

# Our Wetland Heritage: An Integrated Approach Towards Managing Coastal Landscapes

Stephen Rippon and Adam Wainwright

## Summary

*This report summarises the first phase of work on the Arts and Humanities Research Council Knowledge Transfer Fellowship scheme grant Our Wetland Heritage: An Integrated Approach Towards Managing Coastal Landscapes (AHRC ID No.: AH/G016895/1). This is a partnership between the University of Exeter, the RSPB and the Historic Environment Service of Essex County Council, in the proposed nature reserves of the South Essex Marshes, on the north banks of the river Thames east of London. The report describes the sources and methods used to understand the development of the historic landscape – the present pattern of fields, roads, flood defences etc – and provides an outline of the major phases of activity. The overall character of the historic landscape across the study area was remarkably uniform and indicative of a landscape that has been used primarily for pastoral use (albeit with some relatively recent ploughing in a few areas): none of the distinctive evidence for intensive farming in the medieval or early modern periods, that is so common on most other British coastal wetlands, was found although the possibility that late medieval flooding has destroyed or buried this evidence cannot be ruled out. A wide range of sources has enabled the pre-reclamation natural drainage pattern to be reconstructed, leading to the conclusion that until the 17<sup>th</sup> century the South Essex Marshes were an archipelago of many small islands. The first phase of embankment evident in the historic landscape appears to have been small, localised reclamations that probably date to the medieval period (perhaps the 12<sup>th</sup> to 14<sup>th</sup> centuries): originally few in number, and with many having been destroyed by later development, the surviving remains of these early embankments are of very great importance. The second phase of embankment can be associated with the well documented Dutch activity, which in addition to Canvey Island appears to have embraced almost all of the South Essex Marshes. Later phases enclosed remaining areas of marsh, some of which could have accumulated after the Dutch walls were constructed, but also relate to areas where flood defences had to be set back due to coastal erosion.*

## 1. INTRODUCTION

The historic landscape – the settlement patterns, communications networks, field systems, woodland, industry and other land-uses that make up our present rural countryside and urban townscapes – is a remarkable record of past human achievement. As early as the 1950s scholars such as Hoskins (e.g. 1955) recognised that the modern landscape comprises a physical archive of its own history, although it was only from the 1990s that the term ‘historic landscape’ came into widespread use as a way of informing planners and countryside managers of the time-depth present within our modern urban and rural environment.

This report describes the results of research into the historic landscape of a large area of Thameside marshland in southern Essex, parts of which lie within the Royal Society for the Protection of Birds’ (RSPB) South Essex Marshes Nature Reserve (Figure 1). Areas currently managed by the RSPB, or that have been identified as being brought into the reserve at a future date, all lie in the northern part of a study area that extends as far south as the Thames estuary and embraces areas now covered by industrial development at Shellhaven and on Canvey Island, and waste tipping in the south of Bowers Marsh. A preliminary extensive

assessment, which included some consideration of below ground archaeological remains of these current/proposed nature reserves has already been completed (Medlycott and Gascoyne 2006) and this report is designed to complement that earlier work, looking at the development of the historic landscape across the entire marshland landscape in order to place the RSPB reserves in their wider context. The starting point for this study is the Ordnance Survey First Edition Six Inch maps surveyed in the 1860s which record the landscape in considerable detail after its reclamation was completed and before large areas were transformed into urban and industrial landscapes or buried through waste disposal. It is important to include these areas now destroyed by industrial development and tipping as the history of the surviving rural landscape to the north can only be understood when features such as the networks of pre-reclamation tidal creeks, and the systems of flood defences that are so closely linked to them, are seen in their entirety.

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## **2. SUMMARY**

The South Essex Marshes are an extensive area of wetland that have mostly been embanked. The geology is derived from estuarine alluvium laid down under marine and estuarine conditions during the post glacial rise in sea level (Lake *et al.* 1986). This alluvium gives rise to soils of the Wallasea 1 series (deep stoneless clayey soils: Mackney *et al.* 1983) that the Ministry of Agriculture Fisheries and Food's (1979) system of Agricultural Land Classification describe as Grade 3 (having moderate limitations for agriculture). In the Soil Survey of England and Wales's scheme of Land Use Capability, these soils are classed as Grade 3w: 'clayey and silty soils on marine alluvium ... with ground water controlled by field and arterial drainage. Wetness due to slow permeability causes cultivation difficulties and restricts utilization of early grass' (Mackney 1979).

Archaeological investigations, that were not part of this project, have revealed how in the Roman period this landscape consisted of a vast area of saltmarsh that was grazed by livestock and used to produce salt by heating sea water (Biddulph 2010). By the time of the Domesday Book in 1086 the marshes were still grazed by animals that belonged to communities living both close to the wetland edge and further afield, and when parish boundaries came to be established around the 10<sup>th</sup> to 12<sup>th</sup> centuries each parish whose occupants held grazing rights on the marshes had a detached area of their parish there to reflect these rights (e.g. places as far afield as Prittlewell and Southchurch held lands on Canvey Island).

A reconstruction of the natural pattern of creeks and estuaries that drained the South Essex Marshes before they were reclaimed reveals that the area consisted of a large number of small islands, and that it was only when Dutch engineers started to drain the area in the early 17<sup>th</sup> century that a single Canvey Island was created. These medieval marshes were mostly used for grazing sheep and the large number of 'wick' place-names that were once found on the marshes reflect small, probably seasonal settlements that were used by the shepherds as dairies. Some of these were on raised areas that may represent former Romano-British salt production sites. There is also some documentary evidence for medieval embankment and arable cultivation on Canvey, and although no physical evidence for this survives today there are possible examples of medieval reclamation on the marshes to the west of East Haven and Hole Haven Creeks (e.g. around Great Mussels on Bowers marsh, and Oozedam in Corringham).

The main phase of embankment was in the early 17<sup>th</sup> century when local landowners employed Dutch engineers and workmen who received a third of the land in return for carrying out the work. Local communities are still aware of this Dutch presence due to the survival of two distinctive cottages and the naming of a local school. In contrast to the medieval embankments, which appear to have enclosed small areas of marsh between tidal creeks, the Dutch sea walls were on a far larger scale and cut across a series of creeks to completely transform the landscape. The embanked land was at first divided into large fields whose meandering boundaries reflect the course taken by former saltmarsh creeks. Many of the former dairies became farmsteads, preserving the traditional ‘wick’ place-names. The lack of ploughing in many areas means that the surfaces of these embanked marshes often retain the earthworks of intricate patterns of saltmarsh creeks, which along with the small-scale embankments and distinctive pattern of irregularly-shaped fields means that the South Essex marshes represent exceptionally well-preserved grazing marshes.

Later changes to the landscape include the sub-division of these early fields with distinctive long, straight boundaries, the embankment of saltmarshes that built up seaward of the Dutch sea walls alongside sheltered creeks and estuaries, and the managed retreat of sea walls facing the Thames in the face of coastal erosion.

### 3. METHODOLOGY

The historic landscape analysis that forms the basis of this report had at its core a series of layers of cartographic data arranged within an Adobe Creative Suite Illustrator (AI) file. These layers were arranged in three groups:

- Base layers: digital or scanned primary data that covers the entire study area
- Transcribed historic landscape data from primary sources (ie information such as the line of sea walls depicted on a base layer and re-drawn)
- Interpretations: reconstructions of certain landscape elements based upon the combination of different data

#### 3.1 Base layers

**3.1.1. Modern Ordnance Survey 1:25,000 mapping** (Figure 2) of the area (sourced from Edina Digimap) which includes the national grid, a modern definition of the coastline (Mean High Water Spring Tide), contours (the lowest of which is 5 m and so fairly close to the wetland edge), and features of the cultural landscape (settlement, communications, field systems, sea walls, industrial developments etc). This modern mapping was used to re-scale and position all other layers of data.

**3.1.2. Ordnance Survey First Edition Six Inch maps** (surveyed 1860-69) (sourced from Digimap) (Figure 3).

These show an older definition of the coastline (High Water Mark of Ordinary Tides), contours at 50 foot [15.24m] intervals (of no value in defining the wetland edge), features of the cultural landscape (settlement, communications, field systems, sea walls, industrial developments, place-names etc), and a small number of ‘fleets’ (areas of open water in former tidal creeks). These maps also show the ecclesiastical parish boundaries that on Canvey Island were replaced in 1880 by the modern civil parishes. It was from these maps that the ‘coastline’ used in this study was derived.

The pattern of parish boundaries in the study area – with inland and fen-edge parishes having detached parcels of land out on the South Essex Marshes – is a particularly distinctive aspect of this landscape, and an

important strand of evidence in understanding its history (Figure 4). In order to confirm that parish boundaries shown on the Ordnance Survey First Edition Six Inch maps correspond to the ancient ecclesiastical parishes these were checked against Kain and Oliver's (2001) electronic transcription of the parish boundaries shown on parish Tithe maps of c.1840. A number of discrepancies were identified which led to the original Tithe Maps being consulted in the Essex Records Office, and in all cases the Ordnance Survey First Edition Six Inch maps were found to be correct (.

**3.1.3. Current British Geological Survey mapping** at a scale of 1:50,000 (sourced from Digimap) was used to map the wetland edge. This relatively small scale mapping had to be enlarged and when superimposed on the Ordnance Survey First Edition Six Inch maps it was found that the fen-edge was usually marked by a field boundary.

**3.1.4. LiDAR<sup>1</sup> data** (supplied to the RSPB). This helped confirm the position of the fen-edge, as well as identify a series of earthworks, most notably former saltmarsh creeks (palaeochannels) and flood defences.

**3.1.5. The extent of the current and proposed RSPB reserves** (data supplied by the RSPB).

## 3.2 Other primary sources

A series of sources were used to identify different historic landscape components, most notably a range of historic maps, but also earthworks depicted on aerial photographs and the LiDAR data, and documentary sources brought together in the English Place-Names Society study of Essex Place-Names (Reaney 1935). These individual sources were used to create a series of grouped layers in the Adobe Illustrator file that relate to particular components of the landscape (listed in section 3.2.6).

### 3.2.1. Historical cartographic sources

1. *Ordnance Survey First Edition Six Inch maps* (surveyed 1860-69) (Figure 3) from which the following data were transcribed as separate layers in the Adobe Illustrator file:

- coast (High Water Mark of Ordinary Tides)
- fleets (open bodies of water lying in the channels of former tidal creeks in areas that have now been embanked)
- sea walls (both current and no longer in use)
- field boundaries, divided into two types: those of irregular form largely derived from former tidal saltmarsh creeks (which generally define relatively large fields), and long straight boundaries representing the later sub-division of these larger fields.
- parish boundaries

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<sup>1</sup> LiDAR stands for 'Light Detection and Ranging' and is a form of aerial reconnaissance that accurately maps topography. On flat landscapes such as reclaimed wetlands it has sufficient resolution to detect subtle but significant natural and man-made features.

2. *Tithe maps*, drawn up c.1840, cover all of the parishes within the study area. With such a short space of time between their creation and the OS First Edition Six Inch maps (1860s) there are not surprisingly very few differences in the physical character of the landscape. One significant piece of information was that on the south coast of Canvey Island (in the detached parcel of South Benfleet) the line of a portion of sea wall marked on the Ordnance Survey Surveyors Drawing of 1798-9 (see below) had been replaced by a new wall further inland by the time of the Tithe map. The Tithe maps also contain additional information in that for each parcel of land the land owner, land occupier, field-name, and land-use is recorded. The field-names were on the whole not particularly informative (being of the ‘Ten Acres’ or ‘Great Marsh’ type), although a small number of additional ‘Wicks’ were identified. These maps were also useful in confirming that the parish boundaries depicted on the OS First Edition Six Inch maps correspond to those of the ancient ecclesiastical parishes (something that is not always the case).

3. *Ordnance Survey Surveyors Drawings of 1798-9* (Figure 5) drawn at a scale of three inches to the mile and used to produce the First Series One Inch maps of Essex in 1805, are far less accurate than the First Edition Six Inch maps of the 1860s but do show settlements, roads, sea walls, and field boundaries in a somewhat sketchy way. Particularly valuable was their mapping of fleets along with a small number of sea walls that are not depicted on the OS First Edition Six Inch maps.

4. When mapping the sea walls on Canvey Island, a potentially useful source appeared to be the *Commissioners of Sewers map* of land ‘within-the-walls’ dated 1793 [ERO D/SZ 17; Figure 7]. In practice, while this corroborates the OS Surveyors Drawings of 1798-9 in terms of the location of fleets, it does not appear to be accurate in all cases with regards to where the currently functioning sea wall lay: what they were actually mapping may be the area over which the Commissioners of Sewers had responsibility for the drainage and flood defence system which excluded some recent reclamations. For example, on the northern perimeter of present-day Canvey Island, the 1793 map shows a short spur of wall at the head of Tewkes Gut which coincides with a stretch of wall that appears on later maps running east in the direction of the area known as Sunken Marsh.

5. *Chapman and Andre’s map of Essex, published in 1777* (Figure 6), is the earliest to cover the whole study area. This shows a somewhat sketchy representation of major settlements, roads, and sea walls (mostly the then active structures, but also a small number of relict features).

6. *Maps of individual estates* survive for a small number of areas from the 16<sup>th</sup> to 19<sup>th</sup> centuries<sup>2</sup> (Figure 7) In a number of cases these provide valuable evidence for the date after which a sea wall was constructed (i.e. where

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<sup>2</sup> East Tilbury, Manor of South Hall, 1735: ERO T/M 528/2

Mucking, Gobions Farm, 1738: ERO D/DB P44

Stanford-le-Hope, area south-east of Great Garlands, 1617: ERO D/DU 112/1

Stanford-le-Hope, area south-east of Great Garlands, 1645-1705: ERO D/DU 112/2

Corringham parish, 1818: ERO D/P 402/28/1

Corringham and Fobbing, Oozedam Farm; marshland in Fobbing, 1822: ERO D/DWt P2

Fobbing, Great Ilford, 1790-1810: ERO D/DCx P2

South Benfleet and Canvey Island, Kersey Marsh Farm; Pantiles Farm, 1722: ERO D/DGs/P7

Vange, Vange Wharfe (appended to map of Mountnessing), 1681: ERO D/DQt 159

Pitsea, Pitsea Hall, 1654: ERO D/DU 561/1-3

South Benfleet, Kersey Marsh Farm, 1816: ERO D/DGs/P9

it is not shown), some useful field-names (e.g. Wick Marsh in East Tilbury), and cases where large irregular shaped fields had not yet been sub-divided by long straight boundaries.

7. *Small scale county maps of the 16<sup>th</sup> and 17<sup>th</sup> centuries*<sup>3</sup> are all very sketchy in their portrayal of the coastline, although the research carried out in this project supports their depiction of an archipelago of islands in this area.

### **3.2.2. Sources used in the mapping of earthworks**

#### *1. Aerial photographs*

An assessment of the aerial photographs held in the National Monuments Record Centre in Swindon revealed a number of RAF flights from the 1940s and 50s<sup>4</sup> whose photographs were particularly useful in showing three types of earthworks: sea walls (particularly those which had gone out of use), palaeochannels (former saltmarsh creeks), and evidence of ploughing (markedly straight, low ridges around 15m wide, usually associated with straightened field boundaries, that has previously been called ‘stetch’, the term used elsewhere in East Anglia for the local variant of ‘ridge and furrow’: Medlycott and Gascoyne 2006; Martin and Satchell 2008). In general aerial photographs provided corroborative evidence of data derived from early cartography and LiDAR, although in certain areas these images showed finer detail of palaeochannels and plough ridges than the LiDAR images, and in others showed earthworks that have since been obliterated by landfill or industrial installations.

#### *2. LiDAR*

Modern LiDAR data was available for most of the study area and was invaluable in mapping sea walls, palaeochannels, and the extent of plough ridges. A few major channels could be traced even in areas now covered in urban and industrial development.

### **3.2.3. Place-names**

A distinctive feature of the Essex Marshes is its suite of distinctive place-names, notably ‘-wick’, ‘-cote’, and ‘-ward’ that all relate to resource management in a wetland environment. The derivation of most settlement names in our study area, and the date when they are first recorded, is given in the English Place-Names Society volume *The Place-Names of Essex* (Reaney 1935).

*Wick*: Although only a small number of ‘wick’ names survive in use today – such as Northwick and Monkswick on Canvey – many more settlements were called ‘wick’ before they were demolished in the 20<sup>th</sup> century (e.g. Nazewick in Fobbing, and Vange Wick) or changed their name in recent years (e.g. Pantile Farm on Canvey that was formerly ‘Longwick’, and ‘Shoremare’, the area around Little Brickhouse, that may have been called Shoreswick: Gardiner 1992, 4). The place-name ‘wick’ can have a variety of meanings, including a dependent farm associated with livestock, but on the Essex marshes it is specifically associated with dairies, cheese-making

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South Benfleet, area of marsh (appended to map of Woodham Ferrers), 1622: ERO T/M 189/1

Hadleigh, Sayers Farm, 1709: ERO D/DQs 28

Hadleigh, Mill Marsh and Hadleigh Park Marsh, 1670: ERO T/M 507/2

Southchurch, Kitcotts Marsh, Canvey Island, 1700: ERO D/DU 33/1

Prittlewell, un-named farm, extreme west of Canvey Island, 1771: ERO D/DGe P14

<sup>3</sup> Camden, 1586; Norden, 1594; Speed and Norden, 1610; Ogilby, 1678; Morden and Pask, 1700

<sup>4</sup> The principal flights used in this research ran east-west and were: RAF/CPE/UK/1923 (16/01/1947; south coast of study area); RAF/540/731 (15/05/1952; centre of study area); and RAF/V 58/1683 (14/03/1955; north of study area).

sheds and shepherds huts (Rippon 2000, 204): in 1586, for example, Camden specifically refers to ‘dairy sheddes ... that they call there “wickes”’ on Canvey island (Cracknell 1959, 12-13). These ‘wicks’ often lay on slightly raised areas, including re-using old Romano-British saltern mounds (‘red hills’) some of which were surrounded by ditches and have produced medieval material (e.g. Leigh Beck at the eastern tip of Canvey Island: Rippon 2000, 204-5 and to the west of Thorney Bay: Rodwell 1965).

The earliest reference to a ‘wick’ on Canvey is Westwick in 1263 (Cracknell 1959, 12). Henry Appleton’s purchase of an exemption of his estates from Forest Law in 1563 included Castlewick, Fatherwick, Hopeswick, Monkswick, Northwick, Shoreswick, Southwick, and West Staneswick on Canvey (Priestly and Phillips nd, 22). Other ‘wicks’ on Canvey included ‘Longwick’, the westernmost detached part of North Benfleet later called Pantile Farm (Gardiner 1992, 4), Knightswick and Castlewick (Cracknell 1959, 12). Wicks elsewhere include ‘Clerkynwyke alias Abbots Marsh’ in Hadleigh documented in the mid 16<sup>th</sup> century (CPR Edw IV, vol. IV, 57; ERO T/P 83/2, 441-2; Morant 1763-8, 18; Reaney 1935, 149), ‘Warrewyke’ near Oozedam in Corringham (Morant 1763-8, 18; Reaney 1935, 152), and Nazewick in Fobbing (first documented in 1419: Reaney 1935, 156). By the 16<sup>th</sup> century the names of ‘wicks’ in the sense of dairies may have become synonymous with discrete areas of marshland as in 1557 it is specified that Sir Roger Appleton held ‘a marsh called North-Marsh alias North Wick’ containing 400 acres of arable and pasture, and ‘a marsh called West-Marsh alias West Wick’ containing 300 acres (Morant 1763-8, 266-7). The association between areas of marsh – sometimes called sheepwalks – and ‘wicks’ is most clearly seen on St Paul’s Cathedral’s marshes at Tillingham (on the Dengie peninsula in eastern Essex) in 1222: ‘In the marsh there are four sheepwalks, of which one is called Howich and can carry 180 head of sheep, another is called Middelwich and can carry 130 head, the third is called Doddeswich and can carry 132 head, and the fourth is called Primers and can carry 110 head’ (Grieve 1959, 5).

*Cote*: The place-name element ‘-cote’ has two meanings in these marshland landscapes: as a salt production site and as a dairy/raised refuge area for sheep (Rippon 2000, 205). There are a small number of examples in our study area and as there are no earthworks indicative of medieval salt production<sup>5</sup> these are presumably all sheep-cotes. A marsh of 40 acres in South Benfleet called ‘Bartlescote’ was purchased by Westminster Abbey in 1364-5 (CPR 1391-6, 133; Harvey 1977, 420). The foundation grant of Prittlewell Priory during the reign of Henry II (1154-89) included ‘Kytcot Marsh’ on Canvey, which in 1624 was referred to as ‘Kitcot marsh (called Southchurchwicke)’, and can be identified as Kitkatts on the OS First Edition Six Inch map (Morant 1763-9, 297; Reaney 1935, 151). In 1412, the manor of Whitehall in South Benfleet included ‘Poynates’ (Poynett’s, in the south east of the parish near the boundary with Hadleigh) and a marsh called ‘Wodehammescote’ (CCR Hen IV vol. IV, 395).

*Ward*: A particularly important marshland place-name is *werde*, the earliest use of which in Essex is c.1170, which usually took the later form *warde*, *werth*, and finally ‘-worth’ or ‘ward’ (Reaney 1935, 148). The origins of this place-name element are unclear possibly having roots in Old High German *warid/werid* (‘island in a river’), the Dutch *weerd/waard* (island, peninsula of land that has been embanked), and Old English *warod/*

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<sup>5</sup> Domesday does not record any salterns on the South Essex Marshes, although as none are recorded in any of the coastal manors in the southern half of Essex, where there is later evidence for salt production, it appears that the Domesday commissioners failed to record them in this area (Darby 1952, 246-8)

*werod* (coast, bank). The association of this place-name element with embankment is strengthened by the reference to ‘Rogewerd’ (later Rugward) in Stanford le Hope that may include the Old English *rogge*, meaning rye (Reaney 1935, 171). Unlike ‘wick’ names that occur across all the Essex marshes, the distribution of *werde* names is more restricted, occurring in the extensive marshlands of Barstaple, Rochford and Dengie Hundreds (Corringham being the most westerly example revealed through a rapid assessment of easily accessible primary sources: Rippon 2000, fig 70).

*Mead*: Upstream of our study area there was extensive embankment of the Thameside marshes reflected in the references to abundant meadow and ‘mead’ field-names (e.g. grant of 82 acres of land in Hamme to the abbot of Hamme [West Ham] in 1198/99 which included six acres in ‘Wicmede’, 5 acres in ‘Riedmede’, and 4 acres in ‘Fardenesmede’: Kirk 1899-1910, 16). The agreement over the division of a property in Tilbury in 1189/99 included half an acre of meadow ‘next to the wall’, while in 1201/2 there is reference to ten acres of land ‘in the fresh marsh called “the Falge” next to the wall’ (Kirk 1899-1910, 16, 24). The scarcity of these ‘mead’ place-names in our study area is very noticeable – in the c.1840 Tithe Apportionments for marshland areas of Vange, Pitsea, Bowers Gifford, and South Benfleet parishes for example only two ‘mead’ field-names were located, both immediately south-east of Pitsea Hall (and a map of 1654 depicts these as part of a much larger field called ‘the East Marsh’ showing they are of recent origin: ERO D/DU 561/1).

#### **3.2.4. Documentary sources**

It was beyond the scope of this project to make extensive use of documentary evidence, although a number of easily accessible sources were consulted including *The Place-Names of Essex* (Reaney 1935), and the *Feet of Fines for Essex* (Kirk 1899-1910; 1913-28; 1929-49). Important secondary sources include Cracknell’s (1959) *Canvey Island: the History of a Marshland Community* and Grieve’s (1959) *The Great Tide: The Story of the 1953 Flood Disaster in Essex*.

#### **3.2.5. Standing buildings**

Information on standing buildings of architectural importance can be found in The Royal Commission on Historical Monuments (England) Inventory for South East Essex (RCHM(E) 1923, 24) and English Heritage’s listed building records (<http://www.imagesofengland.org.uk>). There are, however, very few historic buildings of interest in the study area, many of the former farmhouses having been demolished (e.g. Great Ilfords: ECC SMR 7147; Nazewick: ECC SMR 8489; Monkswick and Northwick on Canvey: ECC SMR 7153 and 7199; Vange Wick: ECC SMR 7119). In addition to two ‘Dutch Cottages’ on Canvey Island, dated 1618 and 1621, there appears to be one possible standing building dating from the 17<sup>th</sup> century: the Lobster Smack public house whose listing says ‘Probably originally C17 but now mainly C18 and C19’; Cracknell (1959, 17) states that the roof contains a lip tile dated 1510. Tree Farm, at the far western end of Canvey Island is said to have been 17<sup>th</sup> century (RCHM(E) 1923, 24) but has now been demolished.

#### **3.2.6. Transcribed layers of data**

*Sea Walls* (Figure 8)

1. 1860s: based on Ordnance Survey First Edition Six Inch maps – used to develop the typological sequence



2. c.1840: based on Tithe maps
3. 1798-9: based on Ordnance Survey First Edition Surveyors Drawings
4. 1793: based on Commissioners of Sewers map of land 'within-the-walls'
5. 1777: based on Chapman and Andre's map of Essex
5. based on estate maps
6. based on earthworks (showing on aerial photographs and LiDAR)

*Field boundaries* (Figure 9)

1860s: based on Ordnance Survey First Edition Six Inch maps, with separate maps being created showing all field boundaries, and these disaggregated into those with irregular and straight boundaries.

*Palaeochannels* (Figure 10) reconstructed from five sources of data:

1. flets on Ordnance Survey First Edition Six Inch maps of c.1860
2. flets on Ordnance Survey First Edition Surveyors drawings of 1798-9
3. earthworks on aerial photographs and LiDAR
4. field boundary pattern
5. parish boundaries whose meandering lines suggest they followed former creeks)

#### 4. HISTORIC LANDSCAPE CHARACTERISATION

This discussion of the origins and development of the historic landscape of the South Essex Marshes begins with a description of its major characteristics in the 19<sup>th</sup> century. This characterisation will consider each major component of the landscape in turn – notably settlement, field systems, roads, and flood defences – before a discussion of how the landscape was created (see Section 5). Across the whole study area the character of the historic landscape is relatively uniform (Figures 2, 5 and 11) its key character defining features being:

- A distinctive feature of the South Essex Marshes in the 18<sup>th</sup> and 19<sup>th</sup> centuries was its settlement pattern that consisted wholly of individual farmsteads: there were none of the small hamlets and villages found on the adjacent dryland. Estate maps of the 19<sup>th</sup> to 18<sup>th</sup> century, and the Tithe maps of c.1840, show that these farms were associated with compact land-holdings, often defined by former tidal creeks: none of the very fragmented patterns of land-ownership indicative of former common meadows and pasture, which are so characteristic of reclaimed marshland landscapes such as the Somerset Levels (e.g. Rippon 2006, 108-12), were identified. Many of the marshland settlements were surrounded by substantial circular ditches evident on early maps and aerial photographs (e.g. Pantile Farm alias Longwick, Westwick, Northwick and Waterside Farm on Canvey: ERO D/DGs P7 and ERO D/DGe P14; Place 1992, 10). 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 moated enclosures are superimposed on an existing field system. A number of the farms also lay on raised mounds though it is not clear whether these were medieval in date or represent Romano-British 'red hills' (salterns) that were re-used in the medieval period as dairies.
- The field boundary pattern is characterised by two types of boundary: irregular boundaries that appear to preserve the lines of former saltmarsh creeks, and long, dead-straight boundaries that are clearly more recent

(Figure 9). When these dead straight boundaries are removed, the fields on Canvey and the far eastern end of Corringham Marsh are generally larger than those elsewhere. The dating of this sub-division of fields is likely to have varied across the study area, 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). Elsewhere, existing irregular boundaries were re-aligned. 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, demonstrating that here the rearrangement occurred between 1722 and 1816.

- Roads were not a common feature of this landscape in the 19<sup>th</sup> century, which is in sharp contrast to the adjacent dryland areas. It is noticeable how many roads run across the drylands to the fen-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 South 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 at the very edges of these Thameside parishes, meant that through roads avoided the area. It may also reflect the pastoral land-use and pattern of land-ownership (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, dead-straight roads (a single example of such a long, straight road is also found on Corringham Marsh linking the Manor Way at Iron Latch with Oozedam and Oilmill Farms). Most of these roads on Canvey are shown on Chapman and Andre's map of 1777 (Figure 6). These long, straight roads post-date field boundaries with sinuous or meandering lines that clearly follow former saltmarsh creeks, but pre-date the dead straight field boundaries that represent the division of these landscapes into fields. 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. The Dutch reclamations of the early 17<sup>th</sup> century provide the most obvious context for their construction.
- Flood defences consist 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). The current coastline and major tidal creeks are bounded by sea walls, behind which earlier flood defences sometimes survive either 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 shown by elevation differences in the reclaimed land surfaces (visible in the field, or through LIDAR) with the areas that were reclaimed later having a higher ground surface than the earlier reclamations as they continued to be flooded and so receive sediment, after the adjacent embanked areas.

A number of earthen embankments within reclaimed landscapes cut across earlier field boundaries and palaeochannels and would appear to have been constructed as 'counter walls' to control flooding (e.g. on

Fobbing Marsh). Elsewhere, what are called ‘counter walls’ may in fact be former sea walls that no longer function as such as 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).

In places the current sea wall clearly lies inland of its original position as it cuts diagonally across earlier field boundaries. Such early examples of ‘managed realignment’ are particularly common along the southern coast of Canvey Island and around Hole Haven creek where groynes have been constructed in the intertidal zone to try and stop further erosion. Another area of probable early ‘managed retreat’ is an extensive area of saltmarsh north east of Oozedam where both the OS First Edition Six Inch and modern 1:25,000 maps show a highly rectilinear network of saltmarsh creeks that appear to be following former artificial field boundaries. The sea wall here is also dead straight. On Canvey, the sea wall south of Scarhouse is shown in its present position on the South Benfleet and Pitsea tithe maps of *c.*1840 (ERO D/CT 28B; D/CT 274B), which also mark an ‘Old Wall’ further to the south in what is now the Thames Estuary. Both Chapman and Andre (1777) and the Ordnance Survey Surveyor’s Drawing (1798) depict only this ‘old wall’, demonstrating that the retreat took place between 1798 and *c.*1840. A similar situation occurs further to the east on Canvey, where the straight section of wall south of former Wreck Hall is not depicted on the 18<sup>th</sup>-century maps but is shown on the Ordnance Survey First Edition 6 Inch map (*c.*1860). Further upstream, an estate map of East Tilbury dated 1735 shows an area of sea wall retreat and marks it as ‘land lost’ (ERO T/M 528/2). Water entering the reclaimed areas as precipitation or runoff from the adjacent dryland areas collects in the field boundary ditches and is discharged into major channels known as ‘Commissioners Dykes’ which did not belong to the owners of the property through which they ran (Cracknell 1959, 21). These watercourses 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. At a later date these recesses were shortened.

- Open water was found in a number of the reclaimed areas in the palaeochannels of former saltmarsh creeks, known as ‘fleets’.
- Unreclaimed saltmarsh was very limited in extent by the 19<sup>th</sup> century, and was found between the current sea walls and the tidal creeks.
- Relict landscape features - earthworks that relate to past patterns of land-use but which have now gone out of use - survive in various places. Across many of the reclaimed land surfaces there are extensive traces of ridging that may be the remains of former ploughing, or an attempt to improve drainage in areas of pasture analogous to ‘gripes’ found extensively around on the Severn Estuary wetlands (e.g. Rippon 2006, 27). Surviving ridging is readily visible on LiDAR images and it shows 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 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). 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 (ie an early example of ‘managed realignment’).

## 5. DISCUSSION: THE ORIGINS AND DEVELOPEMNT OF THE HISTORIC LANDSCAPE

Key aspects of the landscape history of the South Essex Marshes will now be considered in detail including a reconstruction of the pre-reclamation natural drainage system, the significance of the pattern of parish boundaries, the nature of the medieval landscape and whether there was any embankment at that time, the sequence of post medieval embankments, and the role of the Dutch in creating this landscape.

### 5.1 *Reconstructing the pre-reclamation drainage system*

The natural pattern of intertidal creeks, before the onset of large scale embankment in the early 17<sup>th</sup> century, can be reconstructed through a variety of means. A large number of former creeks (or ‘palaeochannels’) survived as earthworks that are visible on early air photographs from the 1940s, and in areas that have not been subject to urban and industrial development these show up extremely well on the modern LiDAR survey. Some larger former creeks are also shown as ‘fleets’ on the Ordnance Survey Surveyors Drawings of 1798-9 and First Edition Six Inch maps of the 1860s. The sinuous, often meandering line taken by most parish boundaries suggests that they followed what were significant natural watercourses in the pre-reclamation landscape, while the same form taken by most early field boundaries suggests that they followed the earthworks of former, albeit minor, saltmarsh creeks. This evidence reveals a variety of channels ranging from what were once probably major channels permanently filled with water, through to minor creeks on the surface of saltmarshes that may only have flooded during the highest spring tides. This continuum of channel sizes can be divided into three groups:

1. Major Creeks (Figure 12 top). Sinuous in plan but not tightly meandering, that show up on LiDAR and aerial photographs as substantial earthworks. Usually shown as major fleets on the Ordnance Survey Surveyors Drawings and First Edition Six Inch maps. Often used as parish boundaries for all or part of their length. These would appear to have been watercourses as substantial as the still open East Haven Creek (which forms the western side of Canvey Island) and which would have permanently contained water creating a series of substantial islands.
2. Intermediate Creeks (Figure 12 bottom). More tightly meandering features that show up on LiDAR and aerial photographs as moderate-sized earthworks, and which are sometimes shown as fleets on the Ordnance Survey Surveyors Drawings. Often used as parish boundaries for all or part of their length. These would appear to have been significant landscape features that would have been filled with water for much of the time, and divided the marsh into a series of islets.
3. Minor Creeks (Figure 13 top). More tightly meandering features that show up on LiDAR and aerial photographs as relatively minor earthworks, or are preserved as field boundaries. These would appear to have formed part of dendritic systems of channels that drained the surface of saltmarshes following their inundation by the tide.

When the various strands of evidence are brought together and the three categories of former tidal creek reconstructed (Figure 13 bottom), a very clear picture emerges of a landscape that was once an archipelago of small islands, with each area of saltmarsh drained by a hierarchy of creeks forming a dendritic pattern.

## 5.2 *The parish boundaries*

A particularly distinctive feature of the landscape of the South Essex Marshes is the structure of its parish boundaries (Figure 4). A series of parishes centred on the adjacent dryland – Stanford le Hope, Corringham, Fobbing, Vange, Pitsea, Bowers Gifford, South Benfleet, Hadleigh and Leigh-on-Sea – extended onto the Marshes. In each case the parish boundaries extend from the dryland across the adjacent marshes, usually as far as a substantial major tidal creek. The areas of marsh furthest from the fen-edge were, however, divided up between a series of parishes, often located some distance away. Beyond Stanford le Hope Marsh, for example, there is a detached parcel of Mucking parish; beyond Corringham Marsh there are detached parcels of Corringham, Dunton, Fobbing, and Little Warley; while beyond Bowers Marsh there are detached parcels of Corringham, Pitsea and Vange. The northern parts of Canvey Island were in the adjacent dryland parishes of Hadleigh and South Benfleet, while the rest of the island is divided between Bowers Gifford, Laindon, North Benfleet, Pitsea, Prittlewell, South Benfleet, Southchurch, and Vange.<sup>6</sup> The strong correlation between the boundaries of these detached parochial parcels and former creeks suggests that many were once islands (see above).

The origins of this complex pattern appear to lie in the early medieval period, before the reclamation of these marshes, when they were a vast area of common land on which members of nearby communities had the right to graze livestock. This is recorded in the Domesday Book of 1086 by the term ‘pasture for sheep’, which is common in coastal areas of Essex but which is never used in inland parishes except where they held detached parcels in the coastal marshes. Laindon, for example, is an inland parish but in Domesday had pasture for a hundred sheep (Rumble 1983, 3,1). This pattern of inland parishes having ‘pasture for sheep’ presumably located on the Thameside marshes was first studied by Round (1903, 368-74) and is discussed further by Darby (1952, 241-4) and Rippon (2000, 201-7). The 19<sup>th</sup> century pattern of parish boundaries, with its distinctive blocks of detached parochial parcels, reflects the change from when these marshes were vast areas of common land to a landscape held ‘in severalty’ (ie blocks of land belonging to an individual person or a single institution). It is generally thought that parish boundaries in southern England were established between the 10<sup>th</sup> and 12<sup>th</sup> centuries AD (Blair 2005, 368-425), and there is no reason to assume that parochial rights on the Essex marshes were not defined at the same time. An instance of the possible persistence of rights of common on a surviving area of saltmarsh is an area to the east of East Tilbury, which the Ordnance Survey First Edition 6 Inch map (c.1860) marks as ‘Common Saltings’.

In most cases parish boundaries in the marshland areas follow extant or relict creeks, although in a number of places they cut straight across fields (and are marked on the OS First Edition Six Inch maps as ‘Und’: undefined). The way that these parish boundaries cut across fields rather than following nearby field boundaries suggests that they predate the enclosure of this landscape into fields. It would appear that when the parish

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<sup>6</sup> Thundersley did not have a detached parcel on Canvey, though in Domesday it had pasture for 200 sheep. There are occasional later references to a ‘marsh’ there (e.g. in 1258-83, John, son of Robert de Wateley granted a yearly rent of 15s for a marsh in Tunderle to the Abbot and Convent of Westminster: Westminster Domesday, f.605: Bob Delderfield [typescript-notespers.com](http://typescript-notespers.com)).

boundaries were laid out they followed natural creeks wherever possible but otherwise took a straight line from one point to another because there were no other features to follow.

### **5.3 The medieval landscape: sheep pastures (Figure 16)**

The Domesday references to 'pasture for sheep' give us an insight into the nature of the South Essex marshes in the early medieval period, and that different manors had specified different amounts of pasture for sheep is compatible with the marshes still being a vast area of common land. The trend seen nationally for parish boundaries to have been defined during the 10<sup>th</sup> to 12<sup>th</sup> centuries makes it likely, however, that the grazing rights of individual communities had started to be tied down to particular areas by the 12<sup>th</sup> century. That these marshes were highly valued as grazing land can be seen in the way that the great ecclesiastical landlords of St Paul's Cathedral and Westminster Abbey actively sought to acquire land there. Hart (1957, 40), for example, comments that 'One cannot fail to be impressed by the evidence of steady expansion from the early coastal holdings along the low-lying marshy shores of the adjacent river estuaries ... It appears probable that throughout the [7<sup>th</sup> to 11<sup>th</sup> centuries] the economy of the St. Paul's estates was dominated by the sheep-farming industry of the Essex marshlands, for which there was a ready market in London, easily accessible by river and land'. Westminster Abbey was also building up its marshland holdings in Canvey: in 1218/19, for example, they were granted lands in 'Benfleet' including 'a certain marsh' (Kirk 1899-1910, 50). The active pursuit of land on the marshes continued into the late medieval period: in 1350, for example, Westminster Abbey purchased a messuage, 60 acres of land and 100 acres of marsh in South Benfleet (CPR 1354-58, p.5; Kirk 1929-49, 102; Harvey 1977, 418), while in 1354 they acquired a hundred acres of marsh in 'Great Benfleet' [South Benfleet] (CPR Edw. III, 1354-8, 5). In 1364-5 they purchased 40 acres of marsh in South Benfleet called 'Bartlescote' (Harvey 1977, 420), and in 1392, they acquired 40 acres of marsh in 'Great Bemfleet in Caneve Island' (CPR Rich. II 1391-6, 133).

The Cathedral Priory of Christ Church in Canterbury also held a 'sheepwalk' on Canvey through its manor of Milton Hall in Prittlewell (Nichols 1926-8, 26, 39; Nichols 1930, 28; Nichols 1932a, 121 n1, 123, 139). This was a common pasture on which the customary tenants had the right to graze their sheep alongside those of the lords, and in 1299 various repairs were carried out on a sheepcote, and in 1308 a 'new sheepcote' was constructed on the manor. As there appears to have been no major areas of former saltmarsh in Prittlewell, this grazing marsh is likely to have been on Canvey, presumably in one of Prittlewell's three detached parcels there: Kitkatts, Westwick and Northwick, and Leigh Beck. The Milton Hall sheepwalk was not Kitkatts as the foundation grant of Prittlewell Priory during the reign of Henry II (1154-89) included 'Kytcot Marsh' on Canvey, that in 1624 was referred to as 'Kitcot marsh (called Southchurchwicke)', and can be identified as Kitkatts on the OS First Edition Six Inch map (Morant 1763-9, 297; Reaney 1935, 151). In 1327 Milton Hall's 240 acres of 'salt marsh', providing pasture for 120 sheep, were 'lost beyond recovery' by an inundation. The lack of payments relating to drainage or flood defence in the published account roll for 1299 (Nichols 1932a) implies that these sheepwalks were unembanked saltmarshes, although the inundation of 1327 occurred when a sea wall was breached (Nichols 1930, 28), suggesting that there were both embanked and unembanked marshes.

Christ Church Canterbury also held the manor of Southchurch Hall that included marshland both in the parish itself (Southchurch Marsh, that in 1391 supported nine rams and 200 ewes) and on Canvey (that in 1391

supported ten rams and 300 ewes: Brown 2006, 28): the latter was presumably Wreck Hall, the detached parcel of Southchurch between Leigh Beck and Labworth. The emphasis on sheep grazing and other natural resource exploitation is also illustrated in a court case in 1201 in which Thomas de Camville, lord of the manor of Fobbing was in dispute with Robert de Sutton over the marsh of ‘Richeresnes’ (Russellhead) in Canvey island, alleging that during the reign of Henry II his grandfather had taken the profits from ‘cheeses and wool and rushes’ (Baildon 1890, 36; Grieve 1959, 5).

Two descriptions from the late 16<sup>th</sup> century paint a revealing picture of a pastoral landscape devoted to sheep that does not appear to have been embanked. In 1586 Camden said ‘[Canvey is] ... so low that often times it is quite overflowne, save for the hillocks cast up, upon which the sheepe have a place of refuge’: this implies that it was an intertidal marsh, or at least any embankments were not effective. He continues: ‘For it keepeth about foure thousand sheepe, whose flesh is of a most sweet and delicate taste, which I have seene young lads taking women’s function, with stooles fastened to their buttocks to milk, yea and to make cheeses of ewe’s milk in those dairy sheedes [sheds] of theirs that they call there “wickes”’ (quoted in Cracknell 1959, 13). In 1594, Norden wrote a very similar account: ‘Near the thames mouth ... are certain ilandes called Canvey Ilandes, low merishe grounds, and for that the passage ouer the creeks is unfit for cattle, it is onlie conuerted to the feeding of owes [ewes], which men milke and thereof make cheese (suche as it is) and of the curdes of the whey they make butter once in the year which serueth the clothiers’ (quoted in Cracknell 1959, 14). It is interesting that Norden refers to Canvey ‘islands’, and both his map of Essex and those of several other late 16<sup>th</sup>/early 17<sup>th</sup> century topographers do show a small group of islands in this area. The reconstruction of the natural pattern of tidal creeks that once dissected the South Essex Marshes suggests that the landscape did indeed consist of an archipelago of small islands (see above).

It was not just on Canvey Island that monastic houses owned large areas of land. In 1553 Prior’s Marsh and Abbott’s Marsh in Hadleigh were granted to Richard Riche, having formerly belonged to Prittlewell Priory and Stratford Langthorne monastery respectively (CPR Edw IV, vol. IV, 57). In 1577 the manor of Hadleigh included the manor, demesne, the former deer park, Russells Marsh, Clerkenwick alias Abbots Marsh, a water mill, and a fishery in the waters of Hadleigh Ray (ERO T/P 83/2, 441-2). In 1620 an Inquisition refers to ‘Rushe Huelles alias Priors Marsh’ and ‘Clarckenwicke alias Abbots Marsh’, both in Hadleigh and both said to have formerly belonged to Prittlewell Priory [the latter being wrong according to the grant of 1553] (ERO D/DU 514/29/28). The location of Prior’s Marsh and Abbott’s Marsh is unclear. There is a Russel Head Farm on Canvey, but this lies in a detached part of Bowers Gifford, and on the Tite Map (ERO D/CT 154B) the area of Hadleigh on Canvey was referred to as Knightwick. The manor of Whitehall in South Benfleet, that included ‘Poynantes’ (Poynett’s close to the parish boundary with Hadleigh) is said to have included lands and marshes in Hadleigh including ‘the whole marsh called Wodehammescote’ (*CCR Hen. IV*, vol. IV, 395).

#### **5.4 The extent of medieval embankment (Figure 17)**

In addition to accounts such as Camden and Norden (see above), other references make it clear that in the 16<sup>th</sup> century Canvey included vast areas of saltmarsh – in 1563, for example, James Baker is recorded as holding 500 acres of salt marsh in the island (Cracknell 1959, 17). Along with the well-documented embanking of Canvey in the early 17<sup>th</sup> century, there has been a general assumption that the South Essex marshes had been left unreclaimed in the medieval period, although this may not have been the case. When an agreement was made in

1622 between the major landowners on Canvey and the Dutchman responsible for its embankment, reference is made to existing sea walls (see below), although it is not clear whether these sea walls reflect work by the Dutchmen in the preceding few years, or embankments of a far older date. In 1557 it is specified that Sir Roger Appleton held 'a marsh called North-Marsh alias North Wick' containing 400 acres of arable and pasture (Morant 1763-8, 2566-7; Cracknell 1959, 17), although it is not clear whether the term 'arable and pasture' was a generic one used in this type of legal document, or was made with specific knowledge of land-use on Canvey. In 1280 'North Marsh' and 'West Marsh' were held by William de Wodeham along with a marsh for 60 sheep, two marshes with 500 sheep, and a marsh for 500 sheep (Morant 1763-8, 262): there is no reference to arable, but again, we should perhaps not read too much into this.

The earliest indication of medieval embankment on the South Essex Marshes comes with the place-name element *-werde* (-worth) the first record of which is 'Radewrth marsh' near Fearing's Farm in Corringham, first documented in 1199 (Reaney 1935, 151). 'Rogewerd' (later Rugward) in Stanford le Hope lay nearby and may include the Old English *rogge*, rye (Reaney 1935, 171). *Werde* (-worth) is first recorded on Canvey in 1260 ('Lobwerde', later Labworth alias Lubbin's Farm, the detached parcel of North Benfleet in south east Canvey: Reaney 1935, 148). In 1202/3 a 27 acre tenement in 'Benfleet' included a third part of the marsh called Humeleswrth' (Kirk 1899-1910, 30). In 1535 we have reference to 'Lymward' on Canvey Island (Reaney and Fitch 1964, 197). Henry Appleton's purchase of an exemption of his estates from Forest Law in 1563 includes 'Runtisward Marsh' on Canvey (Priestly and Phillips nd, 22).

The clearest medieval evidence for embankment, however, appears in the accounts of the Priory of Christ Church, Canterbury, who held the manors of Milton and Southchurch Hall. In the late 13<sup>th</sup> century there are accounts for 'Repairs on Canvey Island' that included 38s 6d for John ate Wode and his assistant for making 154 perches of marsh wall on Canvey Island, by the marsh measure viz 21 feet to the perch, at 3d a perch'; other costs included making a pond for watering the sheep, and the making of 120 wattles hurdles (Nichols 1932b, 116). In 1436-7<sup>7</sup> 38s 6d was paid to 'John ate Wode and his assistant for making 154 perches of marsh wall on Canvey island', while in 1437-8<sup>8</sup> there is reference to a further 80 perches of wall on Canvey Island being made at a cost of 13s 4d<sup>9</sup>, 7s being paid to labourers to 'mend the gutter near the sea wall of the marsh', and 1s 4d 'for making of 8 rods of ditch in the marsh' (Nichols 1932b; Brown 2006, 143). There is no evidence where on Canvey this reclamation lay, though it may have been in areas that have since been lost to later erosion.

There are also well documented embankments on other Thameside marshes from at least the early 13<sup>th</sup> century when the 'law of the marsh' in Essex embodied the principle that each landowner should contribute to the upkeep of sea defences from which they benefit, in proportion to the land or rights they held in the marsh (Grieve 1959, 8-14). Over the course of the 13<sup>th</sup> century local customs such as these were replaced by a system of supervision by the Crown through the establishment of temporary Commissions *de Walliis aet Fossatis* (of walls and ditches'), the first of which in Essex is dated 1280 covering the marshes of West Ham (CPR Edw. I 1272-81, 380; Grieve 1959, 9). The next commission was in 1287, covering embankments along the Thames, and while the majority of the subsequent commissions covered the upper reaches of the Thames Estuary, towards London, some did cover the 'sea coast of Essex' including Barstaple and Rochford Hundreds in which the South Essex Marshes lie (Grieve 1959, 10). In Essex as a whole there were a large number of Commissions

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<sup>7</sup> Nichols (1932b) gives the date as 1436, but it is in fact 1436-7: Jim Galloway pers. comm.

<sup>8</sup> Nichols (1932b) gives the date as 1437, but it is in fact 1437-8: Jim Galloway pers. comm.

<sup>9</sup> This is not included in Nichol's (1932b) paper, and I am grateful to Jim Galloway for bringing it to my attention.



in the 14<sup>th</sup> century, although very few in the 15<sup>th</sup> century, all of which covered the upper reaches of the Thames. Was there a trend in the late medieval period towards less intensive exploitation of the more coastal Essex marshes, and a failure to maintain any sea defences there had been?

The extent of medieval reclamation on the South Essex Marshes is, therefore, a research question of great importance. In the late 16<sup>th</sup> century it is clear that the marshes were largely unreclaimed and used as sheep pastures, and that the origins of the network of sea walls as they were first mapped by Chapman and Andre in 1777 lies with the Dutch embanking of the early 17<sup>th</sup> century. The character of the landscape on the South Essex Marshes in the medieval period is therefore quite unlike that of coastal wetlands in areas such as Fenland and the Somerset Levels where large-scale sea defences and drainage schemes protected areas of extensive settlement and intensive agriculture, including large areas of arable. There are, however, tantalising hints of at least some embankment and arable before the early 17<sup>th</sup> century which give rise to three possibilities that require testing through further research:

1. That there was extensive embankment and permanent settlement in the 12<sup>th</sup> to early 14<sup>th</sup> centuries (before the Black Death), and although these landscapes were largely abandoned in the late medieval period when there was a decline in population nationally and increased storminess and coastal flooding (Rippon 2002, Galloway 2009), some elements survived into the 16<sup>th</sup> and early 17<sup>th</sup> centuries. If this was the case we would expect to find buried land surfaces and buried settlement through excavation. The loss of extensive areas of once embanked land is well documented in Romney Marsh (Rippon 2000, fig. 67).
2. That there was some embankment and perhaps seasonal settlement associated with limited arable cultivation around the 13<sup>th</sup> century, in what was essentially still an intertidal environment, and although these landscapes were largely abandoned in the late medieval period, some elements survived into the 16<sup>th</sup> and early 17<sup>th</sup> centuries.
3. That there was little or no embankment or permanent settlement before the Black Death, but some activity in the 15<sup>th</sup>, 16<sup>th</sup> and early 17<sup>th</sup> centuries in response to nationally rising population levels. Late medieval enclosure of wetlands is documented in the Somerset Levels (Rippon 2004, cf. Figs 12 and 13).

### ***5.5 Reconstructing the sequence of flood defences***

Analysis of the Ordnance Survey First Edition Six Inch maps, that most accurately portray the network of sea walls on the South Essex marshes, along with earlier sources that show some of the walls in a more schematic way (e.g. the OS Surveyors Drawings of 1798-9 and Chapman and Andre's map of 1777) suggest there are four broad types of structure (Figures 14-15):

- Type 1 (Figure 14 top): Embankments within areas of marsh, highly sinuous, closely following the lines of naturally meandering former creeks that lay on the seaward side and are now often preserved as field boundaries. Typically run alongside creeks and around the edges of islands without crossing them. These reclamations were small in their scale and would have had little impact on the network of major creeks, with the embankments running alongside tidal creeks rather than blocking them off.
- Type 2 (Figure 14 bottom): Embankments along the coast and major tidal creeks, that at first sight have a broadly curvilinear line but which on closer inspection can be seen to be made up of a series of relatively short stretches of straight alignment. Associated with recessed sluice gates.

- Type 3 (Figure 15 top): Embankments with a curvilinear line sea-ward of earlier, Type 2 embankments, representing secondary intakes of small areas of marsh after the initial embankment.
- Type 4 (Figure 15 bottom): Long, dead straight stretches of embankments along open coast and Holehaven Creek that represent sea walls being set-back from their previous line

It should be noted that while in some cases the attribution of a sea wall to one of these types is clear-cut, in other cases – particularly short stretches that lack a distinct morphology – it is not and what is presented in Figures 14-15 is semi-schematic in places. In some instances, however, the construction of these four types of embankment can at least be placed in a relative chronological sequence: north east of Oozedam, for example, Type 2 walls can be seen to stratigraphically post date Type 1 walls, and these Type 2 walls are in turn post-dated by a Type 4 wall. There are also a few locations where we can add absolute dates to this relative sequence. The Type 1 embankment on Stanford le Hope Marsh, for example, is shown on an estate map of 1617 with saltmarsh to the west and south (ERO D/DU 112/1), providing a *terminus ante quem* (date before which) for the construction of that wall. A map of this area dating sometime between 1645 and 1705 shows that same wall and (in an extension to the area covered by the first map) the embankment of an area of marsh to the south surrounded by ‘the Dutch Wall’, and labelled as ‘lately Inned by the Dutchmen’: this provides a date range of 1617 to 1705 for the construction of that wall (ERO D/DU 112/2).

The sea wall along the mainland coast in South Benfleet, Hadleigh and Leigh-on-Sea is all of Type 2, although a clear relative sequence of embankment can be determined. Firstly, the majority of Hadleigh Marsh was embanked with a sea wall running from the fen-edge south of Round Hill, down to and then along the coast, and then back to the fen-edge in Leigh-on-Sea: this wall was in place by 1670, whereas a map of 1622 shows no sea wall and labels the area as ‘Mariscus salsus’ (saltmarsh) (ERO T/M 189/1). Secondly, the far western end of Hadleigh marsh and the land in South Benfleet (Kersey Marsh) were embanked, and this sea wall is depicted on a map of 1722 (ERO D/DGs P7). A well-preserved group of fishponds survive at the junction of these two embankments. The remaining saltmarsh to the south of these two reclamations was embanked after 1847 (it not being shown on the Tithe Map: ERO D/CT 154B) but before the 1860s (it being shown on the OS First Edition Six Inch map). Another Type 2 wall lies along the coast of Benfleet Marsh, immediately west of South Benfleet church, and that this was saltmarsh in the early 17<sup>th</sup> century is shown by a presentment in 1603 when complaints were made against the Dean and Chapter of Westminster, lords of the manor of South Benfleet, ‘for not laying a bridge in the salt marsh in the common footpath leading from South Benfleet to Bowers Gifford, Pitsea and Vange, whereby the pathway is very noysome’ (Priestley and Phillips nd, 31). Overall, and based on such evidence, it appears that:

- Type 1 embankments are medieval or 16<sup>th</sup> century (pre-Dutch) (Figure 17)
- Type 2 embankments are broadly 17<sup>th</sup> century (many probably associated with the Dutch) (Figure 18)
- Type 3 embankments are 18<sup>th</sup> century or later (post-Dutch reclamations, ‘Outsands’ on Canvey Island)
- Type 4 embankments are 18<sup>th</sup> century or later (post-Dutch, set back of earlier sea wall due to coastal erosion)

### 5.6. The role of the Dutch (Figure 18)

The second phase of reclamation clearly had major impact on the landscape, with vast areas of marshland being embanked and many minor creeks being blocked off or restricted to sluice gates. This phase of embankment can

be dated to the early 17<sup>th</sup> century, and was associated with well-documented Dutch involvement. In the early 17<sup>th</sup> century a number of Dutchmen are recorded in the Thameside Marshes, such as in 1605 when Charles Holford of West Thurrock and Richard Yan of Holland agreed that the Dutchman would ‘repair, scour, emend, and build up the decayed river banks’ (Cracknell 1959, 18). In 1621 the sea wall at Dagenham was breached, and a young Dutch engineer Cornelius Vermuyden was employed to oversee its reconstruction (Cracknell 1959, 20). The best known example of Dutch involvement in the Thameside marshes is the embanking of Canvey Island. In 1622 Sir Henry Appleton, lord of the manor of South Benfleet and Jarvis Hall, contracted Joas Croppenburgh, a Dutch merchant settled in London, to enclose the island in return for a third of the land – the ‘Third Acre Lands’ – on condition that any breach to the sea wall was repaired within a year (ERO T/A 234, quoting PRO C54/2535; Grieve 1959, 25). The description of the bounds of the land referred to in the agreement does, however, refer to sea walls implying that either some Dutch enclosure had already begun, or that there had been a phase of medieval embankment. The two thirds of the embanked area outside the ‘Third Acre lands’ were known as ‘Freelands’, and later reclamation became known as ‘Outsands’ (Cracknell 1959, 34). The network of long, dead straight roads that cross Canvey also probably date to the Dutch period.

The blocks of ‘Third Acre Lands’ included Westwick, Shoremare and Castlewick (near Leigh Beck), and it is noticeable how these estates were dotted along the sea wall along the south coast of Canvey Island (Cracknell 1959, fig. 4; Place 1992, fig. 3), although it is almost certainly not the present structure that they were responsible for maintaining. The present sea wall appears to sit unconformably upon the historic landscape and has clearly been set back from an earlier position further out into the Thames Estuary and Holehaven Creek. The original line of the sea wall is shown on the OS Surveyors Drawings of 1798-9.

Following the embankment of Canvey a substantial number of Dutch workmen stayed on to settle on the island as farmers, and in 1628 two hundred ‘low country strangers’ were employed in ‘tilling and husbanding of ground in Canvey’ (Cracknell 1959, 21). A locally well known feature of the Canvey landscape are two small octagonal houses known as the ‘Dutch Cottages’, with date stones of 1618 and 1621 (RCHM(E) 1923, 23). There was also Dutch involvement in some of the other South Essex marshes. In 1623, for example, the registers of Corringham church record the burial of ‘Powell, a Dutchman living in Ooze’ (Cracknell 1959, 18). ‘Ooze’ is presumably Oozedam, the ‘dam’ place-name being a distinctive feature of Dutch water engineering. The church registers of Fobbing and Vange also refer to Dutchmen, and in *c.*1623 Sir Henry Appleton conveyed a marsh in Fobbing to a Dutchman Gile Vande Putte (Cracknell 1959, 18).

### ***5.7. Later developments***

Along much of the Thameside coast it is clear that the present sea walls represent a ‘managed realignment’ due to coastal erosion. This erosion appears to have been greatest at the eastern end of Canvey Island. Nichols (1924, 172-81) speculates, quite plausibly, that marshland belonging to the manor of Milton and which was lost to erosion in the early 14<sup>th</sup> century lay in this area, and he notes that ‘It seems clear that the reclamation of Canvey saved it from the fate that ultimately befell what must have been the old Milton saltings’.

A distinctive characteristic of the South Essex marshes is that not only does the period of embankment appear to have been far later than on most other major coastal wetlands in England, but that following embankment the landscape continued to be used primarily for pastoralism as opposed to arable cultivation. The fields were large, and irregularly shaped due to their boundaries following the line of naturally meandering

former saltmarsh creeks. Many of these large irregularly shaped fields were, however, later subdivided through the creation of long, dead straight field boundaries (Figure 9). For example, around Westwick and Tree Farm in the west of Canvey Island an estate map (ERO D/DGe P14) depicts such boundaries in place by 1771, while another map (ERO D/DU 561/1) shows large, irregular fields on Pitsea Marsh in 1654 that had been subdivided by the time that the Pitsea Tithe Map (ERO D/CT 274B) was drawn up in 1845. Elsewhere boundaries were straightened in order to create more rectilinear fields, such as on that part of the Hadleigh Marshes within Sayers Farm where the reorganisation occurred sometime between the estate map of 1709 (ERO D/DQs 28) and the Tithe Map of 1847 (ERO D/CT 154B).

These local reorganisations of the landscape would have made it easier to plough the land, and may have been the reason for doing so. Across large parts of the South Essex Marshes, corrugations in the surface of the fields represent the remains of ridges and furrows, which have been interpreted as having been created through ploughing (Medlycott and Gascoyne 2006, figs 8, 16, 21, 32, 38, 53, 69, 73). Tithe maps do indeed record some arable on the marshes, while a comparison of mid 20<sup>th</sup>-century aerial photographs with recent LiDAR imagery shows that, in some cases, the ridging is relatively recent. LiDAR clearly shows ridging in a field on the west of Bowers Marshes, close to the Wat Tyler Country Park (NGR TQ746864), and the same image shows parallel furrows resembling the 'gripes' common in West Country wetlands in a field to the north-east (NGR TQ750868). The ridging is not, however, visible on aerial photographs taken by the RAF in March 1955 (V58/RAF/1683 14MAR55 0121 and 0127), which clearly show similar ploughed ridges in nearby fields. Both of these examples are adjacent to the track known as Manor Way, now a public footpath. In other cases, the somewhat wider spacing of the furrows raises the possibility that they are analogous to drainage gullies found across other reclaimed wetlands, such as the West Country 'gripes'.

## **6. DISTINCTIVE FEATURES OF THE HISTORIC LANDSCAPE OF THE SOUTH ESSEX MARSHES**

During the course of this research the following features of South Essex Marshes emerged as of particular interest, and reflect a history dominated by extensive pastoral land-use, as opposed to intensive drainage for arable cultivation that is so characteristic of most other major coastal marshlands in Britain:

- The area used to be an archipelago of islands
- Surviving earthworks of relict saltmarsh creek systems are extremely rare in the context of other British coastal wetlands
- Wick place-names reflect pre-embankment pastoral use of landscape as sheepwalks
- Ward place-names are indicative of early reclamations
- Sequences of sea walls reflect the gradual inning of the marshes, although compared to other coastal marshes around Britain this was relatively late. The possible medieval innings are therefore of particular importance as they are relatively rare in this particular landscape.
- The Dutch contribution is well known locally, with the two 'Dutch Cottages' being notable landmarks. The name of Cornelius Vermuyden School might, however, be rather unfortunate as there is no actual evidence that he was responsible for the works on Canvey, although it remains a possibility (Cracknell 1959, 20-21).
- A settlement pattern characterised by individual farmsteads, many on low mounds surrounded by ditches

- Even after reclamation this was a landscape designed for pastoralism, unlike other major coastal wetlands around Britain where there were relatively large amounts of arable. On the South Essex marshes the ploughing that there has been appears to be relatively recent, and has done little to shape the character of the fieldscape. It is therefore the well preserved nature of these traditionally embanked grazing marshes that makes this landscape so important.

## **7. SOME REMAINING ACADEMIC QUESTIONS**

- This report has explicitly not dealt with the buried archaeology, although this could be exceptionally well preserved, having been protected from recent ploughing by the overlying alluvium and benefiting from the high watertable. Recent work in Stanford le Hope, south of Shellhaven, has revealed the remarkable survival of the Roman landscape (Biddulph 2010), and similar evidence is to be expected elsewhere.
- The extent of medieval reclamation is far from clear, and it is possible that this was more extensive than can be recognised today. For example, in some areas the sea wall may have failed and what had been a reclaimed landscape reverted to an intertidal environment and so has become sealed by later alluvium. Determining the extent of any buried medieval reclaimed land surfaces is a priority (though recent work at Bowers Marsh did not identify any such buried land surfaces: Germany 2009).
- The origins of the mounds upon which many post medieval farms are located is unclear: some at least could be saltern mounds (of Roman or possibly medieval date)
- The extent of any medieval salt production on the South Essex Marshes is unknown. No salterns are recorded in Domesday, but none are recorded in the whole of southern Essex which must be a data-collection or clerical error as they were common features elsewhere around southern Britain.

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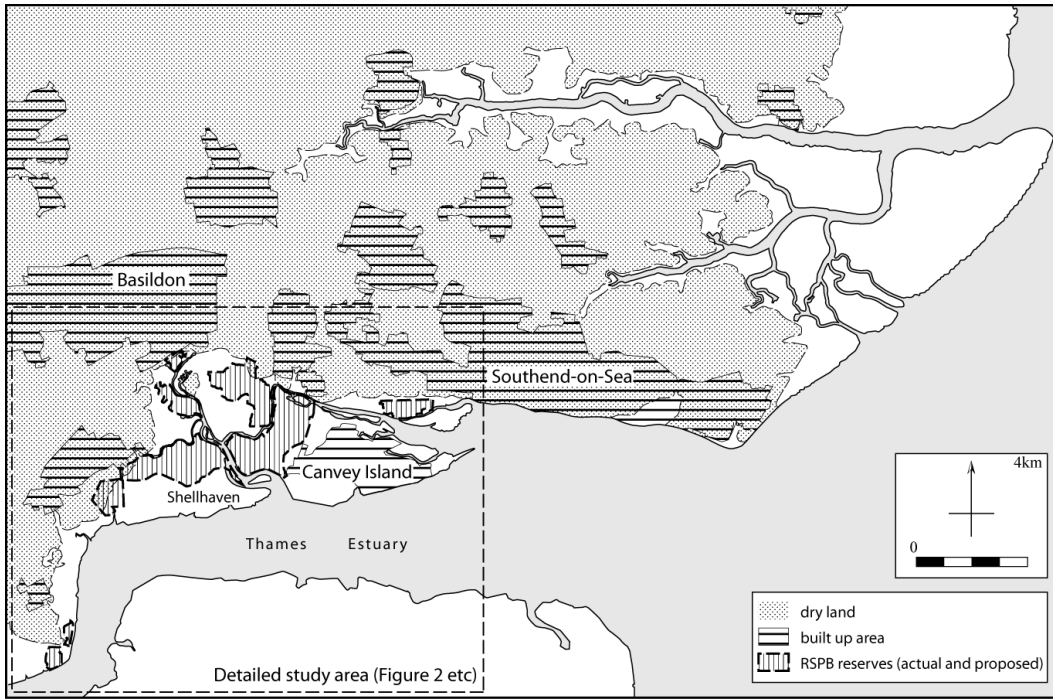


Figure 1: Location map for the South Essex Marshes



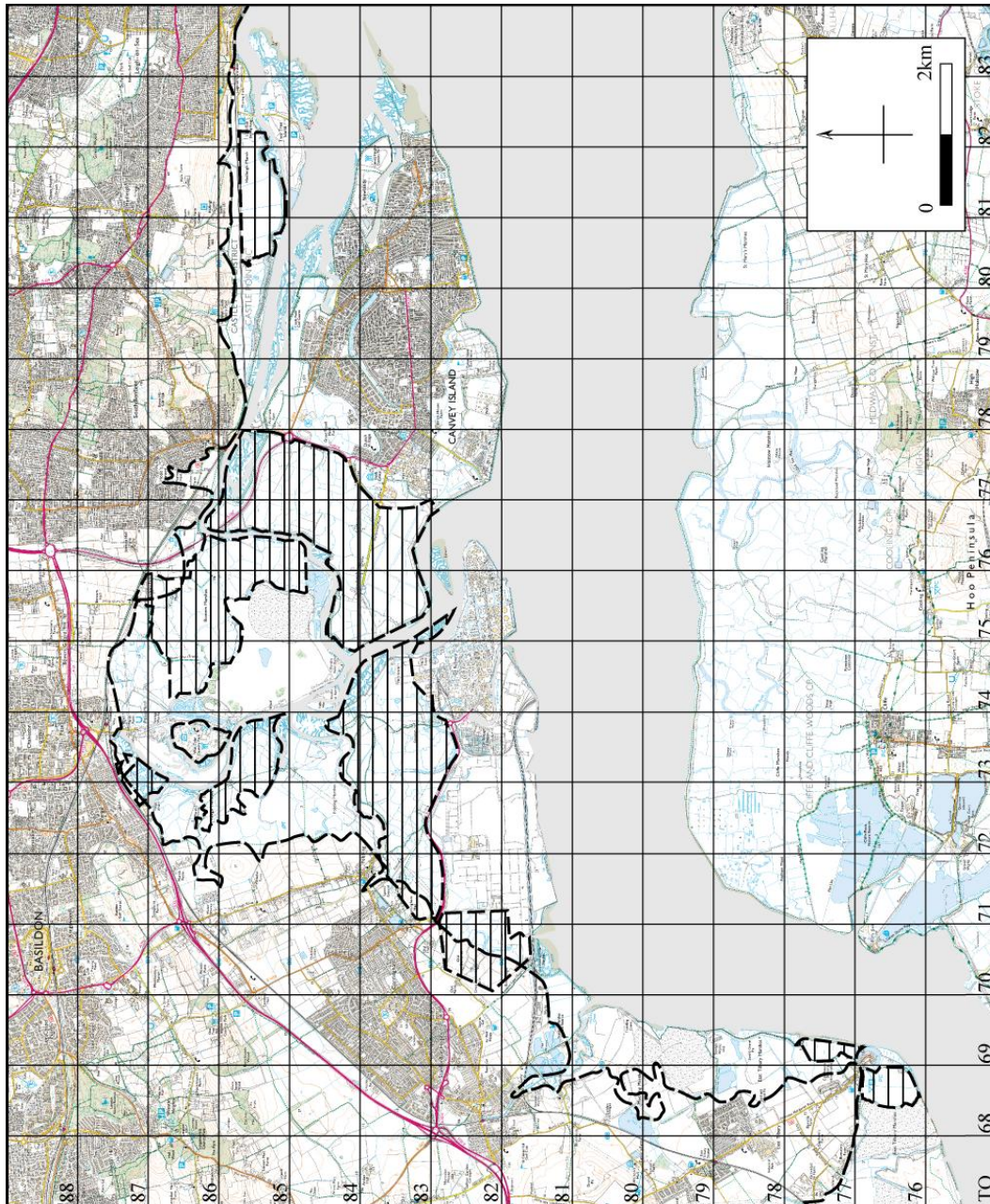


Figure 2: Modern Ordnance Survey 1:25,000 mapping of study area, with the fen-edge and areas of RSPB reserves (actual and proposed) added. (Ordnance Survey map base: ©Crown Copyright/database right 2011. An Ordnance Survey/EDINA supplied service).

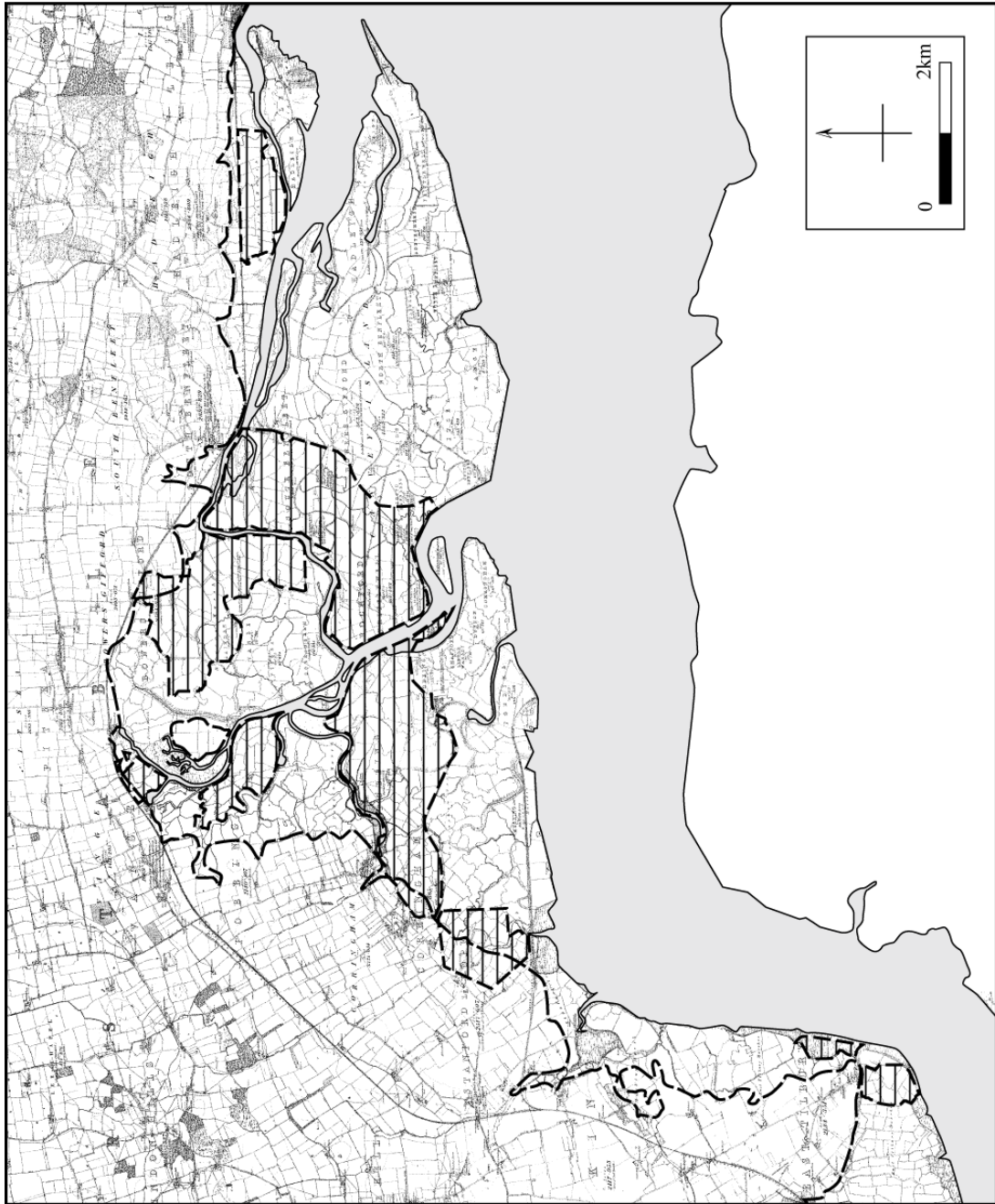


Figure 3: Ordnance Survey First Edition Six Inch mapping (1860-9) of study area, with the fen-edge and areas of RSPB reserves (actual and proposed) added (Ordnance Survey base map: © Crown Copyright and Landmark Information Group Limited (2011). All rights reserved).

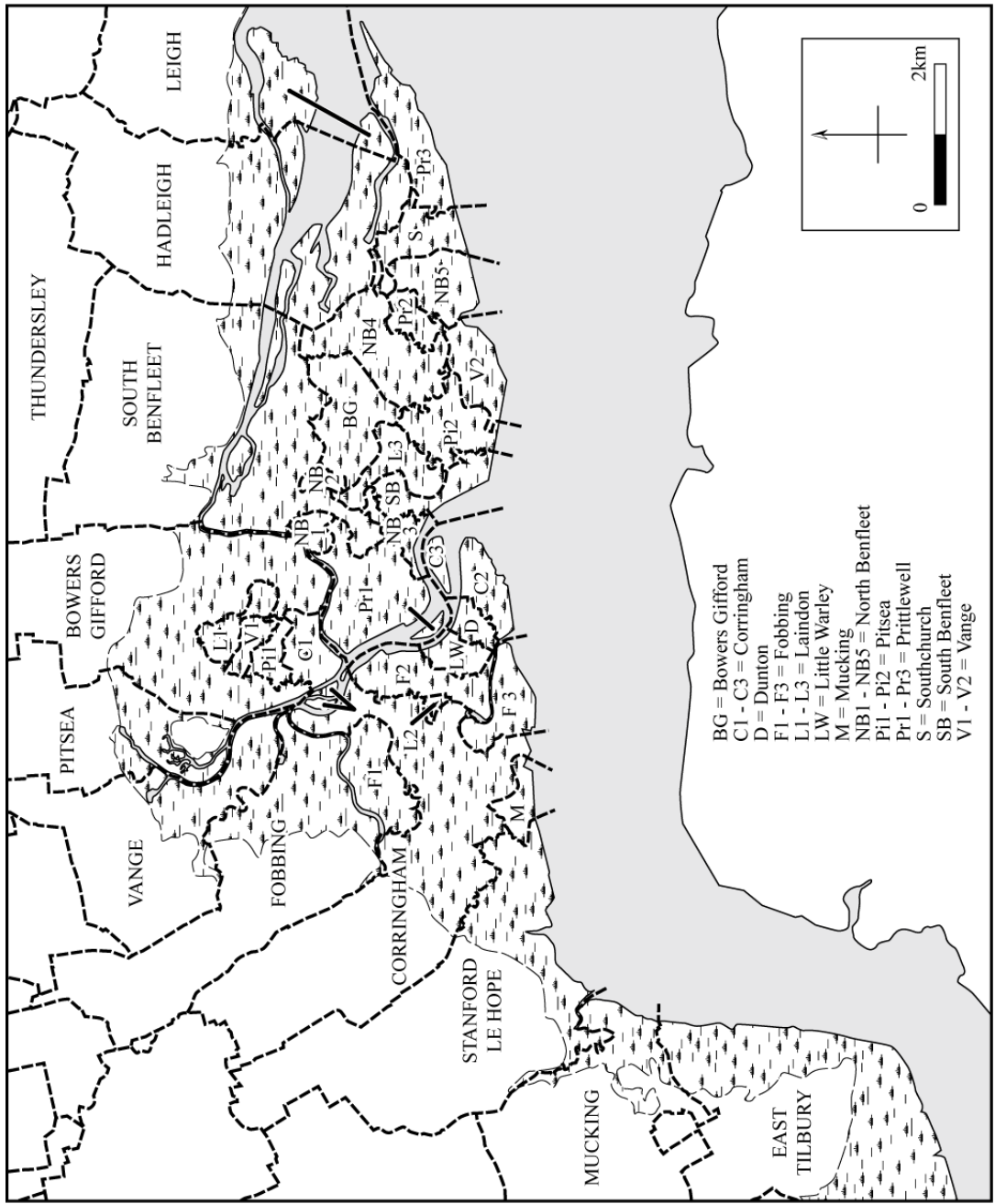


Figure 4: Ancient ecclesiastical parishes, and their detached parcels which forms a distinctive feature of the South Essex Marshes



Figure 5: Ordnance Survey surveyors drawings of 1798-9, with the fen-edge and 1860s coastline added.

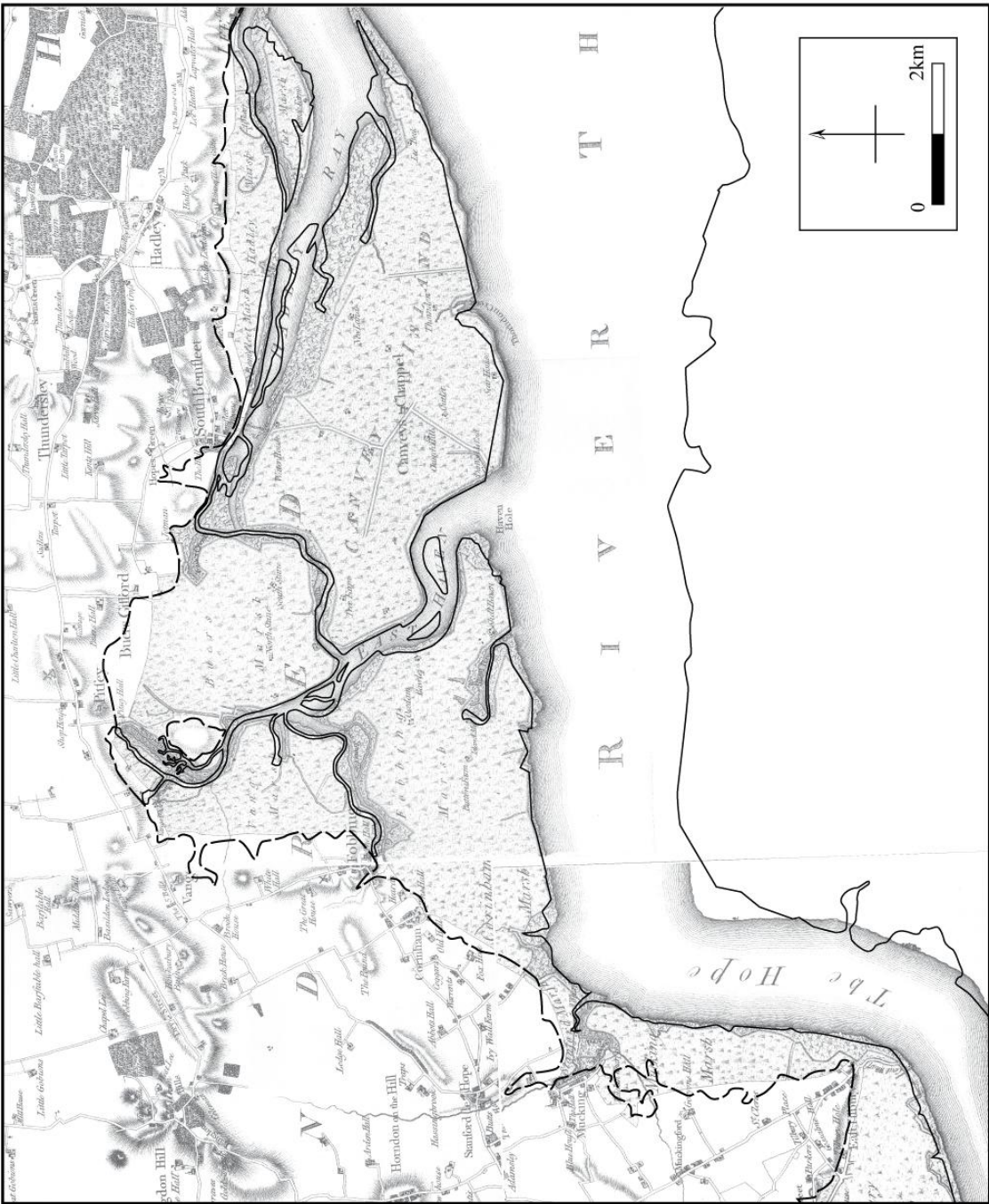


Figure 6: Chapman and Andre's map of 1777, with the fen-edge and 1860s coastline added.

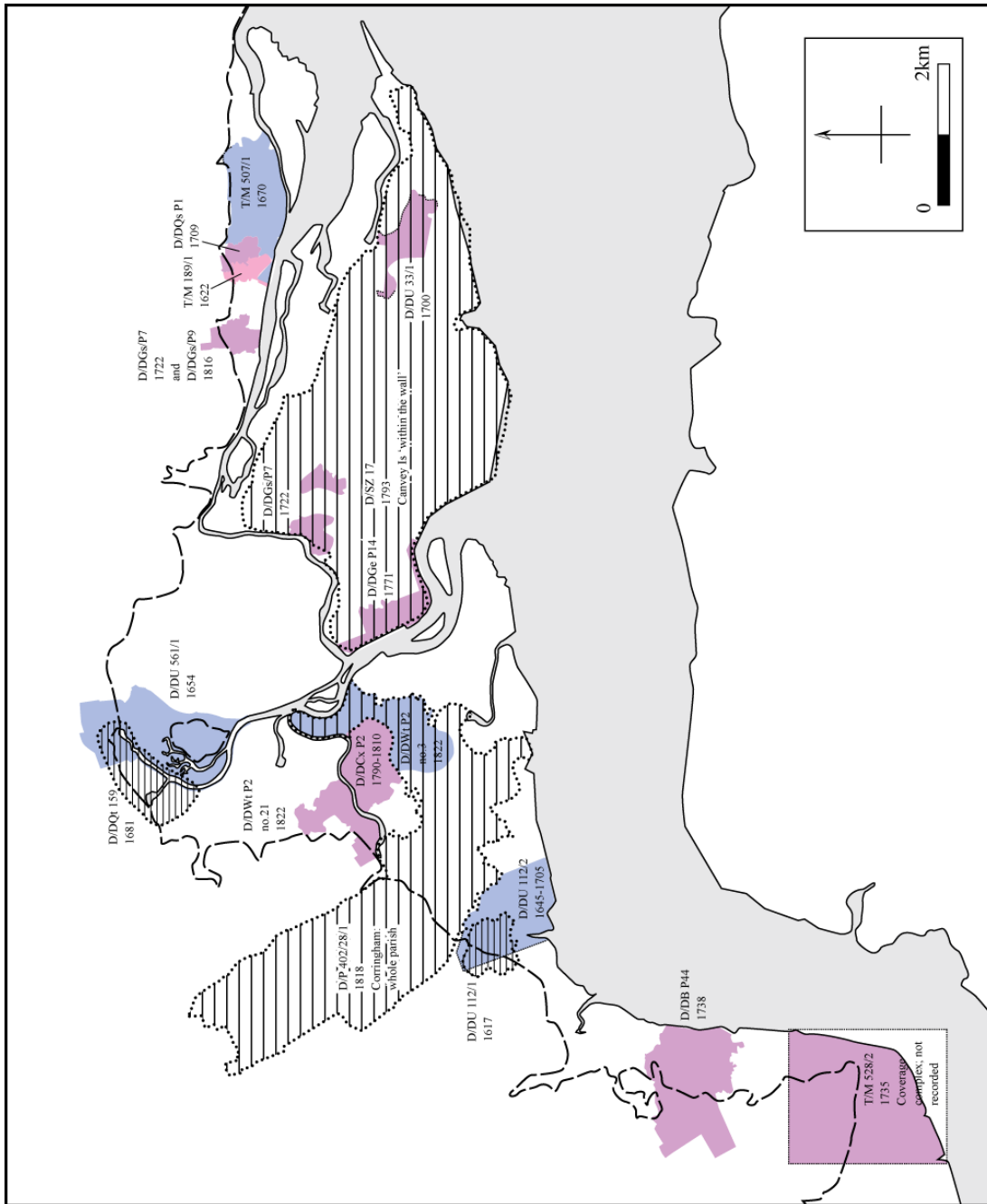


Figure 7: Estate maps, and Commissioners of Sewers map of Canvey Island (1793) showing extent of area 'within the walls'.

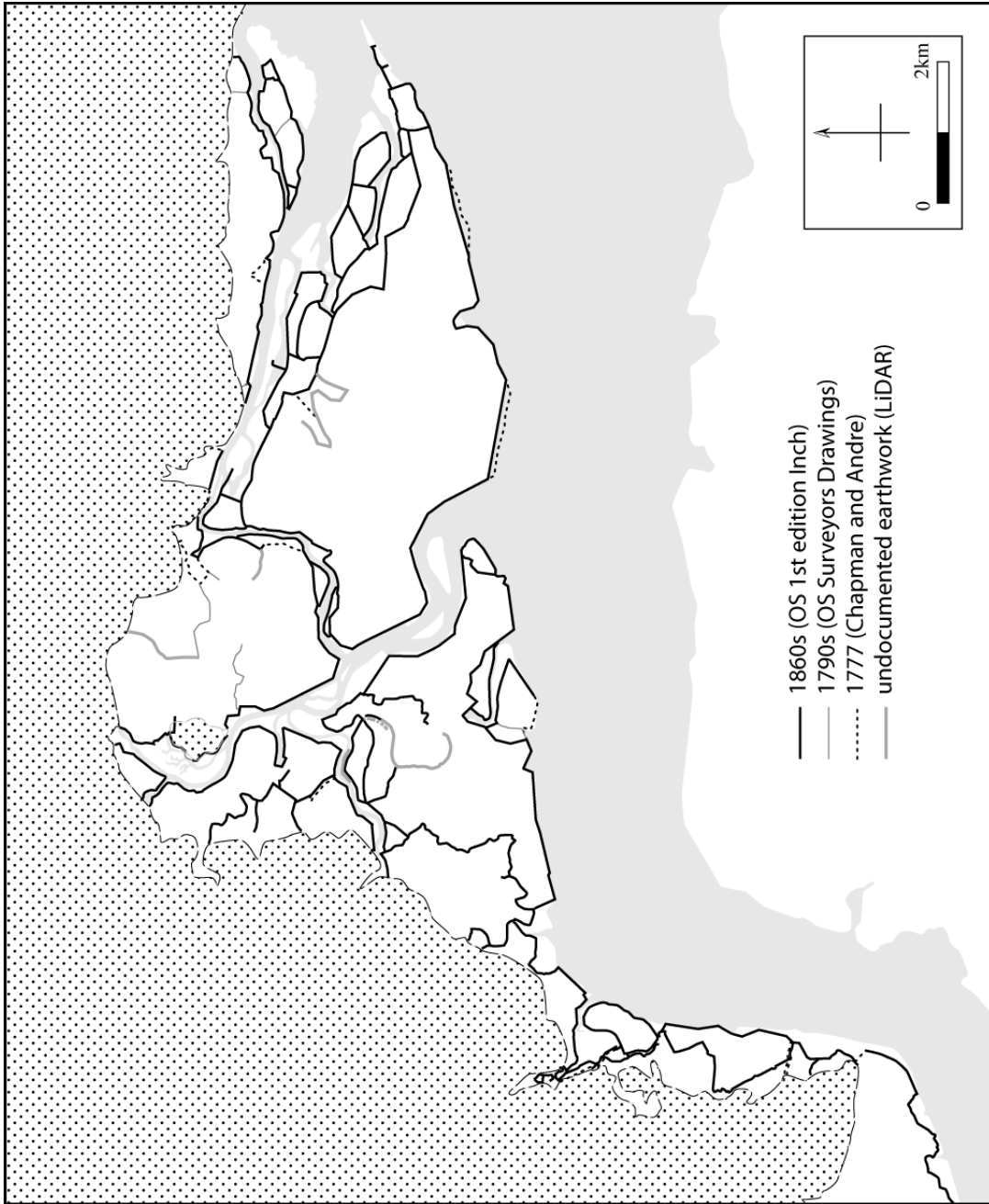


Figure 8: Cartographic and earthwork evidence for sea walls.

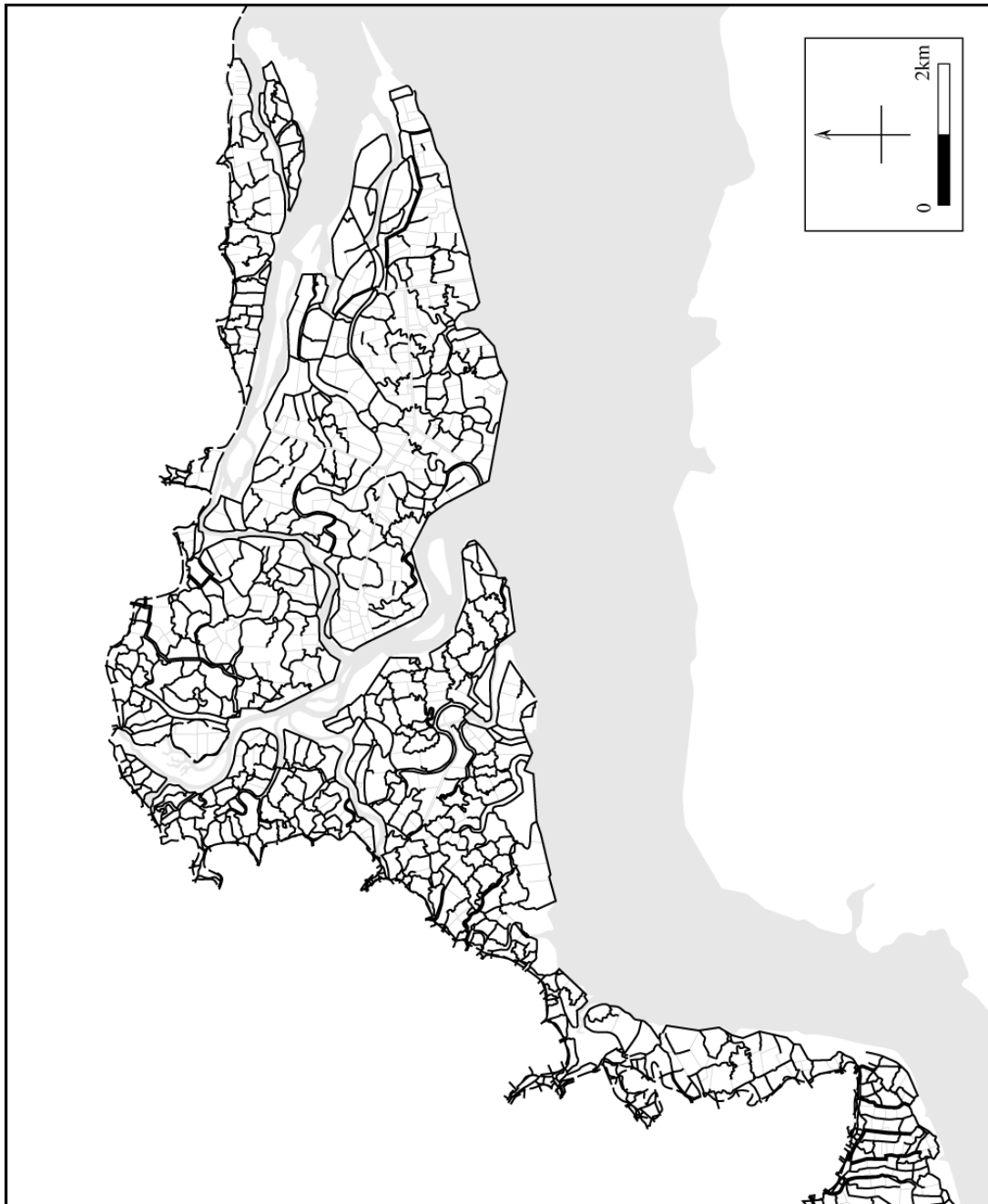


Figure 9: 1860s field boundaries disaggregated into older (sinuous) boundaries defining relatively large fields, and later (straight) sub-divisions.



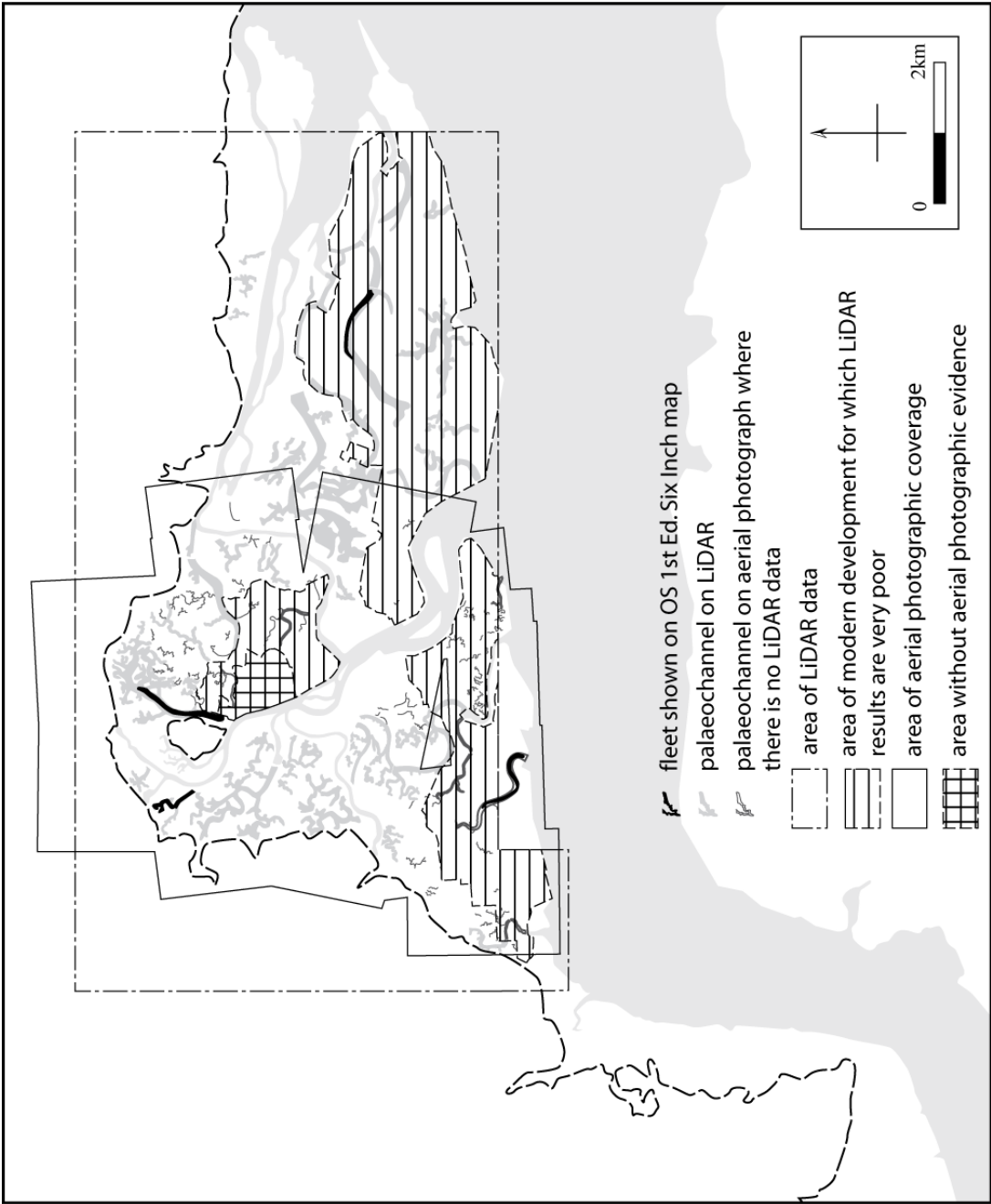


Figure 10: Earthwork evidence for former palaeochannels.

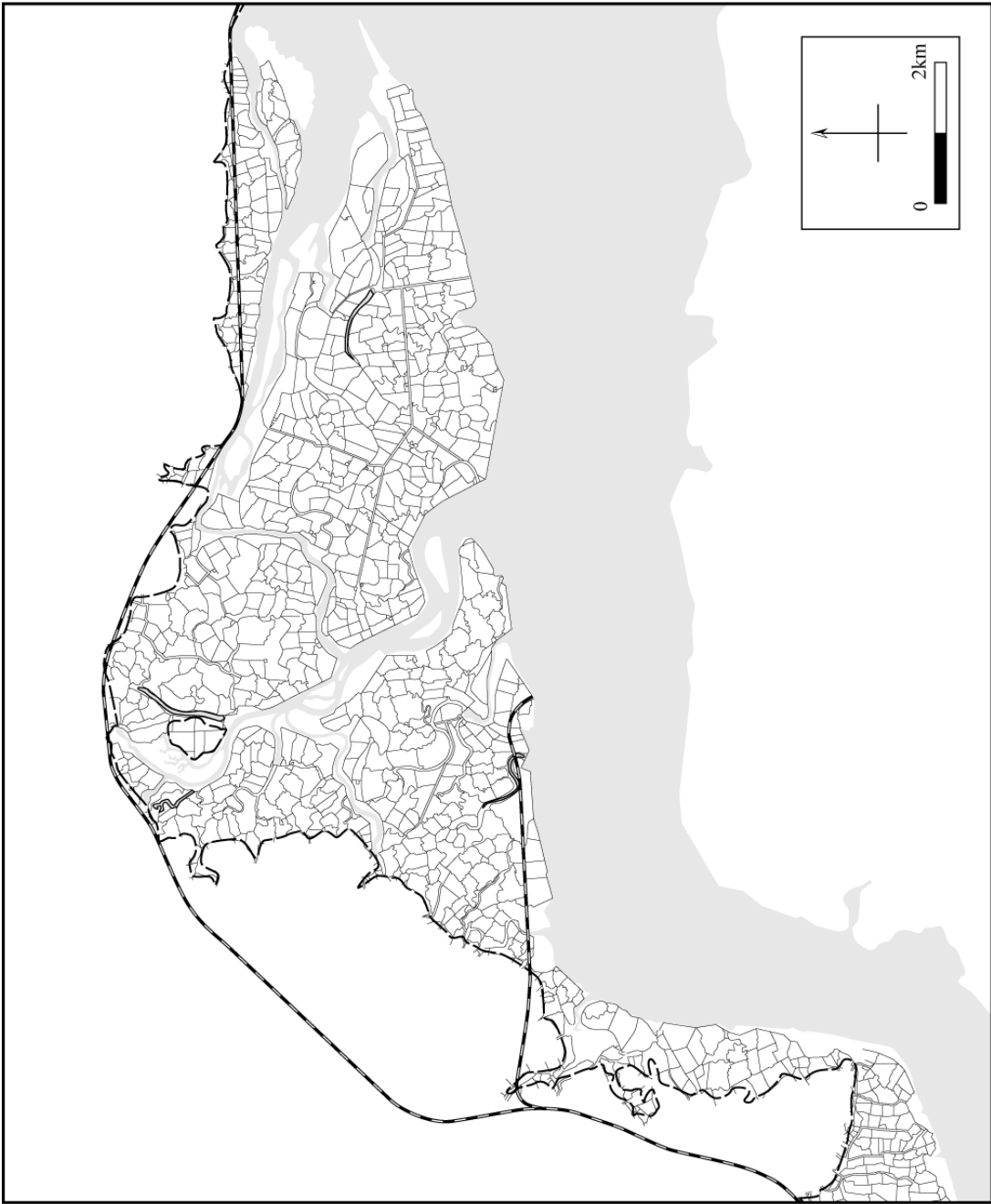


Figure 11: Transcription of Ordnance Survey First Edition Six Inch maps of 1860-9

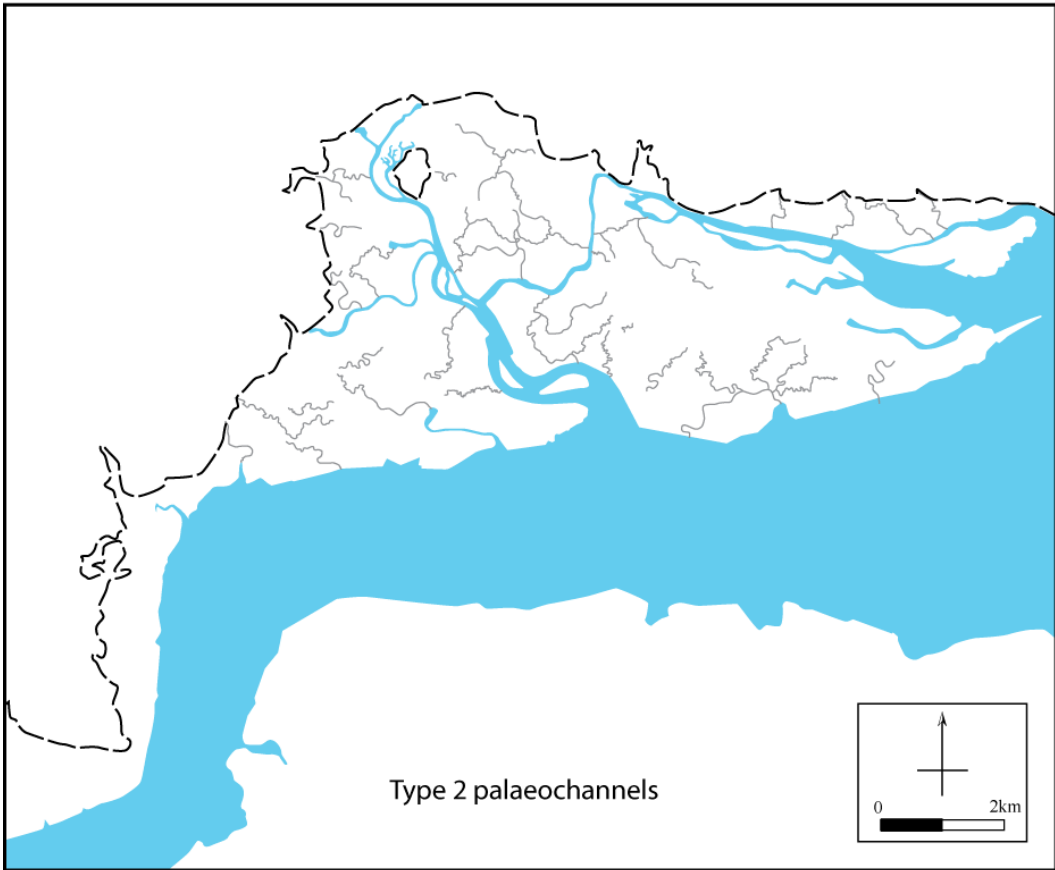
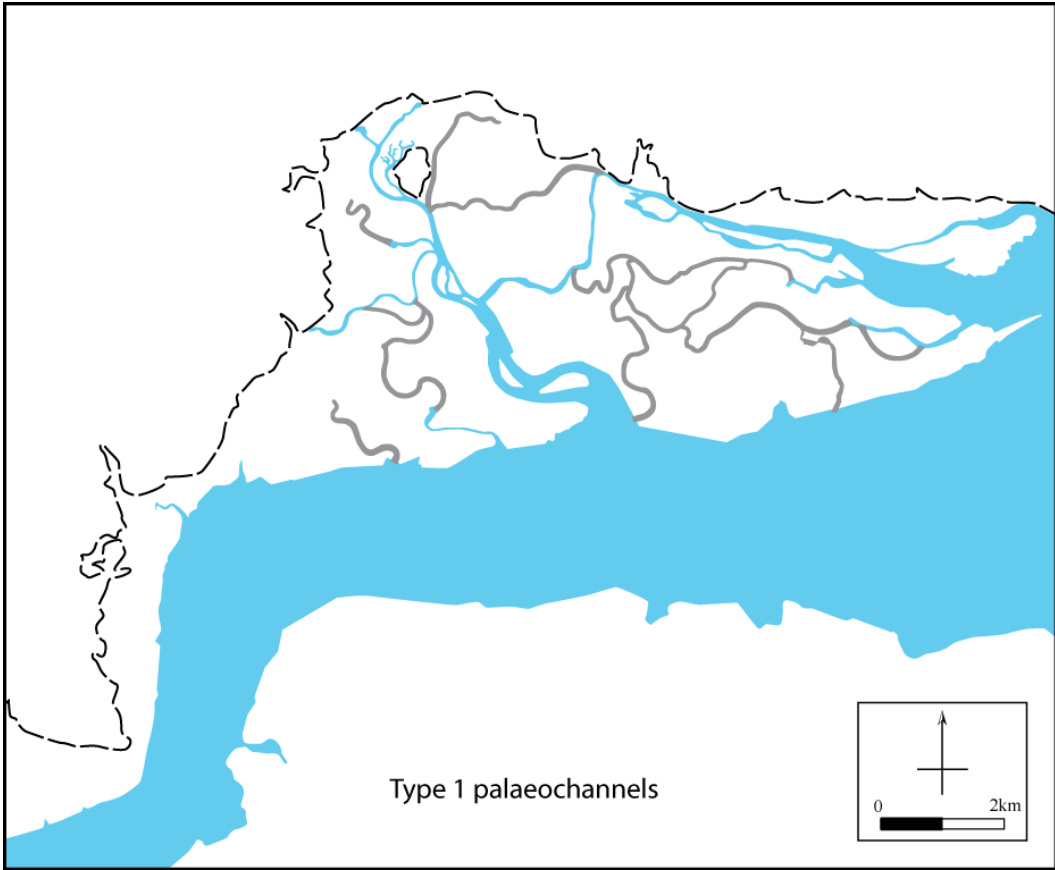


Figure 12: Type 1 and Type 2 palaeochannels

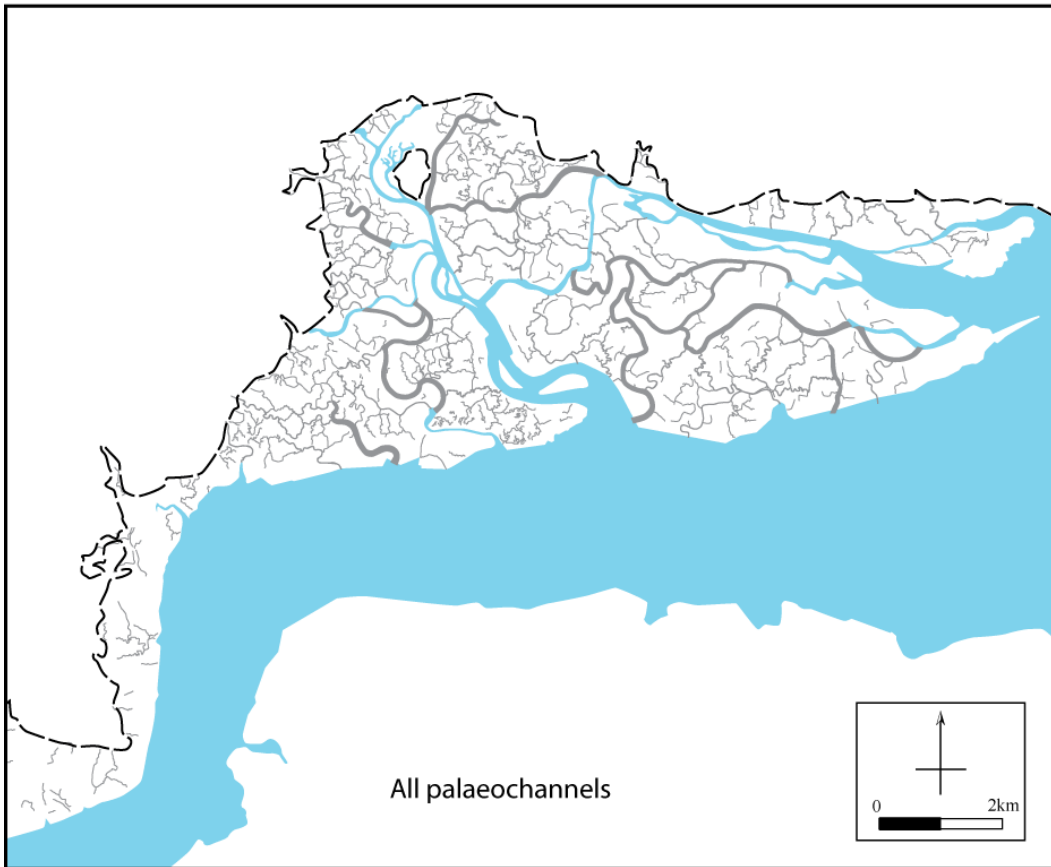
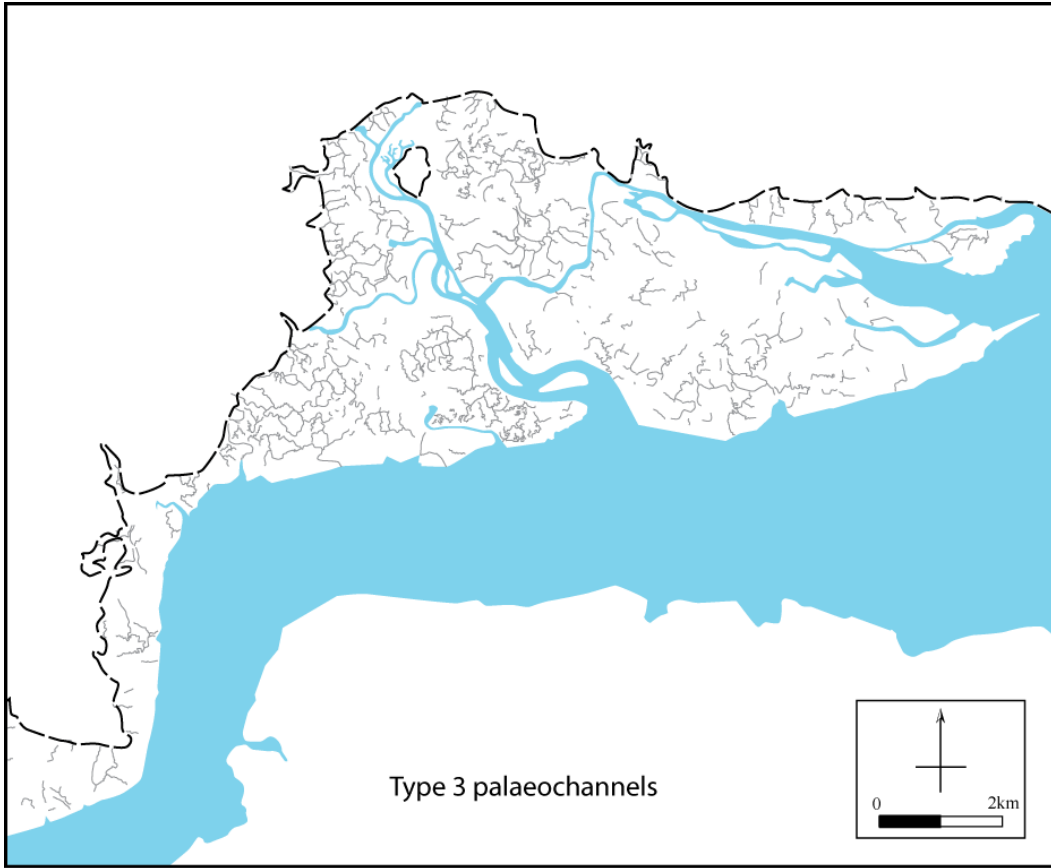


Figure 13: Type 3 palaeochannels, and combination of Types 1-3

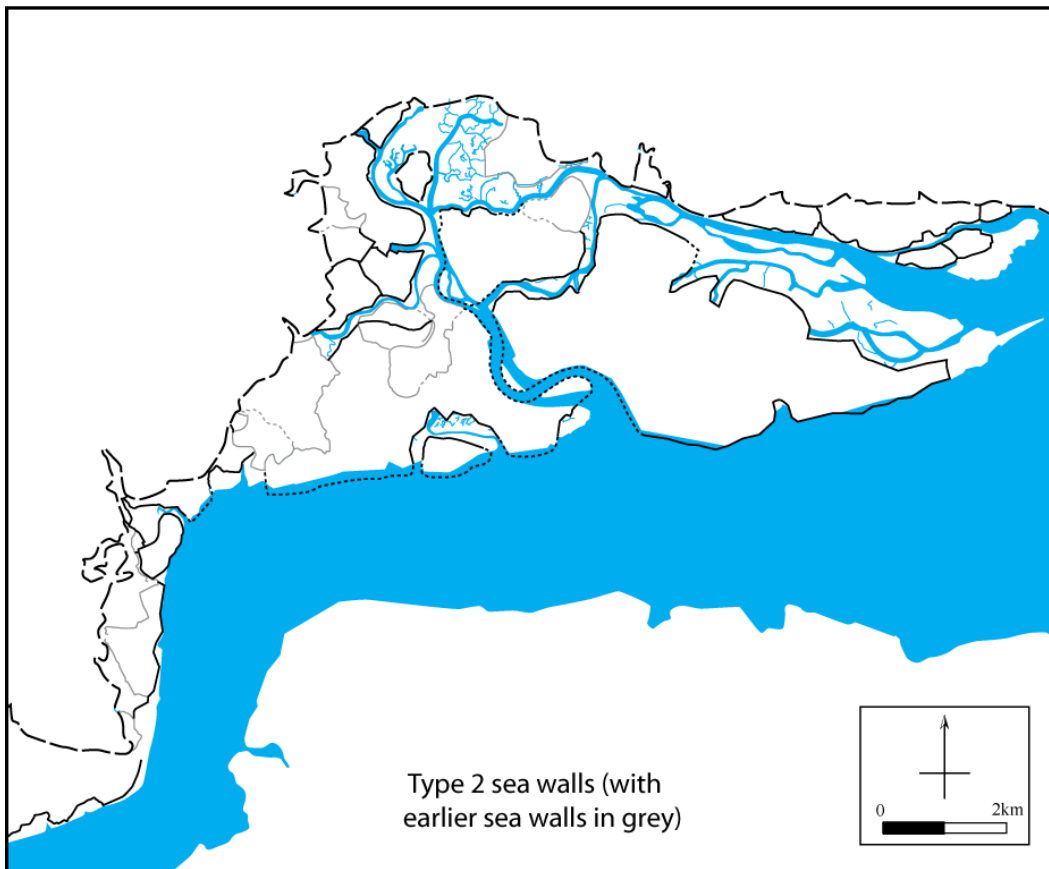
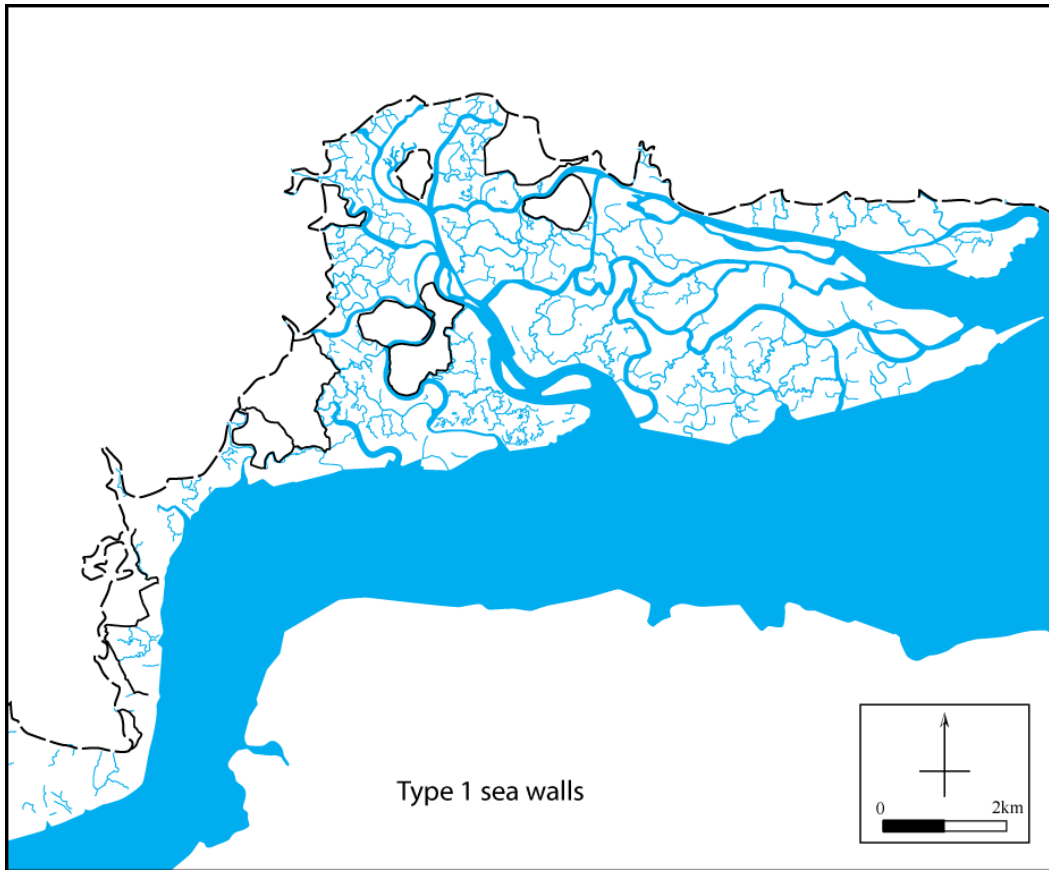


Figure 14: Type 1 (medieval) and Type 2 (Dutch, 17th century) sea walls

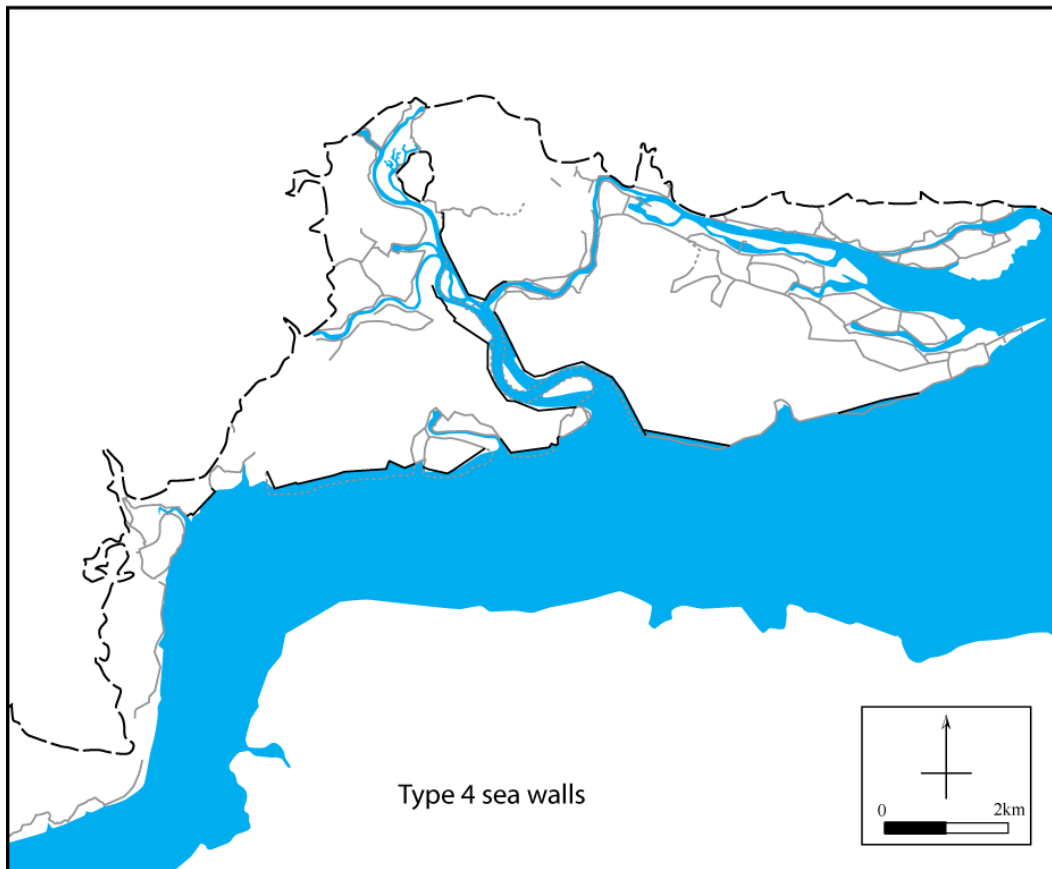
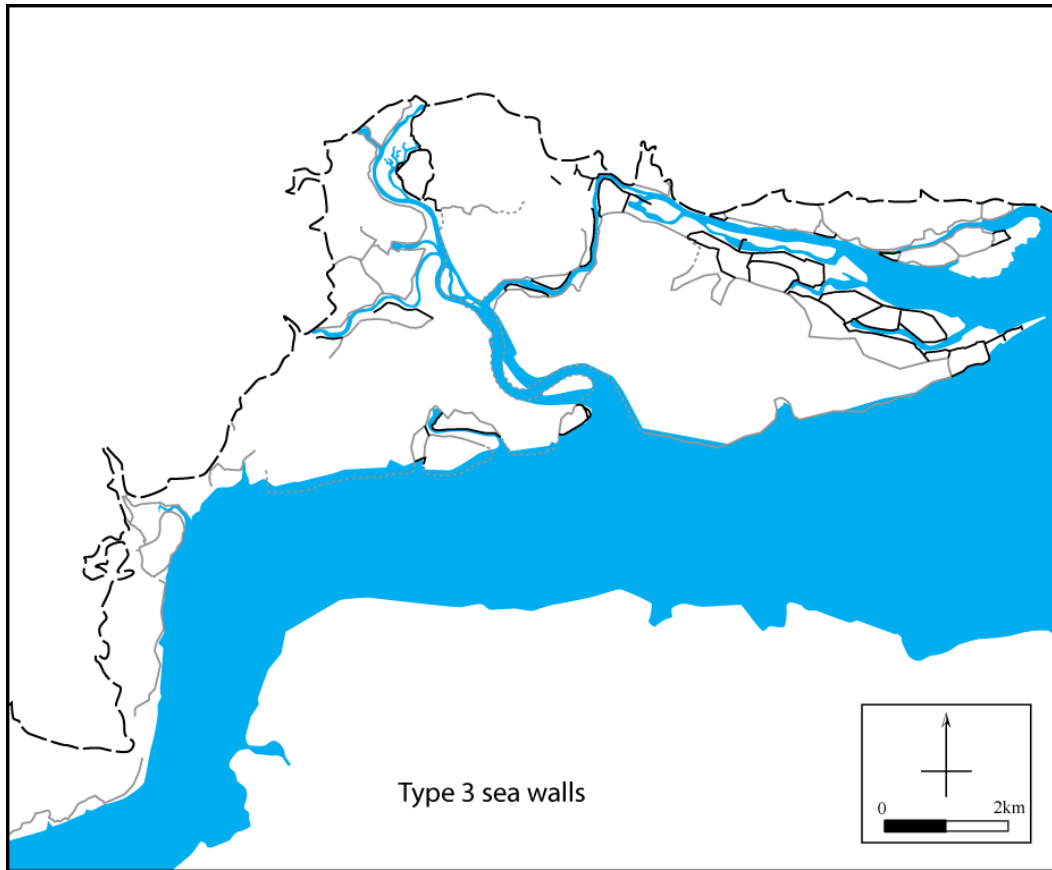


Figure 15: Type 3 (19th century and later) and Type 4 (set back) sea walls

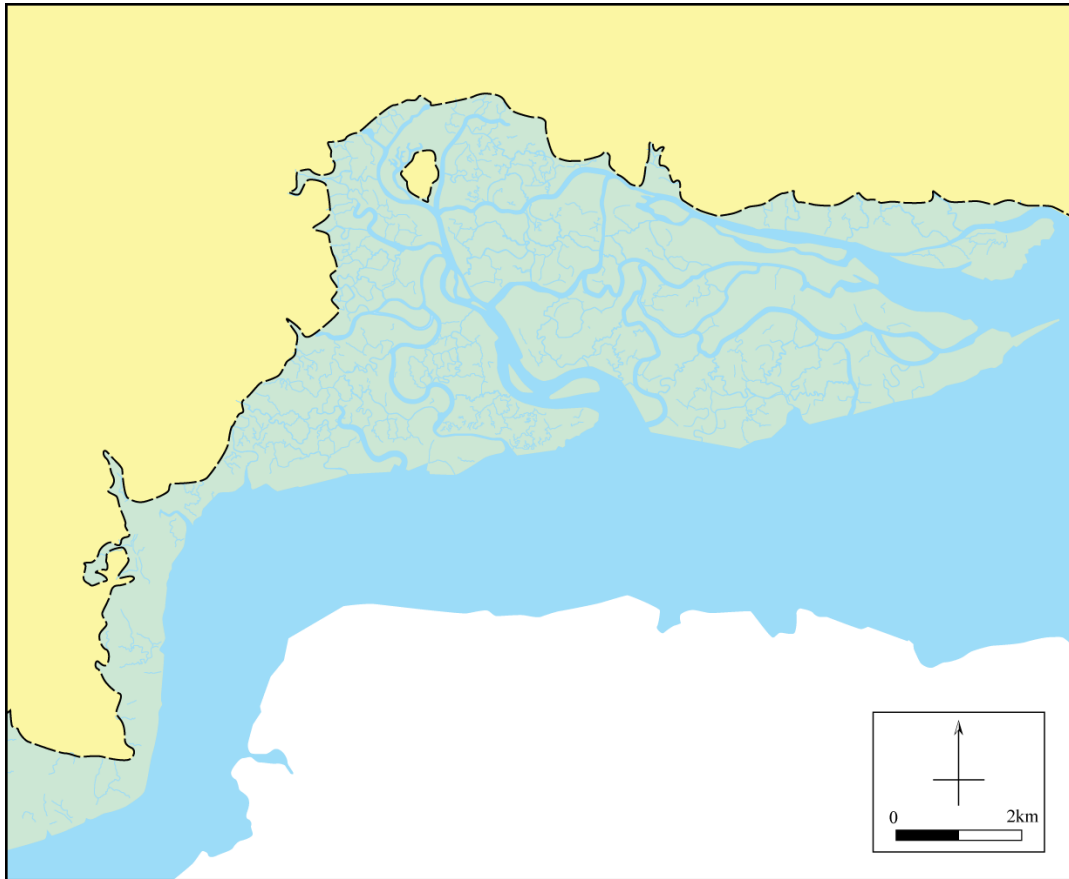


Figure 16: reconstruction of the landscape in the 11th century

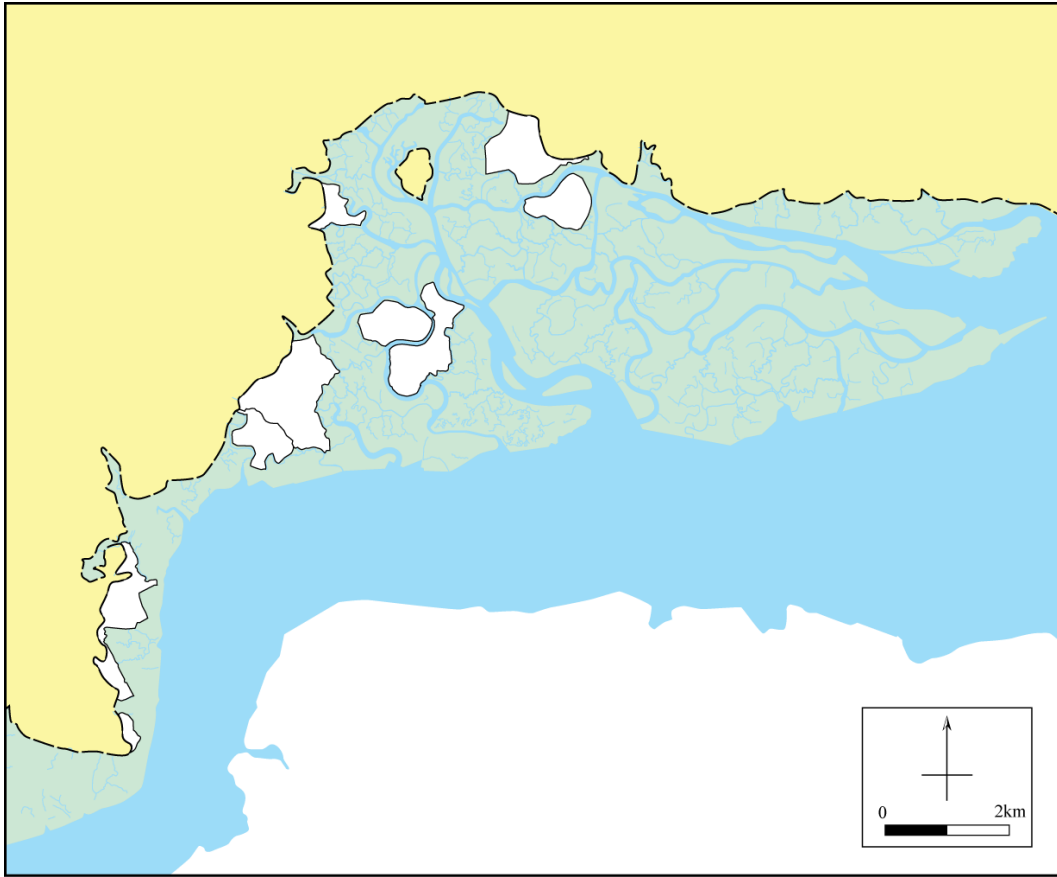


Figure 17: reconstruction of the landscape in the 13th century

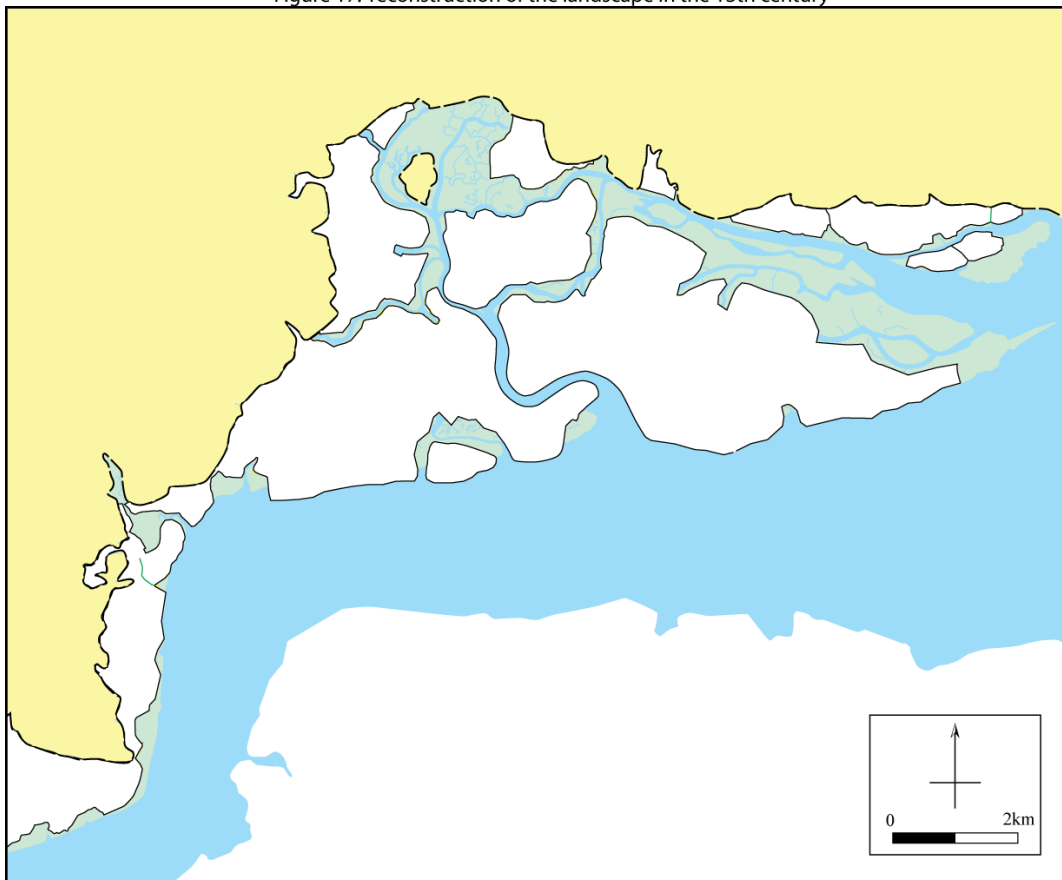


Figure 18: reconstruction of the landscape in the 17th century