

**MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME  
ARCHAEOLOGICAL RESEARCH, RECORDING AND MONITORING PROGRAMME**

**GAT Project Number G1578  
GAT Report Number 367**

**June 2000**



Ymddiriedolaeth  
Archaeolegal  
Gwynedd  
Archaeological  
Trust

e-mail: [gwyneddercheologicaltrust@btinternet.com](mailto:gwyneddercheologicaltrust@btinternet.com)  
Craig Beuno, Fordd y Garth, Bangor, Gwynedd. LL7 2RT ☎ 01248 352535 Fax 01248 370925

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**MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME  
ARCHAEOLOGICAL RECORDING AND ARCHIVAL RESEARCH PROGRAMME**

**GAT project no. G1578, report no. 367**

Pont Malltraeth lanwaith ar li' - pont gadarn,  
Pont gododd y seiri;  
Bont hylaw ar bant heli  
Un glws iawn mi glywais i.<sup>1</sup>

*Edward Morgan, Llangristiolus*

## **1. INTRODUCTION**

The Environment Agency Wales commissioned Gwynedd Archaeological Trust to undertake a programme of recording, historical research and monitoring work in advance of improvement works to the tidal sea doors at Cob Malltraeth, Anglesey. The north culvert on the south drain, known as 'the Telford structure', is the major feature of historical interest to be affected by the works (SH40786868). The historical research conducted aimed to identify documentary sources relating to the structure.

The archival research was carried out by Dr David Gwyn and monitoring visits and photographic recording by John Roberts. This report was written by Dr Gwyn, with contributions from John Roberts, who compiled the final version, including photographic registers and illustrations.

## **2. ASSESSMENT BRIEF**

An initial report was requested from the Gwynedd Archaeological Trust identifying documentary sources for, and, if possible, plans of, the sluice gate and tidal doors at Malltraeth. A programme of photographic recording was to be undertaken for the purpose of recording the structure prior to the improvement works, which would lead to much of the structure being obscured from sight. The Trust was also to undertake a monitoring visit and to maintain contact with the Environment Agency, and their contractors throughout the duration of the works to provide advice where necessary.

## **3. METHODS AND TECHNIQUES**

### **3.1 Heritage Management Advice**

A visit was undertaken by Trust staff on 28 October 1998 to provide management advice to the Environment Agency. Subsequently, efforts were made by the Trust to determine the geology of the stone used in the structure, and to identify a possible current source for material for use in sympathetic repair work. Dr Brenchley of the Department of Earth Sciences, University of Liverpool, was consulted, and was able to identify possible source local to the site. A further visit was made by Trust staff on 30<sup>th</sup> April 1999 to monitor the works in progress and to ensure that the historical integrity of the structure was not being adversely affected.

### **3.2 Desk-top study**

Consultation of archives and other written records, and retrospective map analysis were carried out in the library of the University College of North Wales, the Caernarfon Record Office and the Llangefni Record Office. The Institution of Civil Engineers' records for the early engineers of the Cob were also studied.

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<sup>1</sup> National Library of Wales, J. Lloyd Williams collection 1.

The archival resource for the cob is extensive, and map coverage particularly good for the late eighteenth and early nineteenth century.

The Gwynedd Archaeological Trust's Sites and Monuments Record was also consulted.

### 3.3 Photographic survey

Photographic recording was conducted over two days, 31<sup>st</sup> December 1998 and 12<sup>th</sup> March 1999. All components and aspects of the north culvert were photographed as colour transparencies and black and white prints. Shots were repeated at different exposures to ensure that quality images were obtained for component. Further photographs were taken during a monitoring visit on 30<sup>th</sup> April 1999, whilst improvement work at the structure was underway.

The work resulted in the creation of an original archive of four colour transparency films and four black and white print films, which are archived within the Sites and Monuments Record for Gwynedd (held and maintained by Gwynedd Archaeological Trust), where they are available for consultation. Photographic registers itemising for each film are given as Appendix One, along with the negative contact sheets of each black and white film for reference.

Selected photographs are reproduced in this report (see Appendix Two - Illustrations) to depict the key features and components of the structure. The key features were identified as:

- Soffits and arch barrel
- Stepped wing walls of dressed stone, to north and south of the culvert
- Double-flighted access steps to north of culvert
- Single-flighted access steps to south of culvert
- Dressed architectural stone, such as the capping slabs on the low walls bounding the track over the structure
- Current wooden tidal door arrangement
- Stone pitching, especially that to the south west of the site.

### 3.4 Consultation

Consultation was carried out with the staff of the Department of Manuscripts, University of Wales, Bangor, of the Caernarfon Record Office, with Mike Chrimes, Librarian of the Institution of Civil Engineers and with Anne Venables of the Llangefni Record Office.

### 3.5 Statutory protection and description.

The sluice gates have not been afforded statutory protection.

## 4. ARCHIVAL FINDINGS

### 4.1 Location

Cob Malltraeth is a sea-defence constructed at the mouth of the Afon Cefni in south-west Anglesey. The Malltraeth marsh once formed an arm of the sea that extended from Llanddwyn point to Llangefni bridge, a total distance of 12 miles, and effectively divided Anglesey into two, traditionally known as Sir Fôn Fawr and Sir Fôn Fach.<sup>2</sup> To this day, the people of Newborough refer to the people of Malltraeth as *pobl trwy'r Afon*, 'people beyond the river.'<sup>3</sup> The sluice is situated at SH 4078 6868 and is erected over the mouth of the side drain known as the Menai drain or yr afon fain.

<sup>2</sup> Gwilym T. Jones, *The Rivers of Anglesey* (Bangor, 1989), p. 55.

<sup>3</sup> Gwilym T. Jones, *The Fords of Anglesey* (Bangor, 1992), p. 34.



## 4.2 Ownership and administration

The Cefni formerly represented the boundary between the commote of Menai and the commote of Malltraeth. The area of marsh created by the embankment included land in the lordships of Rhosfair and Aberffraw, in both of which the King was Lord of the Manor, and Lledwigan, where Lord Bulkeley was Lord of the Manor. The parishes were Trefdraeth, in which the sea-defence wall is situated, Llangristiolus, Llangeinwen, Llangaffo and Llanfihangel Esceifiog. The major proprietors were Lord Boston, the Earl of Uxbridge, Lord Newborough of Glynllifon, Caernarfonshire, Sir Hugh Owen bart. of Bodeon, Sir Hugh Williams bart. and Owen Putland Meyrick esq. of Bodorgan. The enclosure of 1821 (see below, 4.3) allotted 762 acres to William Lewis Hughes, 245 acres to Owen Putland Meyrick, 244 acres to Holland Griffith of Plas Berw and 242 acres to the Marquis of Anglesey.

## 4.3 Historical background.

Cob Malltraeth is one of a number of sea-defences constructed in North Wales in the eighteenth and early nineteenth century, beginning with the canalisation of the Dee, and including works such as the embanking of Traeth Mawr by William Alexander Madocks between 1808 and 1813.

Cob Malltraeth was by no means the earliest water-control system proposed for the Cefni. Greenly records that as early as 1610 the coal pits at Berw were flooded as a result of the diversion of the river,<sup>4</sup> and later on in the same century plans were under discussion to reclaim the inlet.<sup>5</sup> It was at one time proposed to build a harbour at Dinas Llwyd, which would have made Malltraeth a safe anchorage for large vessels, and Lewis Morris proposed a scheme for making a harbour by contracting the entrance to Malltraeth from Llanddwyn to Dinas Llwyd.<sup>6</sup> However, a resolution was passed in 1781 in favour of an embankment, and 'that Mr an ~~Golborne of Ely or some other~~ able Engineer be immediately employed to estimate the Expense of the Embankment and Inclosure'.<sup>7</sup> Even though Golborne's name was crossed out in the resolution, he duly arrived to prepare an estimate.<sup>8</sup> An enclosure bill prepared by Bayley and a Mr Parry received the royal assent in June 1788.<sup>9</sup> Evan Lloyd of Maesyporth, Anglesey, the Rev. John Williams of Treffos, and the Rev. Richard Griffith of Bangor were appointed Commissioners.

The embankment appears to have been completed in September 1789, when an ox was roasted on it by way of celebration, but almost immediately 100 yards were carried away in a storm.<sup>10</sup> Another act was passed on 28 April 1790 for raising further capital,<sup>11</sup> but on 23 January 1796 further storms damaged the work,<sup>12</sup> and no further work appears to have been done until the early years of the following century. On 7 September 1809 the *North Wales Gazette* advertised a meeting at Llangefni to revive the project,<sup>13</sup> and a third act was passed.<sup>14</sup> Benjamin Wyatt of Lime Grove, near Bangor, later succeeded by James Wyatt, also of Lime Grove, agent to the Penrhyn estate, and John Williams Tregarnedd were appointed commissioners. They were of the opinion that the existing works were 'good and sufficient', and were empowered to make a second embankment or catchwater bank behind the first, and were granted an easement for a road from

<sup>4</sup> Edward Greenly, *Geology of Anglesey* vol. 2 (Memoir of the Geological Survey, 1919), p. 812.

<sup>5</sup> UWB Baron Hill 1695 and 1697-1700, National Library of Wales, Carreg-lwyd 957 'An affidavit concerning the Cefni River being dammed'.

<sup>6</sup> Evan J. Jones, 'The Enclosure Movement in Anglesey (1788-1866) *Transactions of the Anglesey Antiquarian Association* 1926 pp.31-89, quoting J. Evans, *Topographical and Historical Description of Anglesey* (London 1810)

<sup>7</sup> CRO X/Poole 1729, resolution concerning embankment, 20 September 1781

<sup>8</sup> CRO X/Poole 1766

<sup>9</sup> 28 Geo. III, c. 71

<sup>10</sup> CRO X/Poole 1749

<sup>11</sup> 30 Geo. III, c. 59

<sup>12</sup> E.J. Jones, *op. cit.*, p.37.

<sup>13</sup> *North Wales Gazette*, 7 September 1809

<sup>14</sup> 52 Geo. III, c. 132 – E.J. Jones has 51 Geo. III, c. 132, but the draft in the Porth yr Aur collection (UWB Porth yr Aur 13780c) has 52 Geo. III.

Malltraeth to Newborough along it. They were also granted easements for workshops, a yard and houses for the workmen. References suggest that the Menai sluice was already in existence, though not necessarily the present structure.<sup>15</sup> It was to these commissioners that W.A. Provis reported in 1820, advising on regrading the banks.<sup>16</sup> Provis was at this stage working as Telford's assistant on the A5, and local tradition suggests that Telford himself became involved in the design of the sluices at this stage.

Though the act was passed in 1811, it was 1821 before the enclosure was awarded.<sup>17</sup> A number of documents from this period survive in the Porth yr Aur collection at University of Wales Bangor, which make it clear that the egregious John Evans, a Caernarfon solicitor and Deputy Prothonotary of North Wales, had become involved in the scheme.<sup>18</sup> These show that the work was being actively prosecuted in 1816, under the supervision of one John Jones 'Superintendent of the Works now in execution at Malltraeth', and it is likely that the embankment was completed shortly after.<sup>19</sup> The purchase of large amounts of timber for the works suggest that it was constructed in much the same way as the Cob at Porthmadog, involving a wooden staging through which stones and other fill were dropped to form the embankment. The Porthmadog Cob used a railway system, but there is no record of such a system at Malltraeth.

The 1811 act authorised a road across the catchwater bank. Before the Cob had been built paths led across the marsh crossing the river at Rhyd y Maen Du and at Rhyd Aber Hocwn, as well as at various other locations higher up the marsh.<sup>20</sup> A further act of 1859<sup>21</sup> enabled the Commissioners to raise a mortgage to pay off debts, and surviving accounts up to 1918 record incidental payments for the repair of the structure.<sup>22</sup> One of the embankments on the Cefni was nevertheless breached in December 1924.

#### 4.4 Engineering specifications

The original specifications and estimates for the sluice gates dating from 1788 survive in the Poole collection at the Caernarfon Record Office. The specification reads as follows (spelling and punctuation as in the original):

The sluice to be twelve feet in the Chamber and Forty Feet in Length the Floor Timber to be twenty feet in Length and twelve Inches by six in scantling to be laid edgeways upon two three Inches Planks laid under the backside of the Walls – the distance of the Timbers from each other to be three feet middle and middle – the Aprons to be fifteen feet in Length so that the whole length of the Sluices will be seventy feet the Timber in the Aprons to be the same scantling and distance but the Length of these in the Sea Apron to be sixteen Feet – those on the Land Apron to be fourteen feet –

The main Sell (?) for the Sea Doors to consist of two whole Riga Balks of twelve inches square each and twenty six feet long and one Balk of sixteen feet long – the sell for the Land Doors to be twelve inches Square and twenty six feet long – the Sells at the Tail of the Aprons to be twenty two feet in Length and twelve by six – there are to be three Sheets of three Inch grooved Piling two of them under the sea and land Doors to be twenty six feet in Length and six feet deep, and one at the Sea Aprons to be twenty two feet in length and six feet deep – the spaces between the Ground Timber to be pitched with their rubble Stones nine inches deep and (illeg.) after being filled with a mixture of Sand and Lime Scraps –

<sup>15</sup> E.J. Jones, *op. cit.*

<sup>16</sup> UWB Bangor ms 29495

<sup>17</sup> Public Record Office LRRO 1/3019

<sup>18</sup> UWB Porth yr Aur 13757a–13780. Evans was a businessman with a finger in a great many pies – he was involved in slate quarrying in Caernarvonshire and Merionethshire, and advised a number of the landed families of North-west Wales. He was active in both promoting and resisting enclosure bills.

<sup>19</sup> UWB PyA 13771–13776.

<sup>20</sup> UWB Bodorgan 1583; see also Gwilym T. Jones, *The Fords of Anglesey* (Bangor, 1992), pp. 32-9.

<sup>21</sup> 22 and 23 Vict. 1859

<sup>22</sup> Tomos Roberts, 'Awdur "Cob Malltraeth"', *Industrial Gwynedd* vol. 1 (1996)

The Floors of the Sluice/<sup>and</sup> Aprons to be two Inches in Thickness of Deal Planks.-

The Chamber walls of the Sluice to be four feet in Thickness and five feet in height to the Springing of the Arches – faced with good well tooled Ashlar from twelve to fifteen Inches in bed with proper throughs so as to make them at an average eighteen Inches in bed – they are to be supported by eight Pillars or Counterforts, each four feet by three and six feet in height the wings to be four feet thick, nine feet high and length according to the Plan the Chamber to be Arched with Ashlar twelve inches in bed/

The floor of the Sluice Chamber to be one foot above the Top of the southernmost larger stone in the Black Rocks – and which Stone is seven Feet below the rise of the highest spring Tides. –

The Situation of the Sluice to be opposite a large Stone at Rhyd y Maen Du – the other Dimension of the Sluice to correspond with Plans to be delivered by the Engineer.

The estimate reads as follows:

Building the Sluice agreeable to the Plan and with a timber bottom in lieu of an inverted arch £442 12s.<sup>23</sup>

#### 4.4 Engineers and contractors

1. Jonathan Pinkerton; of Spark Hill, Warwick, gent., one of the original contractors in the 1780s, along with Dyson.<sup>24</sup>
2. Jonathan Dyson; of Hewington, Yorkshire, one of the original contractors in the 1780s, along with Pinkerton.<sup>25</sup>
3. James Golborne (1746-1819: civil engineer; apprenticed to his uncle, John Golborne in 1760, with whom he worked on the Chester to Connah's Quay canal, and the deepening of the Clyde below Glasgow. In 1776 he arrived at Ely as Superintendent General of the Bedford Level; as such he was responsible for the water-control system over 300,000 acres, and was extensively involved in plans and preparations for new works in the Fens. He was elected to the Smeatonian Society of Civil Engineers in 1793. His duties were severely tested by the floods of 1809, and he retired in 1813.<sup>26</sup> A Mr Golborne was involved with a scheme for a turnpike road from Llangynog through Bala, thence over Traeth Mawr, which was to be embanked and drained, to Porth Dinllaen on Llyn.<sup>27</sup>
4. William Alexander Provis: Telford's assistant on the post road, and involved in a number of other schemes and projects in North-west Wales at the time.
5. John Jones: Described in 1816 as Superintendent of the Works now in execution at Malltraeth' and as 'Agent'. John Golborne (1724-1783), uncle of James, and himself a distinguished engineer, never

<sup>23</sup> CRO X/Poole 1765.

<sup>24</sup> CRO X/Poole 1765.

<sup>25</sup> CRO X/Poole 1765.

<sup>26</sup> Institution of Civil Engineers, draft entry for James Golborne, *Biographical Dictionary of Early Civil Engineers* (forthcoming).

<sup>27</sup> NLW thesis, W Morgan Richards, 'Some Aspects of the Industrial Revolution in South Eastern Caernarvonshire' and Rev. Walter Davies ('Gwallter Mechain') *A General View of the Agriculture and Domestic Economy of North Wales* (1813)

married but left a natural son, John Jones, to whom he left his River Dee stock. While the name is a common one in Wales, it is possible that this John Jones is the same man.<sup>28</sup>

6. R. Algeo: Engineer to the Anglesea (sic) Central Railway, running from Gaerwen to Amlwch, constructed 1864-7.<sup>29</sup>

## 5. CONCLUSIONS

It is possible that the sluice chamber may contain work dating to the eighteenth century. However, the existing dimensions do not agree with those on the original specification and there are detail variations between the existing work and the works shown on plans dated 1790 and 1821; it is therefore possible that the present sluice chamber is a later construction. No evidence has emerged to suggest that Telford was responsible for the work, and it is possible that this tradition has come into being as a result of the advice his assistant Provis gave the Commissioners on improving the banks. However, in that the work appears to have been reaching completion between 1816 and 1818, when Telford was working in the area, the possibility that he had a hand in the design and construction of this feature cannot be dismissed.<sup>30</sup> However, the present sluice gate does not show any obvious stylistic similarities with Telford's work elsewhere. It is no surprise that engineering drawings from this period do not survive; it was still more common to build models, which would be accompanied perhaps by detailed written specifications, of proposed engineering works.

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<sup>28</sup> Institution of Civil Engineers, draft entry for John Golborne, *Biographical Dictionary of Early Civil Engineers* (forthcoming). John Jones of Malltraeth was literate in English (UWB Porth yr Aur 13776), which would still not necessarily be the case for a local superintendent at that time.

<sup>29</sup> V.J. Bradley, *Industrial Locomotives of North Wales* (London, 1992) p. 106.

<sup>30</sup> There are no obvious similarities between the sluice and known works of Telford; in particular, Telford favoured rounded aprons, whereas those at Malltraeth are square. See Anon., *Atlas to the Life of Thomas Telford* (London, 1838), *passim*.



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##### CRES

6/108 Crown Estate records.

6/145 Crown estate records.

#### *National Library of Wales*

##### Carreg-lwyd

957 An affidavit concerning the Cefni River being dammed.

#### *Caernarfon Record Office*

##### X/Poole

1729 Resolution concerning embankment, 20 September 1781.

1745 Financial matters, 30 August 1789.

1749 Completion of embankment and rupture, 1788.

1765 Articles of agreement with Messrs Pinkerton and Dyson, 1787.

1766 Copy of Mr Golborne's report and estimate, 1787

#### *University of Wales, Bangor,*

##### Baron Hill mss

1695 The Cefni river, seventeenth century.

1697 The Cefni river, seventeenth century.

1698 The Cefni river, seventeenth century.

1699 The Cefni river, seventeenth century.

1700 The Cefni river, seventeenth century.

##### Bodorgan mss

1583 Survey of Malltraeth, etc. by R. Owen, 1787.

##### Bangor mss

118 Map of Malltraeth, 1790.

24807 Documents including map of Malltraeth, 1821, and bill 22 and 23 Vict. Session 1859.

26941 Photocopy of CRO Poole 1766.

29495 Letter (printed) from W.A. Provis advising Commissioners, 1820.

35317 Act of 30 Geo. III, 1790.

32696 Abstract of revenue accounts, January 1856-August 1859; Robert Algeo is Engineer.

32701 Payment of surveyor's salary to Robert Algeo, 1864-5.

- 32702 Payment to Pierce Morgan Pierce for remaking water sluices.
- 32703 Payment to Pierce Morgan Pierce.
- 32704 Repairing bridge and embankment at Malltraeth yard, 1867-8.
- 32705 Pierce Morgan Pierce working under contract.
- 32709 Payment of £145 to Richard Parry for erecting floodgates and culverts.
- 32719 Payment to H. Morris & Co. 'for looking after floodgates'; 1886-7.
- 32720 Payment for repairing door at Malltraeth bridge, 1887-8.

Porth yr Aur mss

- 13757a Map of Malltraeth, no date.
- 13762 letter to John Evans, solicitor from William Jones concerning Cob, 1812.
- 13771 Theft of timber from Cob enclosure commissioners.
- 13773 'John Jones Superintendent of the Works now in Execution at Malltraeth' – January 1816.
- 13775 John Jones 'Agent' has purchased great quantities of timber to build the embankment.
- 13776 Letter from John Jones – in English.
- 13777 Sale of allotments, 12 June 1818.
- 13780c Draft bill of 52 Geo. III.

## 6.2 Ordnance survey maps:

1/10,000 SH 46 NW

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## 6.4 Newspaper sources

*North Wales Gazette*, 7 September 1809.

## 6.5 Unpublished sources

- NLW thesis, W Morgan Richards, 'Some Aspects of the Industrial Revolution in South Eastern Caernarvonshire'.
- Gwynedd Archaeological Trust (A. Davidson, S. Jones), *Coastal Erosion Survey: Anglesey* (Report 251, March 1997).

## 6.6 Acts of parliament

- 23 Geo. III c. 71, 1788
- 30 Geo. III c. 59, 1790 (copy in Bangor mss 35317)
- 52 Geo. III c. 132, 1811 (draft in Bangor mss 13780c)
- 22 and 23 Vict. Session 1859 (copy in Bangor mss 24807)

### Epilogue

Os torrith Cob Malltraeth fe foddith fy mam,  
'Rwy'n ofni'n fy nghalon mai fi gaiff y cam;  
Cha'i glytio mo'm trowsus na golchi f'hen grys,  
'Rwy'n ofni fy nghalon byddai farw ar frys.

Mae tŷ Owan Edward yn nes at y lli,  
Wel deydwch a fynnoch nag ydyw'n ty ni;  
Os Owan a Mari fydd foddin y fan  
Fe gaiff fy mam lwybr i ddianc i'r lan.

Owan Edwart a Margiad a redant yn glen,  
A Shon mi red yntau - mae mam yn rhy hen;  
Ond diolch i'r mawredd mi wela'r hen wraig  
'Ddiogel yn ochel ar lechwedd y graig.

*Hugh Morgan Bodafon-bach, Llangristiolus*



## APPENDIX ONE - PHOTOGRAPHIC REGISTERS

## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT	Film Type: colour slide Film Number: 1 Photographer: JGR Date:
Project Number: G1578	

Negative No.	Subject and description
1	South drain, north and south culvert, facing N.
2	South drain, north and south culvert, facing N.
3	Null shot
4	South drain, north and south culvert, facing N.
5	South drain, north culvert, facing N.
6	Null shot
7	South drain, north culvert, facing N.
8	South drain, north and south culvert, facing S.
9	Null shot
10	South drain, north and south culvert, facing S.
11	South drain, north culvert, facing S.
12	Null shot
13	South drain, north culvert, facing S.
14	South drain, north and south culvert, facing SE.
15	South drain, north and south culvert, facing SE.
16	Null shot
17	Stepped, revetment, W wing wall, N side of north culvert, facing NW.
18	Stepped, revetment, W wing wall, N side of north culvert, facing NW.
19	Null shot
20	Overgrown access steps, N side of north culvert, facing S.
21	Overgrown access steps, N side of north culvert, facing S.
22	Null shot
23	North culvert from N.
24	North culvert from N.
25	Null shot
26	Dressed slabs capping wall to N side of track across north culvert, facing S.
27	Null shot
28	Dressed slabs capping wall to N side of track across north culvert, facing S.
29	Dressed slabs capping wall to N side of track across north culvert, facing E.
30	Null shot
31	Dressed slabs capping wall to N side of track across north culvert, facing E.
32	Stepped revetment, E wing wall, N side of north culvert, facing SE.
33	Null shot
34	Null shot
35	Overgrown access steps, W flight, N side of north culvert, facing W.
FILM ENDS	

## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: <b>MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT</b>	Film Type: Colour slide Film Number: 2 Photographer: JGR Date: 31/12/98
Project Number: <b>G1578</b>	

Negative No.	Subject and description
1	Null shot
2	Overgrown access steps, W flight, N side of north culvert, facing W.
3	Dressed slabs capping wall to N side of track across north culvert, facing E.
4	Dressed slabs capping wall to N side of track across north culvert, facing E.
5	Track across north culvert, facing SE
6	North culvert, general shot facing N.
7	Landscape shot, view from south drain across Malltraeth estuary. Facing SE.
8	Landscape shot, view from south drain across Malltraeth estuary. Facing SE.
9	Null shot
10	Null shot
11	North culvert, general shot facing N.
12	North culvert, general shot facing N.
13	Null shot
14	Null shot
15	W wing wall, S side, north culvert. Facing NW.
16	W wing wall, S side, north culvert. Facing NW.
17	Null shot
18	Stone pitching SW of north culvert, facing NW.
19	Stone pitching SW of north culvert, facing NW.
20	Stone pitching SW of north culvert, facing NW.
21	Detail of stepped revetment and concrete stop log housing, W wing wall, S side of north culvert.
22	Detail of stepped revetment and concrete stop log housing, W wing wall, S side of north culvert.
23	Detail of stepped revetment, W wing wall, S side of north culvert.
24	Detail of stepped revetment, W wing wall, S side of north culvert.
<b>FILM ENDS</b>	

## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: <b>MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT</b>	Film Type: Colour slide Film Number: 3 Photographer: JGR Date: 12/3/99
Project Number: <b>G1578</b>	

Negative No.	Subject and description
1	Null shot
2	Null shot
3	Top of access steps, W flight, S side of north culvert, and dressed slabs capping wall to S side of track across north culvert. Facing E.
4	Top of access steps, W flight, S side of north culvert, and dressed slabs capping wall to S side of track across north culvert. Facing E.
5	Top of access steps, W flight, S side of north culvert, and dressed slabs capping wall to S side of track across north culvert. Facing E.
6	Access steps, W flight, S side of north culvert, facing E.
7	Access steps, W flight, S side of north culvert, facing E.
8	Detail of ashlar and dressed slab capping stones at walling on S side of track across north culvert. Facing N.
9	Access steps, W flight, S side of north culvert, facing W.
10	Access steps, W flight, S side of north culvert, facing W.
11	Stepped revetment wing wall, W side, S side of north culvert. Facing W.
12	Concrete stop log mounting, against W wing wall, S north culvert. Facing W.
13	Detail of dressed slab capping stones, S side of track across culvert. Facing E.
14	Stone pitching to SW of S side north culvert. Facing SW.
15	Detail of stepped revetment, W wing wall, S side of north culvert.
16	Stone pitching SW of north culvert, outfall arrangements beyond. From SW.
17	Stone pitching SW of north culvert, outfall arrangements beyond. From SW.
18	Detail of stone pitching SW of north culvert, facing NW.
19	Stone pitching SW of north culvert, facing NW.
20	Stone pitching SW of north culvert, facing NW.
21	Wing walls, arch barrel and tidal doors, north culvert, facing N.
22	Wooden tidal doors, S side of north culvert. Facing NE.
23	Wing walls, arch barrel and tidal doors, north culvert, facing NE.
24	Wing walls, arch barrel and tidal doors, north culvert, facing NE.
25	Stone pitching SW of north culvert, facing NW.
26	Stepped revetment wing wall, E side, S side of north culvert. Facing E.
27	Detail of stepped revetment, E wing wall, S side of north culvert. Facing N.
28	Detail of stepped revetment, E wing wall, S side of north culvert. Facing S.
29	Disturbed area of stone pitching to SE of south drain arrangement. Facing SE.
30	South drain landscape setting. View E across track over south drain, and along Cob Malltraeth.
31	South drain landscape setting. View E across track over south drain, and along Cob Malltraeth.
32	South drain landscape setting. View E across track over south drain, and along Cob Malltraeth.
33	South drain landscape setting. View E across track over south drain, and along Cob Malltraeth.
34	South drain landscape setting. Looking N from track over north culvert along length of south drain.
35	Detail of dressed stone slab at wall, S side of track over south drain. Showing eroded rope grooves across slab.
36	Detail of dressed stone slab at wall, N side of track over south drain. Showing eroded rope groove across slab.
<b>FILM ENDS</b>	



## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: <b>MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT</b>	Film Type: Colour slide Film Number: 4 Photographer: JGR Date: 30/04/99
Project Number: <b>G1578</b>	

Negative No.	Subject and description
	<b>FOLLOWING PHOTOGRAPHS WERE TAKEN DURING A MONITORING VISIT CONDUCTED WHILST THE IMPROVEMENT WORKS ON THE SOUTH DRAIN WERE UNDERWAY</b>
1	Access steps and N side of track over north culvert, facing E.
2	Access steps and N side of track over north culvert, facing E.
3	North culvert, work in progress. Facing SE.
4	Work in progress at north culvert. Facing SE.
5	Access steps, N side north culvert, after cleaning. Facing W.
6	Soffit and wing walls, N side of north culvert. Facing S.
7	Soffit and wing walls, N side of north culvert. Facing S.
8	Stepped walling, W wing wall, N side of north culvert after evacuation of water. Facing W.
9	Stepped walling, W wing wall, N side of north culvert after evacuation of water. Facing W.
10	Soffit and wing walls, N side of north culvert. Facing S.
11	Soffit and barrel arch, north culvert. Facing S.
12	Stepped walling, E wing wall, N side of north culvert after evacuation of water. Facing E.
13	Stepped walling, E wing wall, N side of north culvert after evacuation of water, and following removal of old concrete stop log mounting. Facing SE.
14	Wooden tidal door, S side of north culvert, following evacuation of water.
15	General view of S side of south drain, work in progress. Facing W.
16	General view of S side of south drain, work in progress. Facing W.
17	General view of S side of south drain, work in progress. Facing E.
18	General view of S side of south drain, work in progress. Facing E.
19	General view of S side of south drain, work in progress. Facing NE.
20	General view of S side of south drain, work in progress. Facing N.
21	General view of S side of south drain, work in progress. Facing NE.
<b>FILM ENDS</b>	

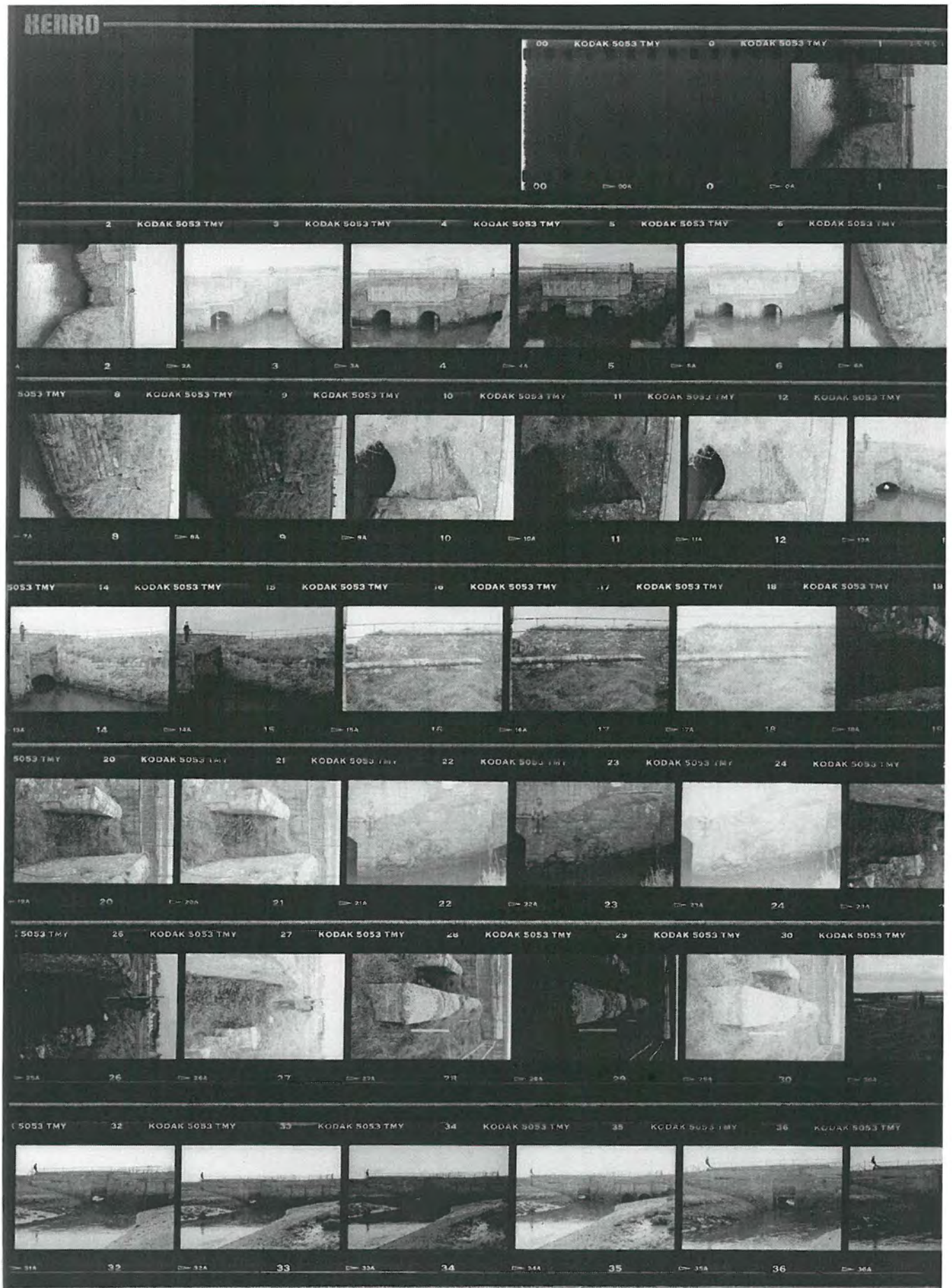
## Gwynedd Archaeological Trust - Project File Photographic Record

<b>Project Title:</b> MALLTRAETH MARSH TIDAL OUTFALL <b>SCHEME - IMPROVEMENT WORKS, SOUTH  DRAIN, NORTH CULVERT</b> <b>Project Number:</b> G1578	<b>Film Type:</b> B/W TMAX 400 <b>Film Number:</b> 1 <b>Photographer:</b> JGR <b>Date:</b>
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Negative No.	Subject and description
1	North culvert, general shot facing S.
2	North culvert, general shot facing S.
3	South drain, north and south culvert, facing S.
4	South drain, north and south culvert, facing S.
5	South drain, south culvert, facing S.
6	South drain, south culvert, facing S.
7	Stepped revetment, W wing wall, N end of north culvert, facing NW.
8	Stepped revetment, W wing wall, N end of north culvert, facing NW.
9	Stepped revetment, W wing wall, N end of north culvert, facing NW.
10	Soffit and platform above, at base of access steps. Facing SW.
11	Soffit and platform above, at base of access steps. Facing SW.
12	Soffit and platform above, at base of access steps. Facing SW.
13	Soffit and stepped revetment, W wing wall, N end of north culvert, facing SW.
14	Soffit and stepped revetment, W wing wall, N end of north culvert, facing SW.
15	Soffit and stepped revetment, W wing wall, N end of north culvert, facing SW.
16	Dressed wall capping slabs, access steps, N side of north culvert, facing S.
17	Dressed wall capping slabs, access steps, N side of north culvert, facing S.
18	Dressed wall capping slabs, access steps, N side of north culvert, facing S.
19	Overgrown access steps, E flight, N side of north culvert, facing E.
20	Overgrown access steps, E flight, N side of north culvert, facing E.
21	Overgrown access steps, E flight, N side of north culvert, facing E.
22	Stepped, revetment, E wing wall, N side of north culvert, facing SE.
23	Stepped, revetment, E wing wall, N side of north culvert, facing SE.
24	Stepped, revetment, E wing wall, N side of north culvert, facing SE.
25	Overgrown access steps, W flight, N side of north culvert, facing W.
26	Overgrown access steps, W flight, N side of north culvert, facing W.
27	Overgrown access steps, W flight, N side of north culvert, facing W.
28	Dressed slabs capping wall to N side of track across north culvert, facing E.
29	Dressed slabs capping wall to N side of track across north culvert, facing E.
30	Dressed slabs capping wall to N side of track across north culvert, facing E.
31	Track across north culvert, facing SE.
32	North culvert, general shot facing N.
33	South drain, north and south culvert, facing N.
34	South drain, north and south culvert, facing N.
35	South drain, north and south culvert, facing N.
36	North culvert, general shot facing N.
37	North culvert, general shot facing N.
<b>FILM ENDS</b>	



G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME  
FILM ONE (B&W PRINT) - NEGATIVES CONTACT SHEET



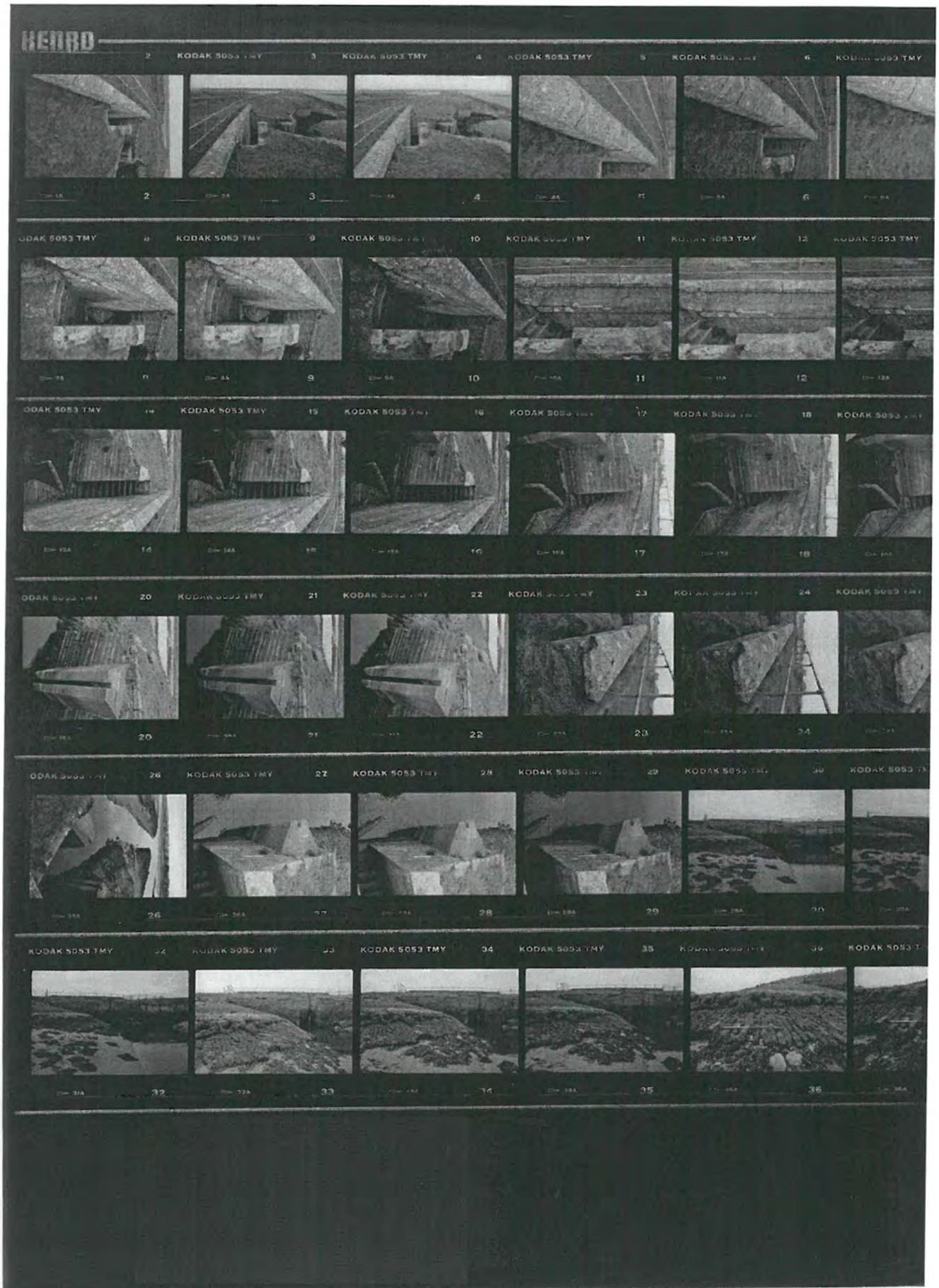
## Gwynedd Archaeological Trust - Project File Photographic Record

<b>Project Title:</b> MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT  <b>Project Number:</b> G1578	<b>Film Type:</b> B/W TMAX 400 <b>Film Number:</b> 2 <b>Photographer:</b> JGR <b>Date:</b>
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Negative No.	Subject and description
1	Null shot
2	Top of access steps, W flight, S side of north culvert, facing E.
3	Top of access steps, W flight, S side of north culvert. Facing E with view over trackway crossing north culvert, and Cob Malltraeth running to SE..
4	Top of access steps, W flight, S side of north culvert. Facing E with view over trackway crossing north culvert, and Cob Malltraeth running to SE.
5	Dressed slabs capping wall to S side of track across north culvert, facing E.
6	Top of access steps, W flight, S side of north culvert, and dressed slabs capping wall to S side of track across north culvert. Facing E.
7	Top of access steps, W flight, S side of north culvert, and dressed slabs capping wall to S side of track across north culvert. Facing E.
8	Access steps, W flight, S side of north culvert, facing E.
9	Access steps, W flight, S side of north culvert, facing E.
10	Access steps, W flight, S side of north culvert, facing E.
11	Detail of ashlars and dressed slab capping stones at walling on S side of track across north culvert. Facing N.
12	Detail of ashlars & dressed slab capping stones at walling on S side of track across culvert.
13	Detail of ashlars & dressed slab capping stones at walling on S side of track across culvert.
14	Access steps, W flight, S side of north culvert, facing W.
15	Access steps, W flight, S side of north culvert, facing W.
16	Access steps, W flight, S side of north culvert, facing W.
17	Stepped revetment wing wall, W side, S side of north culvert. Facing W.
18	Stepped revetment wing wall, W side, S side of north culvert. Facing W.
19	Stepped revetment wing wall, W side, S side of north culvert. Facing W.
20	Concrete stop log mounting, against W wing wall, S north culvert. Facing W.
21	Concrete stop log mounting, against W wing wall, S north culvert. Facing W.
22	Concrete stop log mounting, against W wing wall, S north culvert. Facing W.
23	Detail of dressed slab capping stones, S side of track across culvert. Facing E.
24	Detail of dressed slab capping stones, S side of track across culvert. Facing E.
25	Detail of dressed slab capping stones, S side of track across culvert. Facing E.
26	Stone pitching to SW of S side north culvert. Facing SW.
27	Detail of stepped revetment, W wing wall, S side of north culvert.
28	Detail of stepped revetment, W wing wall, S side of north culvert.
29	Detail of stepped revetment, W wing wall, S side of north culvert.
30	Stone pitching SW of north culvert, outfall arrangements beyond. From SW.
31	Stone pitching SW of north culvert, outfall arrangements beyond. From SW.
32	Stone pitching SW of north culvert, outfall arrangements beyond. From SW.
33	Stone pitching SW of north culvert, showing culvert in background. From SW
34	Stone pitching SW of north culvert, showing culvert in background. From SW
35	Stone pitching SW of north culvert, showing culvert in background. From SW
36	Detail of stone pitching SW of north culvert, facing NW.
37	Detail of stone pitching SW of north culvert, facing NW.
<b>FILM ENDS</b>	



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME  
FILM TWO (B&W PRINT) - NEGATIVES CONTACT SHEET**



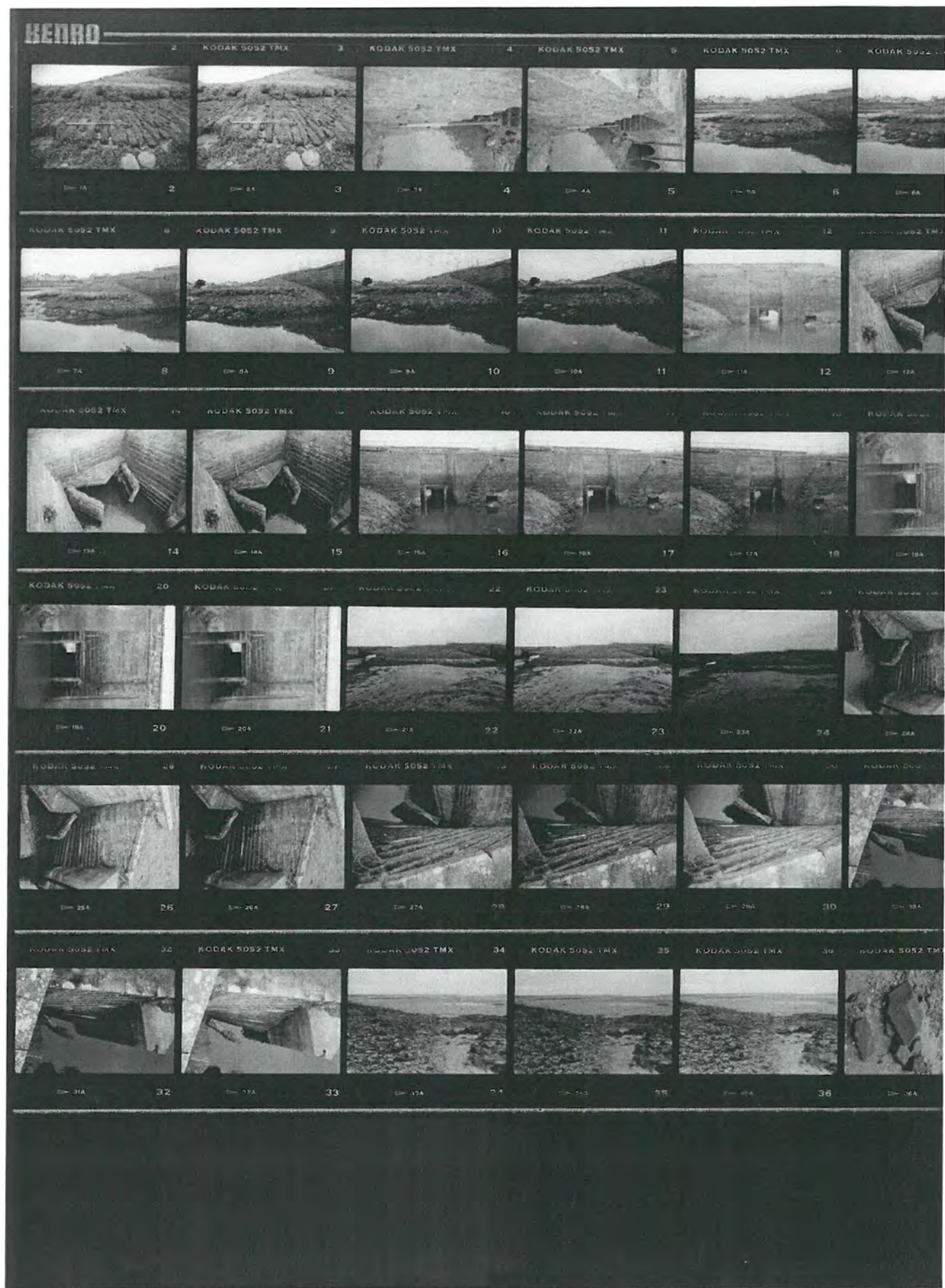
## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: <b>MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT</b>	Film Type: B/W TMAX 400 Film Number: 3 Photographer: JGR Date:
Project Number: <b>G1578</b>	

Negative No.	Subject and description
1A	Detail of stone pitching SW of north culvert, facing NW.
2A	Detail of stone pitching SW of north culvert, facing NW.
3A	Detail of stepped revetment, W wing wall, S side of north culvert. Facing E.
4A	Detail of stepped revetment, W wing wall, S side of north culvert. Facing E.
5A	Stone pitching SW of north culvert, facing NW.
6A	Stone pitching SW of north culvert, facing NW.
7A	Stone pitching SW of north culvert, facing NW.
8A	Stone pitching SW of north culvert, facing NW.
9A	Stone pitching SW of north culvert, facing NW.
10A	Stone pitching SW of north culvert, facing NW.
11A	Wing walls, arch barrel and tidal doors, north culvert, facing N.
12A	Wooden tidal doors, S side of north culvert. Facing NE.
13A	Wooden tidal doors, S side of north culvert. Facing NE.
14A	Wooden tidal doors, S side of north culvert. Facing NE.
15A	Wing walls, arch barrel and tidal doors, north culvert, facing NE.
16A	Wing walls, arch barrel and tidal doors, north culvert, facing NE.
17A	Wing walls, arch barrel and tidal doors, north culvert, facing NE.
18A	Wooden tidal doors, S side of north culvert. Facing N.
19A	Wooden tidal doors, S side of north culvert. Facing N.
20A	Wooden tidal doors, S side of north culvert. Facing N.
21A	Stone pitching SW of north culvert, stretching round to E bank of Afon Cefni. Facing N.
22A	Stone pitching SW of north culvert, stretching round to E bank of Afon Cefni. Facing N.
23A	Stone pitching SW of north culvert, stretching round to E bank of Afon Cefni. Facing N.
24A	Stepped revetment wing wall, E side, S side of north culvert. Facing E.
25A	Stepped revetment wing wall, E side, S side of north culvert. Facing E.
26A	Stepped revetment wing wall, E side, S side of north culvert. Facing E.
27A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing N.
28A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing N.
29A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing N.
30A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing S.
31A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing S.
32A	Detail of stepped revetment, E wing wall, S side of north culvert. Facing S.
33A	Disturbed area of stone pitching to SE of south drain arrangement. Facing SE.
34A	Disturbed area of stone pitching to SE of south drain arrangement. Facing SE.
35A	Disturbed area of stone pitching to SE of south drain arrangement. Facing SE.
36A	Displaced, dressed, capping slab from walling on north culvert. Lying amongst area of disturbed stone pitching SE of south drain.
<b>FILM ENDS</b>	



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**FILM THREE (B&W PRINT) - NEGATIVES CONTACT SHEET**





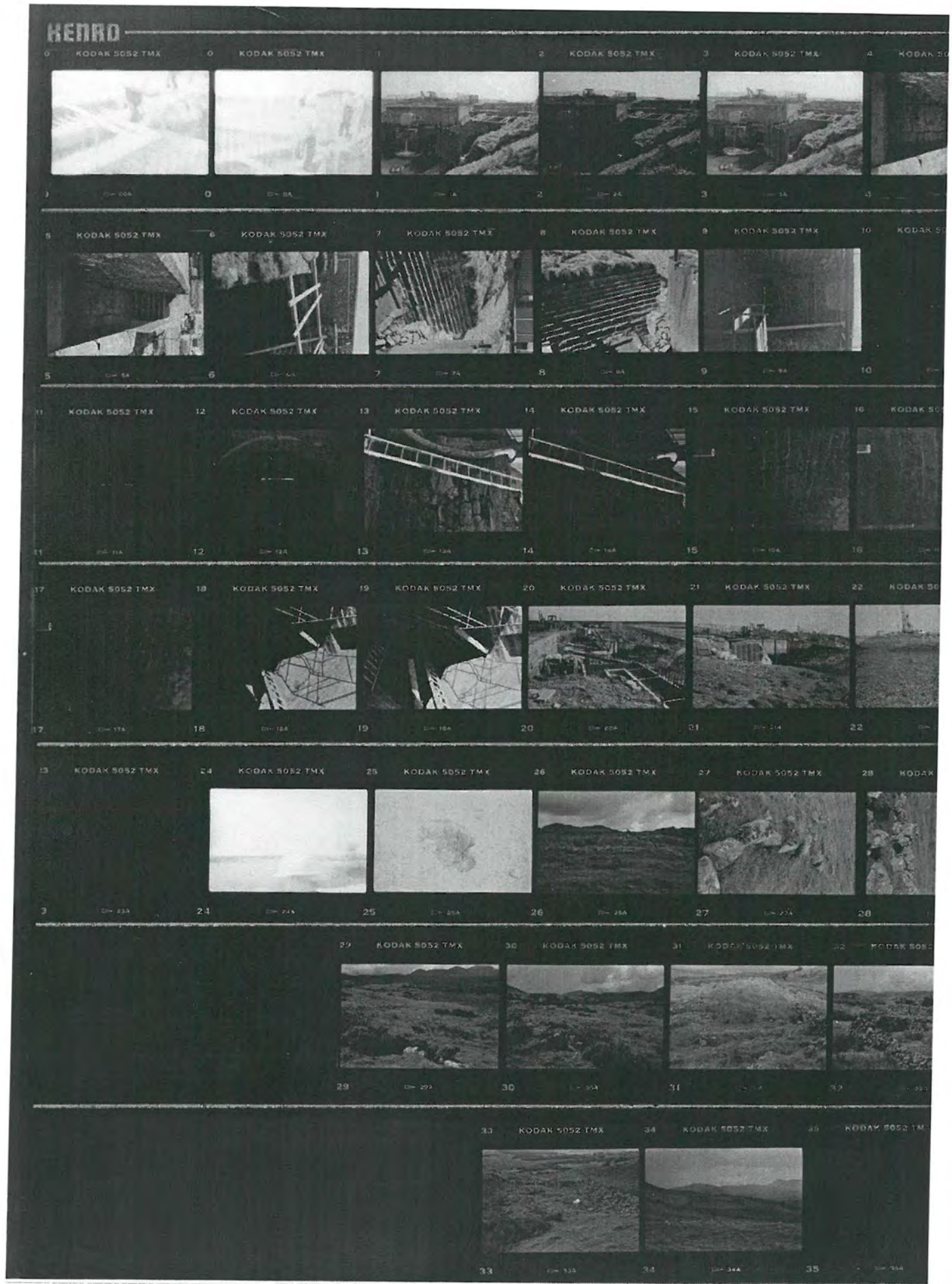
## Gwynedd Archaeological Trust - Project File Photographic Record

Project Title: <b>MALLTRAETH MARSH TIDAL OUTFALL SCHEME - IMPROVEMENT WORKS, SOUTH DRAIN, NORTH CULVERT</b>	Film Type: B/W TMAX 400 Film Number: 4 Photographer: JGR Date:
Project Number: <b>G1578</b>	

Negative No.	Subject and description
	<b>FOLLOWING PHOTOGRAPHS WERE TAKEN DURING A MONITORING VISIT CONDUCTED WHILST THE IMPROVEMENT WORKS ON THE SOUTH DRAIN WERE UNDERWAY</b>
1A	Works at south drain, general shot. Facing SE.
2A	Works at south drain, general shot. Facing SE.
3A	Works at south drain, general shot. Facing SE.
4A	Access steps, N side of north culvert, after cleaning. Facing W.
5A	Access steps, N side of north culvert, after cleaning. Facing W.
6A	N soffit, north culvert after evacuation of water. Facing S.
7A	Stepped walling, W wing wall, after evacuation of water. Facing NW.
8A	Stepped walling, W wing wall, after evacuation of water. Facing NW.
9A	N soffit, north culvert after evacuation of water. Facing S.
10A	Null shot
11A	Null shot
12A	Null shot
13A	Stepped walling, E wing wall, N side of north culvert after evacuation of water. Facing E.
14A	Stepped walling, E wing wall, N side of north culvert after evacuation of water. Facing E.
15A	Stepped walling, E wing wall, N side of north culvert after evacuation of water, and following removal of old concrete stop log mounting. Facing SE.
16A	Stepped walling, E wing wall, N side of north culvert after evacuation of water, and following removal of old concrete stop log mounting. Facing SE.
17A	Stepped walling, E wing wall, N side of north culvert after evacuation of water, and following removal of old concrete stop log mounting. Facing SE.
18A	Wooden tidal door, S side of north culvert, following evacuation of water.
19A	Wooden tidal door, S side of north culvert, following evacuation of water.
20A	General view of S side of south drain, work in progress. Facing E.
21A	General view of S side of south drain, work in progress. Facing NE.
22A	General view of S side of south drain, work in progress. Facing N.
<b>FILM ENDS</b>	



G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME  
FILM FOUR (B&W PRINT) - NEGATIVES CONTACT SHEET



## APPENDIX TWO - PHOTOGRAPHIC ILLUSTRATIONS OF KEY FEATURES



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**NEGATIVE NUMBER: colour transparency G1578/1/10**  
**SUBJECT: Tidal doors on south drain, north and south culverts. Facing south.**



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER:** colour transparency G1578/3/21

**SUBJECT:** Tidal doors on south drain, north culvert. Facing north.





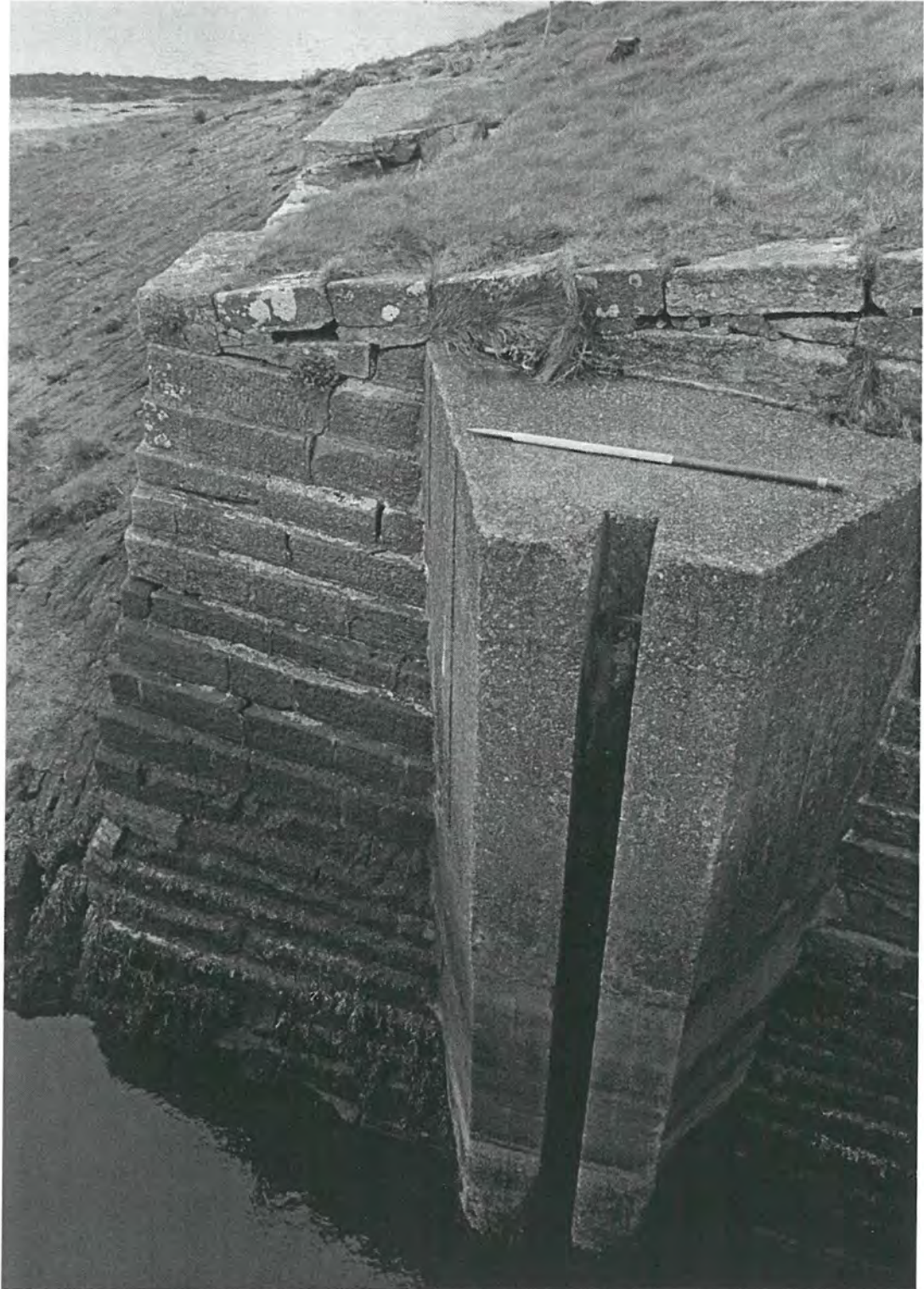
**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**NEGATIVE NUMBER: b&w G1578/1/13**  
**SUBJECT: Stepped wing wall, north side of north culvert. Facing south west.**



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/2/22**

**SUBJECT: Stepped wing wall, south side of north culvert. Facing south west.**

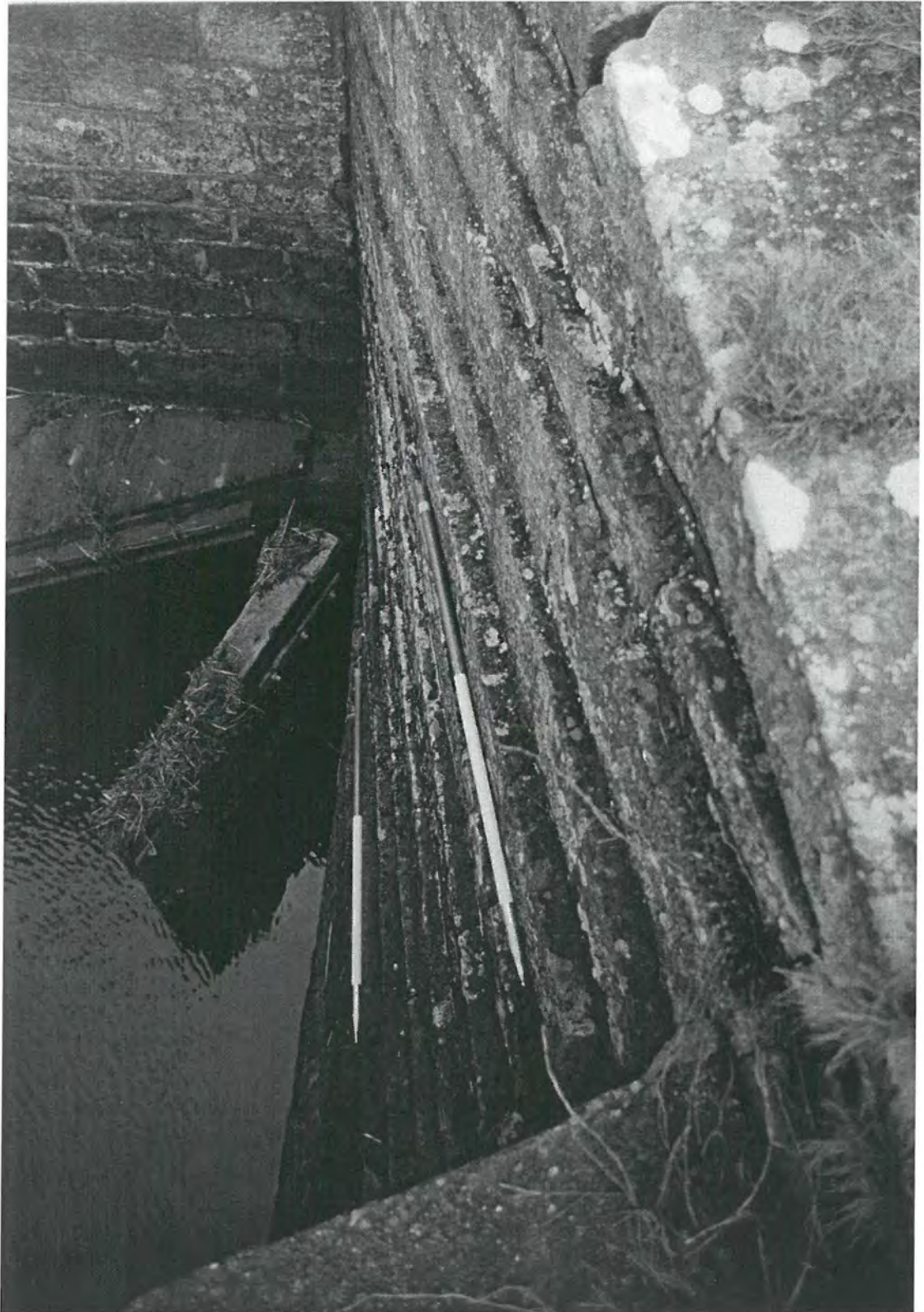




**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/3/29**

**SUBJECT: Detail of stepped wing wall, south side of north culvert. Facing north.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**NEGATIVE NUMBER: b&w G1578/1/10**  
**SUBJECT: Access steps, north side of north culvert. Facing south.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/1/20**

**SUBJECT: Access steps, east flight, north side of north culvert. Facing west.**

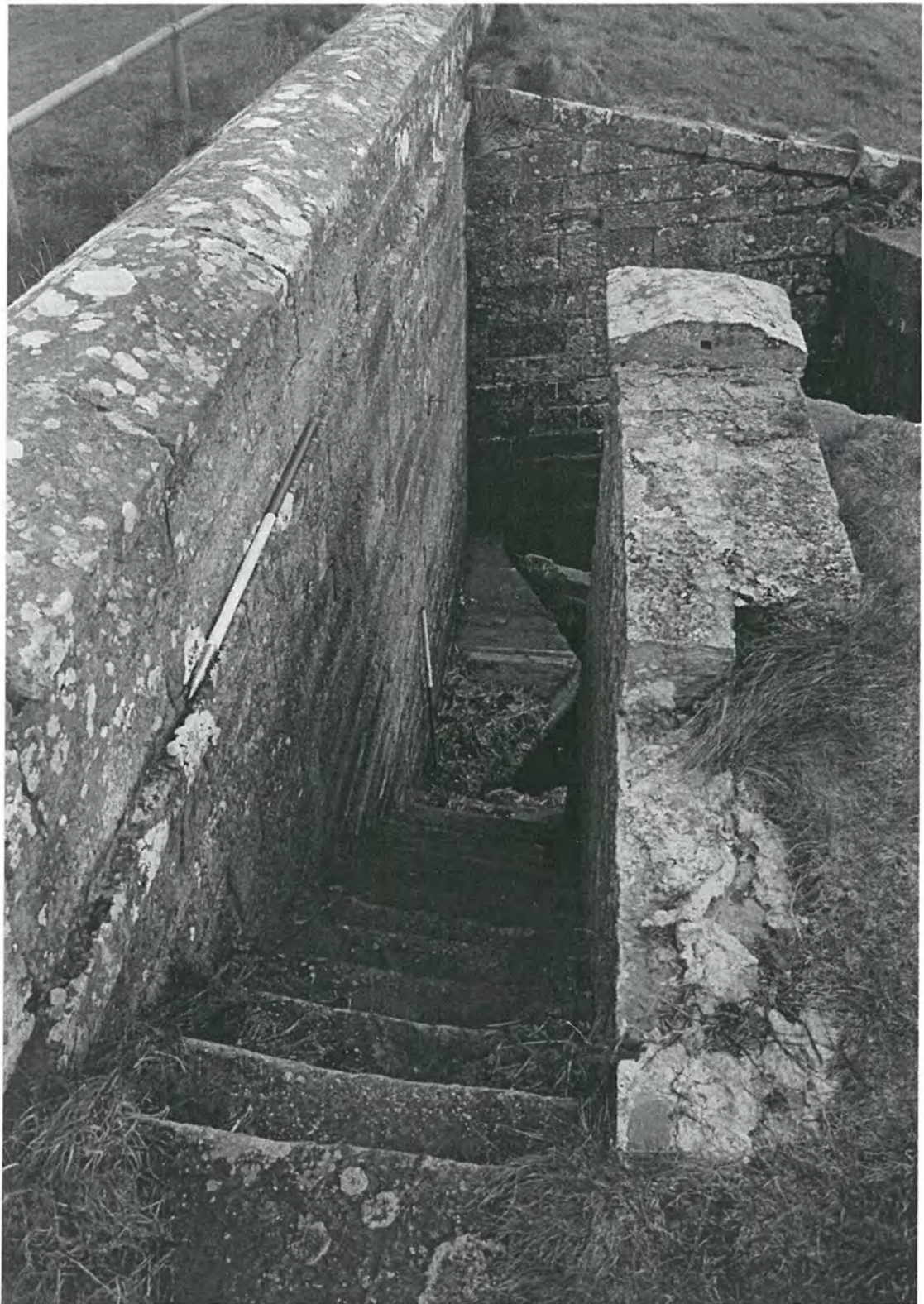




**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

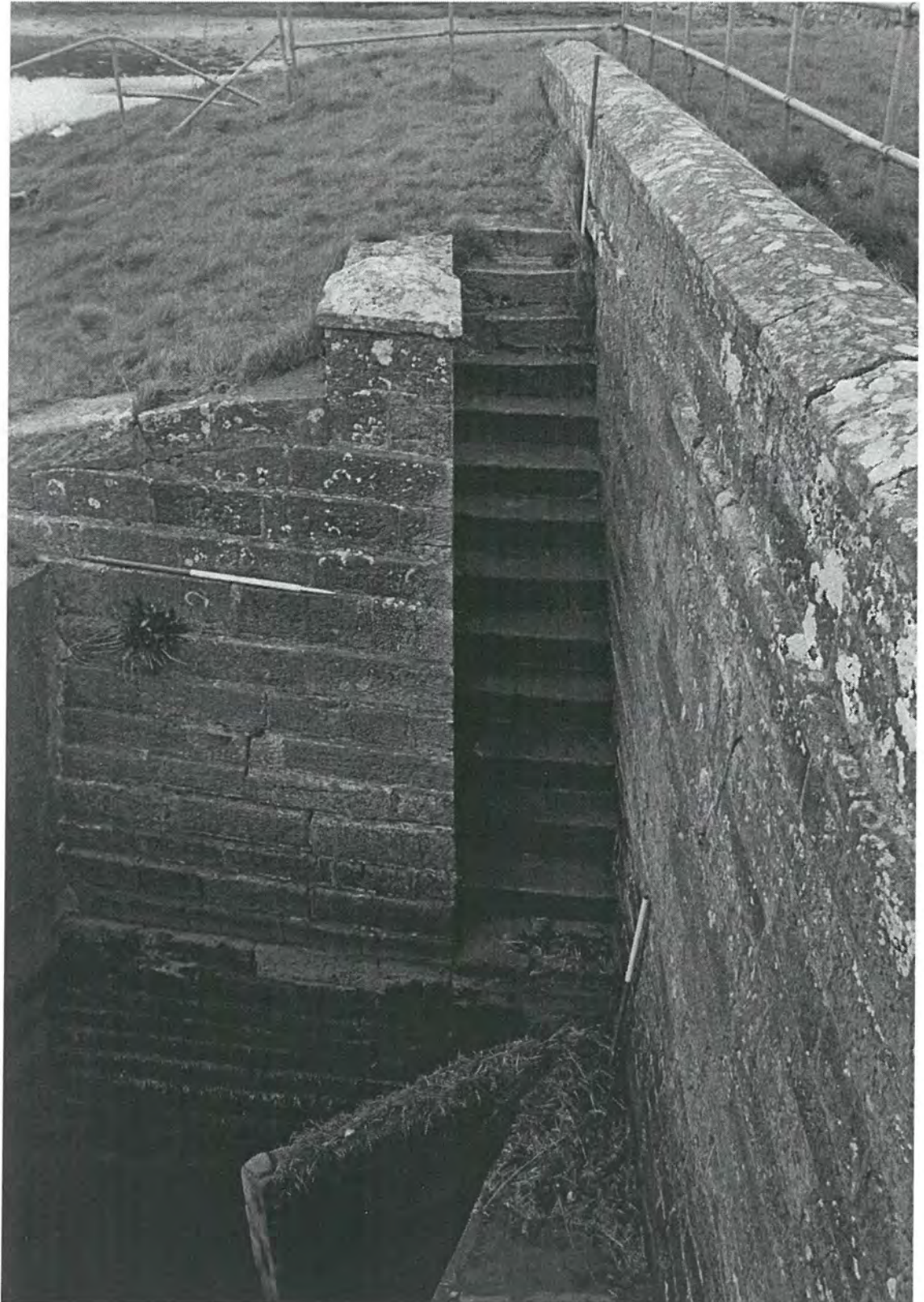
**NEGATIVE NUMBER: b&w G1578/2/9**

**SUBJECT: Access steps, south side of north culvert. Facing east.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**NEGATIVE NUMBER: b&w G1578/2/15**  
**SUBJECT: Access steps, south side of north culvert. Facing west.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/2/12**

**SUBJECT: Detail of ashlar & dressed slab capping stones at walling on south side of track across culvert.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/2/23**

**SUBJECT: Detail of dressed slab capping stones, south side of track across culvert. Facing east.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/3/12A**

**SUBJECT: Wooden tidal door, south side of north culvert. Facing north east.**



**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**  
**NEGATIVE NUMBER: b&w G1578/3/8A**  
**SUBJECT: Stone pitching south west of north culvert. Facing north west.**





**G1578 MALLTRAETH TIDAL DOORS IMPROVEMENT SCHEME**

**NEGATIVE NUMBER: b&w G1578/2/36**

**SUBJECT: Detail of stone pitching south west of north culvert. Facing north west.**





