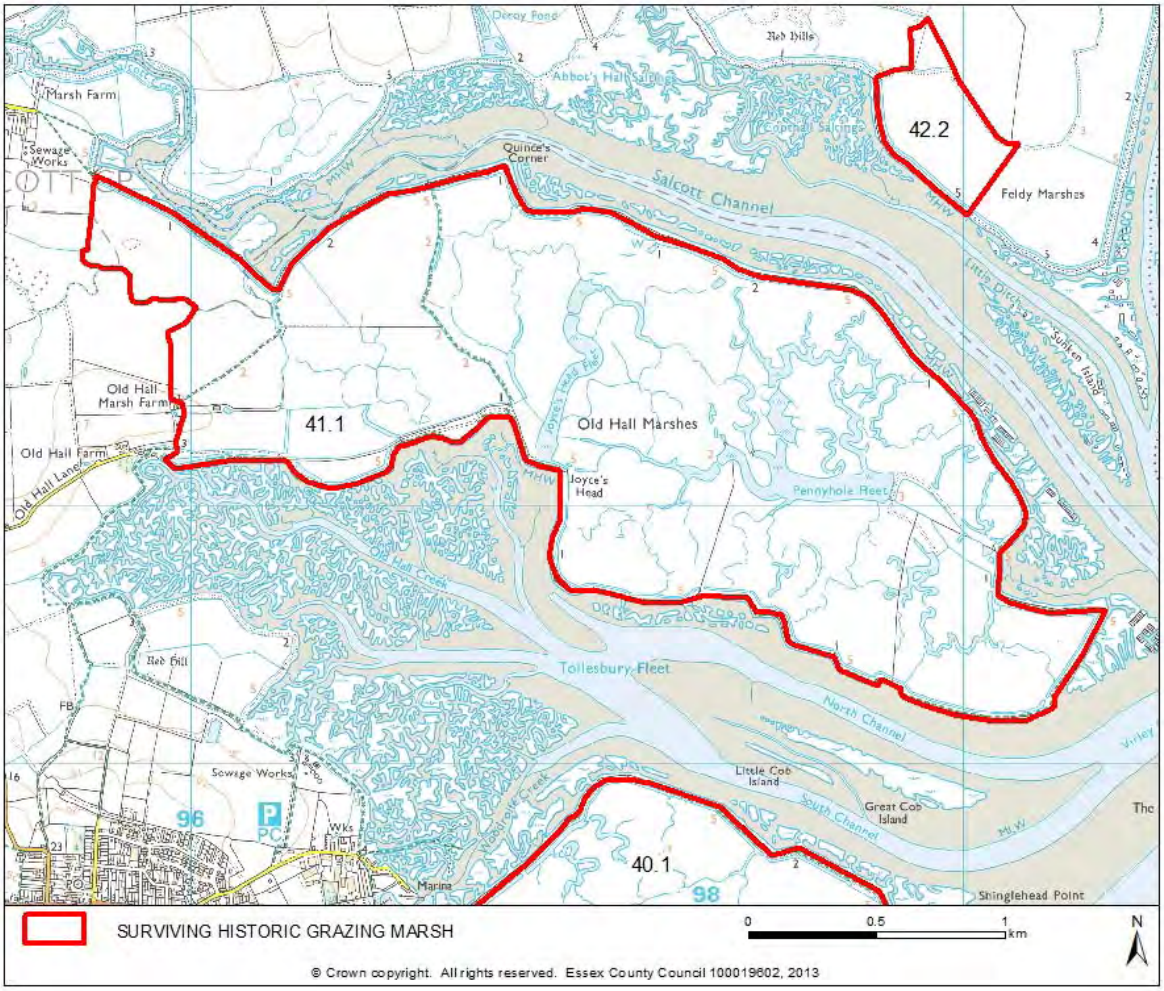

Fig. 54 Marsh 41 - Old Hall Marshes

41.1 Old Hall Marshes

Summary

A large area of unimproved grazing marsh, representing several phases of reclamation and incorporating several marshes, adjacent to the Blackwater Estuary between Salcott Creek and Tollesbury Fleet. A wide range of characteristic features include sea wall, borrow dyke, sinuous former creeks and rills, counter walls, mounds, including red hills, building platforms, and counter walls. The grassland is managed through grazing as an RSPB reserve with public access and is of international importance.

Historic environment character

Extensive unimproved area of grazing marsh in the Blackwater Estuary between Salcott Creek and Tollesbury Fleet, to the south east of Salcott village. Reclamation is thought to have been in an advanced state by the late 16th century, but was piecemeal until the Chapman and Andre map of 1777 at which point it had reached its full extent. The sea walls have undergone a number of alterations. The marsh has large fleets, water filled creeks, relict salt marsh surface and raised causeways that cross the marsh. There nine or more mounds, which probably represent red hills, midden sites, two surviving duck decoy ponds, one of which is scheduled and sites of buildings (barns?), decoy house and a house can be identified on the 1st edition OS map. The marsh is crossed by a number of counter walls, which appear as raised earthworks. The borrow dykes have occasional causeways across. The marsh has a number of literary connections as well as a link to Isambard Kingdom Brunel. This is a complex, well preserved and well-studied historic environment.

Character of vegetation

High quality grazing marsh, mosaic of grassland, reedbed and riparian vegetation. Ditches dominated by Common reed *Phragmites australis* and Sea club-rush *Scirpus maritimus.* with some Brackish water-crowfoot *Ranunculus baudotii* in waterway in less saline areas; Saltmarsh rush *Juncus gerardii,* Beaked tasselweed *Ruppia maritima* and nationally rare Spiral tasselweed *R. cirrhosa* towards the central creek in more saline areas. Nationally rare species Divided sedge *Carex divisa,* Sea Barley *Hordeum marinum* and Slender hare's ear *Bupleurum tenuissimum* along creek edges. Grassland dominated by Creeping Bent *Agrostis stolonifera,* Perennial rye-grass *Lolium perenne* and Red fescue *Festuca rubra* with diverse herb

assemblage including Spiny restharrow *Ononis spinosa,* Narrow-leaved bird's-foot trefoil *Lotus tenuis,* nationally rare Sea clover *Trifolium squamosum* and Bird's-foot clover *Trifolium ornithopodioides.* Two other notable nationally rare species, Mousetail *Myosurus minimus* and Red goosefoot *Chenopodium botryodes* occur on disturbed ground.

Threats

Well managed with water levels maintained. Threat from habitat creation/improvement.

Shoreline Management Plan

Managed Realignment proposed by 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, borrow dyke, ditches, creeks, fleets, red hills, middens, counter walls, medieval building platforms, sites of post medieval buildings	High	3
Archaeological Association	Concentration of red hill salt making sites	Medium	2
Group Value (Association)	Old Hall Marsh Farm	Medium	1
Diversity	Sea walls, borrow dyke, drains, raised causeways, creeks, fleets, counter walls, earthwork mounds, duck decoys, counter walls, building platforms and house sites, wind pump	Very High	6
Historical Association	A number of literary	High	3

	associations including *Mehalah;* link to Isambard Kingdom Brunel; used for filming 2012 BBC adaptation of Great Expectations		
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Good public access to RSPB reserve	High	3
Overall significance			**21**

3.1.30 MARSH 42

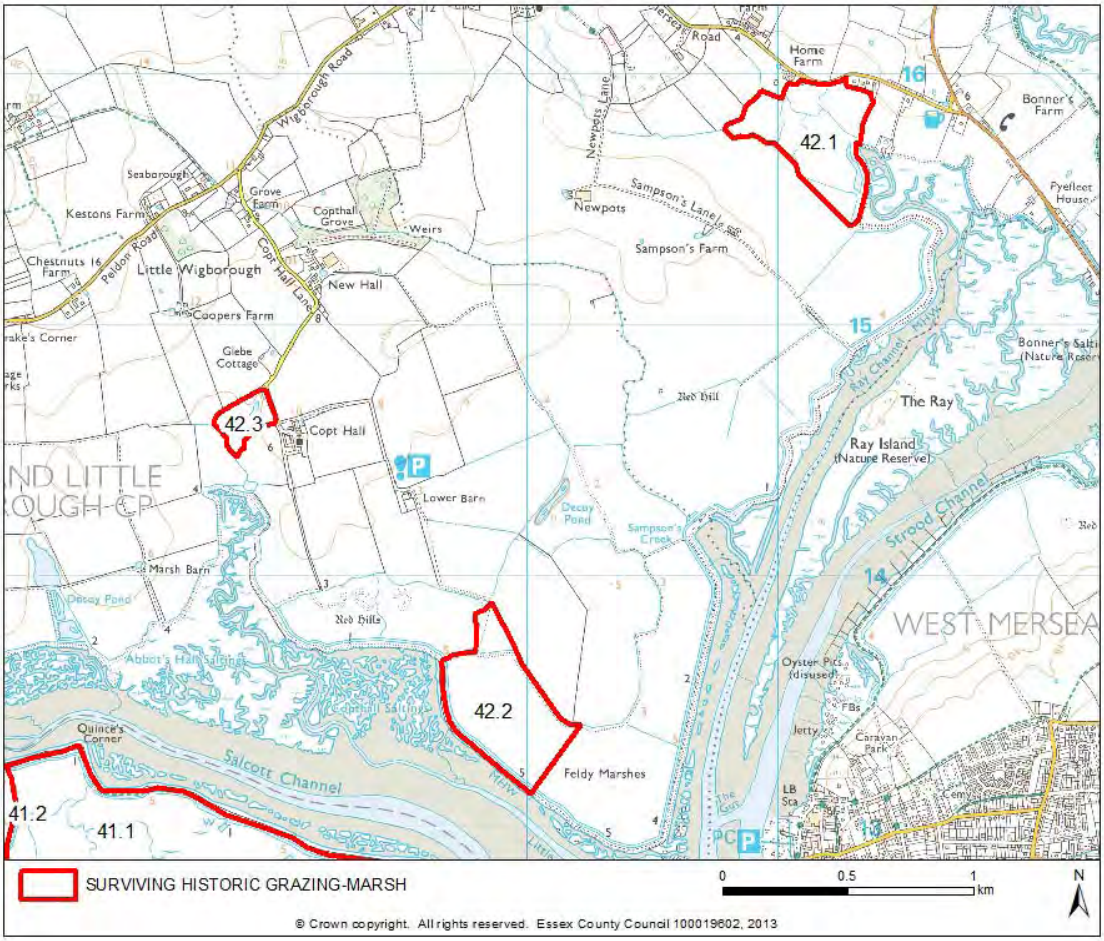

Fig. 55 Marsh 42 – Little Wigborough

42.1 Little Wigborough

Summary

An area of improved grazing marsh located to the north west of the Strood, at the end of Ray Channel. Characteristic features include sea wall and short length of borrow dyke, former creeks. Vegetation is improved grassland.

Historic environment character

An area of improved marshland at the northern end of Ray Channel, and close to the Strood Causeway onto Mersea Island. The area is bounded to the south east by the current sea wall and widened borrow dyke, to the north and west by sinuous ditches along former creeks and to the east by modern housing and a road. A high concentration of red hills is recorded in adjacent areas and one red hill is recorded within the area of marsh itself.

Character of vegetation

Improved grassland. Dominated by Creeping bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne,* Red fescue *Festuca rubra,* Meadow Barley *Hordeum secalinum* and Meadow foxtail *Alopecurus pratensis* with some Crested dog's-tail *Cynosurus cristatus* and Yellow oat-grass *Trisetum flavescens.* Occasional Hairy buttercup *Ranunculus sardous.* Borrow dyke contains Fennel pondweed *Potamogeton pectinantus* and Spiked Water-milfoil *Myriophyllum spicatum.*

Threats

Threatened by agricultural improvement and saltwater flooding.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall; high concentration of red hills in adjacent areas and one known from the marsh	Medium	2
Archaeological Association	Red Hill salt making site	Low	1
Group Value (Association)	Adjacent marshes/sea walls; listed barn at Home Farm	Medium	1
Diversity	Sea walls, borrow dyke, creeks	Medium	2
Historical Association	None known	Low	0
Biodiversity	Designated SPA & Ramsar site	Very High	4
Amenity	Visible from adjacent road	Low	1
Overall significance			**10**

42.2 Little Wigborough

Summary

An area of improved grazing marsh located to the south east of Little Wigborough adjacent to the Salcott Channel. Characteristic features include sea wall and borrow dyke. There is limited evidence for any other surface features. The grassland is managed through grazing and as part of the National Trust's Copt Hall estate.

Historic environment character

An area of improved marshland (formerly Feldy Marsh) situated adjacent to Salcott Channel that was reclaimed c. 1810. The area is bounded to the east by the current sea wall and borrow dyke, to the north and west by an earlier sea wall and to the south by a former creek. A well is shown in one corner of

the marsh on the 1st edition OS map. Red hills are recorded in adjacent areas but not within the area of marsh itself.

Character of vegetation

Grassland, product of arable reversion. Dominated by Creeping bent *Agrostis stolonifera,* Red fescue *Festuca rubra,* Perennial rye-grass *Lolium perenne* and Meadow barley *Hordeum secalinum.* Small triangular area of woodland to eastern side.

Threats

Threats currently low, site is well managed by the National Trust but potential threat to below ground archaeology from habitat creation e.g. wetland scrapes. Threatened in the future by saltwater flooding.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Concentration of red hills in adjacent areas but none known in area; post medieval well; post medieval sea wall	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Adjacent marshes/sea walls	Medium	1
Diversity	Sea walls, borrow dyke, creek,	Medium	2
Historical Association	None known	Low	0

Biodiversity	Undesignated, heavily improved.	Low	0
Amenity	Good public access	Medium	2
Overall significance			**5**

3.1.31 MARSH 43

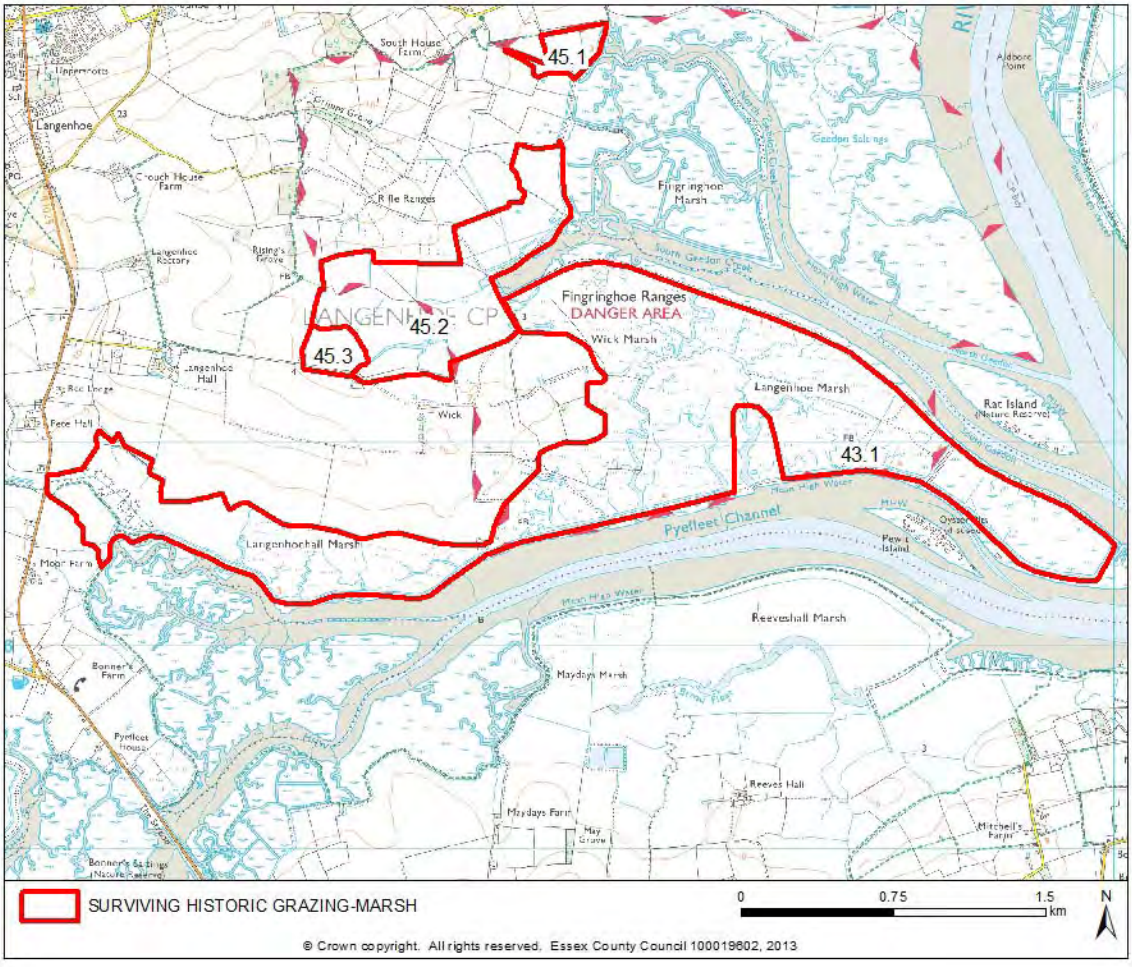

Fig. 56 Marsh 43 – Langenhoe

43.1 Langenhoe

Summary

A large area of unimproved grazing marsh, representing several phases of reclamation and incorporating several marshes, adjacent to the Colne Estuary between Pyefleet Channel and Geedon Creek. Characteristic features include sea wall, borrow dyke, sinuous former creeks and rills raised causeway and earthwork livestock enclosures. There are numerous earthwork red hill salt making sites. The grassland is managed through grazing and as part of the MOD firing range at Fingringhoe.

Historic environment character

Large unimproved area adjacent to the Colne Estuary between Pyefleet Channel and Geedon Creek. Large areas of salt marsh were reclaimed in Langenhoe late in the 18th century. The relict salt marsh surface is well preserved over most of the area, but with evidence for straightened drainage ditches in places. The area is dominated by extensive former creeks and major fleets. There is evidence for some sea wall realignment and counter walls, and in places the marsh is crossed by raised causeways some of which are still used for access. The borrow dykes are still visible although they are narrow. A number of banked and ditched earthwork livestock enclosures can be identified and there are many salterns/red hills across the area. Wick Marsh place name relates to a farmstead on an adjacent area and the parish boundary follows a fossilised creek in the western end of the marsh.

Character of vegetation

Unimproved grazing marsh with several nationally rare species. Dominated by Sea Couch *Elymus pycanthus* and Couch *E. repens.* Creeping Bent *Agrostis stolonifera,* Meadow Barley *Hordeum secalinum* Red Fescue *Festuca rubra* and nationally rare Sea Barley *H. marinum* are frequent. Grass Vetchling *Lathyrus nissolia,* Strawberry Clover *Trifolium fragiferum*, Spiny Restharrow *Ononis spinosa* and nationally rare Sea Clover *Trifolium squamosum* and Slender Hare's-ear *Bupleurum tenuissimum* also occur. Ditches contain stands of Sea club-rush *Bolboschoenus maritimus* and Common reed *Phragmites australis* with some Marsh foxtail *Alopecurus geniculatus* and Saltmarsh rush *Juncus gerardii* in shallow creeks.

Threats

Threats currently low, site is well managed by the MoD. Threatened in the future by lapsing of management due to military use requirements,

contamination associated with military use, and saltwater flooding. Potential threat to earthworks from livestock erosion and habitat improvements.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, borrow dyke, ditches, concentration of red hills, raised causeways, earthwork livestock enclosures	High	3
Archaeological Association	Concentration of red hill salt making sites	Medium	2
Group Value (Association)	Adjacent marshes; oyster pits; parish boundary; functional link to Pete Hall listed building, link to site of 'Wick' on 1st edition OS map.	Very High	3
Diversity	Sea walls, borrow dyke, drains, raised causeways, creeks, fleets, counter walls, livestock enclosures	Very High	6
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Public access limited to short length of foot path or visible from water	Low	1
Overall significance			**18**

3.1.32 MARSH 44

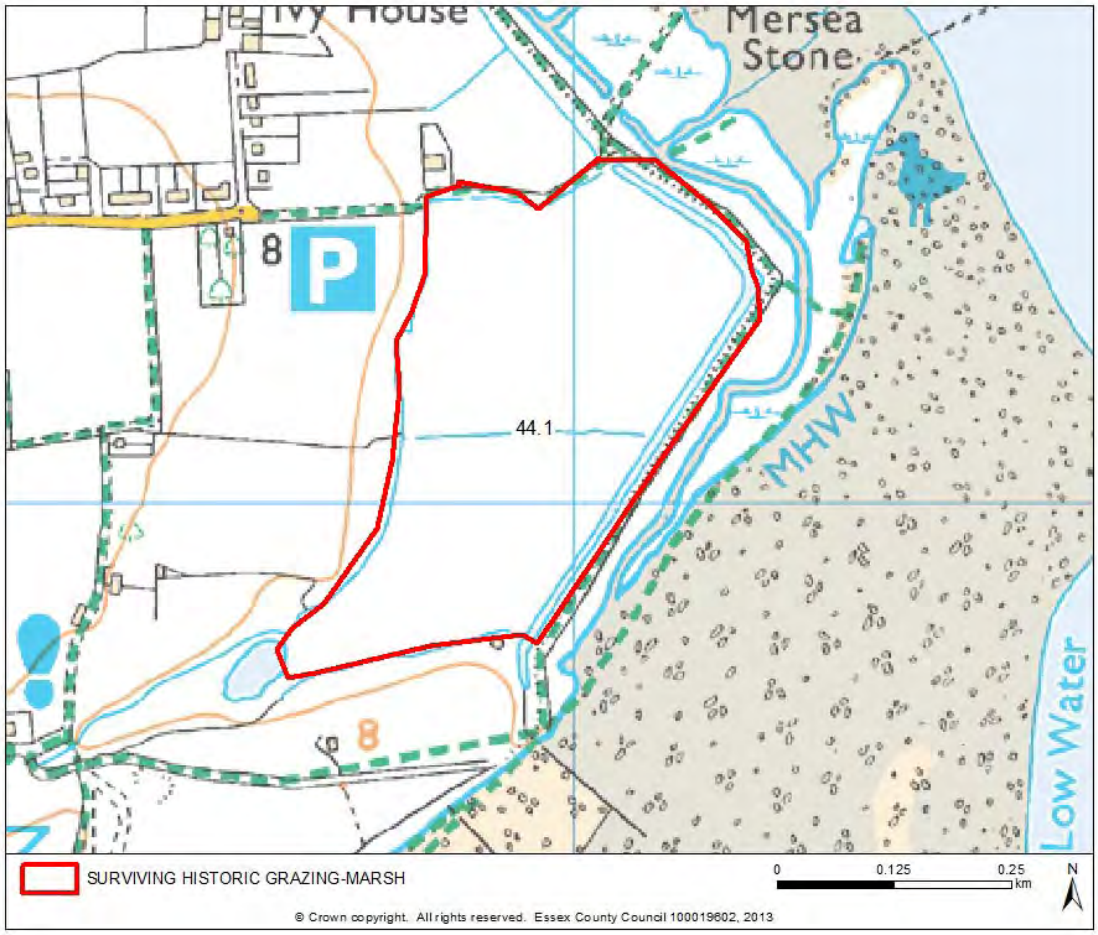

Fig. 57 Marsh 44 - Mersea

44.1 Mersea

Summary

A small area of improved grazing marsh, on the south east end of Mersea Island, adjacent to the Colne Estuary. Characteristic features include sea wall, borrow dyke, sinuous former creeks and rills, and stetch cultivation earthworks. The grassland has been improved and is managed through grazing and as part of an MOD firing range.

Historic environment character

A small area of improved grazing marsh, on the south east end of Mersea Island, adjacent to the Colne Estuary, within Cudmore Grove Country Park. Reclamation is likely to have been during the 17th century. The marsh has been improved, but traces of the old creeks are still visible on aerial photographs. The area is divided by a straight water filled ditches. The landward boundary is a more sinuous ditch. One red hill is recorded (between two of the creeks) and there are also records of a prehistoric flint-knapping site.

Character of vegetation

Managed as wildfowl pasture with high water levels and short sward. Dock *Rumex spp.* and Rush *Juncus spp.* dominate lower-lying areas. Sea Couch *Elymus pycnanthus*, Couch *Elymus repens*, Creeping Bent *Agrostis stolonifera*, Meadow Barley *Hordeum secalinum*, Red Fescue *Festuca rubra* and the nationally uncommon Sea Barley *H.marinum* are all frequent in drier areas. Grass Vetchling *Lathyrus nissolia*, Strawberry Clover *Trifolium fragiferum* and Spiny Restharrow *Ononis spinosa*, nationally uncommon Sea Clover *Trifolium squamosum* and Slender Hare's-ear *Bupleurum tenuissimum* also present.

Threats

Threats currently low, site is well-managed with good water-levels. Longer-term, potentially threatened by saltwater flooding associated with sea level rise. Potential impact from habitat creation e.g. scrapes.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score

Archaeological Potential	Sea wall, borrow dyke, ditches, red hill, flint-knapping site	Medium	2
Archaeological Association	Prehistoric flint-knapping site and red hill	Medium	2
Group Value (Association)	Scheduled Tudor block house; site of farmstead shown on 1st edition OS map, adjacent field systems	High	2
Diversity	Sea walls, borrow dyke, drains	Low	0
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Good public access	High	3
Overall significance			**12**

3.1.33 MARSH 45

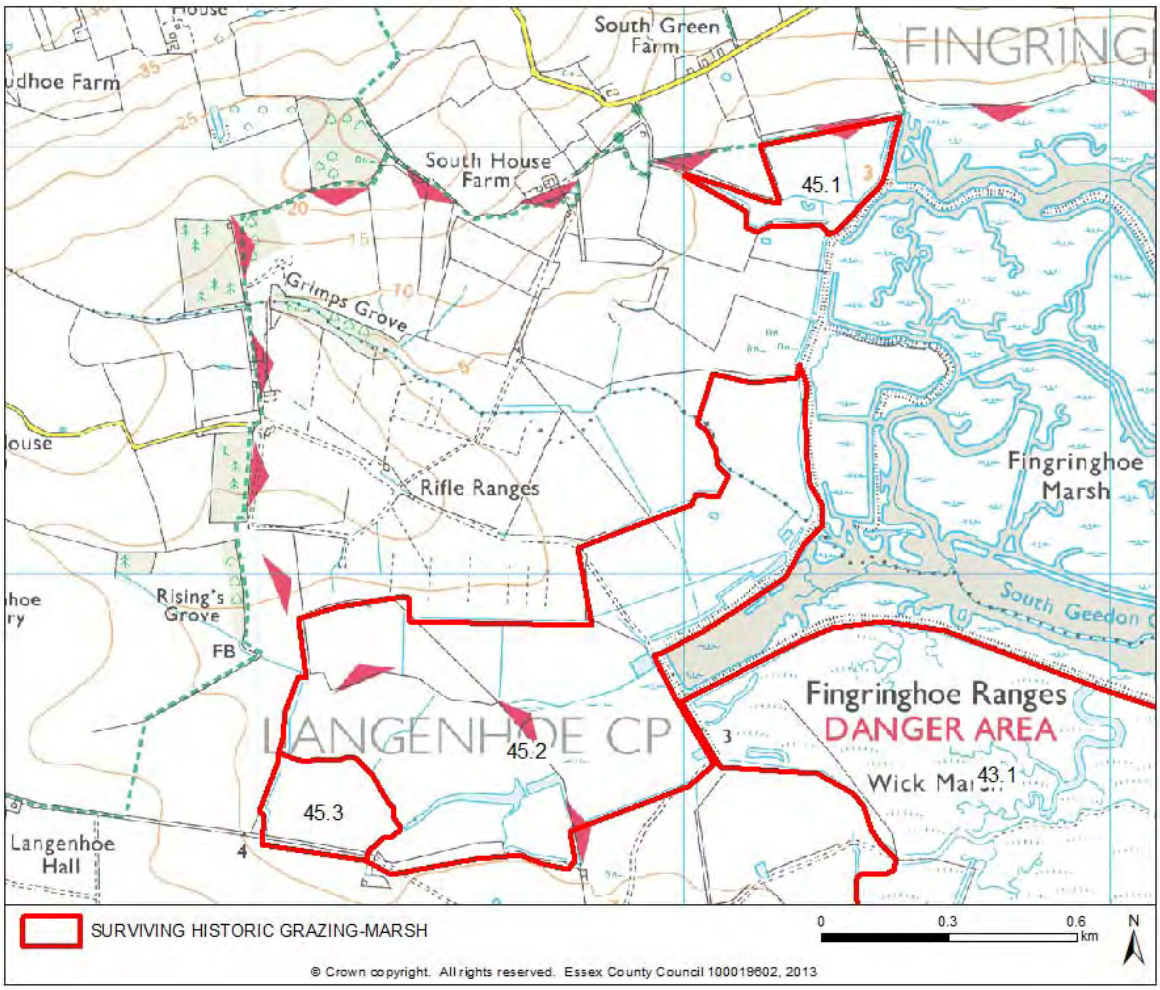

Fig. 58 Marsh 45 – Fingringhoe Marsh

45.1 Fingringhoe Marsh

Summary

A small area of improved grazing marsh, to the south of Fingrinhoe on the Colne Estuary. Characteristic features include sea wall, borrow dyke, sinuous former creeks and rills, and stetch cultivation earthworks. The grassland has been improved and is managed through grazing and as part of an MOD firing range.

Historic environment character

A small area of reclaimed marshland along the west side of the Colne Estuary and to the south of Fingringhoe. Manorial records indicate reclamation from the Tudor period in the general area. The marsh is enclosed on its seaward side by a sea wall with borrow dyke. The inland boundaries are marked by straight drainage ditches and sinuous former creeks. Areas of stetch cultivation are visible. The marsh is managed through grazing as part of the MOD firing ranges.

Character of vegetation

Marsh dominated by Sea Couch *Elymus pycnanthus,* Couch *Elymus repens,* Creeping Bent *Agrostis stolonifera,* Meadow Barley *Hordeum secalinum,* Red Fescue *Festuca rubra* and nationally rare Sea Barley *Hordeum marinum.* Rare herbs such as Grass vetchling *Lathyrus nissolia,* Strawberry Clover *Trifolium fragiferum,* and Sea Clover *Trifolium squamosum* also occur. Lady's bedstraw *Galium verum* on ant hills.

Threats

Vegetation is threatened by mismanagement of the water levels. The area has been subject to flooding due to holding water levels too high. Also threatened by agricultural improvement and military contamination.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, creeks and prehistoric activity in the vicinity	Low	1
Archaeological Association	None known	Low	1
Group Value	Adjacent marshlands	Low	1

(Association)			
Diversity	Sea walls, relict salt marsh, stetch, former creek	Medium	2
Historical Association	None known	Low	2
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	No public access / firing ranges	Negligible	0
Overall significance			**10**

45.2 Fingringhoe Marsh

Summary

A large area of improved and unimproved grazing marsh, to the south of Fingrinhoe on the Colne Estuary. Characteristic features include sea wall, sinuous former creeks, and water-filled fleets, straightened drainage ditches and stetch cultivation earthworks. A number of red hills are known from the marsh. The grassland has been improved and is managed through grazing and as part of an MOD firing range.

Historic environment character

A large area of reclaimed marshland along the west side of the Colne Estuary and to the south of Fingringhoe. Manorial records indicate reclamation from the Tudor period. The marsh is enclosed on its seaward side by sea walls of and lengths of borrow dyke of varying age. The inland boundary is generally marked by largely straight drainage ditches. The area includes fields of semi-improved grassland divided by straight drainage ditches, and relict salt marsh with varying vegetation and water filled fleets and creeks that are more sinuous in nature. Extensive areas of stetch cultivation are visible. Evidence for prehistoric/Roman activity is known from discoveries of a number of red hill salt making sites.

Character of vegetation

Several extensive dense beds of Common reed *Phragmites australis* around creeks and lake, and stands of Sea club-rush *Scirpus maritimus* in ditches. Marsh dominated by Sea Couch *Elymus pycnanthus,* Couch *Elymus repens,* Creeping Bent *Agrostis stolonifera,* Meadow Barley *Hordeum secalinum,* Red Fescue *Festuca rubra* and nationally rare Sea Barley *Hordeum marinum.* Rare herbs such as Grass vetchling *Lathyrus nissolia,* Strawberry Clover *Trifolium fragiferum,* and Sea Clover *Trifolium squamosum* also occur. Lady's bedstraw *Galium verum* on ant hills. Also, some improved agricultural grassland. Dry vegetation dominated by Bent grasses *Agrostis spp,* Perennial rye-grass *Lolium perenne,* Red fescue *Festuca rubra* and Meadow barley *Hordeum secalinum.*

Threats

Vegetation is threatened by mismanagement of the water levels. The area has been subject to flooding due to holding water levels too high. Also threatened by agricultural improvement and military contamination.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, creeks and fleets, red hills	Medium	2
Archaeological Association	Red hills	Medium	2
Group Value (Association)	Adjacent arable fields	Low	1
Diversity	Sea walls, relict salt marsh, stetch, creeks, fleets	Medium	2

Historical Association	None known	Low	2
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	No public access / firing ranges	Negligible	0
Overall significance			**12**

45.3 Fingringhoe Marsh

Summary

A large area of improved and unimproved grazing marsh, to the south of Fingrinhoe on the Colne Estuary. Characteristic features include sea wall, sinuous former creeks, and water-filled fleets, straightened drainage ditches and stetch cultivation earthworks. A number of red hills are known from the marsh. The grassland has been improved and is managed through grazing and as part of an MOD firing range.

Historic environment character

A large area of reclaimed marshland along the west side of the Colne Estuary and to the south of Fingringhoe. Manorial records indicate reclamation from the Tudor period. The marsh is enclosed on its seaward side by sea walls of and lengths of borrow dyke of varying age. The inland boundary is generally marked by largely straight drainage ditches. The area includes fields of semi-improved grassland divided by straight drainage ditches, and relict salt marsh with varying vegetation and water filled fleets and creeks that are more sinuous in nature. Extensive areas of stetch cultivation are visible. Evidence for prehistoric/Roman activity is known from discoveries of a number of red hill salt making sites.

Character of vegetation

Several extensive dense beds of Common reed *Phragmites australis* around creeks and lake, and stands of Sea club-rush *Scirpus maritimus* in ditches. Marsh dominated by Sea Couch *Elymus pycnanthus,* Couch *Elymus repens,* Creeping Bent *Agrostis stolonifera,* Meadow Barley *Hordeum secalinum,* Red Fescue *Festuca rubra* and nationally rare Sea Barley *Hordeum marinum.* Rare herbs such as Grass vetchling *Lathyrus nissolia,* Strawberry Clover *Trifolium fragiferum,* and Sea Clover *Trifolium squamosum* also occur. Lady's bedstraw *Galium verum* on ant hills. Also, some improved agricultural grassland. Dry vegetation dominated by Bent grasses *Agrostis spp,* Perennial rye-grass *Lolium perenne,* Red fescue *Festuca rubra* and Meadow barley *Hordeum secalinum.*

Threats

Vegetation is threatened by mismanagement of the water levels. The area has been subject to flooding due to holding water levels too high. Also threatened by agricultural improvement and military contamination.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, creeks and fleets, red hills	Medium	2
Archaeological Association	Red hills	Medium	2
Group Value (Association)	Adjacent arable fields	Low	1
Diversity	Sea walls, relict salt marsh, stetch, creeks, fleets	Medium	2
Historical Association	None known	Low	2

Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	No public access / firing ranges	Negligible	0
Overall significance			**12**

3.1.34 MARSH 46

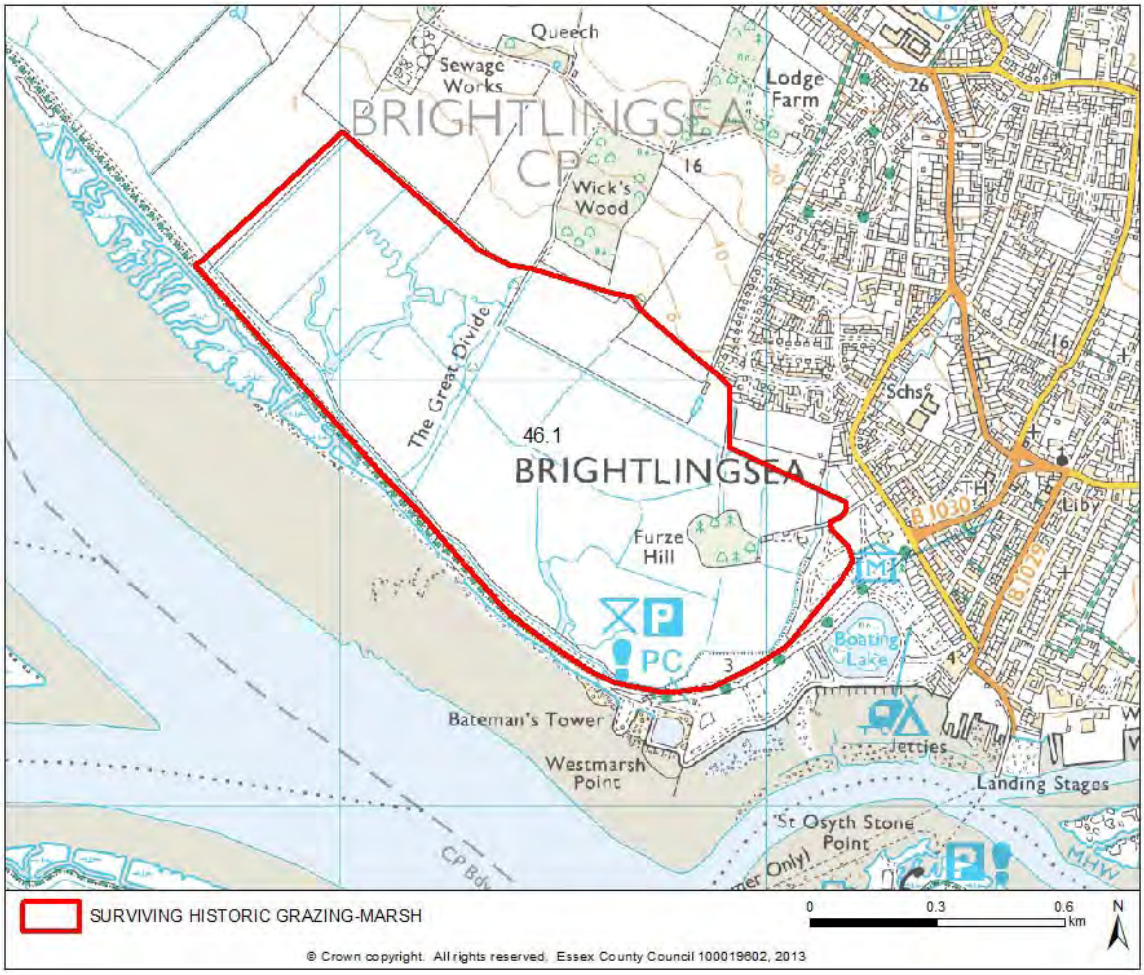

Fig. 59 Marsh 46 – Brightlingsea

46.1 Brightlingsea

Summary

A large area of improved and unimproved grazing marsh, on the south side of Brightlingsea. Characteristic features include sea wall, sinuous former creeks, and water-filled fleets, straightened drainage ditches and stetch cultivation earthworks. A number of red hills and WWII defences are known from the marsh. The grassland has been improved and is managed through grazing.

Historic environment character

A large area of reclaimed marshland along the south side of Brightlingsea, adjacent to the Colne Estuary that was reclaimed before the Chapman and Andre map of 1777. The marsh is enclosed on its seaward side by a sea wall and short lengths of borrow dyke. The sea wall used to support the train line between Wivenhoe and Brightlingsea, which enclosed an additional narrow strip of marsh when it was built and left the original sea wall to its landward side. The inland boundary is the interface with higher ground, marked by largely straight and hedge field boundaries and ditches. The area includes fields of semi-improved grassland divided by a series of straight drainage ditches, and a couple on the lines of former creeks that are more sinuous in nature. Evidence for prehistoric/Roman activity is known from discoveries of red hill salt making sites. WWII defences included antip-landing ditches and a minefield.

Character of vegetation

Improved grazing marsh with scattered trees and hedgerow field boundaries. Australian swamp stonewort *Crassula helmsii* is invasive in ditches. Rough grassland along the southwestern long edge dominated by Sea Couch *Elymus pycnanthus* and Couch *E. repens.* Fields dominated by grasses Creeping bent *Agrostis stolonifera,* Meadow barley *Hordeum secalinum* and Red fescue *Festuca rubra.* Thistles *Cirsium spp.* frequent across whole area.

Threats

Marsh vegetation is well managed and not currently threatened. Ditch vegetation is threatened by invasive *Crassula helmsii.* Flooding by the sea poses a threat.

Shoreline Management Plan

Hold the line to 2025 and then northern section could be subject to managed realignment

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, creeks and fleets	Low	1
Archaeological Association	Red hills; WWII anti-landing ditches; WWII minefield; Victorian railway line	Medium	2
Group Value (Association)	Adjacent arable fields	Low	1
Diversity	Sea walls, relict salt marsh, stetch, creeks, fleets	Medium	2
Historical Association	WWII anti invasion measures	High	2
Biodiversity	Internationally designated SPA & Ramsar.	Very High	3
Amenity	Public footpaths runs on sea wall and close to town/beaches	Medium	2
Overall significance			**10**

3.1.35 MARSH 47

47.1 East Point

Summary

A large area of improved grazing marsh, on the east side of Brightlingsea. Characteristic features include sea wall, borrow dyke, sinuous former creeks, and straightened drainage ditches. There is no known below ground archaeology recorded in the marsh but indications of prehistoric activity in adjacent upland areas. The grassland has been improved.

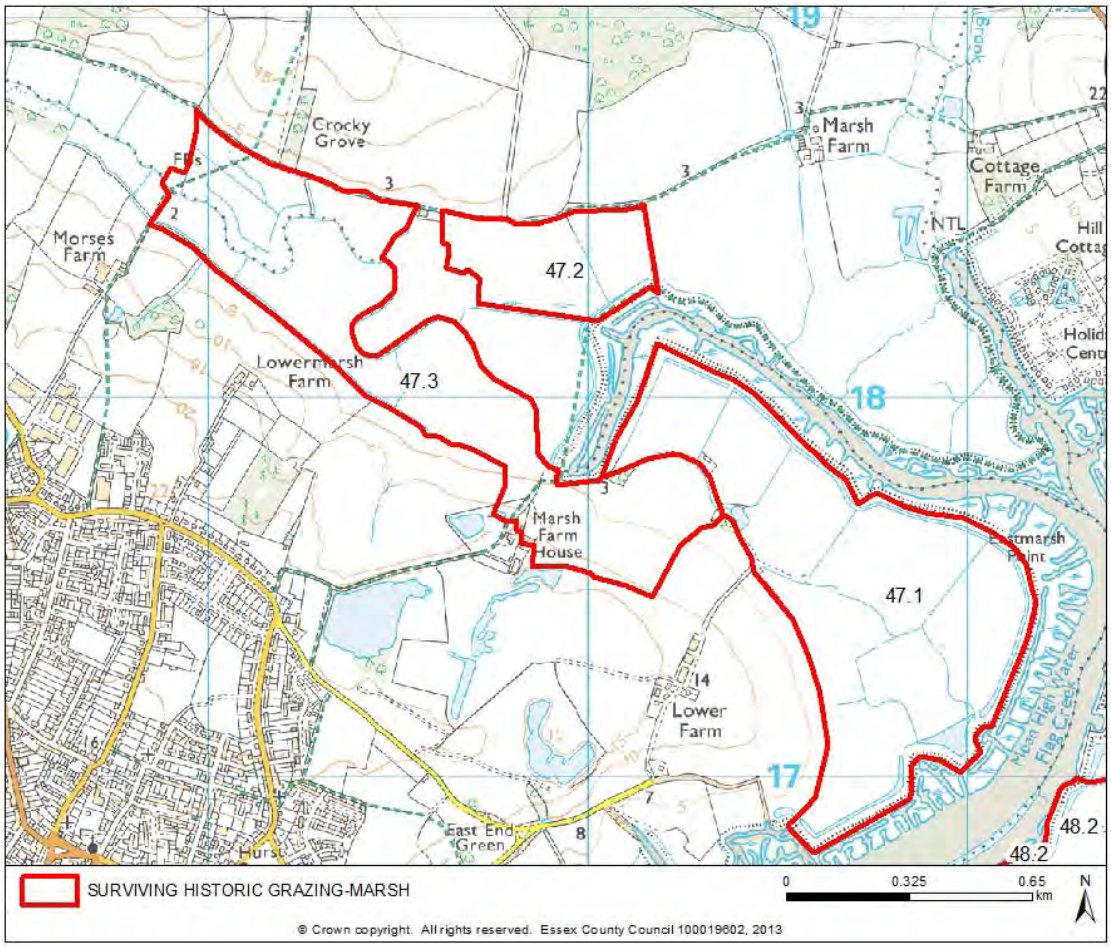

Fig. 60 Marsh 47 – East Point marsh

Historic environment character

A large area of reclaimed marshland along the east side of Brightlingsea, adjacent to Flag Creek that is thought to have been reclaimed at an early date, and certainly before the Chapman and Andre map of 1777. The marsh is enclosed on its seaward side by a sea wall and borrow dyke. The inland boundary is the interface with higher ground, marked by an old field boundary.

The area includes fields of semi-improved grassland divided by a series of straight drainage ditches, and a couple on the lines former creeks that are more sinuous in nature. Evidence for prehistoric activity is known from adjacent upldand areas but no below ground archaeology has been recorded in the area to date.

Character of vegetation

Grazing marsh managed for silage. Has been improved in the past. Dominated by Perennial rye-grass *Lolium perenne,* with some Timothy *Phleum pratense,* Cock's-foot *Dactylis glomerata* and Yorkshire fog *Holcus lanatus.* Grassland strip on landward side of sea wall a mix of False oat-grass *Arrhenatherum elatius,* Meadow barley *Hordeum secalinum,* Wild carrot *Daucus carota,* Crested dog's-tail *Cynosurus cristatus* and Sheep's sorrel *Rumex acetosella.* Ditches and creeks fringed with Common reed *Phragmites australis* and Sea club-rush *Bolboschoenus maritimus* and some Soft rush *Juncus effusus.*

Threats

Further agricultural improvement

Shoreline Management Plan

Could be subject to Managed Realignment from 2025.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, relict salt marsh, ditches	Low	1
Archaeological Association	Prehistoric activity in immediately adjacent area	Low	1
Group Value (Association)	Adjacent grazing marsh	Low	1
Diversity	Sea walls, relict salt marsh	Low	0

Historical Association	None known	Low	0
Biodiversity	Locally designated	Medium	1
Amenity	Public footpaths runs on sea wall and to the north and east	Medium	2
Overall significance			**6**

47.2 East Point

Summary

A small area of grazing marsh, on the north side of Brightlingsea, which appears to be largely unimproved. Characteristic features include a short length of sea wall, relict salt marsh, and straightened ditches. There is no known below ground archaeology recorded in the marsh but indications of prehistoric activity in adjacent areas. The vegetation is a mixture of good quality, diverse grazing marsh and improved grassland.

Historic environment character

Small area of reclaimed marshland along the north side of Brightlingsea, formerly a continuation of Flag Creek that is thought to have been reclaimed at an early date, and certainly before the Chapman and Andre map of 1777. The area includes semi-improved relict salt marsh in fields divided by a straight drainage ditch. Evidence for prehistoric activity is known from adjacent areas.

Character of vegetation

Semi-improved grassland, still with a diverse mix of species including Celery-leaved Buttercup *Ranunculus sceleratus*, Meadow Foxtail *Alopecurus pratensis*, Soft-rush *Juncus effusus*, Hard Rush *Juncus inflexus*, Meadow Barley *Hordeum secalinum*, Common Bent *Agrostis capillaris*, False Oat-grass *Arrhenatherum elatius*, Crested Dog's-tail *Cynosurus cristatus*, Marsh

Foxtail *Alopecurus geniculatus* and Floating Sweet-grass *Glyceria fluitans*. Common reed *Phragmites australis* in ditches.

Threats

Further agricultural improvement

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall, relict salt marsh, ditches	Low	1
Archaeological Association	Prehistoric activity in immediately adjacent area	Low	1
Group Value (Association)	Adjacent grazing marsh	Low	1
Diversity	Sea walls, relict salt marsh	Low	0
Historical Association	None known	Low	0
Biodiversity	Locally designated	Medium	1
Amenity	Public footpaths runs on sea wall and to the north and east	Medium	2
Overall significance			**6**

47.3 East Point

Summary

A large area of grazing marsh, on the north side of Brightlingsea, with a mixture of improved and unimproved grassland. There is reasonably good survival of characteristic features including sea walls, relict salt marsh, creeks and ditches. Below ground archaeology includes red hill salt making sites, and a double ditched track-way known from cropmarks. The marsh is associated with a number of farmsteads with 'marsh' related names. The vegetation is a mixture of good quality, diverse grazing marsh and improved grassland.

Historic environment character

Large area of reclaimed marshland along the north side of Brightlingsea, formerly a continuation of Flag Creek that is thought to have been reclaimed at an early date, and certainly before the Chapman and Andre map of 1777 .The area includes both relict salt marsh and larger improved grasslands in fields divided by a mixture of sinuous former creeks and straight drainage ditches. Evidence for red hill salt making sites have been found and a cropmark of a double ditched track-way leading north across the marsh from Lower Marsh Farm, is known from aerial photographs, but is not shown on the 1st edition OS map. There is strong place name evidence association with the marsh, including Lower Marsh Farm, Marsh Farm and Marsh Farm House, all located along the edge of this area. The parish boundary runs along the line of the main creek.

Character of vegetation

Small area of diverse grassland in the North-Eastern corner actively managed for species richness and comprising Celery-leaved Buttercup *Ranunculus sceleratus*, Meadow Foxtail *Alopecurus pratensis*, Soft-rush *Juncus effusus*, Hard Rush *Juncus inflexus*, Meadow Barley *Hordeum secalinum*, Common Bent *Agrostis capillaris*, False Oat-grass *Arrhenatherum elatius*, Crested Dog's-tail *Cynosurus cristatus*, Marsh Foxtail *Alopecurus geniculatus* and Floating Sweet-grass *Glyceria fluitans* with Common reed *Phragmites australis* in ditches. The rest of the area is heavily improved, dominated by Bent grasses *Agrostis spp.,* Red Fescue *Festuca rubra* and Perennial rye-grass *Lolium perenne*

Threats

Small diverse area of vegetation is threatened by run-off from the improved area.

Shoreline Management Plan

Hold the line to 2105

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea walls, water-filled creeks, red hills, cropmark of double ditched track-way	Medium	2
Archaeological Association	Red Hills	Medium	2
Group Value (Association)	Grade II listed Marsh Farm House and the creek marks the parish boundary	Medium	1
Diversity	Sea walls, relict salt marsh, creeks	Medium	2
Historical Association	None known	Low	0
Biodiversity	North-eastern corner – Medium. Locally designated, species-rich grassland. Rest of area – Low. Heavily improved and undesignated.	Medium	1
Amenity	Public footpath runs along northern side of marsh	Low	1
Overall significance			**9**

3.1.36 MARSH 48

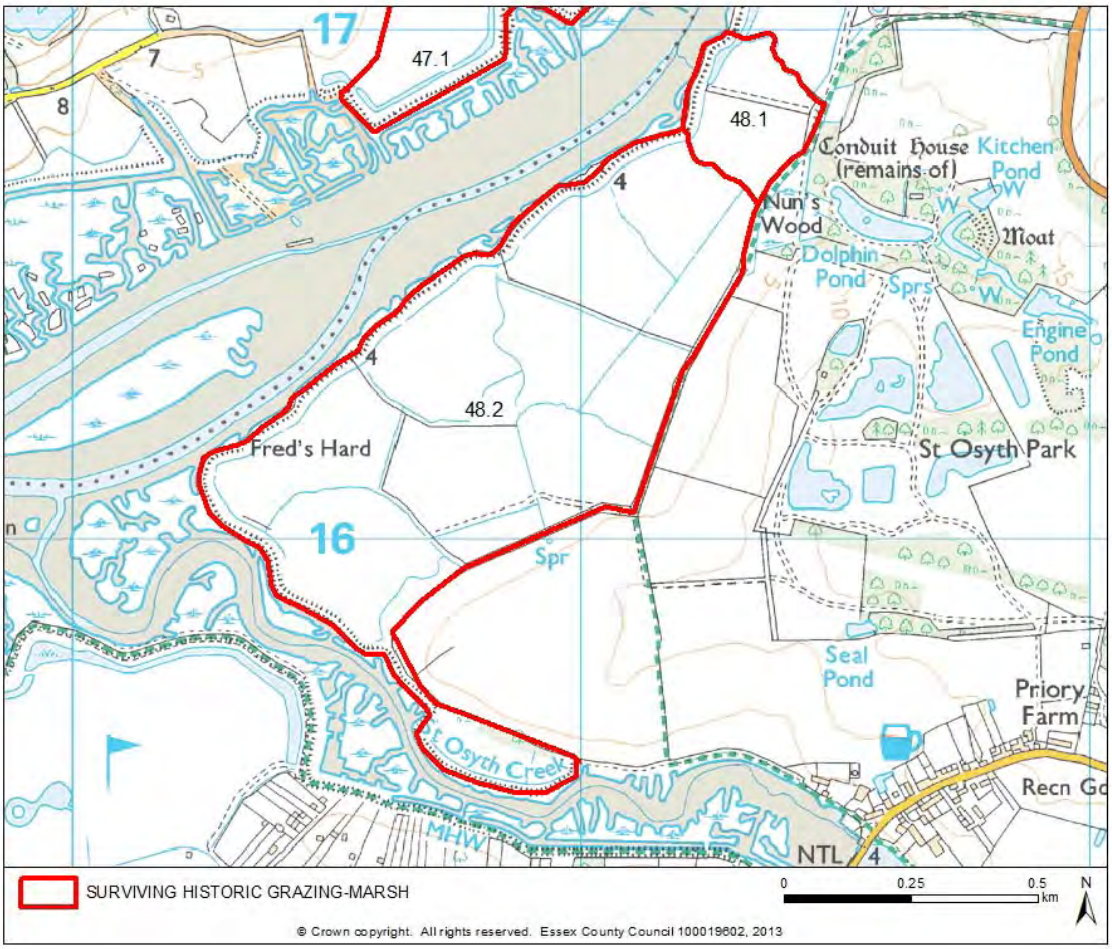

Fig. 61 Marsh 48 - St Osyth

48.1 St Osyth

Summary

A large area of well-preserved grazing marsh, known locally as Howland's Marsh, with good survival of characteristic features including sea walls, raised causeways, relict salt marsh, creeks, fleets, ditches and stetch cultivation earthworks. Red Hill salt making sites are also known to survive. The marsh contributes to the setting of St Osyth Priory. The vegetation is high-quality, species-rich grazing marsh.

Historic environment character

The marshland, bordered by Flag Creek to the west and St Osyth Creek to the south, was reclaimed by the time of the Chapman and Andre map of 1777. The area is unimproved grassland with extensive lengths of curving sea walls with borrow dyke, creeks, fleets, straight water filled ditches and raised causeways. The sea walls are the dominant historic landscape feature in the area, and are likely to be medieval in origin, although a post medieval origin is more likely for the easternmost area of marsh. A sluice in the sea wall I s recorded on the 1st edition OS map. Buildings and track-ways are also recorded on the 1st edition map. Earthwork ramps lead from the sea wall down onto the marsh to allow livestock access. The sea walls will retain evidence for date and construction. The relict salt marsh surface is visible in many places with former creeks and rills showing in varying vegetation, although evidence for improvement in the form of stetch cultivation earthworks is also visible. At least one red hill salt making site has been discovered at the interface between the marsh and dry land to the east. The marshes contribute to the setting of St Osyth Priory. Today they are a nature reserve managed by Essex Wildlife Trust.

Character of vegetation

High quality species-rich grazing marsh. Dominated by Sea Couch *Etyrigia atherica* and False Oat-grass *Arrhenatherum elatius,* with Spiny Restharrow *Ononis spinosa*, Sea Clover *Trifolium squamosum*, Meadow Barley *Hordeum secalinum,* Sea Beet *Beta vulgaris* subsp. *maritime* and Bent Grass *Agrostis spp* frequent. Sheep's sorrel *Rumex acetosella,* Narrow-leaved Bird's-foot-trefoil *Lotus glaber,* Yarrow *Achillea millefolium* and Lady's bedstraw *Galium verum* also occur. Sea Club-rush *Bolboschoenus maritimus* and Common Reed *Phragmites australis* dominant in ditches with Dittander *Lepidium latifolium* and Water-cress *Rorippia nasturtium-aquaticum* also abundant. Small areas of Gorse *Ulex europaeus* and Bramble *Rubus fruticosus* scrub.

Threats

Threatened by drying out, and habitat creation.

Shoreline Management Plan

Could be subject to Managed Realignment from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea walls and borrow dyke, raised causeways, waterfilled creeks/fleets, red hills	High	3
Archaeological Association	Red hills	Medium	2
Group Value (Association)	Adajcent to St Osyth Park Dolphin Pond and Nunns Wood; functional link to Fred's Hard	High	2
Diversity	Sea walls, borrow dykes, relict salt marsh, creeks/fleet,raised causeways	High	4
Historical Association	Indirect association with Saxon nunnery and Augustinian Priory/Abbey of St Osyth	High	2
Biodiversity	Internationally designated SPA & Ramsar site. Very high quality grazing marsh.	Very High	3
Amenity	Good public access to nature reserve	Medium	2
Overall significance			**18**

3.1.37 MARSH 50

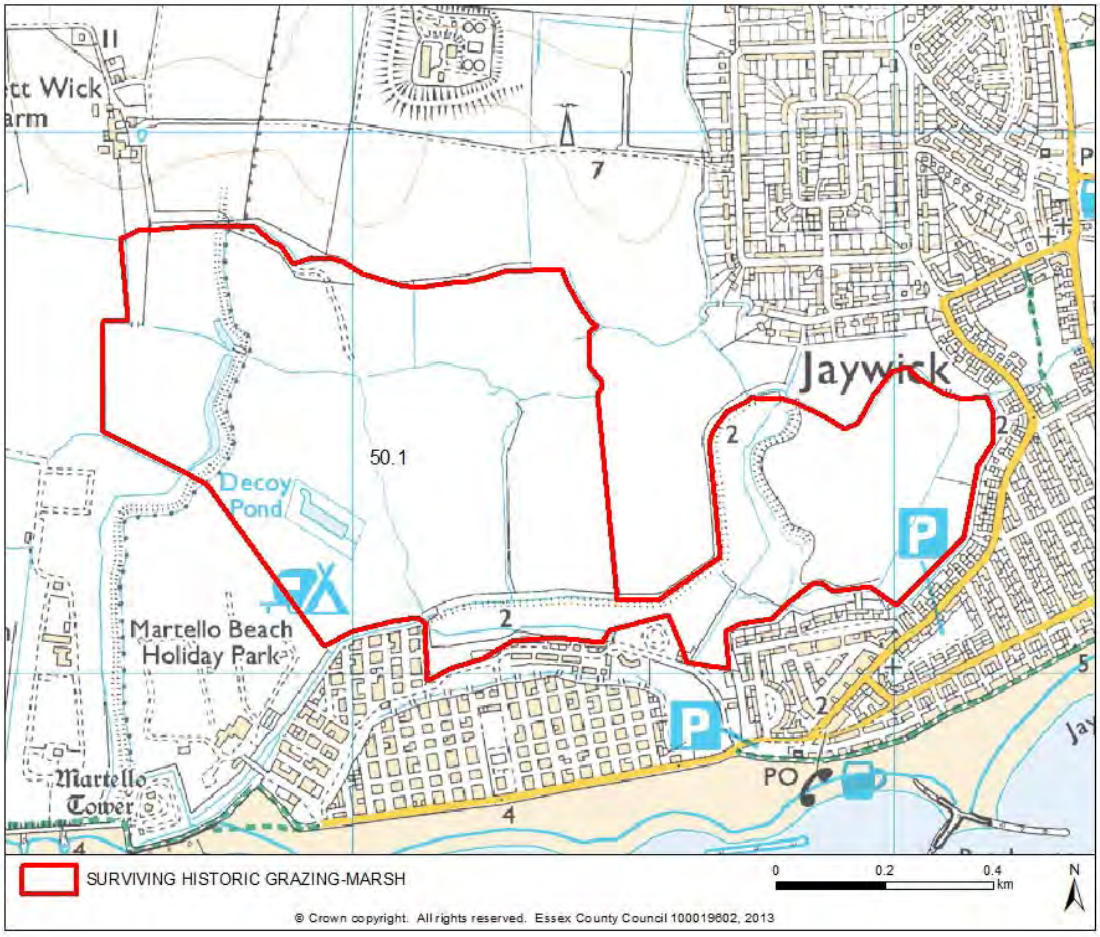

Fig. 61 Marsh 50 - Jaywick

50.1 Jaywick

Summary

A large area of grazing marsh with good survival of characteristic features including sea walls, counter walls, raised causeways, relict salt marsh, creeks, ditches and a scheduled decoy pond, which were formerly part of the much more extensive St Osyth marshes, linked to a series of medieval farms or wicks e.g. Cockett Wick, located on the marsh edge. A preserved timber-trackway has been identified. The vegetation is high-quality, species-rich grazing marsh.

Historic environment character

The marshland was reclaimed by the time of the Chapman and Andre map of 1777. The area is unimproved grassland with extensive lengths of curving

former sea walls, straight water filled ditches and raised causeways across ditches. The sea walls and an occasional counter wall survive as earthworks and are the dominant historic landscape feature in the area, are likely to be medieval or post medieval in origin, and will retain evidence for date and construction. A scheduled post medieval duck decoy with surrounding vegetation is prominent on the marshes eastern side, which may contain waterlogged evidence for its construction and operation. Potential for deeply buried palaeoenvironmental deposits. The relict salt marsh surface is visible in many places with former creeks and rills showing in varying vegetation.

Character of vegetation

High quality species-rich grazing marsh. Dominated by Sea Couch *Etyrigia atherica* and False Oat-grass *Arrhenatherum elatius,* with Spiny Restharrow *Ononis spinosa*, Sea Clover *Trifolium squamosum*, Meadow Barley *Hordeum secalinum,* Sea Beet *Beta vulgaris* subsp. *maritime* and Bent Grass *Agrostis spp* frequent. Sheep's sorrel *Rumex acetosella,* Narrow-leaved Bird's-foot-trefoil *Lotus glaber,* Yarrow *Achillea millefolium* and Lady's bedstraw *Galium verum* also occur. Sea Club-rush *Bolboschoenus maritimus* and Common Reed *Phragmites australis* dominant in ditches with Dittander *Lepidium latifolium* and Water-cress *Rorippia nasturtium-aquaticum* also abundant. Small areas of Gorse *Ulex europaeus* and Bramble *Rubus fruticosus* scrub.

Threats

Threatened by drying out, scrub encroachment and land take for development.

Shoreline Management Plan

Could be subject to Managed Realignment from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea walls, counter walls, duck decoy, causeways, preserved timbers and	High	3

	palaeoenvironmental evidence e.g. waterfilled creeks/fleet		
Archaeological Association	Timber track-way	Low	1
Group Value (Association)	A track-way connects the marsh to listed farmstead at Cockett's Farm	Medium	1
Diversity	Sea walls, counter walls, relict salt marsh, creeks/fleet, duck decoy pond, raised causeways	High	4
Historical Association	None known	Low	0
Biodiversity	Locally designated, species-rich grazing marsh	Medium	2
Amenity	No direct access but visible from holiday park	Low	1
Overall significance			**12**

3.1.38 MARSH 51

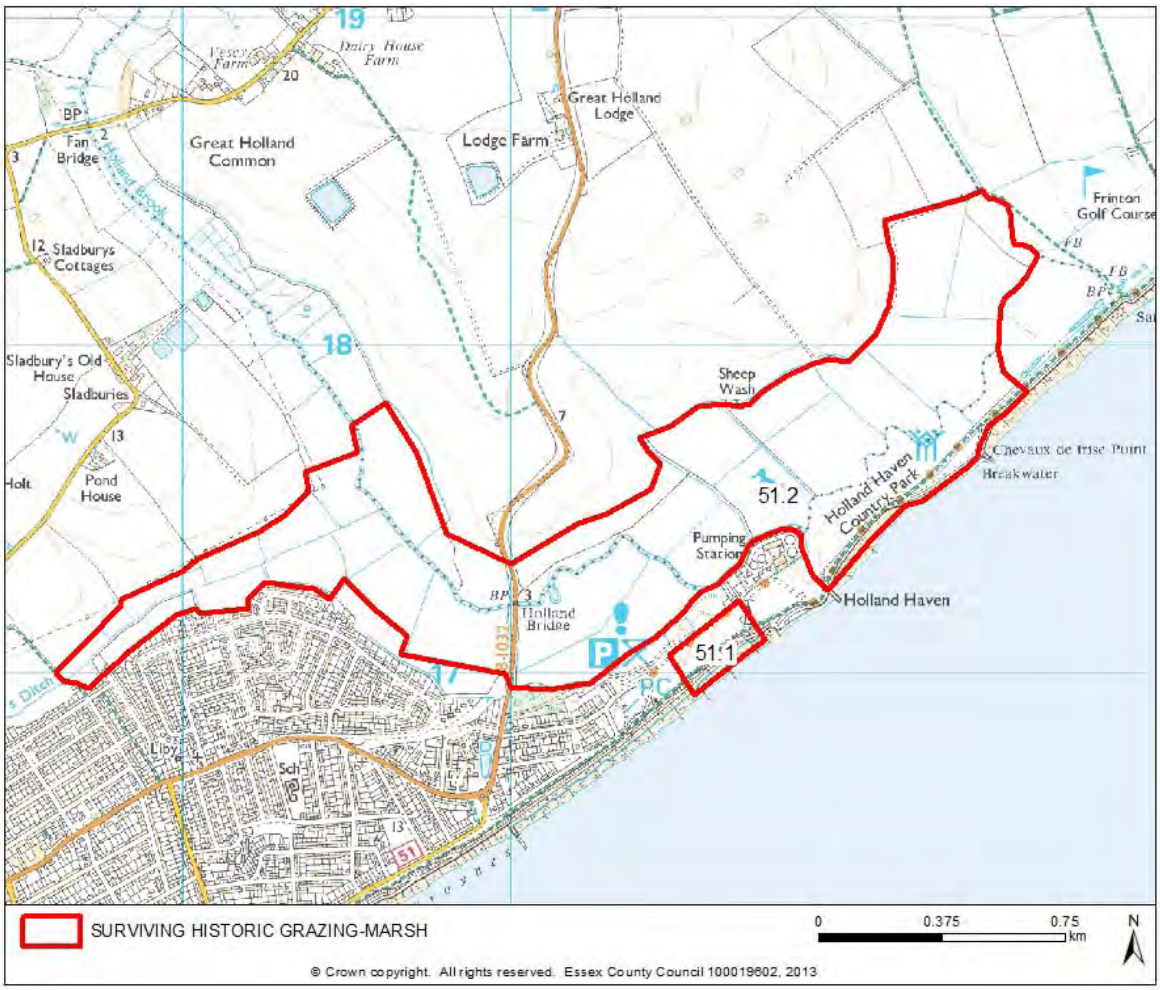

Fig. 62 Marsh 51 – Little Holland

51.1 Little Holland

Summary

A small area of highly improved grassland in Holland Haven, including a mixture of improved grassland and relict salt marsh. Reclamation is likely to be 18th century or later. Sea defences have beach huts and paths built on them.

Historic environment character

A small area of highly improved and landscaped grassland in Holland Haven that is used for recreational activities. Sea defences support beach huts and paths. A WWII Heavy Anti-aircraft gun site is recorded at this location.

Character of vegetation

Highly improved grassland. Dominated by grasses including Creeping Bent *Agrostis stolonifera,* Red Fescue *Festuca rubra,* Perennial rye-grass *Lolium perenne* and Meadow Barley *Hordeum secalinum.*

Threats

Increased recreational pressure.

Shoreline Management Plan

Could be subject to Managed Realignment from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall , WWII gun site	Negligible	0
Archaeological Association	WWII gun site	Low	1
Group Value (Association)	None identified	Negligible	0
Diversity	Modernised sea defences	Low	0
Historical Association	WWII HAA gun site	High	2
Biodiversity	Highly improved and undesignated	Low	1

Amenity	Good public access across the area	High	3
Overall significance			**7**

51.2 Little Holland

Summary

An area of grazing marsh along the former tidal reaches of the Holland Brook and Holland Haven, including a mixture of improved grassland and relict salt marsh. Sea walls survive, a single red hill has been recorded, as have preserved timbers, and there are records for a WWII minefield. Historic records for Gunfleet Quay. The grazing marsh is good quality and species-rich despite improvement.

Historic environment character

Most of the marshes on either side of the Holland Brook are thought to have been reclaimed at an early period, although 17th century maps show the mouth of the Holland Brook open to the sea. It is likely that in the early 18th century the Holland Brook was embanked on either side in the reach between Holland Bridge and the present Holland Haven, but below this point there was an embankment north of the stream, which protected the marshes of Great Holland, but to the south there may have been open saltings. Much of the original area survives under grass, although there is evidence for extensive improvements with drainage, including surface drains, and straightening of boundary ditches, which remain water filled. At least two periods of reclamation are evident from the surviving sea walls along the small river channel, which remain as earthworks in many places. Finds of preserved timber from close to Holland Bridge highlight the potential for waterlogging and palaeoenvironmental remains. Relict salt marsh surface is visible in some places, with former creeks and rills defined in the different vegetation. There are documentary records for a landing place called Gunfleet Quay. The HER records the area of a former WWII mine field.

Character of vegetation

Good quality grazing marsh, semi-improved but species-rich, with a nationally important ditch flora. Marsh dominated by grasses such as Creeping Bent *Agrostis stolonifera,* Crested dog's-tail *Cynosurus cristatus,* Red fescue *Festuca rubra,* Perennial Rye-grass *Lolium perenne* and Meadow Barley *Hordeum secalinum.* Sea Couch *Elymus pycnanthus,* Strawberry Clover *Trifolium fragiferum,* Spiny Rest-harrow *Ononis spinosa* also frequent, nationally rare Sea Barley *Hordeum marinum* along former sea wall. Diverse ditch flora showing fresh-saltwater transition consists of Sea Club-rush *Scirpus maritimus,* Common reed *Phragmites australis,* regionally rare Parsley Water-dropwort *Oenanthe lachenalii* and Grey club-rush and nationally rare Brackish water-crowfoot *Ranunculus baudotii* and Divided sedge *Carex divisa* in saline parts. Regionally rare plants found in freshwater parts include Tubular water-dropwort *O. fistulosa,* Slender spike-rush *Eleocharis uniglumis,* Fat duckweed *Lemna gibba* and Greater Duckweed *Lemna polyrhiza* with nationally rare Soft hornwort *Certophyllum submersum* also found.

Threats

Vegetation is threatened by agricultural run-off.

Shoreline Management Plan

Could be subject to Managed Realignment from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall; red hill; palaeo-environmental deposits	Medium	2
Archaeological Association	WWII minefield; red hill; preserved timbers	Medium	2
Group Value (Association)	Association with adjacent fields and boundaries	Low	1

Diversity	Sea walls, relict salt marsh, surface drains	Low	1
Historical Association	WWII anti-invasion measures	High	2
Biodiversity	Nationally designated, with a diverse flora including nationally rare species.	High	3
Amenity		Low	1
Overall significance			**12**

3.1.39 MARSH 52

52.1 Walton Hall Marsh

Summary

A large area of mainly improved marshland on the east side of Hamford Water; west and north of the Naze. The marsh has a sea wall and borrow dyke, with mainly straight drainage ditches, although sinuous creeks and water filled fleets do survive internally. Smaller areas of relict salt marsh survive on the northern end of the Naze, with important vegetation communities.

Historic environment character

This area consists of large open fields that appear to have been well drained and their boundaries straightened, although a number of water-filled fleets remain. The area probably wasn't reclaimed until the early 19th century. Very few other features associated with the grazing marsh are still visible. A number of WWII bomb craters have been recorded. The grassland has been largely improved, with ploughing in places as recently as 2006.

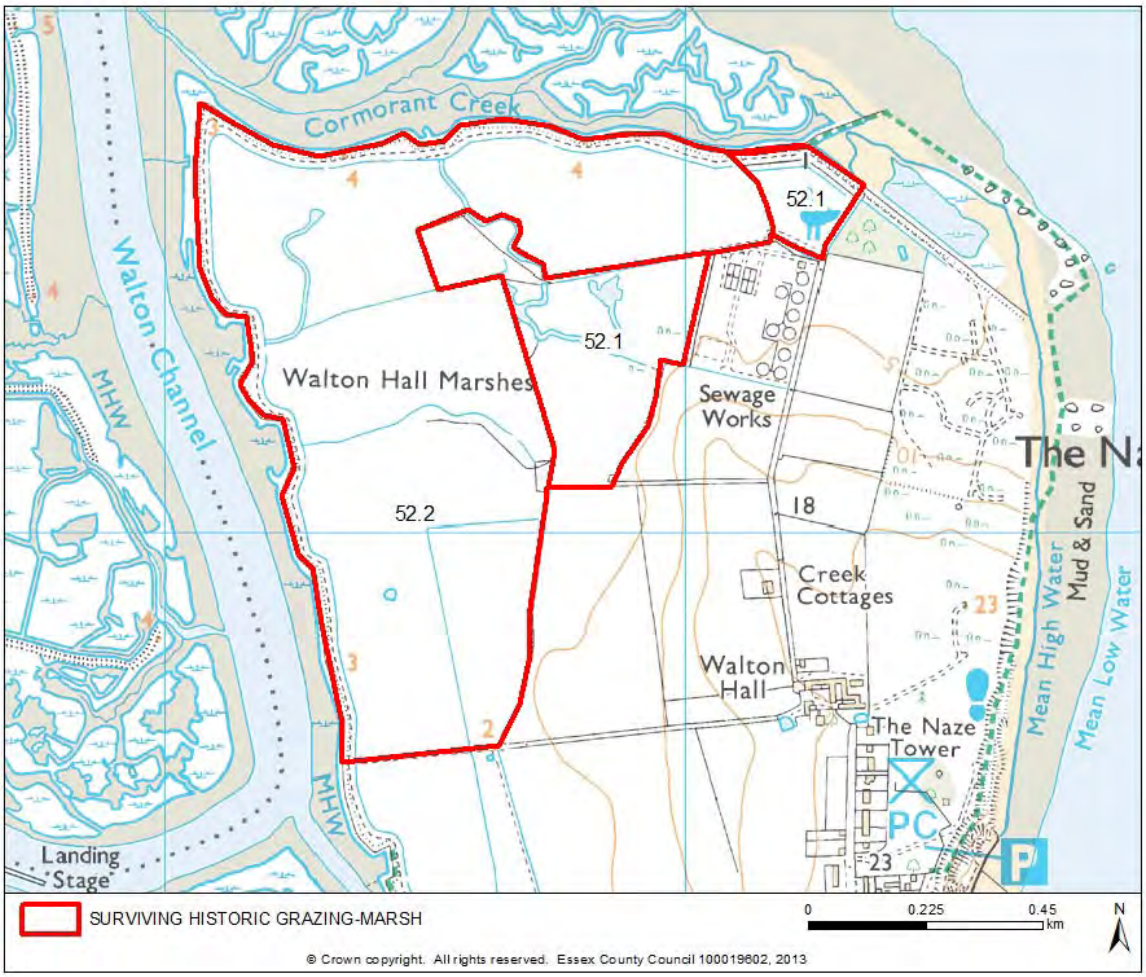

Fig. 63 Marsh 52 – Walton Hall marshes

Character of vegetation

Improved grazing marsh. Dominated by grasses such as Bent grasses *Agrostis spp.,* Red fescue *Festuca rubra* and Meadow Barley *Hordeum secalinum.* Scattered Hawthorn *Crataegus monogyna* along field boundaries. Relict salt marsh areas at north end of the Naze include: semi-improved grazing marsh, dominated by grasses such as Creeping Bent *Agrostis stolonifera,* Perennial Rye-grass *Lolium perenne* and Red Fescue *Festuca rubra* with Sheep's sorrel *Rumex acetosella,* Greater bird's-foot trefoil *Lotus pedunculatus* and Common Vetch *Vicia sativa* scattered throughout. Sea club-rush *Scirpus maritimus* and Soft rush *Juncus effuses* in ditches.

Threats

Threatened by further agricultural improvement, drying out and flooding.

Shoreline Management Plan

Could be subject to managed realignment from 2055.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall and borrow dyke, fleets	Low	1
Archaeological Association	WWII bomb craters	Low	1
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water; association with Walton Hall	Moderate	1
Diversity	Sea walls, borrow dyke, fleets	Low	1
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water	High	2
Biodiversity	Mostly undesignated and heavily improved but areas north of the Naze are designated and of national and international importance.	High	3
Amenity	Access restricted to the north end of the Naze and the John Ray nature reserve.	Low	1
Overall significance			**10**

52.2 Walton Hall Marsh

Summary

A large area of mainly improved marshland on the south side of Hamford Water, with sea wall and borrow dyke demarcating three sides and straight drainage ditches internally and on its landward side. It contains numerous records for red hill salt making sites and a WWII heavy anti-aircraft gun site with surviving buildings. The grassland has been improved.

Historic environment character

This area consists of large open fields that appear to have been well drained and their boundaries straightened. Sluices are recorded in the sea wall on the 1st edition OS map. The area probably wasn't reclaimed until the early 19th century but evidence of former sea walls suggest more than one period of reclamation. An area of relict salt marsh survives on the western side. The sea walls and borrow dykes still exists along the east and west side of the area, while the area to the north has been developed into a marina and boat park and the borrow dykes have been lost. Very few other features associated with the grazing marsh are still visible; however, a number of red hills/salterns are recorded in the area. Other recorded features include a length of sea wall, a possible ring-ditch, former field boundaries and the location of a former 4-gun gun emplacement, which has been destroyed, although associated buildings/huts survive.

Character of vegetation

Heavily improved, of little botanical interest. Dominated by Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.* and Perennial Rye-grass *Lolium perenne.* Hedgerow along field boundaries.

Threats

Threatened by further agricultural improvement and flooding.

Shoreline Management Plan

Western side could be subject to managed realignment from the present, the rest is hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall and borrow dyke, red hills, WWII HAA gun site	Medium	2
Archaeological Association	Three or four red hills are known, WWII HAA gun site	Medium	2
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1
Diversity	Sea walls, borrow dyke, sluices	Low	1
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water; WWII air raid defences	High	2
Biodiversity	Undesignated and heavily improved	Low	0
Amenity	No direct public access	Negligible	0
Overall significance			**8**

3.1.40 MARSH 53

53.1 Walton le Soken

Summary

A large area of mainly improved marshland on the south side of Hamford Water, with sea wall and borrow dyke demarcating three sides and straight drainage ditches internally and on its landward side. It contains numerous records for red hill salt making sites and a WWII heavy anti-aircraft gun site with surviving buildings. The grassland has been improved.

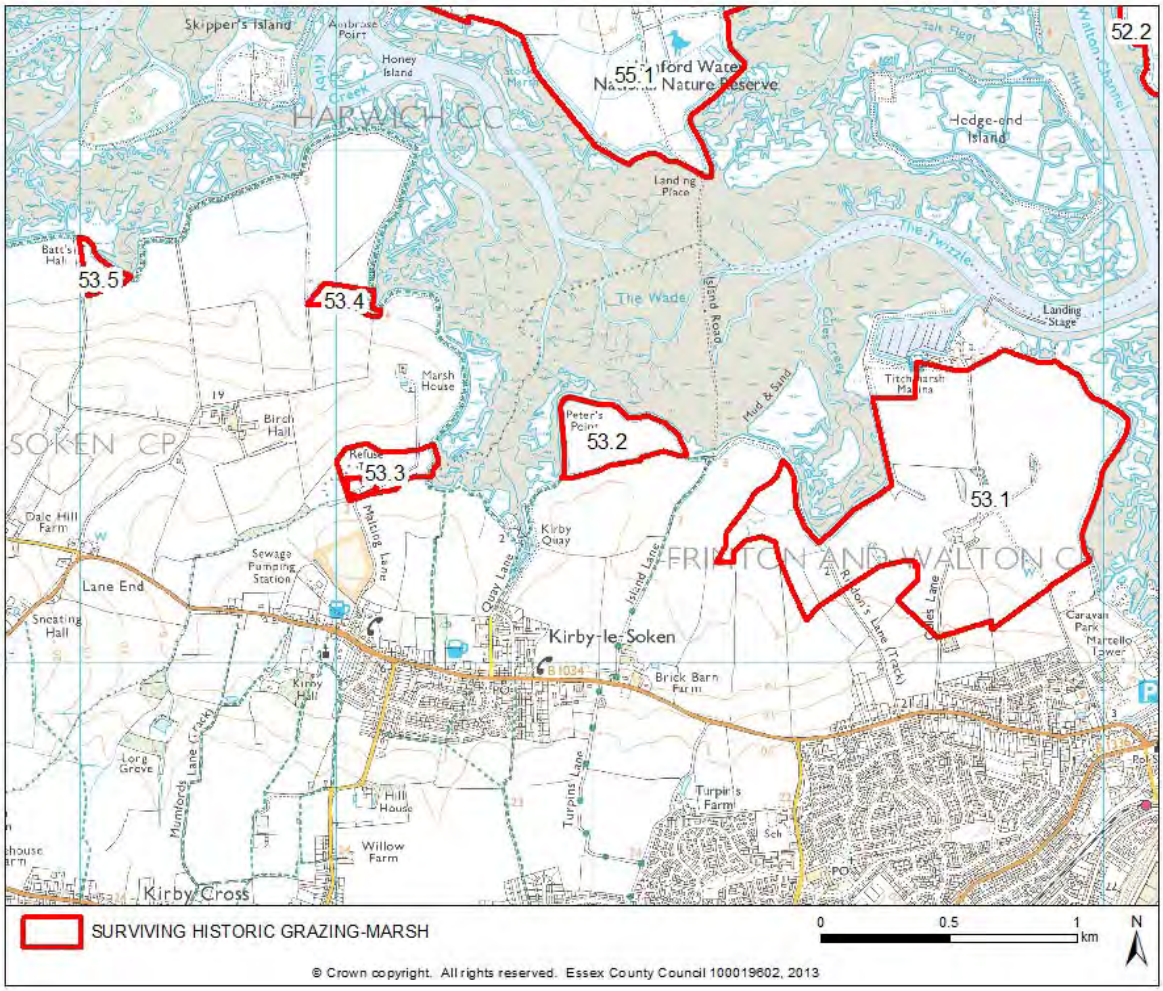

Fig. 64 Marsh 53 – Walton le Soken marshes

Historic environment character

This area consists of large open fields that appear to have been well drained and their boundaries straightened. Sluices are recorded in the sea wall on the 1st edition OS map. The area probably wasn't reclaimed until the early 19th century but evidence of former sea walls suggest more than one period of reclamation. An area of relict salt marsh survives on the western side. The sea walls and borrow dykes still exists along the east and west side of the area, while the area to the north has been developed into a marina and boat park and the borrow dykes have been lost. Very few other features associated with the grazing marsh are still visible; however, a number of red hills/salterns are recorded in the area. Other recorded features include a length of sea

wall, a possible ring-ditch, former field boundaries and the location of a former 4-gun gun emplacement, which has been destroyed, although associated buildings/huts survive.

Character of vegetation

Heavily improved, of little botanical interest. Dominated by Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.* and Perennial Rye-grass *Lolium perenne.* Hedgerow along field boundaries.

Threats

Threatened by further agricultural improvement and flooding.

Shoreline Management Plan

Western side could be subject to managed realignment from the present, the rest is hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall and borrow dyke, red hills, WWII HAA gun site	Medium	2
Archaeological Association	Three or four red hills are known, WWII HAA gun site	Medium	2
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1
Diversity	Sea walls, borrow dyke, sluices	Low	1
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water; WWII air raid defences	High	2

53.2 Walton-le-soken

Summary

A small area of surviving marshland at Peter's Point, on the south side of Hamford Water, with sea wall and borrow dyke demarcating three sides side and a mixture of curving drainage ditch on its landward side. A red hill is recorded from the area and a former decoy has been reinstated. The grassland has been improved.

Historic environment character

This small area is part of the larger Walton Le Soken grazing marsh. The sea wall is still on the same alignment to that of the 1880's map. Reclamation was probably not until the early 19th century. A sluice is recorded on the 1st edition map on the sea wall on the western side of the marsh. Very few features associated with the grazing marsh are still visible, although the borrow dyke is continuous along the sea wall and is 9-10m in width. The only recorded heritage asset other than the sea wall and borrow dyke in the area is a red hill and former decoy pond. The latter has recently be re-cut and is still water filled. Aerial photographs show that the area has been ploughed in the last 10 years although it is currently under grass

Character of vegetation

Grazing marsh flora has been lost. Dominated by grasses such as Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.,* Perennial Rye-grass *Lolium perenne* and Red fescue *Festuca rubra*. Occasional herbs such as Common Bird's-foot trefoil *Lotus corniculatus.* The rare Slender Hare's-ear *Bupleurum tenuissimum* is found on the sea wall.

Threats

Threatened by further agricultural improvement and flooding.

Shoreline Management Plan

Subject to managed realignment from the present

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall	Negligible	0
Archaeological Association	Red hill salt making site	Low	1
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1
Diversity	Sea walls, borrow dyke and decoy pond, sluice	Low	1
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water	High	2
Biodiversity	Undesignated and heavily improved	Low	0
Amenity	Public access along the sea wall	Low	1
Overall significance			**6**

53.3 Walton-le-soken

Summary

A small area of surviving marshland on the south side of Hamford Water, with sea wall and borrow dyke demarcating its eastern side and a mixture of straightened drainage ditches and sinuous creeks on its other sides. A refuse facility has been constructed in the middle of the marsh, served by a road way. The grassland has been improved.

Historic environment character

This small unimproved area is part of the larger Walton Le Soken grazing marsh. The sea wall is still on the same alignment to that of the 1st edition OS map but reclamation probably wasn't until the early 19th century. A track-way (now under the modern road) is recorded on the 1st edition OS map, as is a sluice in the sea wall. Very few features associated with the grazing marsh are still visible, other than the short stretch of sea wall and borrow dyke, and sinuous drains.

Character of vegetation

Dominated by grasses such as Bent grasses *Agrostis spp.,* Meadow grass *Poa spp.,* Perennial Rye-grass *Lolium perenne* and Red fescue *Festuca rubra*. Occasional herbs such as Common Bird's-foot trefoil *Lotus corniculatus.* The rare Slender Hare's-ear *Bupleurum tenuissimum* is found on the sea wall. Area of scrub towards the sea wall, area bordered by hedgerow.

Threats

Threatened by further development, scrub encroachment, and flooding.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	19th century sea wall	Negligible	0
Archaeological Association	None known	Negligible	0
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1

Diversity	Sea walls and borrow dyke, sluice	Low	0
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water	High	2
Biodiversity	Undesignated and heavily improved	Low	0
Amenity	Public access via access to waste facility	Low	1
Overall significance			**4**

53.4 Walton-le-soken

Summary

A small rectangle of surviving marshland on the south side of Hamford Water, with sea wall and borrow dyke demarcating its eastern side and straightened drainage ditches on its other sides. Flora includes Hog's Fennel *Peucedanum officinale,* a very rare plant restricted to the local area.

Historic environment character

This small unimproved area is part of the larger Walton Le Soken grazing marsh. The sea wall is still on the same alignment to that of the 1st edition OS map. Very few features associated with the grazing marsh are still visible, other than the sea wall and borrow dyke. A sluice is recorded on the 1st edition OS map.

Character of vegetation

Dominated by Bent grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Meadow grass *Poa spp.* and Red fescue *Festuca rubra.* Very rare Hog's fennel *Peucedanum officinale* (found only in the local area and in Kent) on far side bank of eastern borrow dyke.

Threats

Threatened by further agricultural improvement and flooding.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	Sea wall	Negligible	0
Archaeological Association	None known	Negligible	0
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1
Diversity	Sea walls and borrow dyke	Low	0
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water	High	2
Biodiversity	Undesignated and heavily improved, but nationally rare species in one very small area on far side of eastern borrowdyke.	Medium	1
Amenity	No public access but visible from sea wall	Low	1
Overall significance			**5**

53.5 Walton-le-soken

Summary

A small triangle of surviving marshland on the south side of Hamford Water, with sea wall and borrow dyke demarcating its northern side and straightened drainage ditches on its two other sides. There is a single house site, formerly Bats Hall. Flora includes Hog's Fennel *Peucedanum officinale,* a very rare plant restricted to the local area.

Historic environment character

This small unimproved area is part of the larger Walton Le Soken grazing marsh. The sea wall is still on the same alignment to that of the 1st edition OS map. Very few features associated with the grazing marsh are still visible, though a former house is recorded in the area (Bat Hall) on the 1st edition map, and a former field boundary is visible.

Character of vegetation

Dominated by Bent grasses *Agrostis spp.,* Perennial Rye-grass *Lolium perenne,* Meadow grass *Poa spp.* and Red fescue *Festuca rubra.* Very rare Hog's fennel *Peucedanum officinale* (found only in the local area and in Kent) on far side bank of north-eastern borrow dyke.

Threats

Threatened by further agricultural improvement and flooding.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	Post medieval farmstead site of Bats Hall	Low	1
Archaeological	None known	Negligible	0

Association			
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water	Moderate	1
Diversity	Sea walls and borrow dyke	Low	0
Historical Association	Hamford Water associated with Arthur Ransome/Secret Water	High	2
Biodiversity	Undesignated and heavily improved, but nationally rare species in one very small area on far side of north-eastern borrowdyke.	Medium	1
Amenity	No public access but visible from sea wall	Low	1
Overall significance			**6**

3.1.41 MARSH 55

55.1 Horsey Island

Summary

A marshland island in the centre of Hamford Water that A range of heritage assets is known from the marsh, including red hills, decoy ponds, stetch cultivation earthworks, counter wall, sea walls and borrow dykes, as well as creeks and straight drainage ditches. There is a single farmstead. The island is connected to the mainland via a causeway. Flora on the island includes Hog's Fennel *Peucedanum officinale,* a very rare plant restricted to the local area.

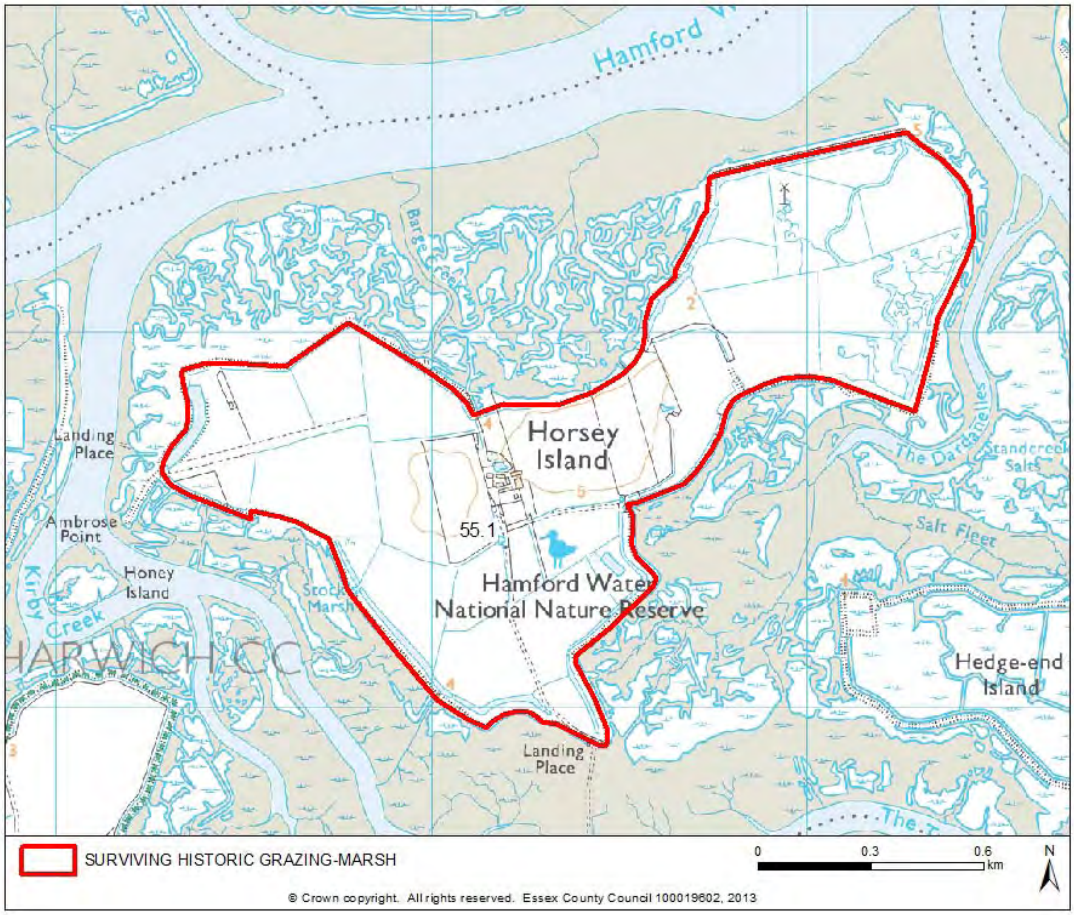

Fig. 65 Marsh 55 – Horsey Island

Historic environment character

The natural salt marsh island may have begun to be enclosed within seawalls during the late medieval period. Enclosure had certainly begun by the mid-17th century and was undertaken in more than one stage. A counter wall may indicate that the north-east of the island was reclaimed at a different time to the remainder. The fleets and other natural depressions that survive in some areas of grassland, particularly on the east side of the island, are evidence of former creeks and saltmarsh before the seawall was built. Historically the marsh would have provided grazing for cattle and sheep, although parts of the marsh have also been used in the past for crop production as evidenced in places by surviving ridges and furrows of 'stetch' cultivation earthworks. The sea walls are the dominant historic landscape feature on the island, and will retain evidence for date and construction. The reclaimed island has been reduced slightly in from its greatest extent, with an area on the northern point of the island being reclaimed by the sea. The line of the former sea wall is still

visible – marked by sunken barges. The well preserved earthworks of a decoy on the east side of the island are also a significant feature. A second decoy pond on the island retains water but has been subjected to re-excavation in recent decades. Field boundaries in the zone are mainly straight drainage ditches and dykes, but some follow the sinuous course of former creeks. There are some hedgerows bordering the fields closest to the farmstead. There has been little boundary loss, although wetland scrapes and reservoirs have been created for nature conservation. Evidence for at least one red hill has been noted in the southern end of the island indicating its significance for the production of sea salt during the late Iron Age and Roman periods. The single farmstead on the island dates from at least the late 18th century and may retain archaeological remains from earlier phases of occupation. In limited locations modern excavations for wetland improvements are likely to have had a negative impact on archaeological deposits, although elsewhere, archaeological deposits will probably be well preserved, with good survival of organic artefacts and environmental deposits.

Horsey Island has been identified as 'Swallow Island' in the novel *Secret Water's* (1939), Arthur Ransome's sequel to *We didn't mean to go to Sea*, and the 8th book in his internationally famous Swallows and Amazons series.

Character of vegetation

Semi-improved grassland, managed for wildfowl pasture. Grassland dominated by Bent grasses *Agrostis spp.,* Perennial rye-grass *Lolium perenne* and Red Fescue *Festuca rubra.* Hog's Fennel *Peucedanum officinale,* a very rare plant restricted to the local area and parts of Kent, is frequent. Thrift *Armeria maritima,* Common Sea Lavender *Limonium vulgare* and rare Rock Sea Lavender *L. binervosum* and Lax-flowered sea-lavender *L. humile* along the sea wall.

Threats

Threatened by agricultural improvement, drying out and any further habitat creation e.g. wetland scrapes.

Shoreline Management Plan

Hold the line to 2055 and then eastern end subject to Managed Realignment from 2055

Significance

Values	Description	Rank	Score
Archaeological Potential	A wide range of heritage assets recorded and there are likely to be other unrecorded features.	High	3
Archaeological Association	Red hill(s)	Medium	2
Group Value (Association)	Association with adjoining marshland areas and islands in and around Hamford Water; quay on outside of sea wall on western side shown on 1st edition OS map	Moderate	1
Diversity	Sea walls and borrow dyke, creeks, decoy ponds,	High	4
Historical Association	Association with author Arthur Ransome	Very High	3
Biodiversity	Internationally designated SPA & Ramsar site.	Very High	3
Amenity	No public access but visible from sea	Low	0
Overall significance			**16**

3.1.42 MARSH 57

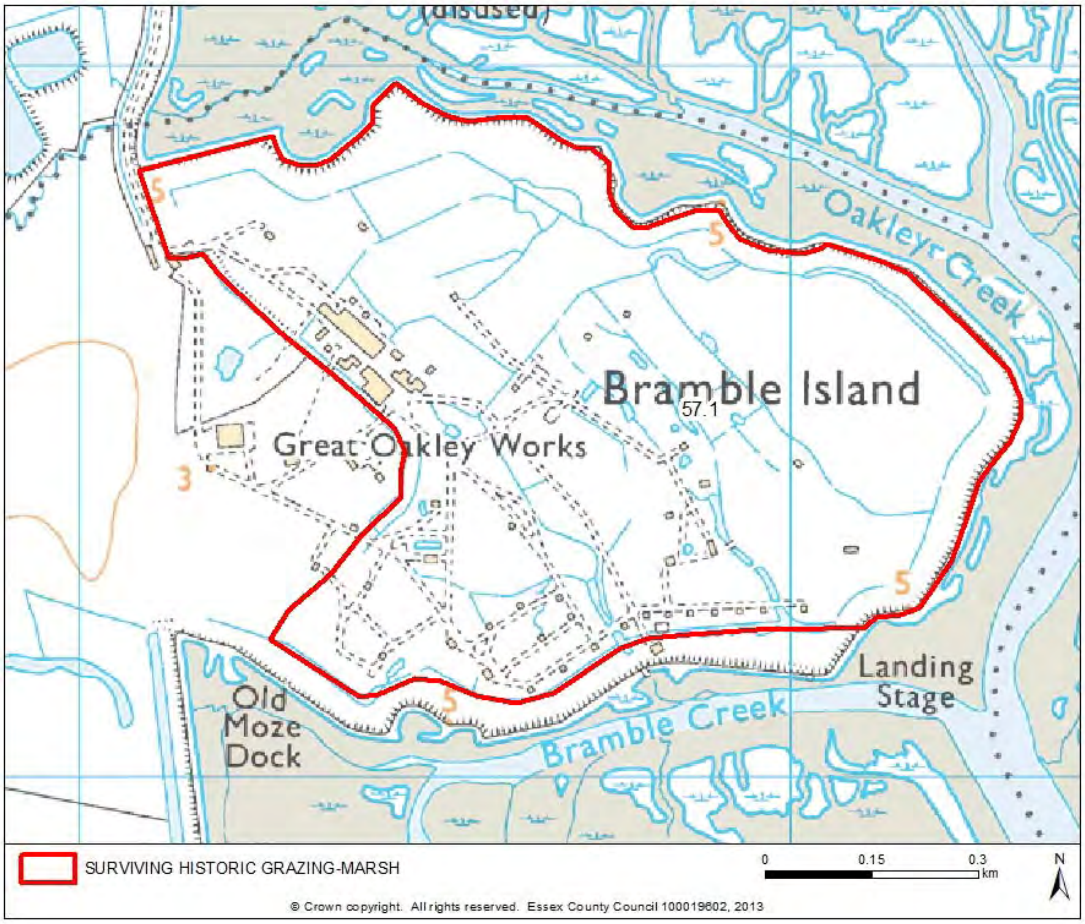

Fig. 66 Marsh 57 – Bramble Island

57.1 Bramble Island

Summary

A marshland peninsular on the west side of Hamford Water that was reclaimed in the 19th century and used as a site for an explosives factory, which continues in use today. Buildings, tracks and blast mounds from the early explosives factory survive. Vegetation is a mixture of grassland, scrub, woodland and reedbed, including the rate Hog's Fennel *Peucedanum* which is restricted to the local area.

Historic environment character

A marshland peninsular located on the west side of Hamford Water and surrounded by tidal creeks. The marsh was reclaimed by 1870. Despite early

inundations, Bramble Island remained embanked and had an explosives factory constructed on it, the buildings, track-ways and earthworks of which dominate the marshland. Some of the tracks and structures are still in use, while others have become over grown. Many of the borrow dykes are still visible; these vary considerably in width. On the south side of the island they are up to 10m across while on the north side they are only 2m wide. Few creeks still exist and there is little evidence for relict salt marsh surface, though the vegetation shows the course of former creeks in a few places. The earliest activity recorded in the zone dates from the Roman period and a find of abraded Roman pottery.

Character of vegetation

Mix of grassland, woodland, scrub and reedbed. Grassland dominated by Bent grasses *Agrostis spp.* Red Fescue *Festuca rubra,* Perennial rye-grass *Lolium perenne* with large stands of very rare Hog's fennel *Peucedanum officinale* which is restricted to this local area and Kent. Extensive dense stands of Common reed *Phragmites australis* and Sea club-rush *Scirpus maritimus.* Rare Slender Hare's-ear *Bupleurum tenuissimum* found on and along the sea wall, with rare Shrubby sea-blite *Suaeda vera,* Golden samphire *Inula crithmoides* and Sea Wormwood *Artemisia maritima* along base of sea wall.

Threats

Threatened by agricultural improvement, drying out and scrub and woodland encroachment.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	A wide range of heritage assets recorded and there are likely to be other unrecorded	High	3

	features.		
Archaeological Association	Roman finds; explosive factory with buildings, track-ways and blast mounds.	Medium	2
Group Value (Association)	Association with two adjacent decoy ponds on mainland; adjacent marshland islands in Hamford Water; adjoining sea walls; Old Moze dock	Moderate	1
Diversity	Sea walls and borrow dyke	Low	0
Historical Association	Island reclaimed under ownership of Guy's Hospital, London	Medium	1
Biodiversity	Internationally designated SPA & Ramsar site.	Very High	3
Amenity	No public access but visible from sea	Low	0
Overall significance			**10**

3.1.43 MARSH 59

59.1 Little Oakley

Summary

A narrow strip of curving marshland on the west side of Hamford Water that probably represents an infilled creek or fleet. The marsh has remnant sea walls and borrow dyke and its western end but no other visible features. The grassland has been improved.

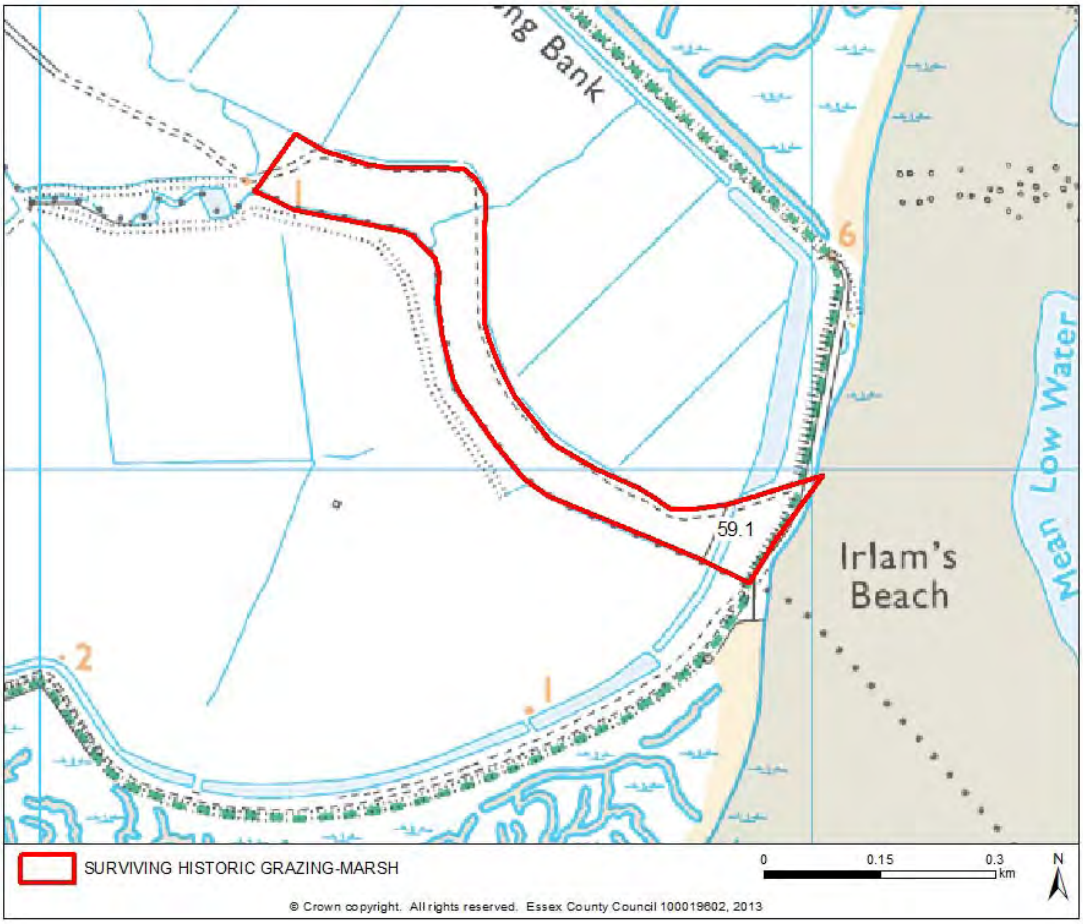

Fig. 67 Marsh 59 – Little Oakley

Historic environment character

A small area of marshland on the west side of Hamford Water adjacent to Pennyhole Bay, that is probably an infilled creek or fleet. The marshland was reclaimed by the time of the Chapman and Andre map, 1777. Earthworks of sea walls and borrow dyke survive at the western end. During WWII a minefield was laid across the area and bomb craters have been recorded. The adjacent fields contain numerous red hill salt making sites.

Character of vegetation

Improved grassland of little botanical interest. Dominated by Bent grasses *Agrostis spp.* Perennial rye-grass *Lolium perenne* and Meadow grass *Poa spp.*

Threats

Threatened by agricultural improvement and flooding.

Shoreline Management Plan

Managed Realignment proposed for between now and 2025.

Significance

Values	Description	Rank	Score
Archaeological Potential	A wide range of red hills recorded in vicinity	Moderate	2
Archaeological Association	Red hill, WWII minefield and bomb craters	Medium	2
Group Value (Association)	Association with adjacent arable fields	Low	0
Diversity	Sea walls and borrow dyke	Low	0
Historical Association	WWII anti invasion measures	High	3
Biodiversity	Imroved and undesignated	Low	0
Amenity	Public access along sea wall	Low	1
Overall significance			**7**

3.1.44 MARSH 60

60.1 Ramsey Ray

Summary

A small area of surviving grassland bordered by Ramsey Creek to the north, and the A120 to the south. There is no evidence for characteristic features or other heritage assets. The grassland is improved.

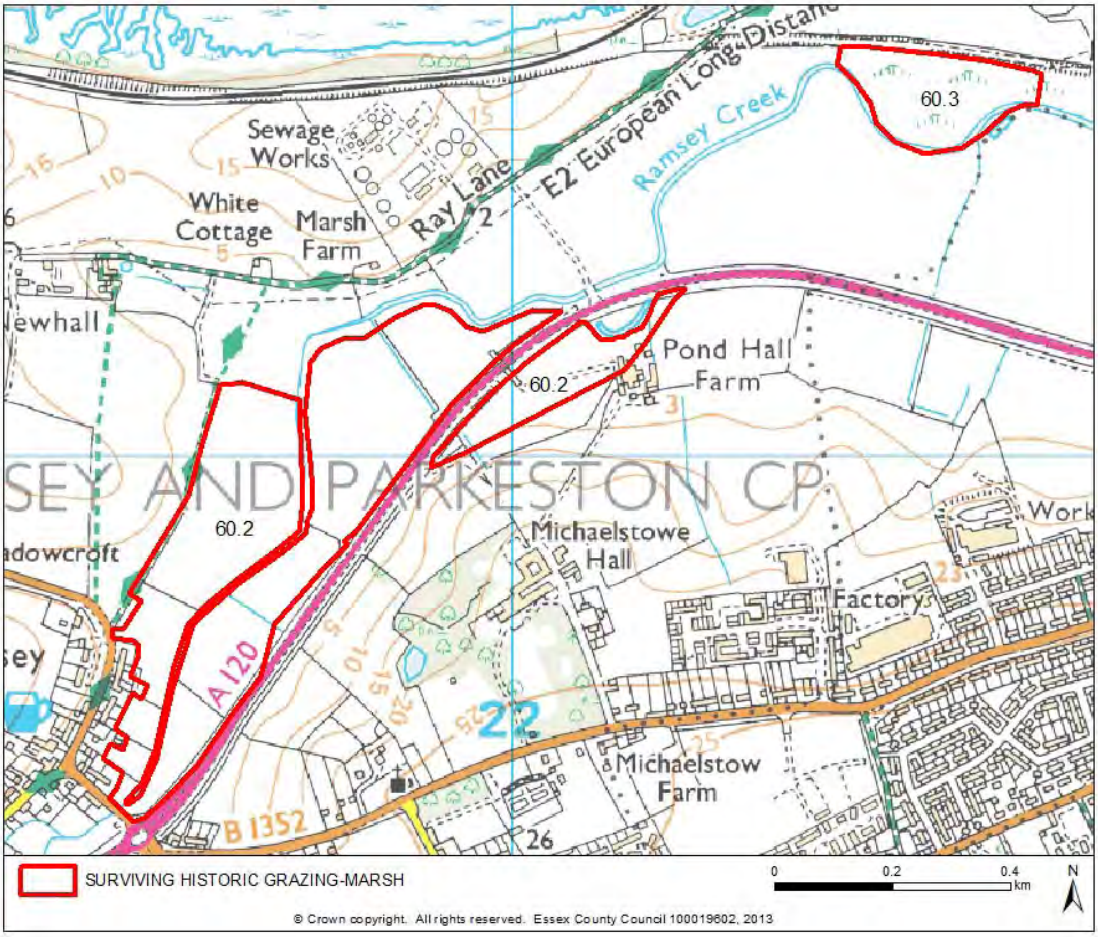

Fig. 68 Marsh 60 – Ramsey Ray

Historic environment character

A small area of Ramsey Ray grazing marsh survives within the flood plain of the Ramsey Brook. The marsh was reclaimed by the time of the Chapman and Andre map of 1777 The area is divided into paddocks. Drainage ditches form regular field boundaries and the area is divided by the course of the Ramsey Creek. There are no visible features of interest.

Character of vegetation

Grassland, consisting of a mix of Red Fescue *Festuca rubra,* Crested dog's-tail *Cynosurus cristatus,* Creeping Bent *Agrostis stolonifera* and Meadow foxtail *Aloepecurus pratensis.* Fields bordered by hedgerow.

Threats

Further agricultural improvement.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	Potential for palaeoenvironmental evidence	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Association with adjacent agricultural fields	Low	0
Diversity	No characteristic features other than Ramsey Creek	Low	0
Historical Association	None known	Low	0
Biodiversity	Improved and undesignated	Low	0
Amenity	Public access on the sea wall along a long distance footpath	Medium	2
Overall significance			**3**

60.2 Ramsey Ray

Summary

A small area of surviving grassland bordered by Ramsey Creek to the south, and a railway line to the north. There is no evidence for characteristic features or other heritage assets. Grassland is species-rich.

Historic environment character

A small area of Ramsey Ray grazing marsh survives within the flood plain of the Ramsey Brook. The marsh was reclaimed by the time of the Chapman and Andre map of 1777 There are no visible features of interest.

Character of vegetation

Diverse grassland, with Red Fescue *Festuca rubra,* Crested dog's-tail *Cynosurus cristatus,* Common knapweed *Centaurea nigra,* Spotted Medick *Medicago arabica,* Agrimony *Agrimonia eupatoria* and Flote-grass *Glyceria fluitans.* Rushes *Juncus spp.* and Sedges *Carex spp.* along the creek. Scattered hawthorn *Crataegus monogyna* and Oak *Quercus spp.*

Threats

Further scrub encroachment.

Shoreline Management Plan

No active intervention to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	Potential for palaeoenvironmental evidence	Low	1
Archaeological	None known	Negligible	0

Association			
Group Value (Association)	Association with adjacent agricultural fields	Low	0
Diversity	No characteristic features other than Ramsey Creek	Low	0
Historical Association	None known	Low	0
Biodiversity	Locally designated and species-rich	Medium	2
Amenity	Public access on the sea wall along a long distance footpath	Medium	2
Overall significance			**3**

3.1.45 MARSH 61

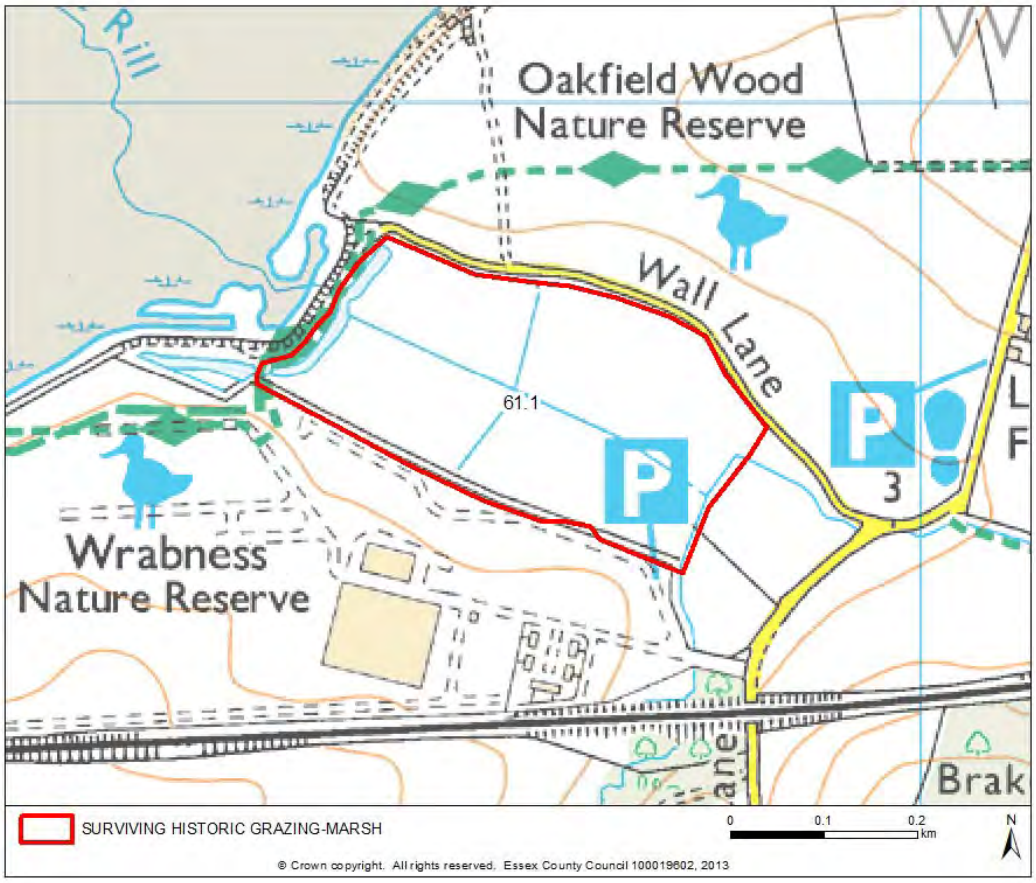

Fig. 69 Marsh 61 – Wrabness

61.1 Wrabness

Summary

A small area of improved grazing marsh along the south shore of the Stour Estuary. The estuary side is demarcated by a sea wall and borrow dyke. Internally there are straight linear drainage ditches. The grassland is improved but species-rich.

Historic environment character

The marsh was reclaimed by the time of the Chapman and Andre map of 1777. The area is grassland, divided by straight water-filled drainage ditches. It is one of very few surviving wet grazing marshes in the Stour estuary. Waterlogged wood has been recorded from the upcast from one of the marshes ditches, and a flint scatter was found in the near vicinity.

Character of vegetation

Improved species-rich grassland, Common Bird's-foot-trefoil *Lotus corniculatus,* Black knapweed *Centaurea nigra,* Common Centaury *Centaurium erythraea,* Wild Parsnip *Pastinaca sativa,* Weld *Reseda luteola,* Creeping cinquefoil *Potentilla reptans* and nationally rare Dittander *Lepidium latifolium* all frequent.

Threats

Marshland biodiversity is threatened by further agricultural improvement and drying out.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score

Archaeological Potential	Water logged wood has been recorded in ditch up-cast, along with potential flint scatters in the vicinity.	Medium	2
Archaeological Association	Flint scatters	Low	1
Group Value (Association)	Association with adjacent agricultural fields	Low	0
Diversity	Sea wall and borrow dyke	Low	0
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar site.	Biodiversity	3
Amenity	Public access on the sea wall along a long distance footpath	Medium	2
Overall significance			**9**

3.1.46 MARSH 62

62.1 Cattawade

Summary

An area of 'improved' grazing marsh located at the point where the River Stour joins the Stour Estuary on the Suffolk/Essex border. A sea wall and borrow dyke demarcate the sub-rectangular area of marsh, with straight linear drainage ditches characterising the interior. The location of a field barn identified on the 1st edition OS map remains in use. The grazing marsh retains a good diversity of flora.

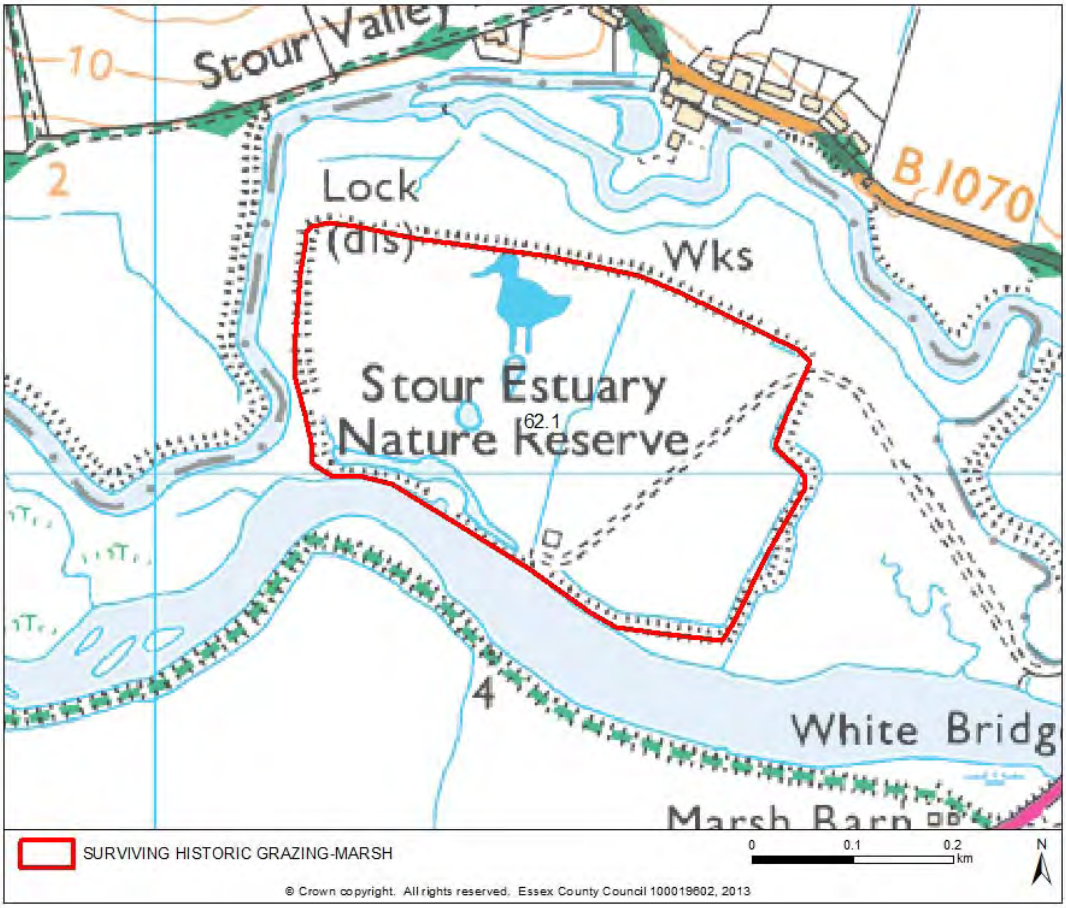

Fig. 70 Marsh 62 – Cattawade marsh

Historic environment character

The marshland was reclaimed by the time of the Chapman and Andre map of 1777. It is surrounded by a sea wall and borrow dyke, which appears to have been breached and repaired in at least two places. Internally the marsh is divided by straight drainage ditches. A modern barn is located on the site of agricultural buildings shown on the 1st edition OS map. A raised track-way leading onto the marsh was reportedly constructed during the 20th century out of building waste. A lock on the former Stour Valley Navigation is located immediately to the north. Monitoring during habitat creation revealed no features of archaeological interest. The marsh is now an RSPB reserve.

Character of vegetation

Good quality grazing marsh dominated by Couch *Elymus spp.,* Perennial rye-grass *Lolium perenne* and Yorkshire fog *Holcus lanatus.* Grass Vetchling

Lathyrus nissolia, Hairy buttercup *Ranunculus sardous,* Marsh foxtail *Alopecurus geniculatus,* Celery-leaved buttercup *Ranunculus sceleratus,* Sea club-rush *Scirpus maritimus* and Spear-leaved oracle *Atriplex prostrate* all also frequent. Sea club-rush and Common reed *Phragmites australis* dominant in ditches.

Threats

The marsh is now an RSPB nature reserve so potential for impacts from habitat creation.

Shoreline Management Plan

Hold the line to 2105.

Significance

Values	Description	Rank	Score
Archaeological Potential	Limited other than the sea wall, although a scheduled prehistoric barrow cemetery is located 200 meters to the south west.	Low	1
Archaeological Association	None known	Negligible	0
Group Value (Association)	Association with other grazing marsh in the vicinity	Medium	1
Diversity	Sea wall and borrow dyke, agricultural building	Low	0
Historical Association	None known	Low	0
Biodiversity	Internationally designated SPA & Ramsar site.	Biodiversity	3

Amenity	Public access to small nature reserve	Medium	2
Overall significance			**7**

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