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The reclamation of the Shannon Estuary inter-tidal flats: A case study of the Clare Slobland Reclamation Company

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ABSTRACT

Extensive reclamation of the sloblands in the Shannon estuary have been undertaken over hundreds of years but particularly in the mid to late 1800s. There is extensive documentary evidence of the various reclamation schemes that were undertaken. The Clare Slobland Reclamation Company attempted to reclaim a very large section of the Fergus sub-estuary of the Shannon but ultimately failed, despite enormous expenditure. A smaller less ambitious reclamation in the same area was completed afterwards by the Fergus Reclamation Company. The financing, legislation, scale and chronology of the Clare Slobland Reclamation Scheme is outlined along with the difficulties it faced and the eventual causes of its failure are examined. In addition the entitlements of the company and their associated responsibilities are outlined and these show the extent of the powers they had to change and alter the landscape.

Key index words: Shannon Estuary, reclamation, inter-tidal flats.

Introduction

Extensive reclamation of inter-tidal mudflats has been carried out around the Shannon estuary over the last two hundred years, particularly in the mid- to late-nineteenth century. The principal purpose of reclamation schemes was land acquisition at a reasonable cost, and the creation of farmland suitable for grazing by cattle and sheep. Evidence for reclamation is abundant from cartographic and documentary sources. In all a minimum of 6500ha is estimated to have been reclaimed, distributed within the main Shannon estuary basin and along its feeder rivers such as the Fergus and the Maigue (Healy and Hickey, 2002). The reclamation process was conducted through a variety of schemes, ranging considerably in scale and duration. Some of these schemes were initiated by individual land owners who wished to reclaim relatively small areas of adjacent estuarine mudflats to extend their holdings; others involved commercial companies undertaking large scale reclamation projects, sometimes involving many hundreds of hectares, for purposes of profitable sale. The complexity of some of the larger schemes is usefully illustrated by the work of 'The Clare Slobland Reclamation Company', which embarked on the reclamation of a large tract of intertidal wetlands in the western part of the Fergus Estuary.

Physical context and environmental setting

The River Shannon and its tributaries form an extensive freshwater system that drains an area of c.15,700 km² of the Irish midlands. The greater Shannon Estuary comprises the tidal reaches of the lower River Shannon between Limerick City and the Atlantic and incorporates

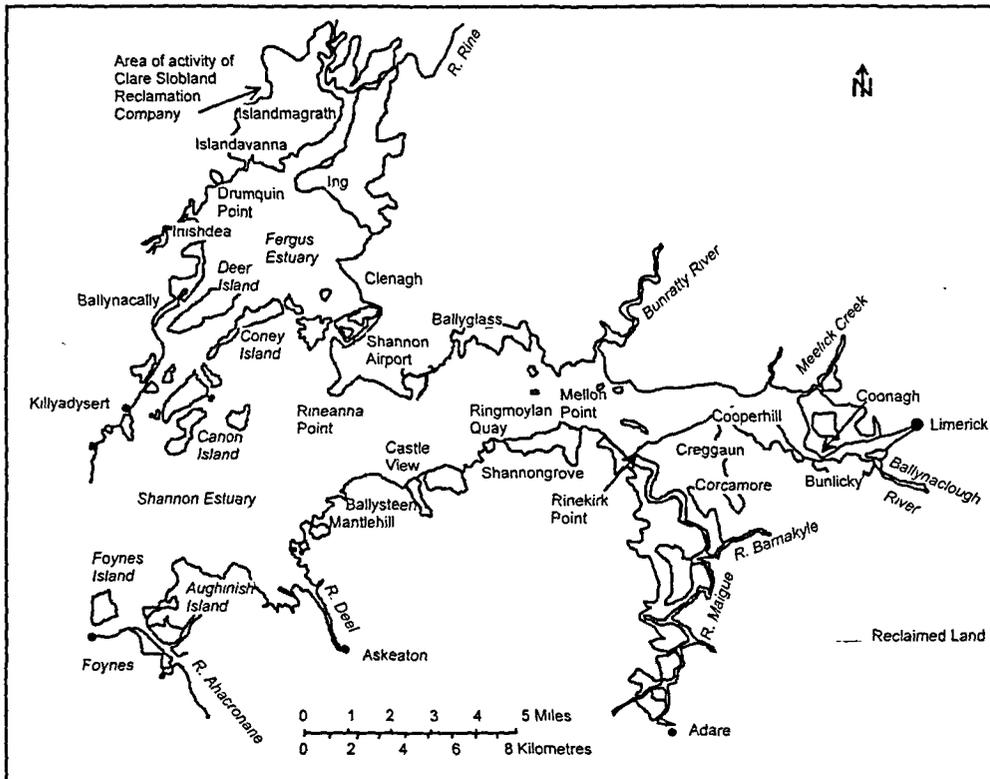


Figure 1: The upper estuary of the Shannon showing the Fergus and Maigue sub-estuaries and the extent of reclaimed areas so far identified.

the Fergus estuary south of Clarecastle (Figure 1). Its environs encompass parts of north co. Kerry, north co. Limerick and south co. Clare. The geology dominates local topography, consisting of a conformable succession of Silurian rocks, upper Old Red Sandstone, Lower Carboniferous Limestone series and Upper and Middle Carboniferous Limestone series. These are overlain in turn by the Yoredale Beds (shale series), Flagstone series (Millstone Grit) and, in some locations, Quaternary glacial deposits and alluvium (Wheeler and Healy, 2001). Land adjacent to the estuary is generally low-lying, mostly extending from tidal High Water Mark (HWM) to 30m OD (Ordnance Survey of Ireland, 1974).

The Shannon Estuary is subject to permanent marine inundation and tidal flows through a generally west – east aligned main channel measuring almost 100 km from its mouth to Limerick City. The estuary is macrotidal, having the largest tidal range (5.44 m at Limerick Docks) on the Irish coast. Water depths vary from c.37 m at the estuary mouth to less than 5m near Limerick City. The estuary system has extensive associated inter-tidal mudflats, fringing reed-beds, swamps, salt marshes, wet marsh habitats and reclaimed wetlands. The mudflats are generally unvegetated, though patches of cord grass (*spartina spp.*) occur in places. Healy (2002) describes the reed beds and associated habitats that typify the margins of river and stream channels and sheltered creeks within the system. The estuary is a candidate Special Area of Conservation (EU Habitats Directive 92/43/EEC and Natura 2000) and an existing Special Protection Area for birds (EU Birds Directive 79/409/EEC). The site contains several habitats and species of international importance, among which are the priority lagoon habitat,

the resident population of Bottle-nosed Dolphin and all three Irish lamprey species (*petromyzon marinus*, *lampetra planeri*, *l. fluviatilis*). Several Red Data Book species are present, including triangular club-rush (*scirpus triqueter*), opposite-leaved pondweed (*groenlandia densa*), meadow barley (*hordeum secalinum*), hairy violet (*viola hirta*), golden dock (*rumex maritimus*), bearded stonewort (*chara canescens*) and convergent stonewort (*chara connivens*). It is also amongst the most important sites in Europe for wintering and migrating waterfowl (Healy, 2002). The current ecological value of the estuary as an important habitat is recognised nationally and internationally, but this was not always so. The estuarine environment has experienced considerable anthropogenic alteration over a very long time period stretching as far back as the Neolithic, some of which is linked to land reclamation (Wheeler and Healy, 2001; O'Sullivan, 1993; 2001, O'Sullivan and Condit, 1995 and O'Sullivan and Daly, 1999). Therefore the modern habitat, and the environment generally, has been hybridised from elements that are both natural and anthropogenic.

Table 1: Private Parliamentary Bills and Acts related to reclamation on the Shannon Estuary (including the sub-estuaries of the Fergus and Maigne).

Name of Bill	Year
Kerry and Clare Reclamation Bill	1853
Kilrush and Kilkee Railway and Poulnisherry Reclamation Act	1860
Kilrush and Kilkee Railway and Poulnisherry Reclamation Amendment Act	1861
Kilrush and Kilkee Railway Act	1865
Clare Slobland Reclamation Act	1873
Clare Slobland Reclamation Amendment Act	1878
Clare Slobland Extension Act	1879
Kilrush and Kilkee Light Railway and Poulnisherry Reclamation Bill	1883
South Clare Railway Company Bill	1884
Fergus Reclamation Bill	1886

Ownership and acquisition of tidal flats

Detailed documentary data survives from both the Irish Quit Rent Office (QRO) and, to a lesser extent, the Irish Office of Public Works (OPW) relating to a variety of reclamation schemes carried out around the estuary, often associated with other infrastructural developments, particularly railway schemes. These include letters, memoranda, survey documents (maps, legal correspondence), Parliamentary Bills and Acts, bills of sale and current and capital expenditure receipts. Particularly useful historical records derive from the many Parliamentary Bills and Acts that relate to reclamation works, examples of which are given in Table 1. These were necessary to permit the Crown to sell its title to the foreshores that were to be reclaimed. However, Parliamentary Bills did not always receive parliamentary support, and so did not become Acts of Parliament.

In addition to State archives, some private documents kept by individual developers and companies also survive. In the case of the Clare Slobland Reclamation Company three volumes of records are held in the Trinity College Dublin Archives, and these illustrate many of the technical and logistical facets of the reclamation history, including maps, drawings,

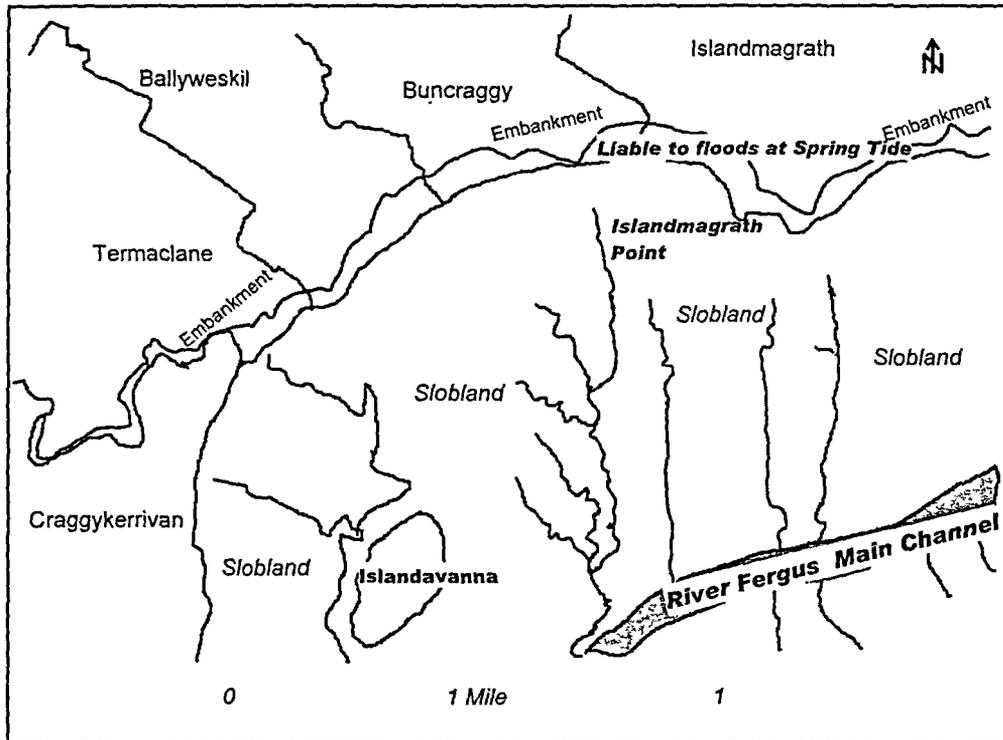


Figure 2: The area which the Clare Slobland Reclamation Company had targeted prior to reclamation showing a substantial embankment indicating an earlier phase of reclamation.

engineering specifications, meteorological and tidal data, daily works activities and employment figures for trades and labourers. The Times newspaper archive also provides additional information on the parliamentary aspects and some of the legal aspects of the reclamation.

Developers were faced with the frequently difficult task of resolving ownership issues and legal rights to the desired inter-tidal mudflats. Along with operational difficulties, these issues had a considerable bearing on the duration and success of the reclamation ventures, some of which were completed in six months, while others spanned thirty years. The QRO played a critical role in the successful negotiation of land rights, particularly securing legal land acquisition and protecting the financial interests of the Crown, as well as preserving the safe and unobstructed navigation of the estuarine waterways. Only when the QRO was satisfied on its terms of reference was the transfer of ownership and deeds agreed, and this sometimes required ultimate sanction by an Act of Parliament.

Formation of the Clare Slobland Reclamation Company

The Clare Slobland Reclamation Company (CSRC) was formed prior to 1873. Its initiators and original subscribers were Arthur Chandler, Thomas Gurney and Francis Higgins, who were also the directors. The Company Secretary and part owner was John Walker of Trinity Street, Dublin. The initial share capital was £60,000, issued in the form of 6000 shares at £10 each, making this a substantial scheme. The scheme was to be completed within five years of the passing of the Clare Slobland Reclamation Act of 1873. Three owners

of foreshores entitled to compensation were the Crown, Francis Nathaniel Marquis Conyngham and Henry Baron Leconfield, who between them were entitled to £6000 compensation and to one-twentieth of the reclaimed land. Furthermore, if as a result of the reclamation works natural accretion occurred, the resulting additional lands were the property of the Crown. Additionally, lands at Islandavanna were purchased from Thomas Hudson of Rochdale, Lancaster, for £5000 in cash and £6000 in fully paid up shares making Hudson a 10 percent stockholder in the Clare Slob Reclamation Company. Islandavanna was to be incorporated into the reclaimed area.

The Company was primarily concerned with the reclamation of inter-tidal lands on the western side of the Fergus Estuary between Islandavanna and Islandmagrath. This formed an area of approximately 579 ha and, incorporating Islandavanna, had an estimated value to the Company of £170,000 in 1882. The scheme was intended to extend an earlier larger area reclaimed before the 1st edition OS maps were produced in 1839-1840. The earlier reclamation had the effect of joining Islandavanna to Islandmagrath Point on the mainland with an extensive tract of reclaimed land in between. The proposed new scheme would effectively put Islandavanna and Islandmagrath Point inland (Figure 2).

Legal empowerment of the Company

Through the Clare Slobland Reclamation Act of 1873 the CSRC was authorised to reclaim the 'slobs' (inter-tidal mudflats) in the townlands of Lissan west, Islandmagrath, Buncraggy and Ballyveskill in the parish of Clare Abbey, Teermaclane in the parish of Killone and Craggykerrivan in the parish of Cloondagad (Figure 2). Its provisions allowed making, altering and maintaining the requisite embankments, walls, banks, fences, waterways, tunnels, engines, sluices, roads, ways, culverts and bridges, as well as diverting the course of any river, stream, creek and drain. The Company was entitled to end existing rights of way across their area of operation, and the power of compulsory purchase of land for three years after the Act was passed. However, it was not entitled to impede existing land drainage without making alternative arrangements, nor to impede existing navigation of the waterway without special permission. It was made a criminal offence to damage the reclamation works in any way, subject to a fine of up to £5. The Lord Lieutenant in Council was authorised to designate reclaimed lands as part of existing townlands under the Survey Act of 1870. These provisions gave the CSRC the power to create a new landscape to accommodate the infrastructure required for the maintenance of reclaimed land areas. Successful execution of the reclamation scheme was to be rewarded by ownership of the newly created lands and the normal rights of a landowner.

Operation of the reclamation

One volume of the 'Works Return Sheets' for the reclamation survives in the archives of Trinity College Library in Dublin and covers the period from 1 June 1885 to 2 January 1886 and gives an insight into the detail of the actual reclamation works that were carried out. This volume consists of weekly returns on two sites and includes detail on the daily employment of workers under various categories and what activities were being undertaken. The works were in full scale operation six days a week with the exception of most Sundays and a few days holidays mostly around Christmas. The major objective at the time was the construction of a retaining wall within which reclamation could take place. Once the wall was built then,

using a network of drains and sluices, the newly reclaimed land would be drained and dried out and converted to grassland. However, building the wall proved difficult as a result of breaches being made by storms as discussed below.

Table 2: Number of workers employed per week from 1 June 1885 to 2 January 1886 with particular reference to the number of labourers and quarrymen.

Week ending	Number of workers	Labourers/Quarrymen
6 June 1885	261	195
13 June 1885	304	226
20 June 1885	309	235
27 June 1885	327	249
4 July 1885	251	187
11 July 1885	299	231
18 July 1885	293	226
25 July 1885	297	230
1 August 1885	280	211
8 August 1885	280	212
15 August 1885	246	179
22 August 1885	309	239
29 August 1885	311	232
3 September 1885	342	267
12 September 1885	329	257
19 September 1885	327	259
26 September 1885	324	259
3 October 1885	340	273
10 October 1885	301	236
17 October 1885	320	254
24 October 1885	309	242
31 October 1885	232	167
7 November 1885	203	142
14 November 1885	205	144
21 November 1885	209	146
28 November 1885	190	128
5 December 1885	198	136
12 December 1885	208	145
19 December 1885	208	145
26 December 1885	113	63
2 January 1886	160	102

The first of the two sheets is entitled 'Clare Castle' and this consisted of a transport operation involving the transport of paving stone and rubble by water using towed lighters (small barges capable of working in shallow water). This operation consisted of between fifteen and seventeen workers loading, operating and running the lighters and had one overseer. This number halved during the week ending 7 November 1885. Their purpose was to supply the works with stone for the construction of the retaining wall. They drew stone from two sources, from Clare Castle which was mostly rubble and from Canon Island and Lisheen in the Fergus Estuary which was mostly paving stone. Over this six month time period they moved 446 lighter loads of rubble and 487 lighter loads of paving and one lighter

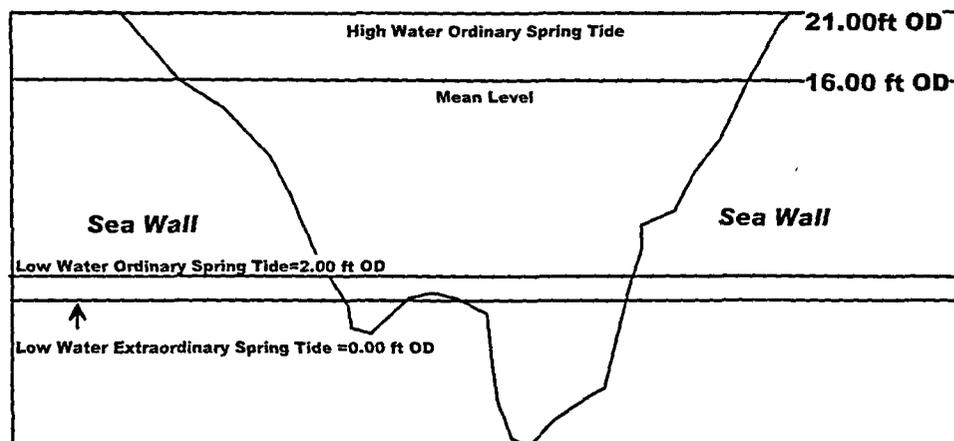


Figure 3: The breach of the main seawall on 17 May 1886 as a result of a storm.

load of coal and timber. On fourteen working days during this timer period no lighter loads could be towed as a result of bad weather, including all of the week from 27 December 1885 to 2 January 1886.

The works site entitled 'Drumquin' was a very substantial site of activity and a major employer. Again there are two distinct periods in terms of employment numbers (Table 2). Up to the week ending 24 October 1885, employment ranged from 246 to 342 workers with an average of 303 workers, a much higher number of workers than at other times. There were considerably fewer workers employed for the remainder of the time period. This ranged from 113 workers during the week ending 26 December 1885 to 232 workers, with an average of 193 workers. There were around twenty categories of workers listed including overseers, carpenters and nippers, but by far the most important were the general labourers and quarrymen whether working on site or in the quarries at Canon Island and Lisheen (Table 3). Unfortunately, there is no indication how much each category of worker was paid. It is also clear from the job descriptions that the works were being carried out using a combination of steam engines and horsepower. There is no doubt that reclamation had a very positive impact on the local economy given the levels of employment and demand for all manner of supplies associated with works and employment of this level.

The activities carried out during a week were also carefully recorded and tabulated. Most activities involved the removal of mud and its replacement with paving and rubble along the line of the reclamation wall. Essentially the wall was built using paving and the interior of the wall was then filled with rubble. Over this time period in excess of 13,000 wagon loads of material were moved. Some idea of the volume of material involved can be gained by looking at the quarrying activity of the Company over this time period. The Company operated three quarries of which the main one was at Lisheen on the west side of the Fergus Estuary. Some 5066 metric tons of rock were quarried at this site including a maximum of 345 metric tons on the week ending 12 September 1885. In addition a quarry at Canon Island was in operation to the week ending 4 July 1885 and yielded 305 metric tons of rock in total. Clearly the quarry at Canon Island had been worked out. To replace this and take the pressure of the Lisheen Quarry a new quarry came into operation at Drumquin from the week ending 28 November 1885 and became the most important quarry and yielded 843 metric tons over a relatively

short time period including 328 metric tons the week ending 12 December 1885. Overall, 6214 metric tons of rock was quarried during this six-month time period of which the average weekly total of quarried stone was 200 metric tons varying from as low as 78 metric tons the week ending 2 January 1886 to 440 metric tons the week ending 12 December 1885.

Difficulties faced by the CSRC

The initial Act was followed by the Clare Slobland Amendment Act in 1878 and the Clare Slobland Extension Act in 1879. The amendment and extension Acts were required because the Company had failed to complete the work required in the time allowed. This was primarily due to breaches in some of the embankments which was blamed on exceptional storms. Records show significant breaches occurred in the main embankment on 4 November 1884 and 17 May 1886 and a number of others (Figure 3).

It is clear from reports of debate in the House of Commons as reported in *The Times* of 1 August 1883 that the Board of Works in Ireland had become heavily involved in the reclamation scheme from the earliest opportunity and had initially advanced the Company £45,000. By 1883 however with the work still not complete and the initial funding completely used up the Board of Works and another creditor had taken over the Company as salvage creditors. A second contract of £23,000 was then signed with the original contractors to complete the works of which the Board of Works contributed £15,000. But, due to storms and unforeseen difficulties this still proved inadequate to complete the scheme and a further £12,000 was advanced to complete the works before the winter storms. The one positive note to emerge from this newspaper report is the expressed belief that the value of the reclaimed land would still cover the amount of money advanced and already spent both by the Board of Works and other sources.

Table 3: Categories of workers at the main reclamation works site with numbers for week ending 22 August 1885.

Category	Number	Category	Number
Labourers and Quarrymen	219	Fitters	3
Quarrymen Lisheen	20	Engine Drivers	3
Nippers	12	Firemen	2
Carpenters	8	Engine Cleaners	2
Yard and Watchmen	6	Overseers	2
Stone Masons	5	Office Cleaners	2
Boatmen and Pilot	4	Storekeeper	1
Horse and Guide	4	Office Clerk	1
Smiths	3	Timekeeper	1
Smith's Helpers	3		
TOTAL	301		

An interesting notice of immediate sale by the Clare Slobland Reclamation Company appears in *The Times* of 19 September 1883. The main items for sale were locomotives, engines, wagons, steamers, dredgers, barges, about 356 metric tons of rail and 13 large iron huts etc. This indicates two possibilities, firstly that the scheme was near completion or that

they were selling off some assets to raise additional money. The latter is the more likely reason given the available documentation on the Company at this time.

A further notice in *The Times* dated 24 May 1884 indicated that the money now advanced by the Board of Works was up to £76,226 and noted that 300 men were constantly employed on the scheme and that strict controls were being implemented at the works. This additional advance was made on the basis of £90,000 in bonds from people interested in taking over the land on completion of the scheme. This effectively meant that as long as the scheme was completed successfully the money advanced by the Board of Works would be covered.

By 14 May 1887, according to the same source, the scheme was still not finished and the Board of Works had now advanced £125,151 with an additional £4000 still required to complete the reclamation scheme. However it was noted the projected valuation of the land once the scheme was complete was only £70,510, that this was before the agitation associated with the land question and that the current income from the land was nil.

Failure and winding up of the CSRC

The financial difficulties were as a result of the non-completion of the reclamation scheme in the allotted time. This was also due to the non-payment of the original £6000 owed to the Queen, Marquis Conyngham and Baron Leconfield which had not been paid by 1888 as required in the 1873 Act. In addition to the original sum, substantial interest was now also owed. From 1882 to 1892 the CSRC found itself in and out of the land courts. Initially this was in an attempt to prevent loss of control of the scheme, which it did in 1883 and with it the eventual benefits. Later there was an attempt to try and regain control of the Company. The CSRC was also sued by Sandes in the Queen's Bench Court in London, although *The Times* notices of 8 June and 26 October 1887 do not specify exactly why, it is presumably for recovery of money owed.

By the end of 1887 the works were finally complete but it was noted that the water was not entirely off the land and still completely covered between twelve and sixteen hectares. The Board of Works offered the land for sale in *The Times* in the issues of 20 and 27 March 1889 stating that the reclamation works had been completed for some time. A survey of the reclaimed land was however carried out in January 1890 after the lands had dried out sufficiently indicating that the sale had not gone ahead. In *The Times* of 3 January 1891 John Walker, the Company Secretary, made a last ditch effort in the High Court of Ireland to prevent the sale finally going through on the 6 February 1891. It was stated in the court notice that the reclaimed land was yielding an income of around £3650 per annum, a not inconsiderable sum. The reclaimed land was used as high quality and high productivity grazing for cattle and sheep to meet demands in Britain. This attempt by Walker failed and the Clare Slobland Reclamation Company was wound up in 1891 though the court case continued until 1892.

The reclaimed lands were finally sold by the Board of Works for only £2300 in December 1892, of which £1832 went to the Crown, Conyngham and Leconfield after expenses. This figure is only a small fraction of the CSRC's own valuation of the land in 1882 and of the huge amount of money that was spent on the reclamation. There are a number of possible reasons for this. Firstly, there may have been a concern that the reclamation would fail in the future given the number of breaches in the reclamation wall when it was being built, so therefore it would be a high risk purchase. There was also a decline in the value of land due to the fall-off in British demand for cattle and sheep from Ireland while high levels of land

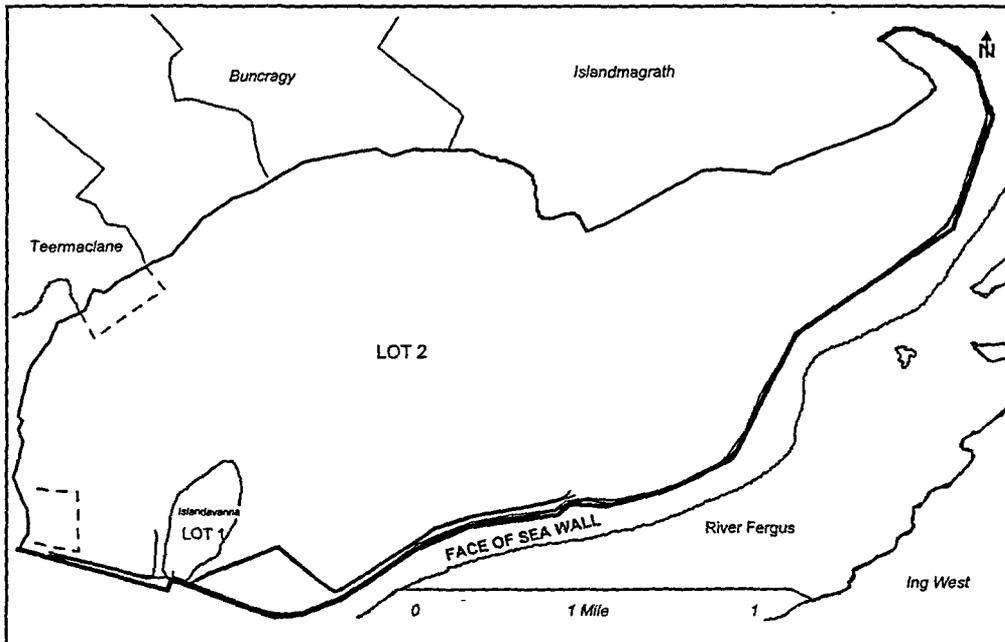


Figure 4: The two lots for sale after completion of the reclamation scheme in 1892.

agitation effectively eliminated any likelihood of purchasers coming from outside Ireland. It is also clear from the map showing the lots for sale that none of the internal work had been carried out on the reclaimed areas including, in particular, drainage channels and sluices which would keep the land as dry as possible (Figure 4). This meant that any purchaser would have to commit to additional financial commitments in order to maintain the reclaimed areas. These factors would have driven down the price of the land.

The main reclamation embankment which had been breached on a considerable number of occasions during the workings of the scheme failed again in three places as a result of the storm of 8 October 1896 resulting in the flooding of much of the reclaimed area according to *The Times*. So the scheme in this form had only survived a bare nine years. This led to the abandonment of this embankment as an examination of the 2nd edition OS of this area surveyed in 1922 showed that the embankment had not been repaired.

Fergus Reclamation Company

The story does not end there as the 2nd edition OS map of the area of 1922 also shows that a smaller reclamation scheme was successful on this site and this remains the case through to the present day. Although the archives are not as plentiful or clear, it is apparent that a second company was ready to take over reclamation of the area previously occupied by the Clare Slobland Reclamation Company. The relationship between the two companies is not clear by any means but the Fergus Reclamation Company (FRC) came into operation at least as early as 1886, viz. the Fergus Reclamation Bill in 1886. It may be that the directors of Clare Slobland Reclamation Company were trying to avoid at least some of the mounting debts and as a result they set up the Fergus Reclamation Company. However, it is also possible that this new company was an entirely separate entity. By 1922 the FRC had reclaimed just over 283

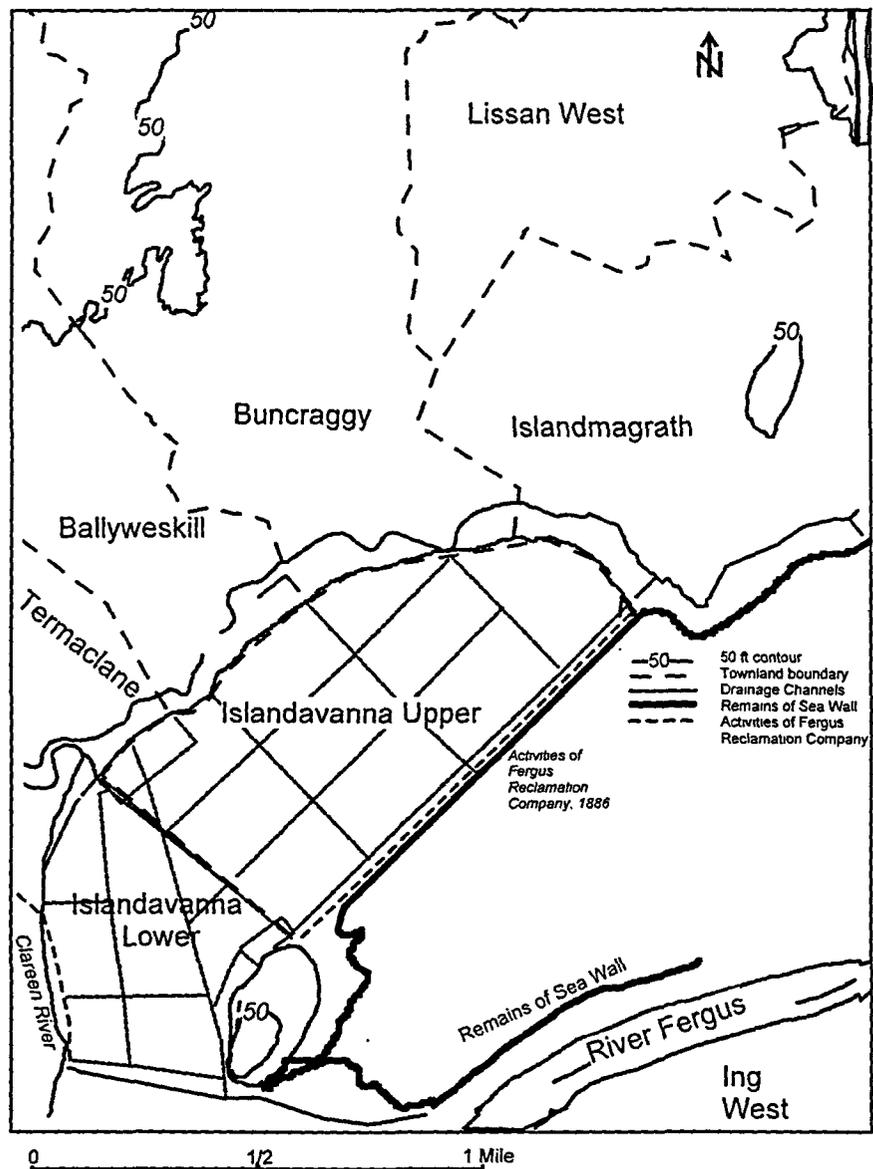


Figure 5: The more modest but successful reclamation scheme of the Fergus Reclamation Company.

hectares of the land originally reclaimed by the Clare Slobland Reclamation Company. Although this was still a very large scheme, it was just under half of the land area of the original scheme (Figure 5). This land was in the much more sheltered part of the site and away from the main channel of the River Fergus.

Conclusion

This paper has shown that despite very extensive reclamation in the Shannon estuary including the feeder estuary of the Fergus that not all schemes were a success, however the

archives from the Clare Slobland Reclamation Company indicate the radical transformation of the Shannon estuary that was being undertaken at this time and the processes at work in this transformation. The fact that this very large scheme appears to be one of the few that failed fairly quickly after completion indicates both the ambitiousness of the scheme but also the lack of scientific knowledge of the way estuaries operate. The success of the more modest Fergus Reclamation Scheme is illustrative of this.

Clearly a lot more work needs to be done on the reclamation of the Shannon Estuary particularly on two fronts. Firstly, to assess the documentary evidence of the extensive reclamation works that were carried out prior to the 1st Edition OS of 1842 and secondly to analyse the smaller more successful schemes that occurred particularly on the River Maigue on the south side of the estuary. In addition the existence of a large number of files from the Irish Quit Rent Office, now in the National Archives indicate that reclamation along the coast and in estuaries from this time period and throughout the island of Ireland is far more widespread than previously known.

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