comhairle chontae na mí
meath county council

TRIM MILLENNIUM PEDESTRIAN BRIDGE SCHEME

Cultural Heritage Assessment Report

Prepared by:
Meath County Council

comhairle chontae na mí
meath county council

Date: **May 2024**

Document No:
TRA 12 10 08

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Millennium Bridge, Trim. Demolition and removal

Vicinity of Trim Castle National Monument No.514 and Trim Porch Field and Town Defences National Monument No.679

Consent (provisional) C001141

North abutment: Blackfriary 2nd Division; South abutment: Manorland

ITM 680217, 756856

Niall Roycroft

22nd August 2022

Non-Technical Summary

The Trim pedestrian 'Millennium' Bridge was completed in July 2001, ITM 680217, 756856. The southern abutment is adjacent or within lands associated with Trim Castle National Monument No. 514. The northern abutment lies within Blackfriary 2nd Division, which forms part of State Lands of Trim Porch Field and Town Defences National Monument No. 679. The River Boyne forms part of the Rivers Boyne and Blackwater Special Area of Conservation. This area is within the Trim Historical Core Architectural Conservation Area and there is interaction with Trim Protected View No. 9 and possibly with Protected View No. 3.

The Millennium Bridge Inspection of July 2022 condemned the bridge as having seriously failed and it must be removed for safety reasons. Since July 2022 the bridge has visibly deteriorated further. An application for Ministerial Consent C001141 was made in August 2022 and the bridge was removed on 19th August 2022 and these works were monitored by the Meath County Council archaeologist.

The bridge was seen to be lightly anchored onto two abutments (concrete blocks approx. 6m x 2m x 2m founded on bedrock) and demolition consisted of placing a digging machine in the River Boyne and the bridge was broken into two pieces, which were then towed onto the southern bank of the River. These pieces were then broken up and loaded onto a lorry and removed. The Riverbed is bedrock at this point and water was around 0.30m deep. No Riverbed material was removed from the river.

At the time of the bridge demolition the Office of Public Works (OPW) was completing renovation works on the adjacent water pump in its inspection shaft. This water pump was placed here around 2000 and it takes water from the River Boyne and pumps it into Trim Castle moat, where another pump at the southern end removes the water back into the River Boyne (this is so that the moat water does not stagnate). OPW had excavated some riverbank material that had been mounded on the riverbank and this material was reviewed for finds. The material appeared to be mounded, dredged broken bedrock, rocks, soils, gravels and silts from the previous riverbed, but only modern metal and plastic finds were noted. The remaining OPW works were not monitored by Meath County Council archaeologist.

At the northern abutment a small area of turf had been cleared of grass and so this area was examined, but only modern drink cans and cigarette lighters were noted.

No archaeological deposits or material was encountered or disturbed.

1 INTRODUCTION

The Trim pedestrian 'Millennium' Bridge was completed in July 2001, ITM 680217, 756856. The southern abutment is adjacent or within lands associated with Trim Castle National Monument No. 514. The northern abutment lies within Blackfriary 2nd Division, which forms part of State Lands of Trim Porch Field and Town Defences National Monument No. 679. The River Boyne forms part of the Rivers Boyne and Blackwater Special Area of Conservation. This area is within the Trim Historical Core Architectural Conservation Area and there is interaction with Trim Protected View No. 9 and possibly with Protected View No. 3.

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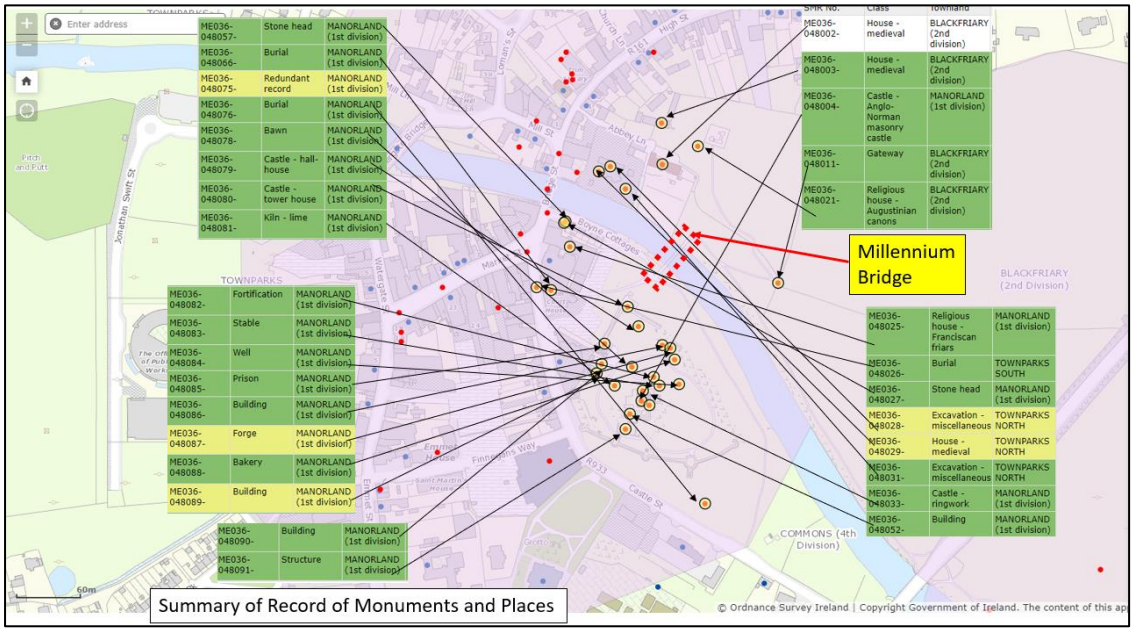
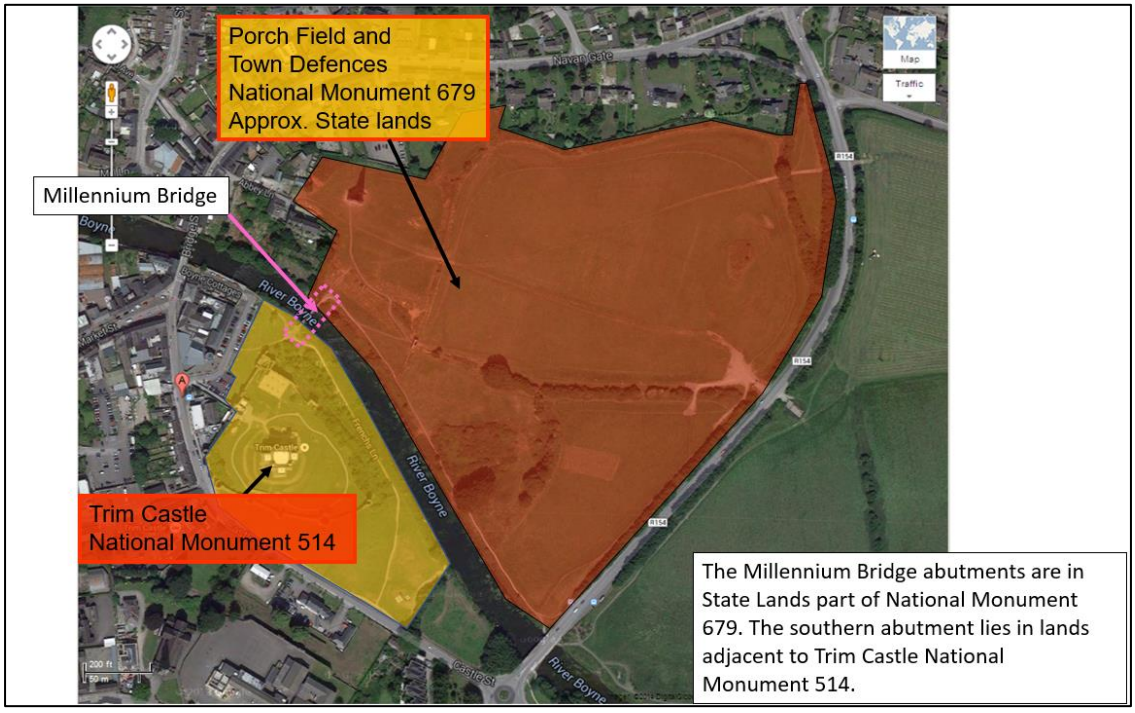
2 ARCHAEOLOGICAL BACKGROUND

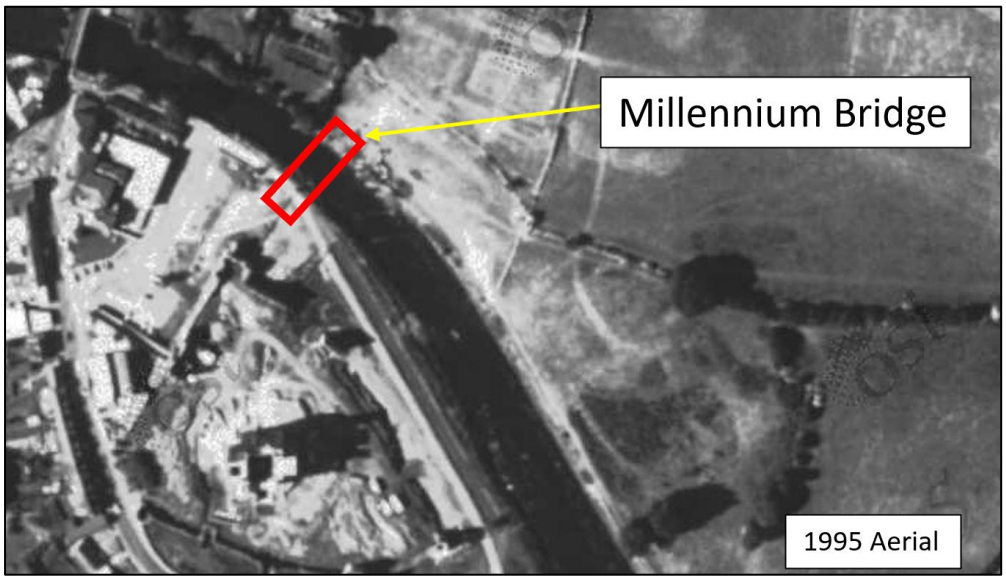




The above images show the Record of Monuments and Places (RMP), and also the nearby National Monuments of Porch Field (State Lands) No. 679 and Trim Castle No. 514. The relevant folios need to be checked to determine exactly what lands the Millennium Bridge abutments lie in. In any event, the proximity of two National Monuments means that works – which presumably include removing the current bridge - would probably require Ministerial Consent.

Trim Castle ME036-048004 is one of the most famous and visited historical sites in Ireland and the above RMP shows how many 'monuments' are associated with the site. The site within the boundary walls was subject to extensive archaeological works in the 1990s, but there does not seem

to have been much archaeological work in the area of the Millennium Bridge. However, the Bridge southern abutment area seems to be the location of a 'haul road' that is now a footpath.

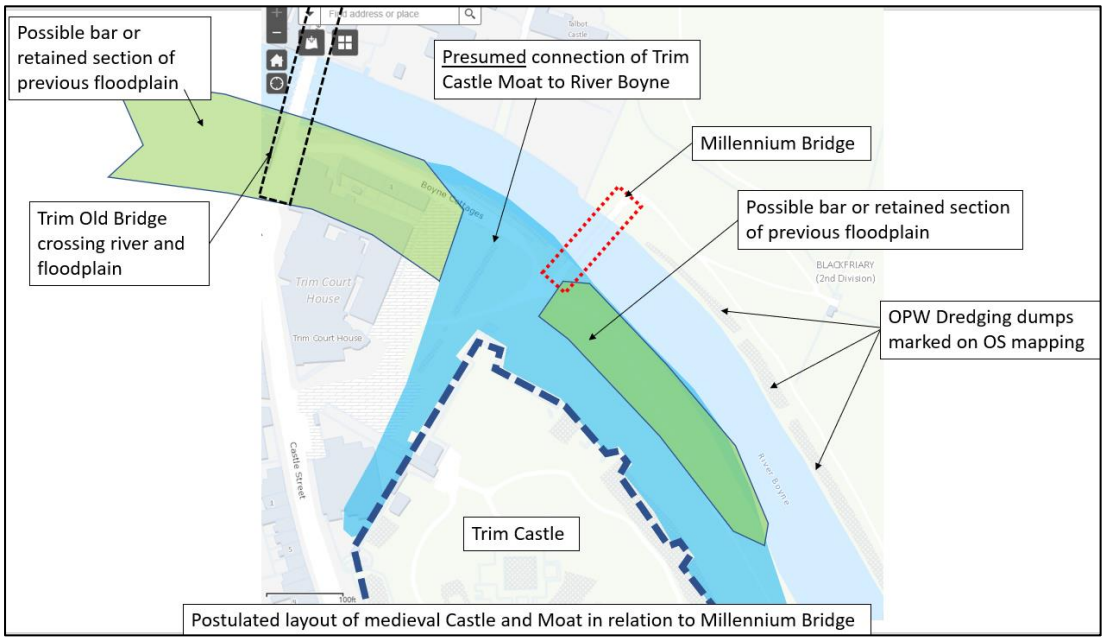


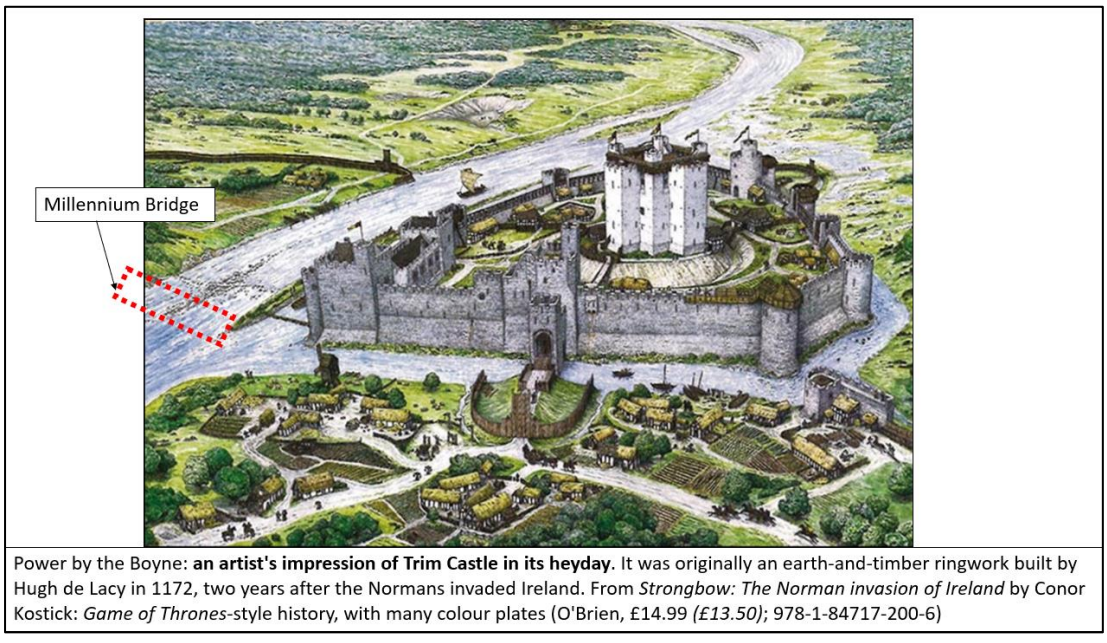
On the northern side, the Millennium Bridge is adjacent to an old masonry boundary wall that is associated with ME036-048002 Talbot Castle medieval house (below)

3 SELECTED MAP AND PHOTOGRAPH REGRESSION

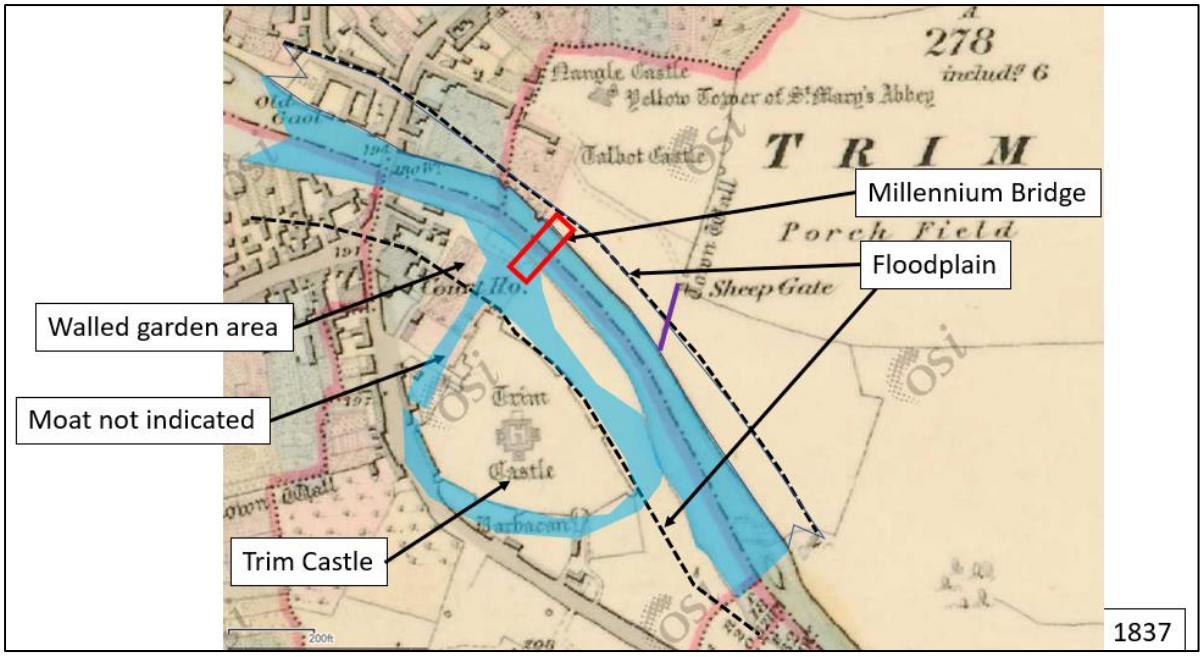
A review of the immediate landscape is given below. The Bridge is 30m long with mass concrete abutments at either end. The approach paths are approx. 1.20m (N side) to 1.50m (S side) above what was drawn as the original ground level in 2001. This ground level was itself ground-raising dumps that had been placed here by OPW River Boyne dredging works. Old photos from NLI.ie show that the N riverbank was naturally not much higher than the water level on this side.

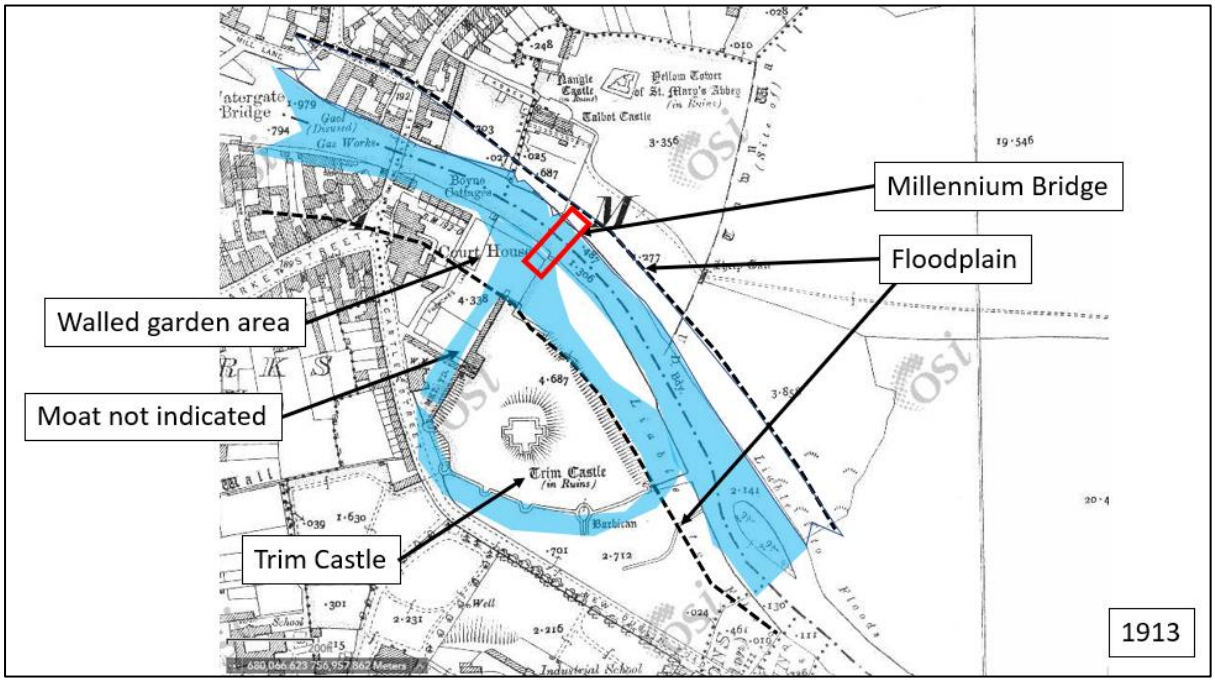
The S side is more complicated since the area of the Bridge abutment is in a zone where the Trim Castle Moat is presumed to have connected to the River Boyne (see below). This moat had been completely infilled by the time of the 1837 OS where it is not marked. The general abutment area on the 1837 OS is shown as a walled garden and this walled garden area survived until the 1970 or so, as seen from photographs



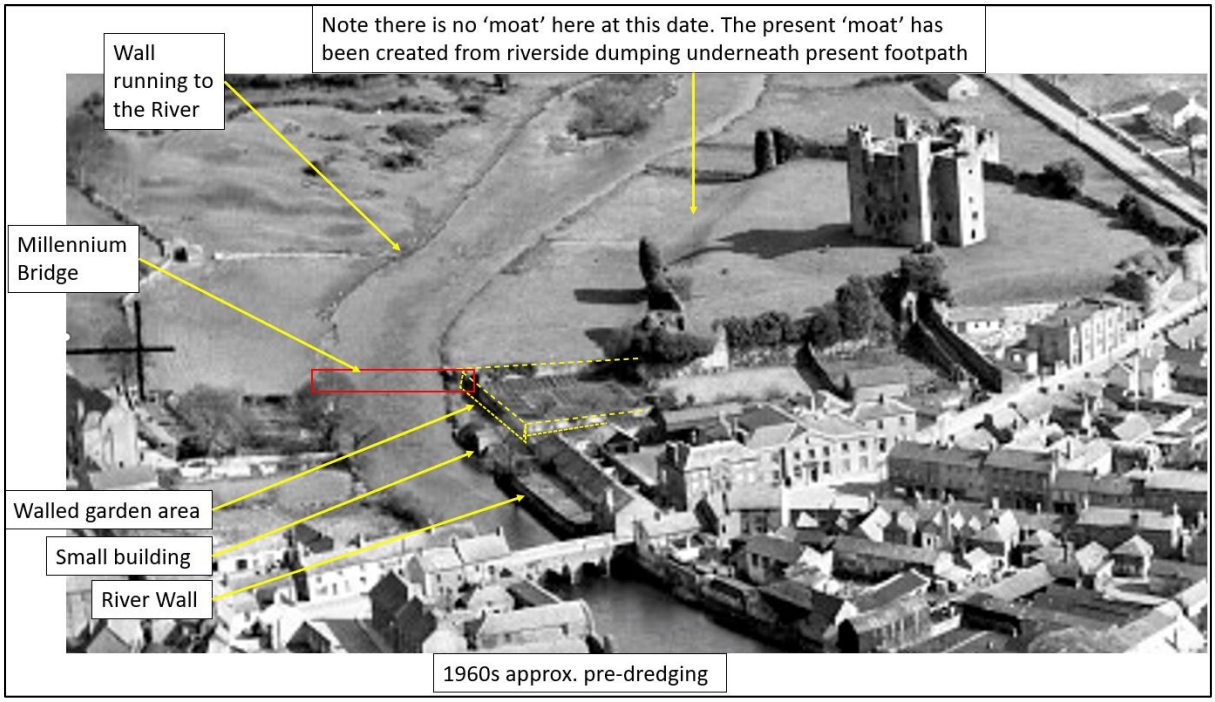


Power by the Boyne: **an artist's impression of Trim Castle in its heyday**. It was originally an earth-and-timber ringwork built by Hugh de Lacy in 1172, two years after the Normans invaded Ireland. From *Strongbow: The Norman invasion of Ireland* by Conor Kostick: *Game of Thrones*-style history, with many colour plates (O'Brien, £14.99 *(£13.50)*; 978-1-84717-200-6)

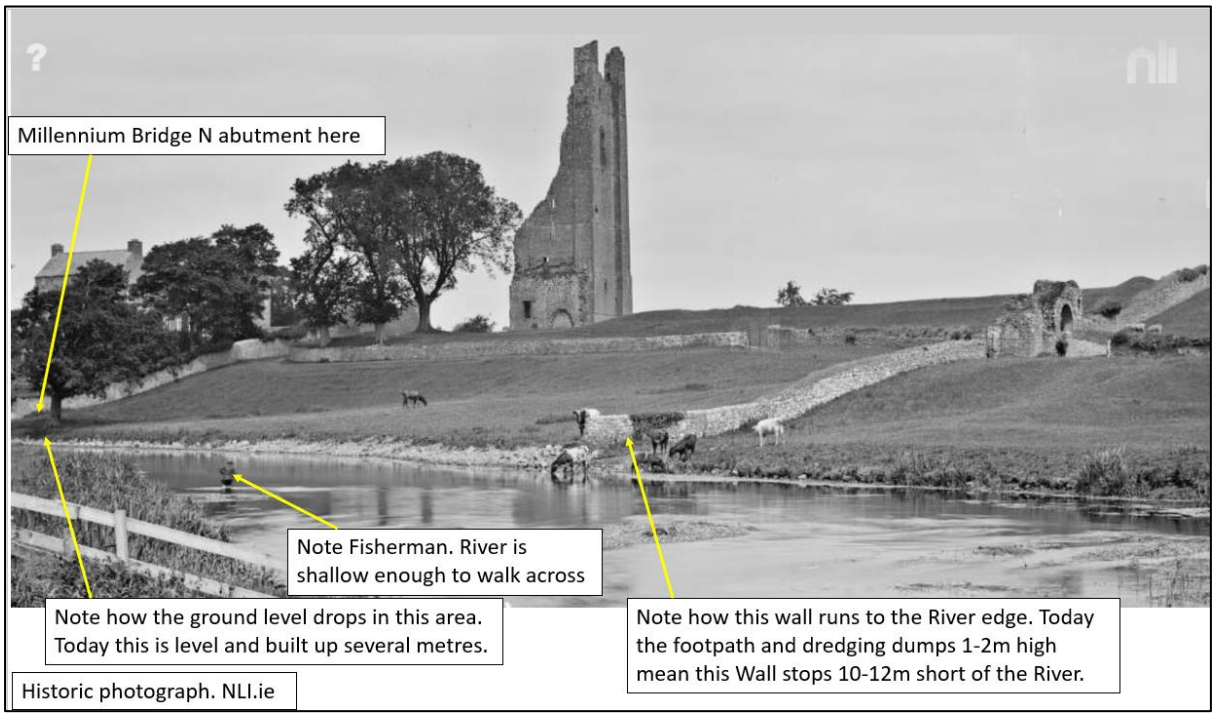




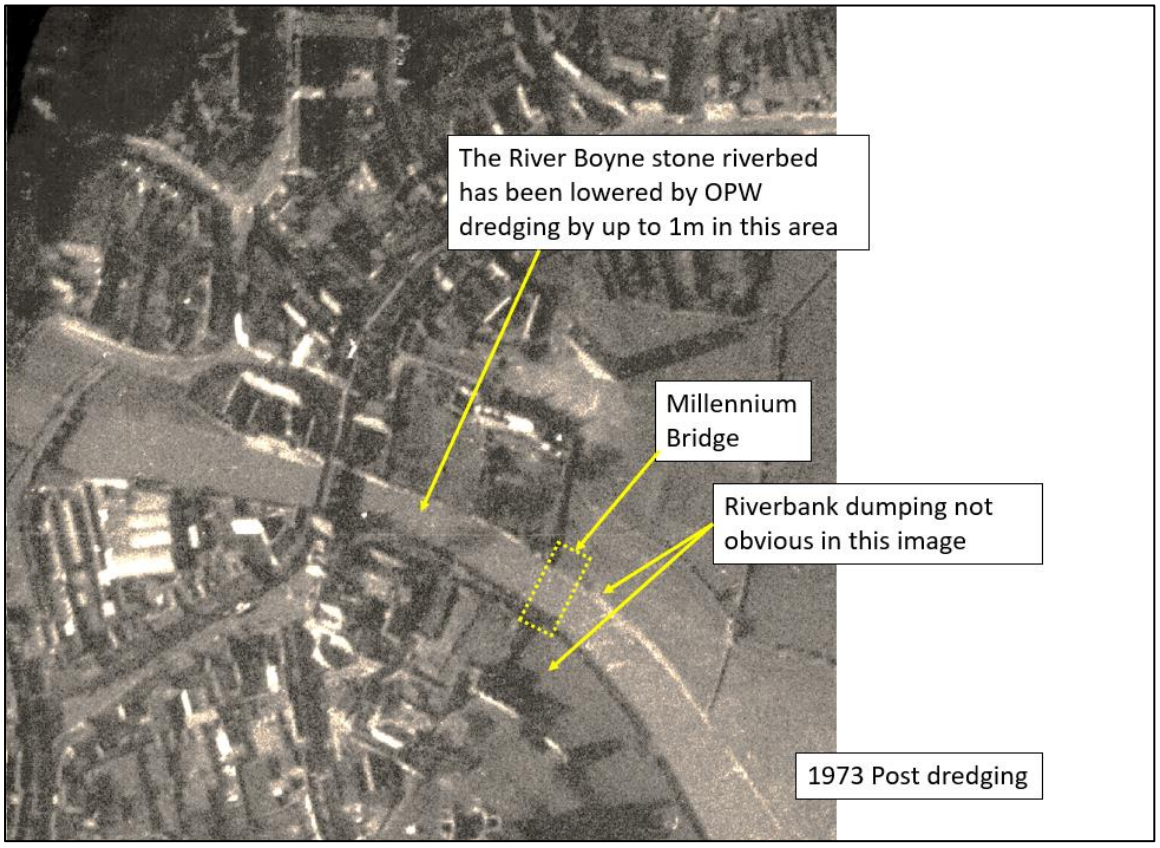
OS mapping showing layout in the 19th century. The Castle moat is not indicated. But the annotation showing 'Liable to Floods' on both sides of the river shows the banks are low.



Aerial image of c.1960s showing the landscape pre-dredging. The northern side (left) riverbank is shown as very low and not much higher than the water level. The southern side (right) shows the low riverbank and the layout prior to the present developments with roads, car park (which is on a raised terrace) and open grassed area.



Early 20th century image of N riverbank showing its low level. The fisherman shows the shallow depth of the River – compared to today. Also to note the Town Wall from the Sheep Gate is seen to run to the River edge. Today this Wall stops around 10-12m short of the river, as this space is occupied with dumps. The wall may be hidden in the dumps today.



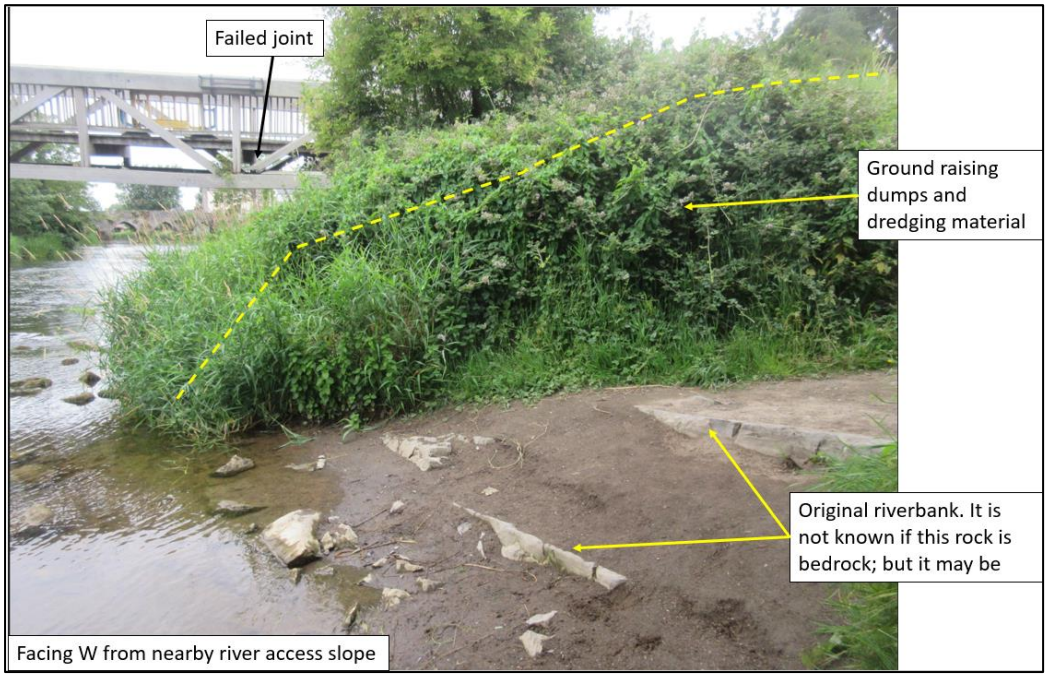
Aerial image of 1973 showing the River Boyne post-dredging and river bed works. Dumps along the riverbank are not obvious in this image. The walled garden area on the southern side still appears intact, so the area may not have yet been significantly altered or dumped on. But with the 1970s dredging, the riverbank seems to have been used to mound linear bunds of dredged material and this material forms the high riverbanks and is the basis for present footpaths in the area. On the S

side, these bunds have trapped water that has helped to recreate the present castle 'moat' on the river side of the castle as in image below.

The above image shows the area on NW side of Millennium Bridge showing considerable ground-raising dumps when compared to the low-level riverbank in the early 20th C photograph. Several meters of dumping comprise dumps from OPW dredging, but also from imported material from 2001 Millennium Bridge construction.

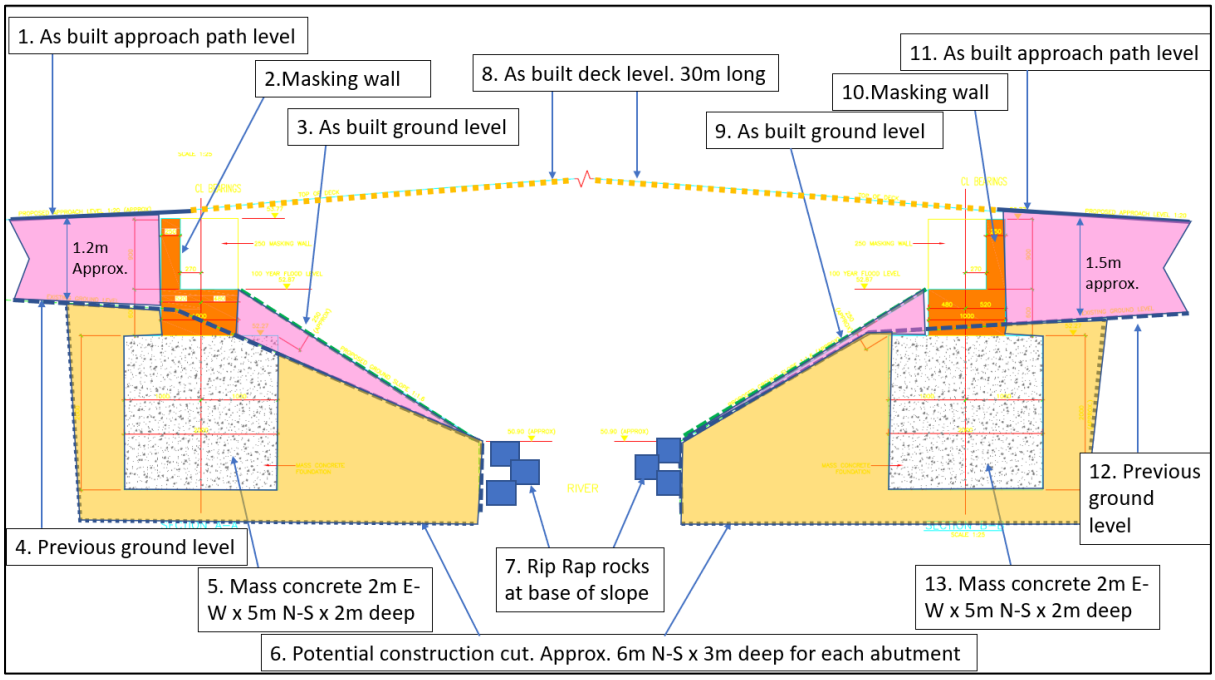
Bridge E face. The River is not very deep here, but the channel may be deeper elsewhere. Silts in the riverbed have probably accumulated since 1973, but there is potential for archaeological objects to occur in these silts across the riverbed. Should in-river works be proposed then a dive/wade metal detector survey should be completed.

The image below shows what may be bedrock visible in the nearby River access area / through-drainage point.



4 DISCUSSION OF 2001 MILLENNIUM BRIDGE CONSTRUCTION

The Trim pedestrian 'Millennium' Bridge was completed in July 2001 and construction information is limited. The extent of excavations, for example is not really known. However, some details can be gleaned from the design drawings annotated below, which show what was ground level at that time and what proposed ground-raising dumps were needed to bring the bridge to approved height above the River.



The above image shows general discussion elements of the 2001 construction. How big a construction cut was required for the mass concrete block abutments [5] and [13] (each 2m x 5m x 2m deep) is not known. The drawing has pre-bridge ground levels noted as [4] and [12] above. This is 1.20m to 1.50m below present ground level for the approaches [1] and [11] to the bridge. How extensive the landscaping was for this bridge in 2001 is not known.

Excavations.ie does not report any archaeological works associated with Bridge construction. But it is likely that there was a riverbed wade metal detector survey and associated monitoring of the construction works. A request to National Monuments Service may prove useful, as there may be staff who recall this work. Archaeological works associated with adjacent footpath construction in 2003 did not note any archaeological remains as below:

https://excavations.ie/report/2003/Meath/0010506/

2003:1469 - Castle Street, Trim, Meath

County: Meath **Site name:** Castle Street, Trim
Sites and Monuments Record No.: N/A **Licence number:** 03E1484
Author: Finola O'Carroll
Site type: Urban medieval
ITM: E 680108m, N 756705m

Latitude, Longitude (decimal degrees): 53.554145, -6.791025

Testing and monitoring of groundworks associated with road resurfacing and the provision of services at Castle Street, Trim, Co. Meath, were undertaken at the request of Meath County Council.

(abridged)

As an extension to this licence, monitoring was carried out of the construction of a pedestrian path on the north bank of the River Boyne, opposite Trim Castle. The site is located between the Millennium Bridge and the main bridge on the R154 road. The path runs east-west, parallel to the river and at a distance of about 2-3m (*NR: 5m-12m*) from it. The total length of the path was 350m and it was 1.7m wide. The end of the path divided into two branches near the bridge on the main road, one branch connecting to the road towards the north and the other to a passage under the bridge. The maximum depth of the excavation was 0.3m, the average depth being 0.15-0.2m, just taking off sod and part of the topsoil, not reaching natural subsoil. A metal detector was used on the spoilheap produced by that excavation by Ian Elliot (04R013).

CRDS Ltd, Unit 4, Dundrum Business Park, Dundrum, Dublin 14.

5 DEMOLITION MONITORING

The Millennium Bridge (Photos 1-2) Inspection of July 2022 condemned the bridge as having seriously failed and it must be removed for safety reasons. Since July 2022 the bridge has visibly deteriorated further (Photo 3). An application for Ministerial Consent C001141 was made in August 2022 and the bridge was removed on 19th August 2022.

The bridge was seen to be lightly anchored onto two abutments (approx.. 6m x 2m x 2m founded on bedrock) and demolition consisted of placing a digging machine in the River Boyne and the bridge was broken into two pieces, which were then towed onto the southern bank of the River (Photos 3-5). These pieces were then broken up and loaded onto a lorry and removed (Photo 6). The Riverbed is bedrock at this point and water was around 0.30m deep (see Photo 5). No Riverbed material was removed from the river.

At the time of the bridge demolition the Office of Public Works (OPW) was completing renovation works on the adjacent water pump in its inspection shaft (Photos 6-10). This water pump was placed here around 2000 and it takes water from the River Boyne and pumps it into Trim Castle Moat (Photo 2), where another pump at the southern end removes the water back into the River Boyne (this is so that the moat water does not stagnate). OPW had excavated some river bank material that had been mounded on the river bank and this material was reviewed for finds (Photos 9-10). The material appeared to be mounded, dredged broken bedrock, rocks, soils, gravels and silts from the previous riverbed, but only modern metal and plastic finds were noted. The remaining OPW works were not monitored by Meath County Council archaeologist.

With the removal of the dangerous Millennium Bridge, the Boyne 'Blue way' can reopen in the area of the Castle. The views from the Old Bridge with Millennium Bridge removed are seen in Photo 11.

At the northern abutment a small area of turf had been cleared of grass (Photo 12) and so this area was examined, but only modern drink cans and cigarette lighters were noted.

No archaeological deposits or material was encountered or disturbed as seen in the Photos 13-14. OPW works were not monitored apart from the original excavation mound inspection.

The works are covered in the following images (Photos 1-14):

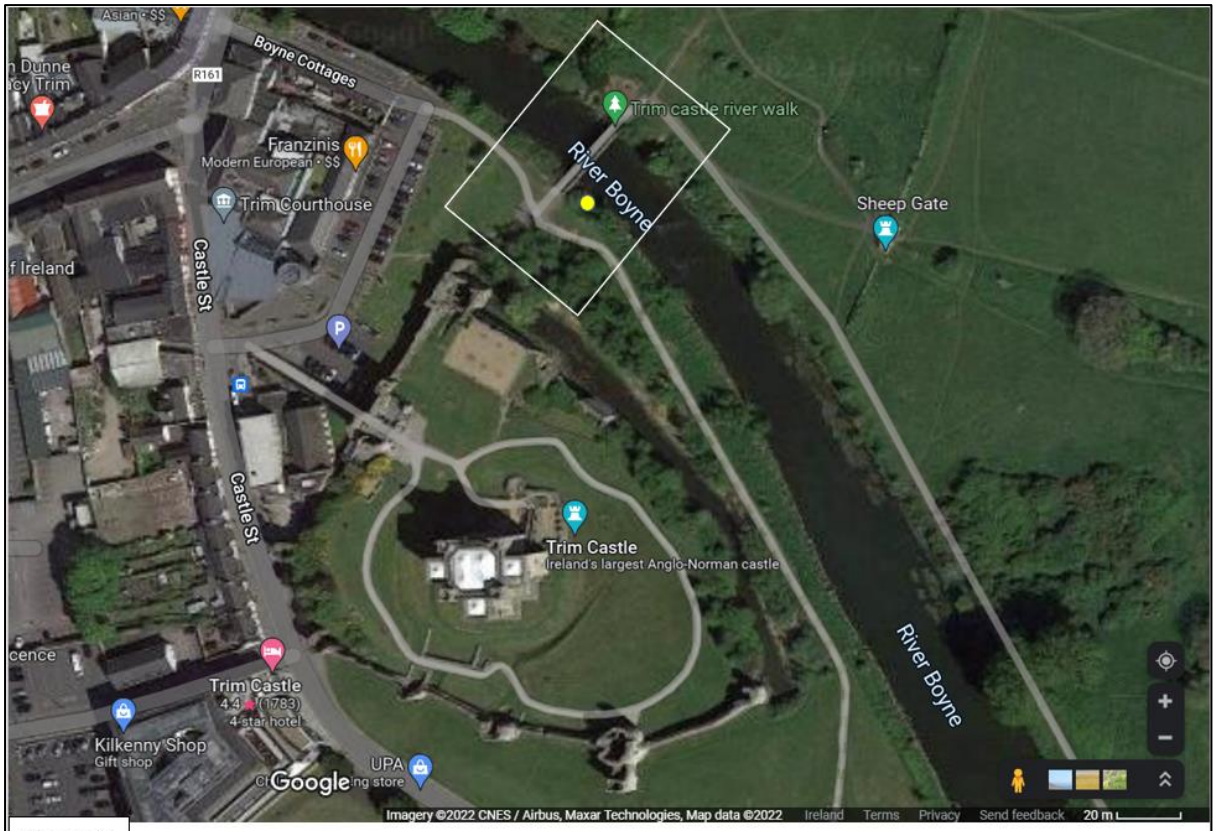


Photo 1

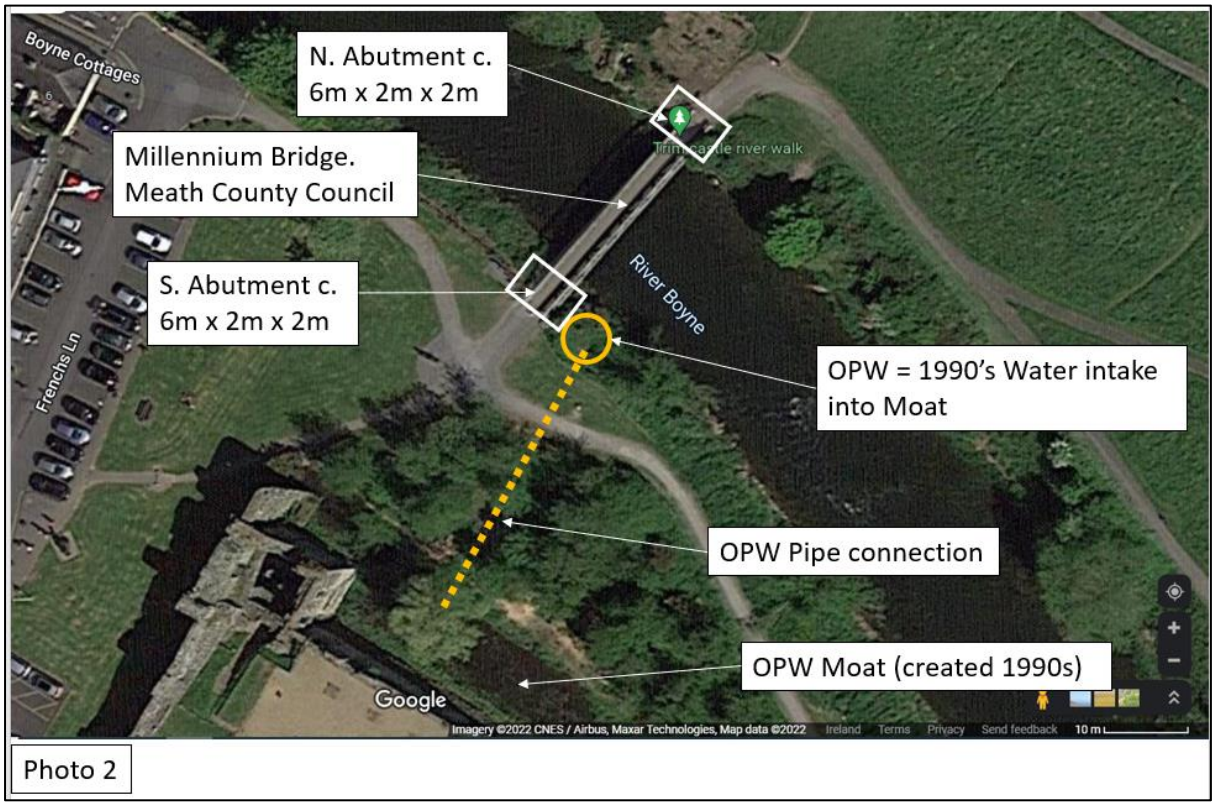


Photo 2

IMG_2451 Facing N

IMG_2452 Facing N

IMG_2466 Facing N

Photo 3

IMG_2473 Facing N showing minimal disturbance

IMG_2469 Facing N showing minimal disturbance

Photo 4

IMG_2481 Broken remains

IMG_2482 Facing N

IMG_2484 Facing N

IMG_2491 Facing W

Photo 5

IMG_2495 Clearing up

IMG_2501 S abutment

IMG_4805 Minimal disturbance at S abutment. Facing N

IMG_4807 OPW water pump works. Facing E

Photo 6

IMG_4808 Facing N

IMG_4809 Facing E to OPW works area

IMG_4811 Facing NW

IMG_4812 S abutment

Photo 7

IMG_4814 Facing E to OPW works area

IMG_4815 Facing S showing minimal disturbance

IMG_4821 Facing W to OPW works area

IMG_4817 Facing NW

Photo 8

IMG_4834 OPW works

IMG_4833 OPW works

IMG_4831 OPW works

IMG_4828 OPW works metal items

Photo 9

IMG_4824 OPW works metal items

IMG_4827 OPW works metal items

IMG_4832 Facing NW

IMG_4840 Facing N

Photo 10

IMG_4845 Facing E from Old Bridge, Millennium Bridge removed

IMG_4846 Facing E from Old Bridge, Millennium Bridge removed

IMG_4853 Facing S. Bridge removed

IMG_4854 Facing S. Bridge removed. OPW works on left

Photo 11

IMG_4855 Facing S. Bridge removed

IMG_4862 Facing E. Bridge removed

IMG_4863 Facing E. Bridge removed

IMG_4866 Facing W. Bridge removed

Photo 12

IMG_4868 Facing S. Bridge removed. OPW Works and digger on left

IMG_4867 Facing SW. Bridge removed

IMG_4872 Facing S. Bridge removed. OPW Works and digger on left

IMG_4874 Facing W. Bridge removed

Photo 13

IMG_4883 N Abutment

IMG_4882 N Abutment

IMG_4886 N Abutment

Photo 14

6 REFERENCES

Roycroft N 2022, '220728 02 Trim Millennium Bridge nms-5-06-consent-application-form' for Meath County Council

Roycroft N 2022, '220726 Millennium Bridge Heritage Assessment V1' for Meath County Council

www.excavations.ie – Summary of archaeological excavation from 1970–2009.

www.archaeology.ie – National Monuments Service website listing all SMR sites with aerial photographs.

www.osi.ie – Ordnance Survey aerial photographs (1995, 2000 & 2005) and historic OS mapping (first edition 6" and 25"). http://map.geohive.ie/mapviewer.html

Google Maps

Millennium Bridge, Trim. Completed July 2001 – Heritage Discussion

Vicinity of Trim Castle National Monument No.514 and Trim Porch Field and Town Defences National Monument No.679

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ITM 680217, 756856

Niall Roycroft

26th July 2022

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The Millennium Bridge Inspection of July 2022 condemned the bridge as having seriously failed and it must be removed and ideally replaced.

The southern Bridge abutment has been constructed at the postulated connection point between the medieval moat of Trim Castle and the River Boyne. Subsequently, this area was infilled and is shown as a walled garden on the 1837 OS. This layout continued until the 1980s or so, when the existing structures were swept away and the Boyne Cottages road, Frenchs Lane with associated car park and landscaped grassed area were built.

Around 1970, the riverbed of the River Boyne was dropped by around 1m in the area around the R161 old masonry bridge and it is possible that the excavation of the River Boyne riverbed continued into the area of the Millennium Bridge. Also at this time, any surviving in-channel river islands were removed. All the material from this work was piled alongside the present River Boyne channel on both sides and these form the present, high riverbanks that are used as bases for the riverside footpaths. This is a completely different landscape to that shown in old photographs, where the river banks were previously only a little bit higher than the water level and the areas are shown as 'Prone to Flooding' on the 25 inch OS maps. On the northern side of the River, these dumps are 1m-2m high in the area of the Millennium Bridge and gaps have been left on either side of the Bridge to allow through-drainage. On the southern side there is little or no through-drainage and so the Castle moat has recently re-created itself alongside Trim Castle, blocked off from the River by the bund of dredged material on which the present footpath runs.

Construction drawings for the Millennium Bridge show that the basic abutment is a buried, mass concrete block roughly 5m E-W x 2m N-S x 2m deep. The top of these blocks is roughly at previous ground level, but this ground level was raised in 2001 by up to 1.50m at both N + S abutment approaches. The post-abutment construction landscaping includes a set of large rocks in the river channel at the base of the abutment slopes. What is not known is the extent of the excavations that were required to construct the bridge abutments. It would be presumed that the excavations would go down to rock and rock, possibly bedrock is visible in the nearby river access point.

Where not dug out in 2001, there is considerable archaeological potential for any really deep (approx. 2.5m-4m) excavations in the area of the southern abutment; as this may encounter in situ remains within the medieval moat, which itself may be cut into bedrock. Otherwise, more shallow excavations near the northern and southern abutments of approx. 1.5m–2.5m deep have the potential to uncover finds that have been removed from the riverbed through dredging and dumped onto the bank.

The top 1.50m of soils was likely put here around 2001. However, where this material came from is not known and it might also include archaeological objects. All works (including any in-river works) associated with the removal of the bridge remains, as well as the construction of a new bridge should be archaeologically monitored and all soils metal detected - with a following report.

1 INTRODUCTION

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2 BRIDGE INSPECTION

Mark Murphy Consultancy Ltd, July 2022, 'Trim Castle Millennium Footbridge Principal Inspection Report' for Meath County Council

The Millennium Bridge is made of wood with steel fixing pins and concrete abutments. In summary:

- The balustrade posts of the parapet are rotting and fragile with one section missing several together
- The parapet fixing battens are rotting
- There is significant cracking on the abutments masking walls
- Timber bearing plates are splitting
- The bridge deck and soffit has twisted / warped
- There is a failing splice section near the southern end
- There is a significant failed joint with an unattached diagonal member and a kink (see below)

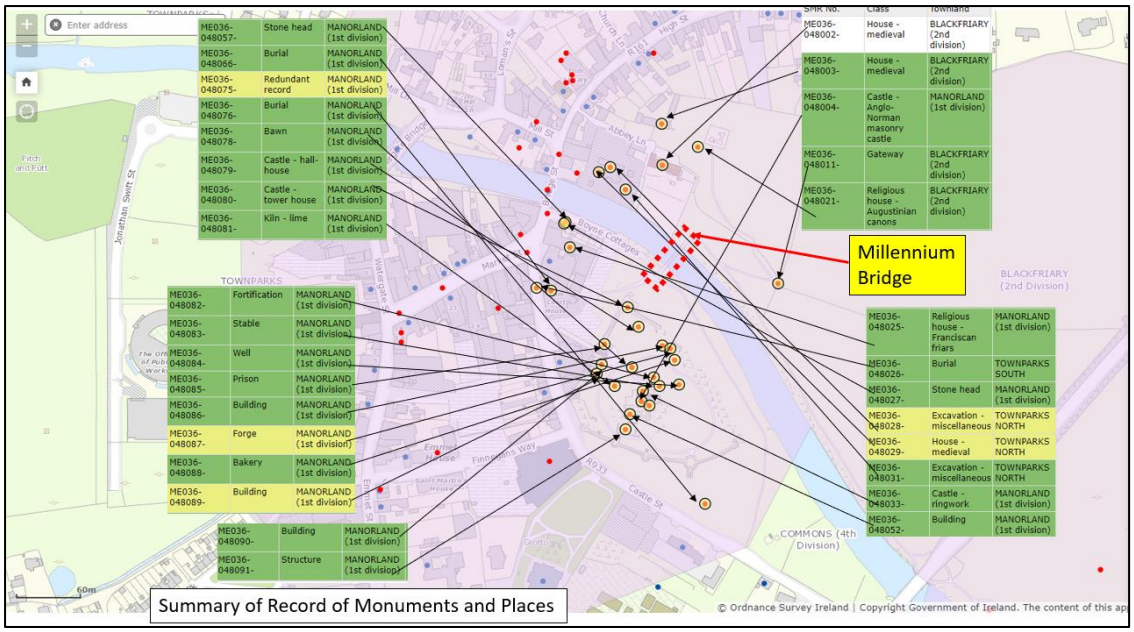
Photo P25: View of failed joint, noting unattached diagonal member and kink at splice location

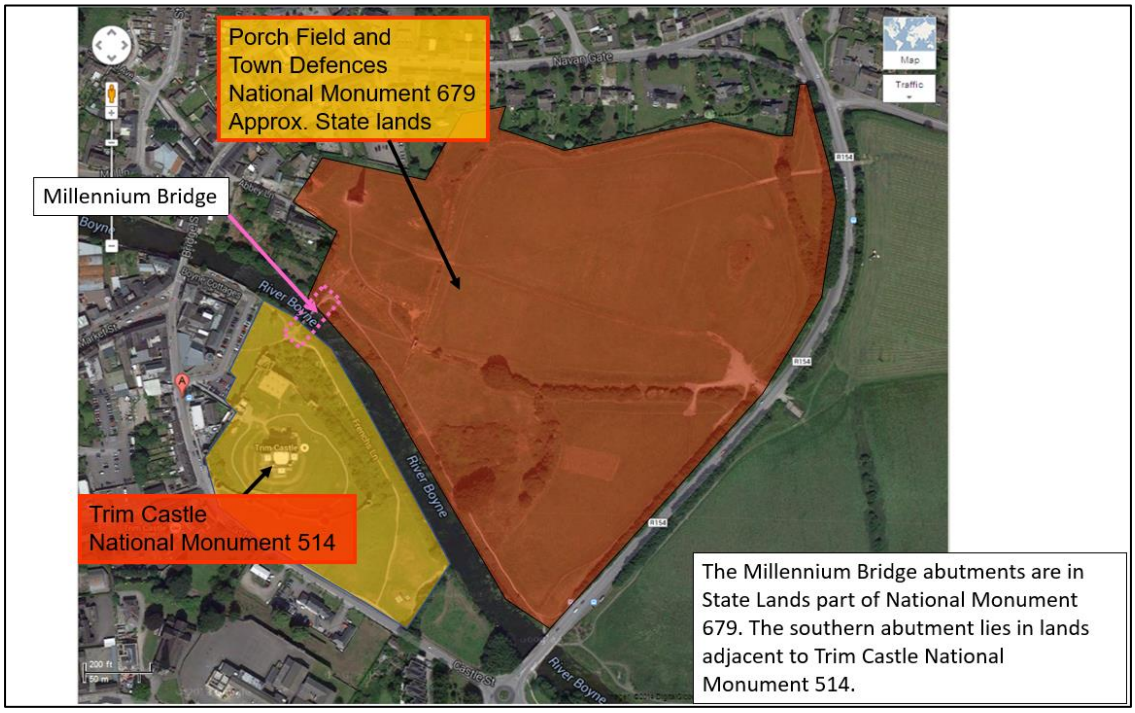
Photo P26: View of failed joint, noting unattached diagonal member and rotten ends of the members

Photo P32: View of a failing splice connection to east truss at the south end

View of rock scour protection at base of abutment

3 ARCHAEOLOGICAL BACKGROUND





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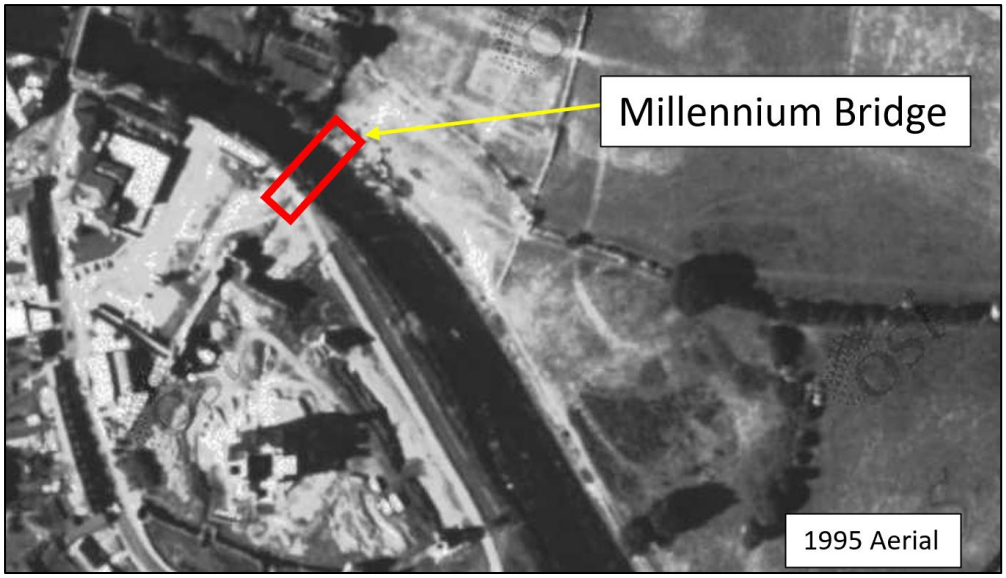

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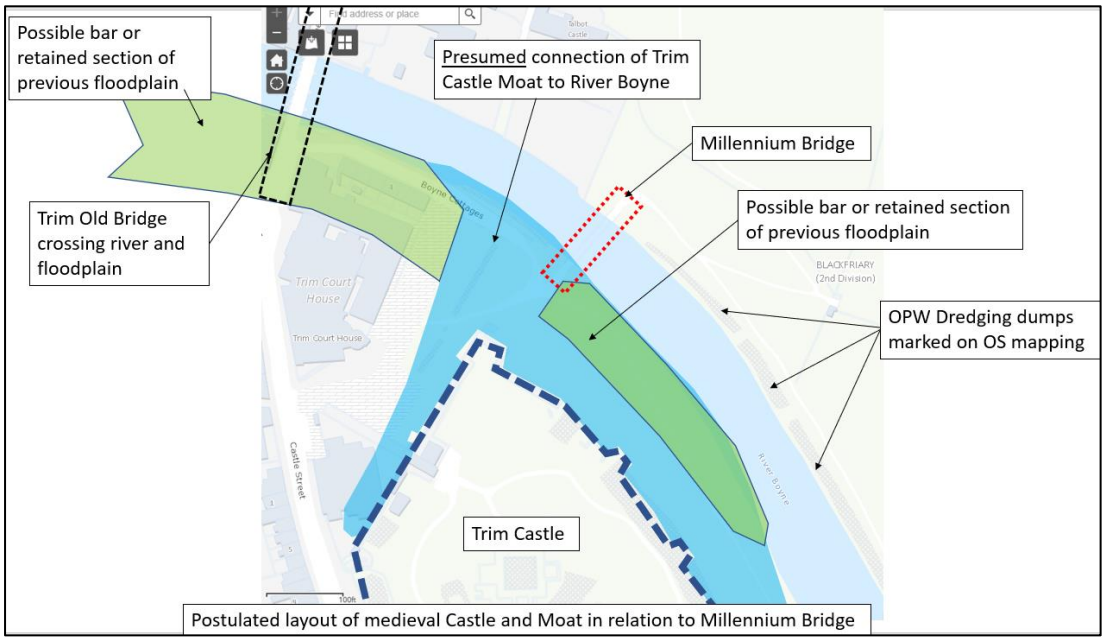
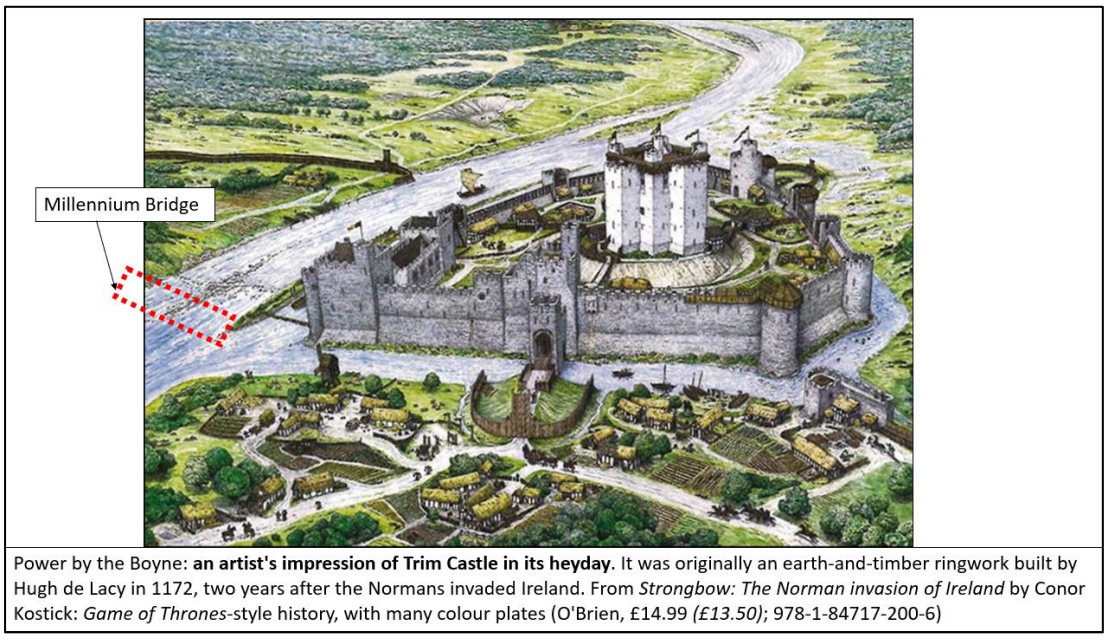
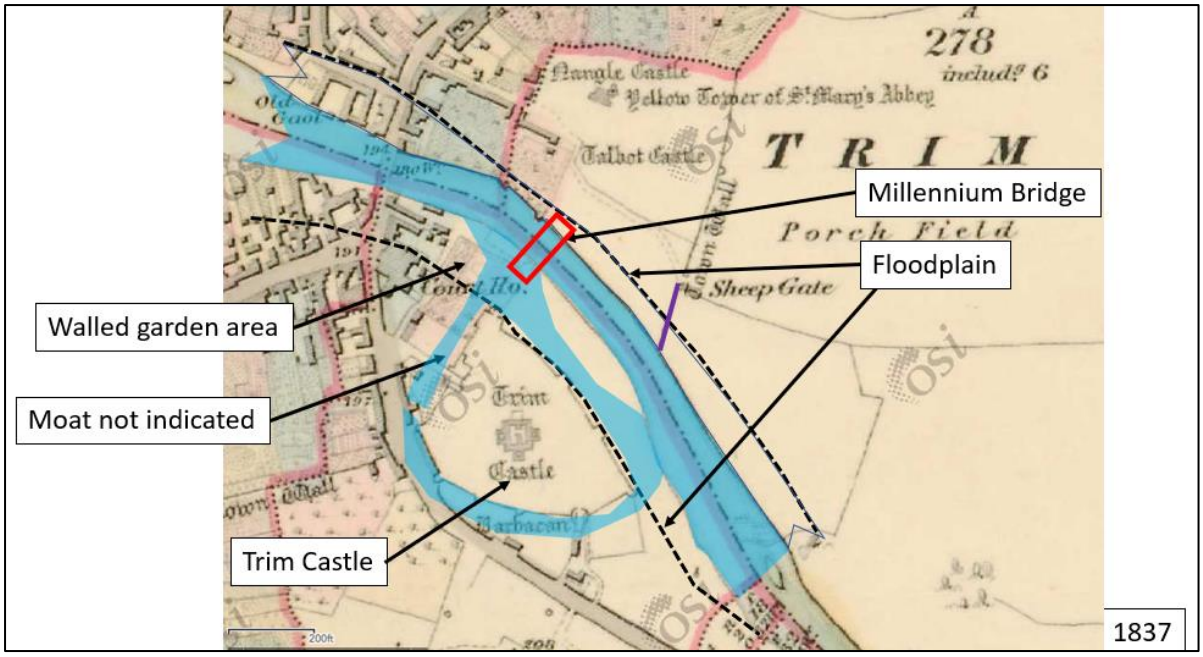
A review of the immediate landscape is given below. The Bridge is 30m long with mass concrete abutments at either end. The approach paths are approx. 1.20m (N side) to 1.50m (S side) above what was drawn as the original ground level in 2001. This ground level was itself ground-raising dumps that had been placed here by OPW River Boyne dredging works. Old photos from NLI.ie show that the N riverbank was naturally not much higher than the water level on this side.

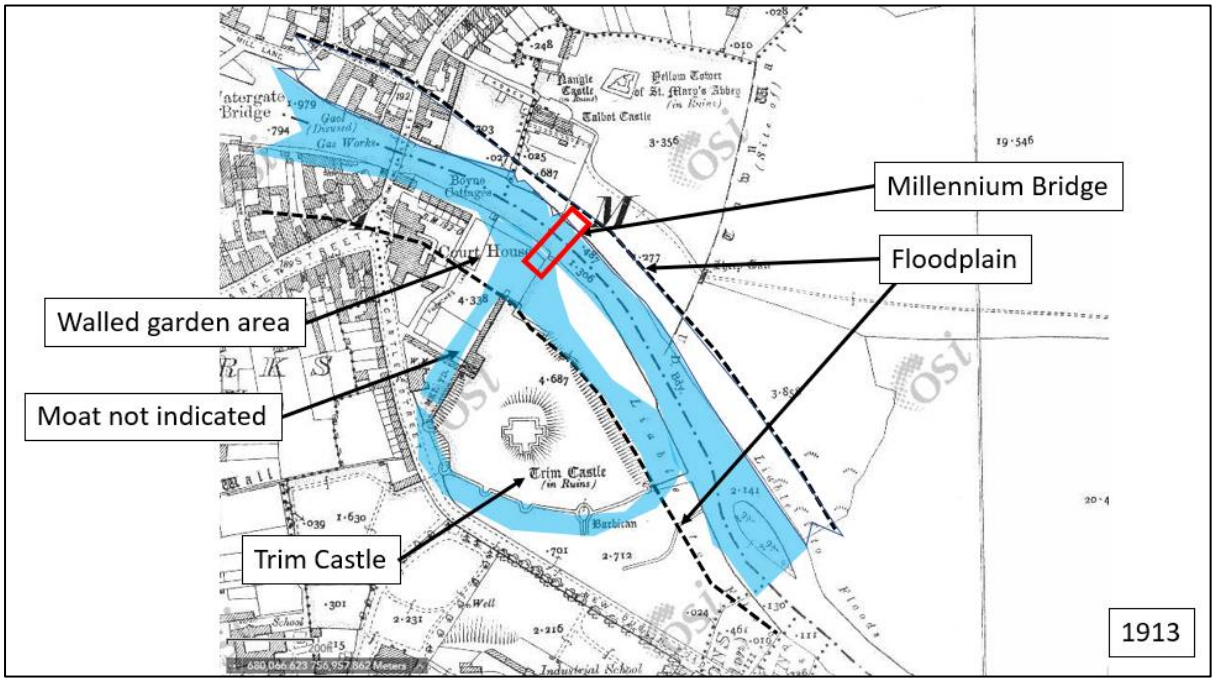
The S side is more complicated since the area of the Bridge abutment is in a zone where the Trim Castle Moat is presumed to have connected to the River Boyne (see below). This moat had been completely infilled by the time of the 1837 OS where it is not marked. The general abutment area on the 1837 OS is shown as a walled garden and this walled garden area survived until the 1970 or so, as seen from photographs



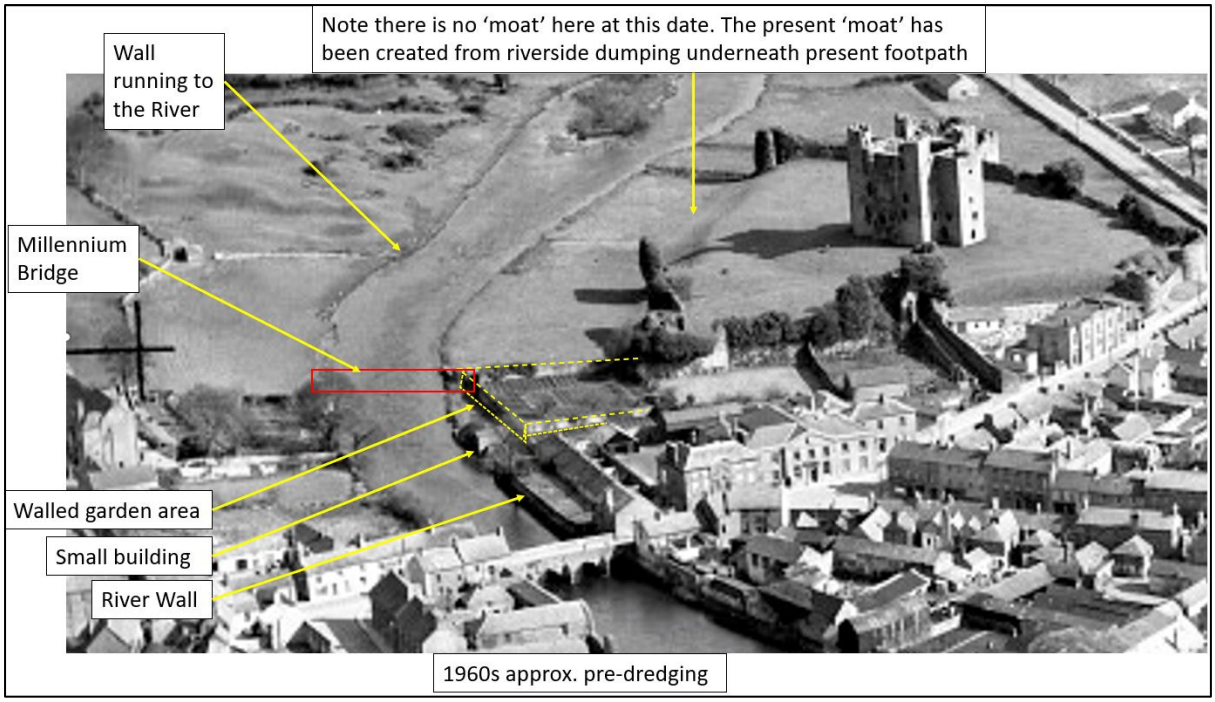


Power by the Boyne: **an artist's impression of Trim Castle in its heyday**. It was originally an earth-and-timber ringwork built by Hugh de Lacy in 1172, two years after the Normans invaded Ireland. From *Strongbow: The Norman invasion of Ireland* by Conor Kostick: *Game of Thrones*-style history, with many colour plates (O'Brien, £14.99 *(£13.50)*; 978-1-84717-200-6)

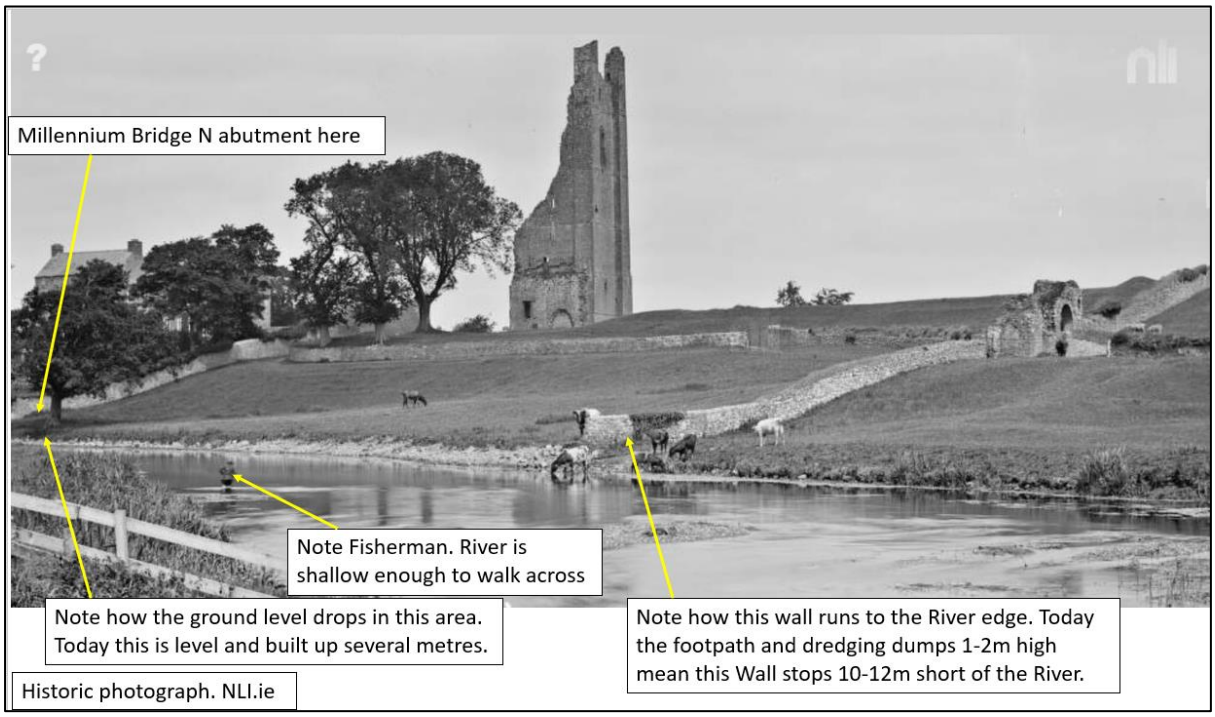




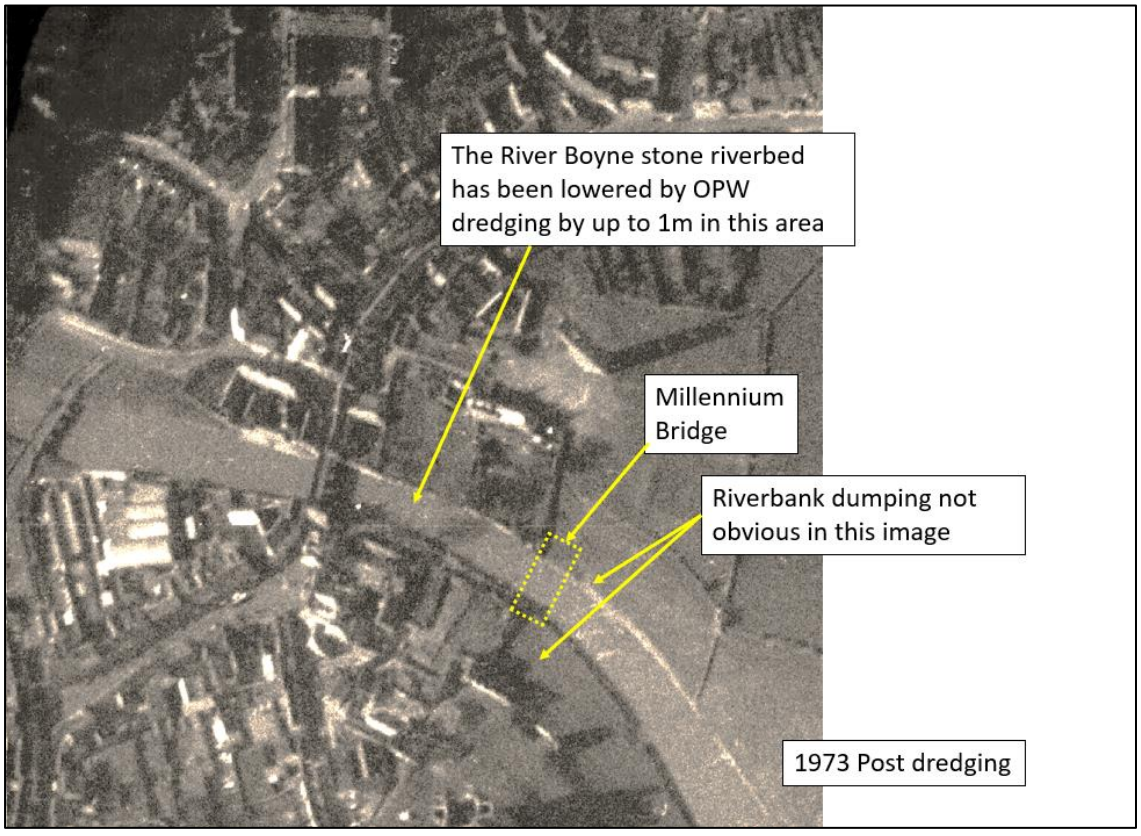
OS mapping showing layout in the 19th century. The Castle moat is not indicated. But the annotation showing 'Liable to Floods' on both sides of the river shows the banks are low.



Aerial image of c.1960s showing the landscape pre-dredging. The northern side (left) riverbank is shown as very low and not much higher than the water level. The southern side (right) shows the low riverbank and the layout prior to the present developments with roads, car park (which is on a raised terrace) and open grassed area.



Early 20th century image of N riverbank showing its low level. The fisherman shows the shallow depth of the River – compared to today. Also to note the Town Wall from the Sheep Gate is seen to run to the River edge. Today this Wall stops around 10-12m short of the river, as this space is occupied with dumps. The wall may be hidden in the dumps today.



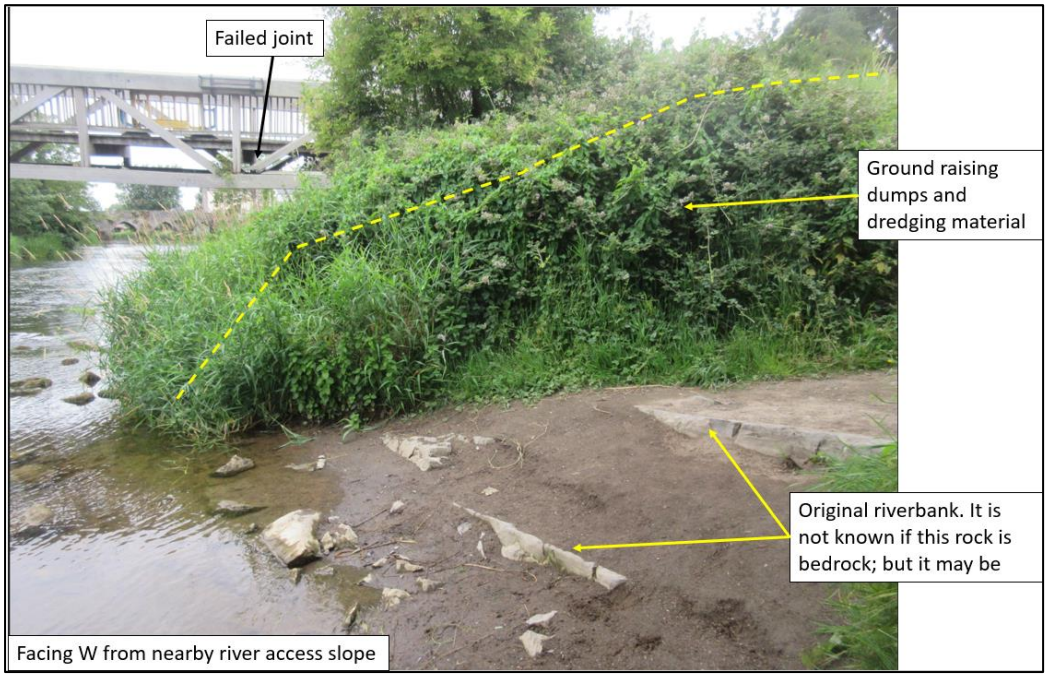
Aerial image of 1973 showing the River Boyne post-dredging and river bed works. Dumps along the riverbank are not obvious in this image. The walled garden area on the southern side still appears intact, so the area may not have yet been significantly altered or dumped on. But with the 1970s dredging, the riverbank seems to have been used to mound linear bunds of dredged material and this material forms the high riverbanks and is the basis for present footpaths in the area. On the S

side, these bunds have trapped water that has helped to recreate the present castle 'moat' on the river side of the castle as in image below.

The above image shows the area on NW side of Millennium Bridge showing considerable ground-raising dumps when compared to the low-level riverbank in the early 20th C photograph. Several meters of dumping comprise dumps from OPW dredging, but also from imported material from 2001 Millennium Bridge construction.

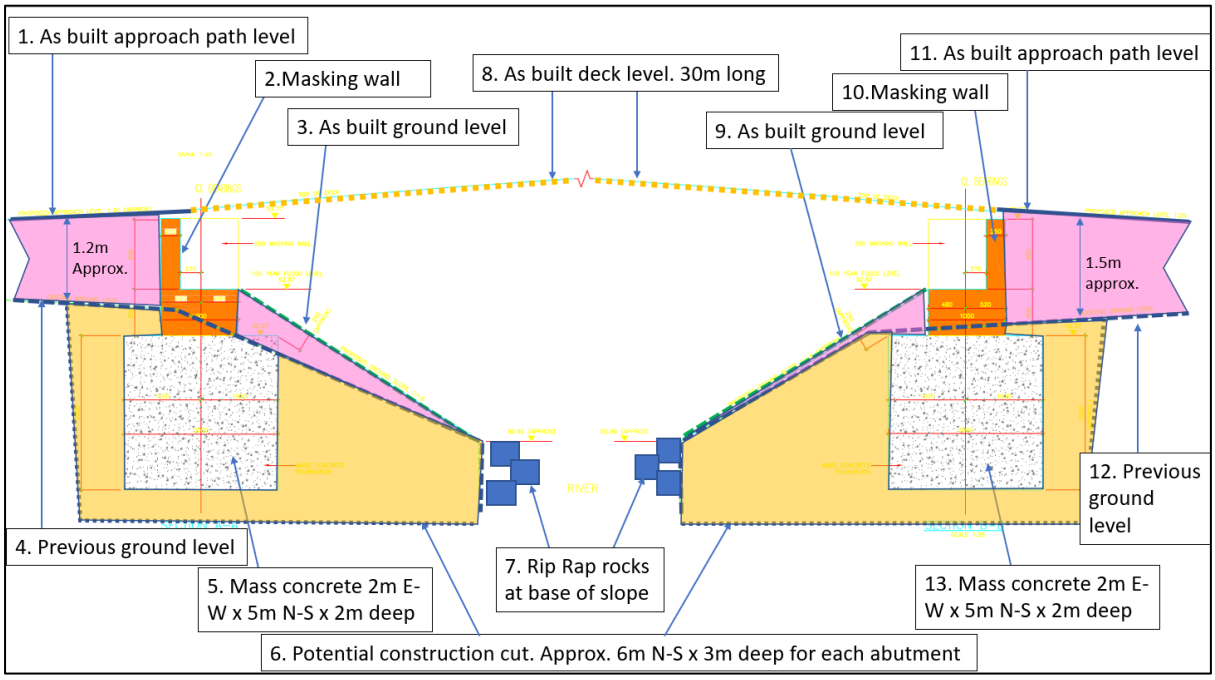
Bridge E face. The River is not very deep here, but the channel may be deeper elsewhere. Silts in the riverbed have probably accumulated since 1973, but there is potential for archaeological objects to occur in these silts across the riverbed. Should in-river works be proposed then a dive/wade metal detector survey should be completed.

The image below shows what may be bedrock visible in the nearby River access area / through-drainage point.



5 DISCUSSION OF 2001 MILLENNIUM BRIDGE CONSTRUCTION

The Trim pedestrian 'Millennium' Bridge was completed in July 2001 and construction information is limited. The extent of excavations, for example is not really known. However, some details can be gleaned from the design drawings annotated below, which show what was ground level at that time and what proposed ground-raising dumps were needed to bring the bridge to approved height above the River.



The above image shows general discussion elements of the 2001 construction. How big a construction cut was required for the mass concrete block abutments [5] and [13] (each 2m x 5m x 2m deep) is not known. The drawing has pre-bridge ground levels noted as [4] and [12] above. This is 1.20m to 1.50m below present ground level for the approaches [1] and [11] to the bridge. How extensive the landscaping was for this bridge in 2001 is not known.

Excavations.ie does not report any archaeological works associated with Bridge construction. But it is likely that there was a riverbed wade metal detector survey and associated monitoring of the construction works. A request to National Monuments Service may prove useful, as there may be staff who recall this work. Archaeological works associated with adjacent footpath construction in 2003 did not note any archaeological remains as below:

https://excavations.ie/report/2003/Meath/0010506/

2003:1469 - Castle Street, Trim, Meath

County: Meath **Site name:** Castle Street, Trim
Sites and Monuments Record No.: N/A **Licence number:** 03E1484
Author: Finola O'Carroll
Site type: Urban medieval
ITM: E 680108m, N 756705m

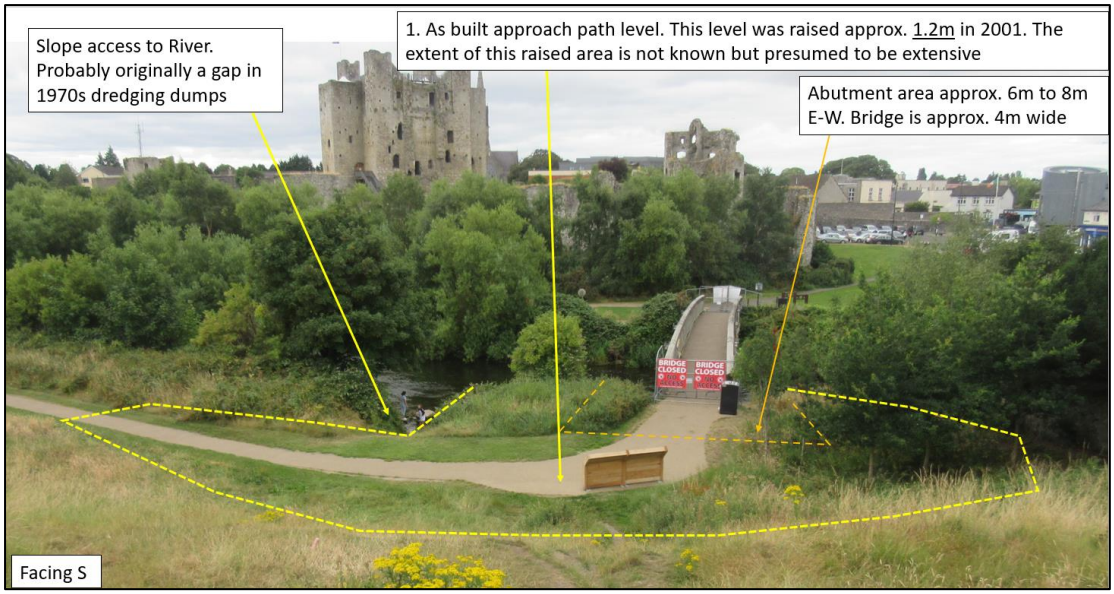
Latitude, Longitude (decimal degrees): 53.554145, -6.791025

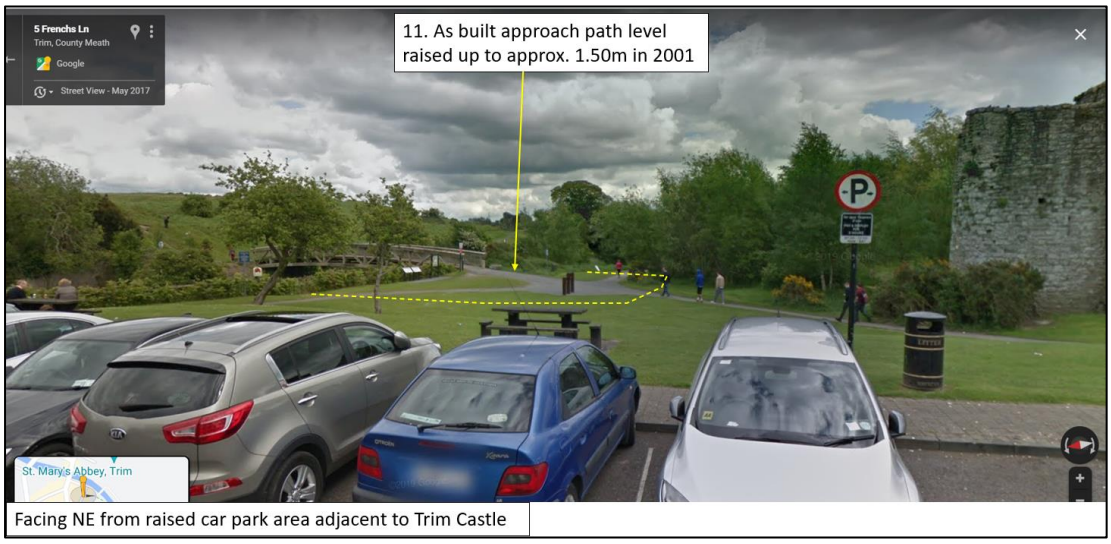
Testing and monitoring of groundworks associated with road resurfacing and the provision of services at Castle Street, Trim, Co. Meath, were undertaken at the request of Meath County Council.

(abridged)

As an extension to this licence, monitoring was carried out of the construction of a pedestrian path on the north bank of the River Boyne, opposite Trim Castle. The site is located between the Millennium Bridge and the main bridge on the R154 road. The path runs east-west, parallel to the river and at a distance of about 2-3m (*NR: 5m-12m*) from it. The total length of the path was 350m and it was 1.7m wide. The end of the path divided into two branches near the bridge on the main road, one branch connecting to the road towards the north and the other to a passage under the bridge. The maximum depth of the excavation was 0.3m, the average depth being 0.15-0.2m, just taking off sod and part of the topsoil, not reaching natural subsoil. A metal detector was used on the spoilheap produced by that excavation by Ian Elliot (04R013).

CRDS Ltd, Unit 4, Dundrum Business Park, Dundrum, Dublin 14.





Facing NE from raised car park area adjacent to Trim Castle

General view of Bridge from NW bank. The entire opposite riverbank is made of raised dumps.

Cracking in Masking Wall on N abutment

Broken joint on bridge E side

Facing S

Bridge E face. Riverbed is not very deep here, but the channel may be deeper elsewhere.

Northern abutment. Top of mass concrete block abutment may be visible.

Northern abutment with ground raising dumps in foreground sloping down to the River. Facing E

Millennium Bridge, Trim. Site Investigations in preparation for replacement bridge

Vicinity of Trim Castle National Monument No.514 (ME036-048004 et al) and Trim Porch Field and Town Defences (Sheep Gate ME036-048011 et al) National Monument No.679

Consent C001141
Monitoring: E005431

North abutment: Blackfriary 2nd Division; South abutment: Manorland

South Pit ITM 680206, 756845
North Pit ITM 680229, 756871

Niall Roycroft

Date of Issue
24th April 2023

NON-TECHNICAL SUMMARY

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1 INTRODUCTION 4

2 ARCHAEOLOGICAL BACKGROUND 5

3 ARCHAEOLOGICAL MONITORING METHODOLOGY 21

4 ARCHAEOLOGICAL MONITORING RESULTS 22

5 DISCUSSION 46

APPENDIX 1 CONTEXT REGISTER I

Non-Technical Summary

Meath County Council is proposing to replace the demolished, wooden Millennium Bridge which failed structurally in 2022 and was replaced with an adjacent temporary Bailey Bridge (supplied by Irish Defence Forces). The Millennium Bridge was originally constructed in 2001 beyond the NW corner of Trim Castle with a southern, mass concrete abutment roughly in the position of the presumed Trim Castle moat connection to the River Boyne ITM 680206, 756845. This area was infilled and landscaped during the post-medieval period and more recently it has been used for ground raising dumps from the OPW Boyne Drainage Works c.1970 to ensure the lands are above any potential flood zones. The Northern mass concrete 2001 abutment is at ITM 680229, 756871 which is near to the walled boundary of Talbot Castle that was associated with St Mary's Abbey.

Site Investigation (SI) test pits SI.1 and SI.2 took place in October 2023 and were archaeologically monitored. Both SI.1 (south) and SI.2 (north) were placed alongside the 2001 Millennium Bridge abutments to examine their construction details. Further SI works included two Rotary Cores (RC.1 and RC.2) and two cable and percussion boreholes (BH.1 and BH.2).

Test-pit SI.1 pit showed water ingress at c.50.90m OD which was associated with a mixed, wetland-smelling fluvial, waterlain, dark grey-blue deposit with bands of gravels and there was also a 'wetland' smell. The top of this waterlain layer was around 51.00m OD. Historic and medieval water level at normal-low flow is considered to have been around 51.30m OD-51.50m OD.

A Rotary Core (RC1) located 2m from SI.1 noted bedrock at 49.57m OD overlain by grey-brown clay-silty-gravel [30] to 50.77m OD. This bedrock level appears unusually low and, if correct, may represent medieval river bed deepening works associated with the Trim Castle Moat or a wharf in the river associated with the castle; or even a ferry crossing location.

Borehole (BH1) dug 15m W of the Test-pit shows bedrock at 50.55m OD overlain by gravels and cobbles [40] to 51.05m OD. These results seem to indicate a mixed series of deposits 49.57m OD – 50.90m OD representing channels, bars and infilling of a potential palaeo-channel dating from the post-glacial period to the medieval period.

In SI.1, these layers were overlain by a dark grey-brown silty clay with a top level of c.51.60m OD. This deposit probably represents the normally-dry floodplain to the River Boyne as seen in old photographs. Associated with this layer was a partly exposed piece of masonry made of large, squared stones which probably represents a wall (one of a pair) associated with a mill-race or drain outflow seen in 19th C photographs and mapping.

In SI.1 the old floodplain was overlain by a mixed grey and dark brown, loosely compacted, silty clay [12] with a top at c. 52.30m OD (52.07m OD in RC1 and 52.45 in BH1). This is presumed to be the 1990s infilling of the of the adjacent walled garden that was demolished at this time when the area was cleared to be a public space. The top of this layer at c.52.30m OD was the construction level for the 2001 Millennium Bridge.

In the northern test-pit SI.2. The sequence showed shattered top of bedrock around 50.80m OD, overlain by a dark grey-blue sticky, wetland-smelling, waterlain, fluvial clay around 0.50m deep. In the spoil heap, this material included freshwater snails, waterlogged twigs and occasional oyster (marine) shells. The oyster shells are presumed to be medieval food waste.

This fluvial layer was overlain by a dark grey-brown silty clay with a top at 51.60m OD, which probably represents the normally-dry post-medieval floodplain to the River Boyne as seen in old photographs. This layer was then overlain by a mixed grey and dark brown, loosely compacted, silty clay with a truncated top c. 52.30m OD. This is the 1970s redeposited dredged material. The top of this layer was the construction level for the 2001 Millennium Bridge and is likely to have been reduced to this level in 2001 in the vicinity of the abutment. Above this were two levels of modern imported chippings raising the ground to a present max. of 54m OD. Nearby RC 2 showed the same sequence and levels to SI. 1.

BH.2 was located 9m from SI.1 and RC.2, but it showed a level for bedrock of 49.26m OD. This is 1.60m below the level of bedrock in SI.1 and RC.2. If this level is correct then this deep area may possibly be part of a whirlpool or potentially a deliberate excavation into the bedrock to allow for a wharf or quay to be created to link the River to St Mary's Abbey. A historic track lead from this point – which is actually directly opposite the Water Gate of Trim Castle – to the Sheep Gate and to St Mary's Abbey. So a quay location and or medieval ferry crossing point is a possibility.

SI.1 southern test-pit scan at:
https://poly.cam/capture/7ADD7695-C489-4F2E-853B-DA05150978AB

SI.2 northern test-pit at:
https://poly.cam/capture/865051A5-F460-4C21-A056-D578D39C6B25

1 Introduction

Meath County Council is proposing to replace the demolished, wooden Millennium Bridge which failed structurally in 2022 and was replaced with an adjacent temporary Bailey Bridge (supplied by Irish Defence Forces). The Millennium Bridge was originally constructed in 2001 beyond the NW corner of Trim Castle with a southern, mass concrete abutment roughly in the position of the presumed Trim Castle moat connection to the River Boyne ITM 680206, 756845. This area was infilled and landscaped during the post-medieval period and more recently it has been used for ground raising dumps from the OPW Boyne Drainage Works c.1970 to ensure the lands are above any potential flood zones. The Northern mass concrete 2001 abutment is at ITM 680229, 756871 which is near to the walled boundary of Talbot Castle that was associated with St Mary's Abbey. The southern test-pit was at ITM 680206, 756845.

Site Investigation (SI) test pit works took place in October 2023 and were archaeologically monitored. Both test-pits were placed alongside the 2001 Millennium Bridge abutments to examine its construction details. The northern test-pit measured roughly 3m x 1m x 3.20m

2 ARCHAEOLOGICAL BACKGROUND

2.1 Topography & Site Description

Sep 2022

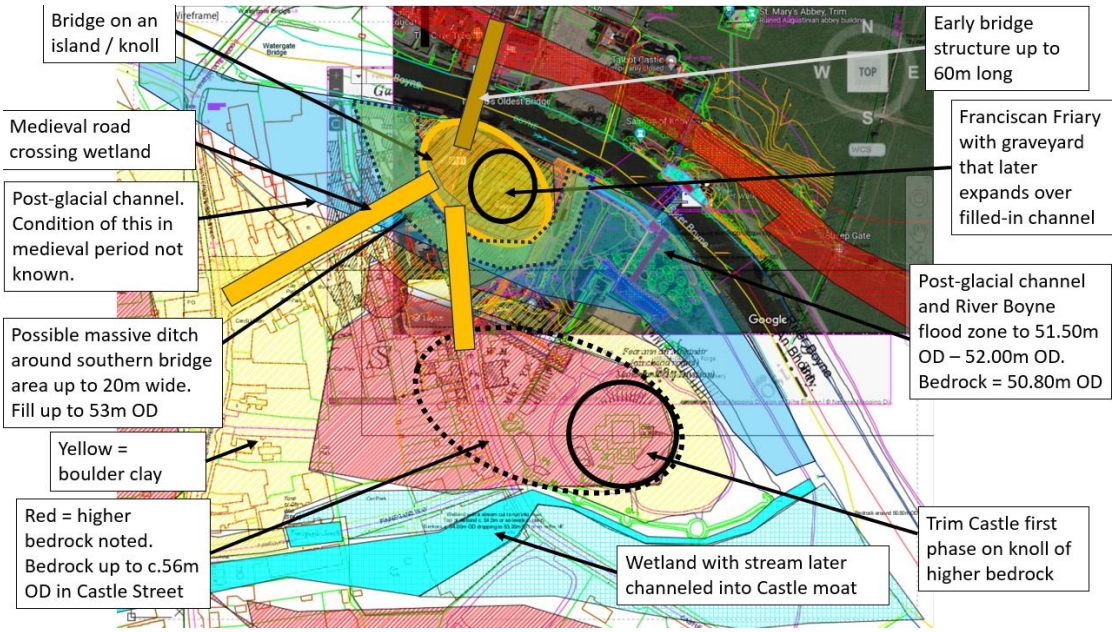
The above images show the ridges of exposed bedrock in the present river bed. The river bed underneath the Old Bridge has been deepened by OPW. But the extent of intrusive dredging works in the area of the Millennium Bridge is not really known.

The testpits were in an originally dynamic, fluvial environment. In general, the limestone bedrock of the present river is around 50.80m OD - 50.90m OD. This level was perhaps not reduced by OPW Boyne Drainage works since the SI north pit seemed to show in-situ fluvial layer up to 51.30m OD. General River Boyne surface level today is low at around 51.00m OD – 51.10m OD to a normal high around 51.30m OD – 51.50m OD.

19th century photos of the River Boyne at Trim cannot be related to present landscape levels due to so much being changed from the 1970s Boyne Drainage works. The old photos show the river as particularly slow moving with islands and reflections – while the present river appears to be more rapidly flowing – in general.

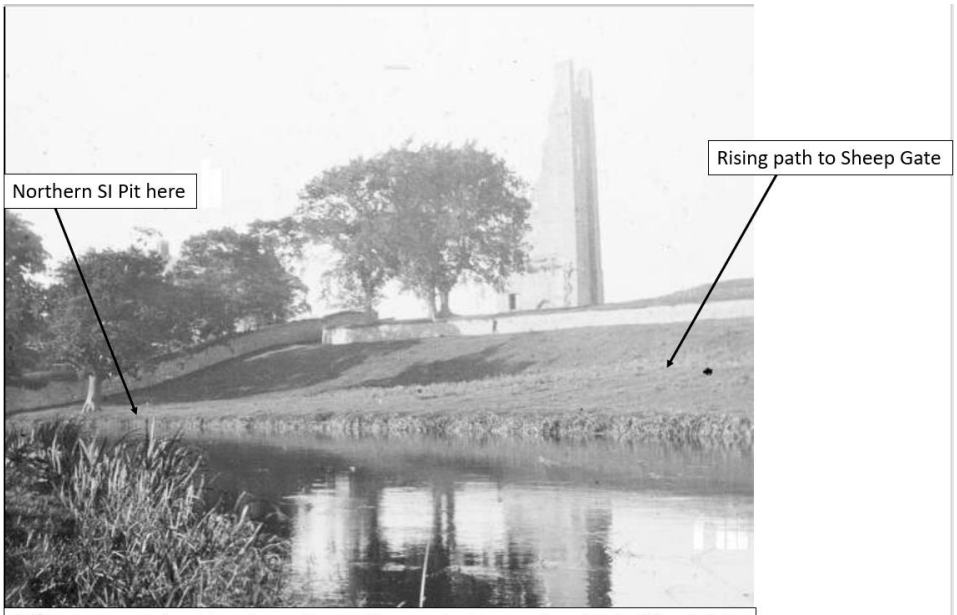
An exposure of possible bedrock to the E of the northern testpit shows the bedrock stepping up to around 51.30m OD c. 5m from the present River edge. This seems to imply the the northern Test-pit is located in a historic pool-backwater. The floodplain here is presently around 20m wide and the landscape then rises very steeply to the upper edge of the post-glacial River Boyne channel at c.59.00m OD.

The southern testpit is in the presumed location of the moat that went round the 14th-15th century Trim Ringwork Castle. Various reconstructions show a wet moat and a river island around the Castle. Another possibility is that this area was always (post-glacially and prehistorically) an open, wet area with a stream coming from the west to create a form of island at the present Boyne Bridge and start of Market Street.

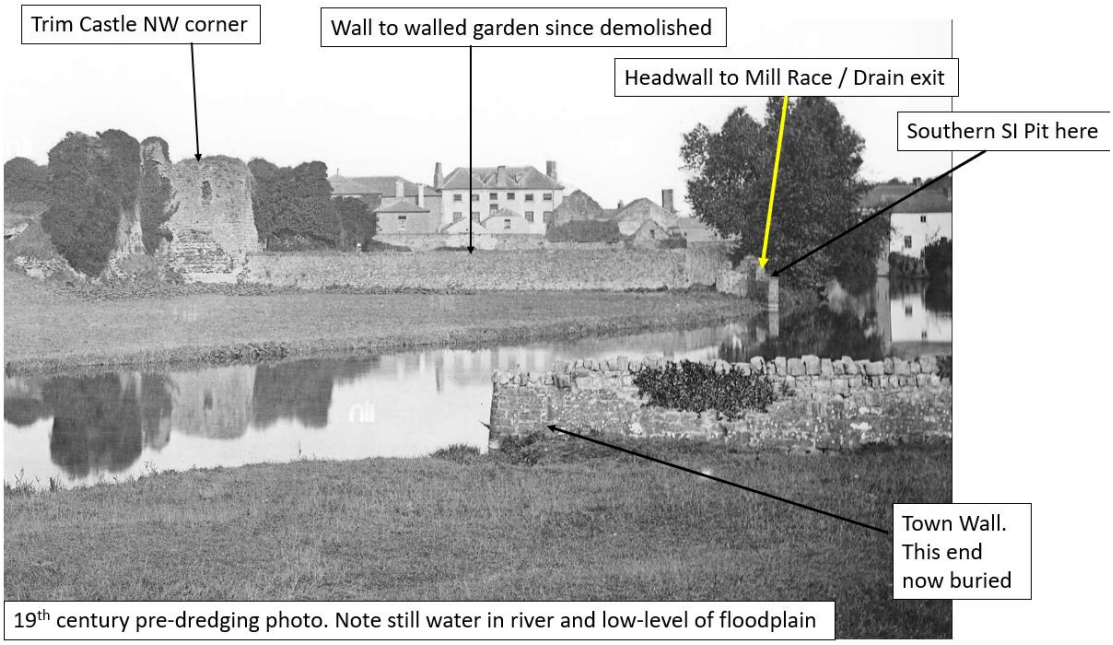


The above image shows the suggested old channel in blue. If this is correct then the Old Bridge may connect to a localised island of higher ground (orange above) and then there would be a back channel between the bridge island to the high bedrock of the Castle (red above). Previous works ME036-048039 in Market Street showed fluvial 'moat-like' deposits at around 52.50-53.00m OD. This could be a massive, defensive ditch that encloses the southern end of the bridge: in a similar manner to that of Southwark – London Bridge in medieval London. The Market Street fluvial deposit was covered by gravel road surfaces.

The high bedrock in Castle Street is at around 55.00m OD - 56m OD max. and has the rock-cut 14th century ringwork castle moat cut through it. However, for this to be a continuous wet moat the base would need to be around 50.80m OD, ie it would need to be 4m-5m deep which is technically possible, but it is more likely the moat was dry for much of the Castle Street and W side length. The E side contained the channelled 'Water of Luppard' stream that was probably redirected from the previous large area of wetland on this side of the Castle.

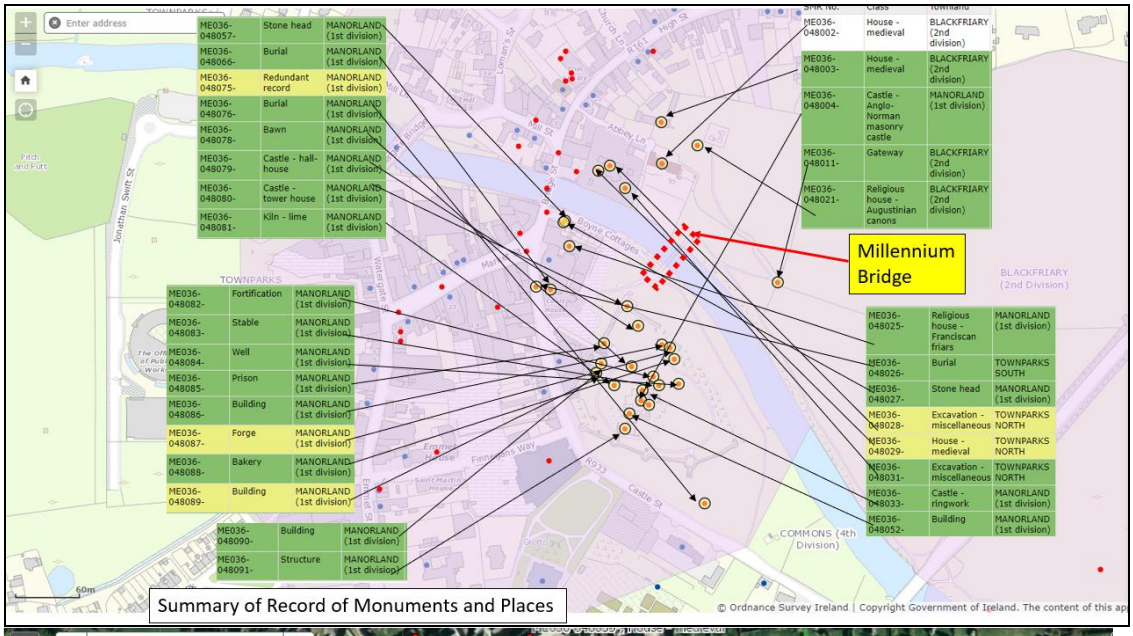


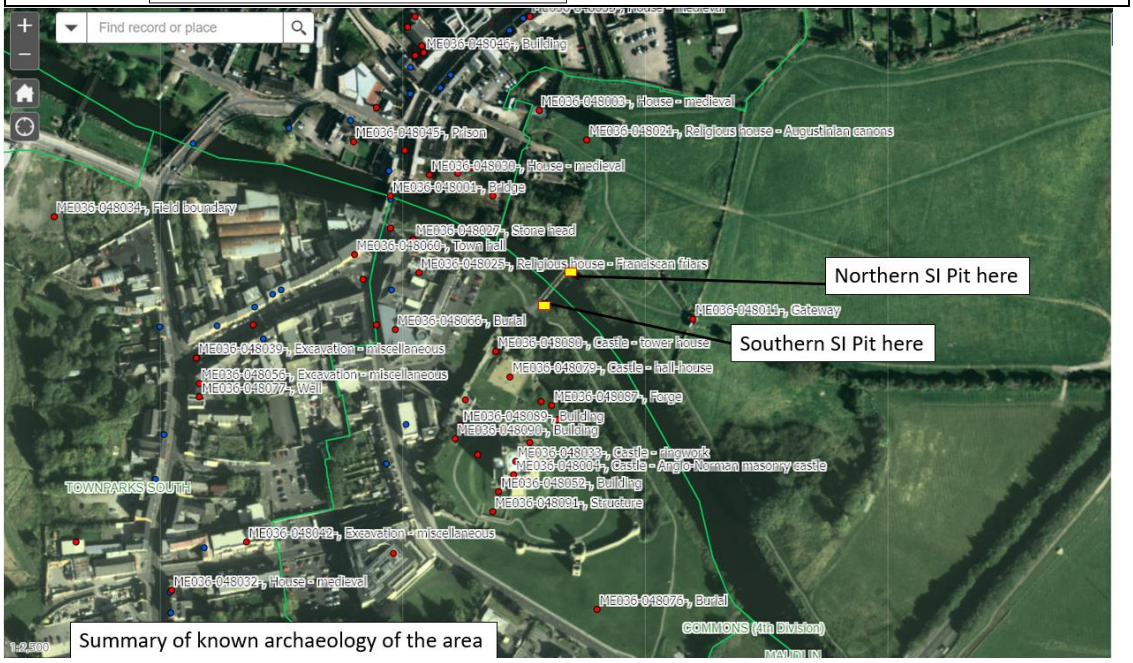
19th century pre-dredging photo. Note still water in river and low-level of floodplain

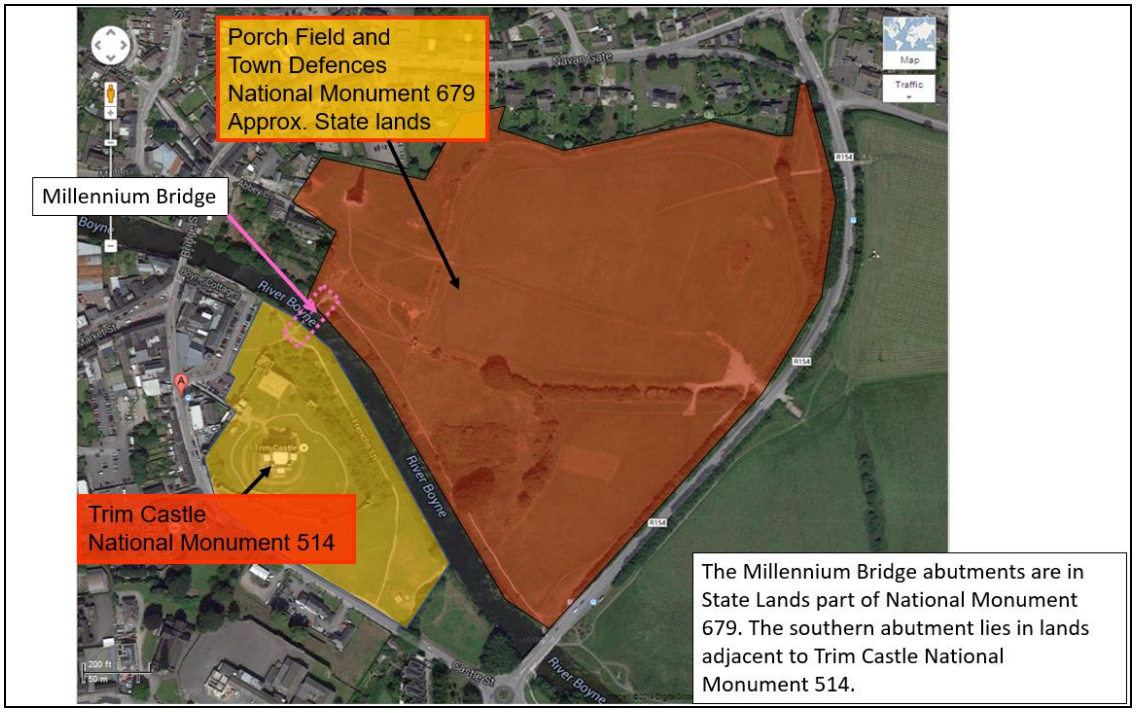


19th century pre-dredging photo. Note still water in river and low-level of floodplain

2.2 Record of Monuments and Places

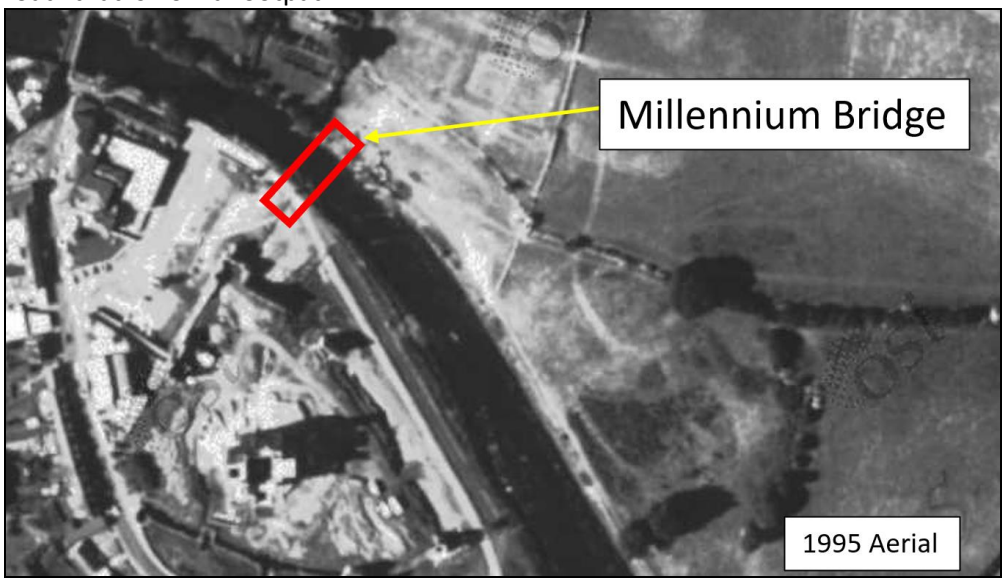






The above images show the Record of Monuments and Places (RMP), and also the nearby National Monuments of Porch Field (State Lands) No. 679 and Trim Castle No. 514. The relevant folios need to be checked to determine exactly what lands the Millennium Bridge abutments lie in. In any event, the proximity of two National Monuments means that works – which presumably include removing the current bridge - would probably require Ministerial Consent.

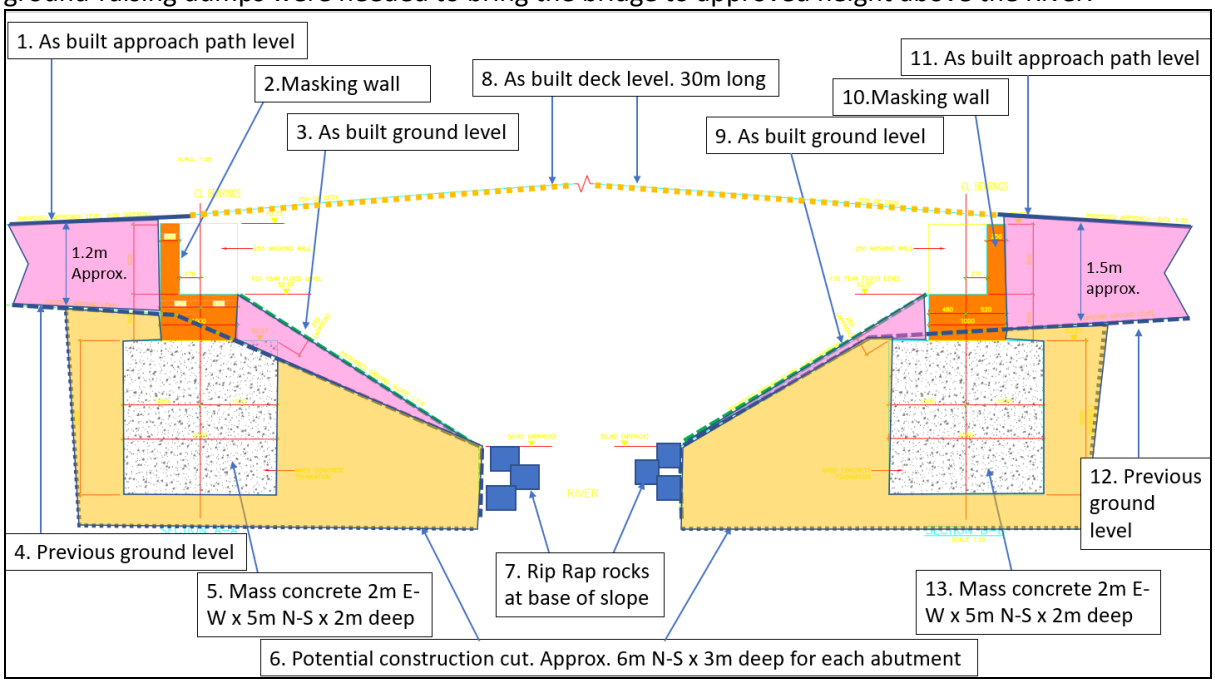
Trim Castle ME036-048004 is one of the most famous and visited historical sites in Ireland and the above RMP shows how many 'monuments' are associated with the site. The site within the boundary walls was subject to extensive archaeological works in the 1990s, but there does not seem to have been much archaeological work in the area of the Millennium Bridge. However, the Bridge southern abutment area seems to be the location of a 'haul road' that is now a footpath.



On the northern side, the Millennium Bridge is adjacent to an old masonry boundary wall that is associated with ME036-048002 Talbot Castle medieval house (below)

2.3 Previous nearby archaeological works

The Trim pedestrian 'Millennium' Bridge was completed in July 2001. Some details from the design drawings annotated below, which show ground level at that time and what proposed ground-raising dumps were needed to bring the bridge to approved height above the River.



The above image shows general discussion elements of the 2001 construction. The drawing has pre-bridge ground levels noted as [4] and [12] above around 52.50m OD. This is 1.20m to 1.50m below present ground level for the approaches [1] and [11] to the bridge. Excavations.ie summaries are given below. The '19th century River Wall' in 2001:1071 below, was noted in the southern construction pit. This wall was removed when the abutment was built.

2001:1070 - TRIM: TOWNPARKS NORTH AND SOUTH, MEATH

County: Meath **Site name:** TRIM: Townparks North and South
Sites and Monuments Record No.: N/A **Licence number:** 01E0262
Author: Rosanne Meenan
Site type: Excavation - miscellaneous
Period/Dating: Multi-period
ITM: E 680233m, N 756821m
Latitude, Longitude (decimal degrees): 53.555174, -6.789098

It was proposed to build a pedestrian bridge across the River Boyne at a point linking Trim Castle and the Yellow Steeple. The bridge was built on two foundation pads, one on either side of the river. The development site lies within the zone of archaeological potential for Trim. On the south side of the river the foundation pad lies approximately 50m from the nearest point in the curtain wall of Trim Castle (SMR 36:25). On the north side of the river the foundation pad lies some 600m from the tower-house known as Talbot Castle (SMR 36:22). Nagle's Castle (tower-house, SMR 36:20) and the Yellow Tower of St Mary's Abbey (SMR 36:21) stand further to the north. The riverbed was subjected to dredging in the 1970s as part of the Boyne drainage. It is possible that a high bank along the north edge of the river was formed by the deposition of material from dredging. An assessment, including test-trenching, was requested by Dúchas. Four test-trenches, two on each riverbank, were excavated.

Trenches 1 and 2, on the south side of the river, revealed evidence for dumping in the 19th and 20th centuries. In Trench 1 a layer of coarse sand was exposed underlying the dumped material. This layer, which produced fragments of animal bone and two sherds of 13th-century Dublin-type medieval pottery, was exposed at 1.6m below the present surface level.

Trenches 3 and 4 on the north bank of the river exposed deposits of sticky clay and stone; these were interpreted as upcast from the 1970s dredging of the Boyne. There are mounds of this material along the north bank of the river here. A piece of floor tile was recovered from one of the concentrations of stone exposed at a higher level in the fill. This is of the line-impressed type, popular in the 14th century and continuing in fashion until the early 16th century. It is likely that the tile derived from St Mary's Abbey to the north.

A very small number of 19th/20th-century potsherds were also recovered from this trench. Alan Hayden returned at a later date to the south bank of the river to excavate the material that produced medieval pottery (see No. 1071, *Excavations 2001*).

Roestown, Drumree, Co. Meath

2001:1071 - TRIM: TOWNPARKS NORTH AND SOUTH, MEATH

County: Meath **Site name:** TRIM: Townparks North and South
Sites and Monuments Record No.: SMR 36:48 **Licence number:** 01E0262 ext.
Author: Alan Hayden, Archaeological Projects Ltd.
Site type: Excavation - miscellaneous
Period/Dating: Multi-period
ITM: E 681933m, N 756021m
Latitude, Longitude (decimal degrees): 53.547725, -6.763663

Monitoring of the mechanical excavation of two foundation pads, one on either side of the River Boyne, to carry a new pedestrian bridge was undertaken on 14 May 2001. An earlier assessment had been carried out by Rosanne Meenan (see No. 1070, E*xcavations 2001,* 01E0262). The trench for each of the pads measured 10m by 12–14m.

On the north side of the river bedrock lay at 1.8–2.2m below modern ground level and was overlain by a 0.2m thickness of archaeologically sterile river silt. The remainder of the profile consisted of modern rubble and topsoil.

On the south side of the river bedrock lay at 3m below modern ground level. A 0.5m-thick layer of water-saturated river-deposited coarse gravel and silt overlay it. These deposits contained water-abraded sherds of 13th/14th-century Dublin glazed wares. A 19th-century river wall overlay the gravel at the south side of the trench. It was abutted by river silt to a height of 1.7m below modern ground level. The remainder of the profile consisted of modern rubble and topsoil.

25A Eaton Square, Terenure, Dublin 6W

Archaeological works associated with adjacent footpath construction in 2003 did not note any archaeological remains as below:

2003:1469 - CASTLE STREET, TRIM, MEATH

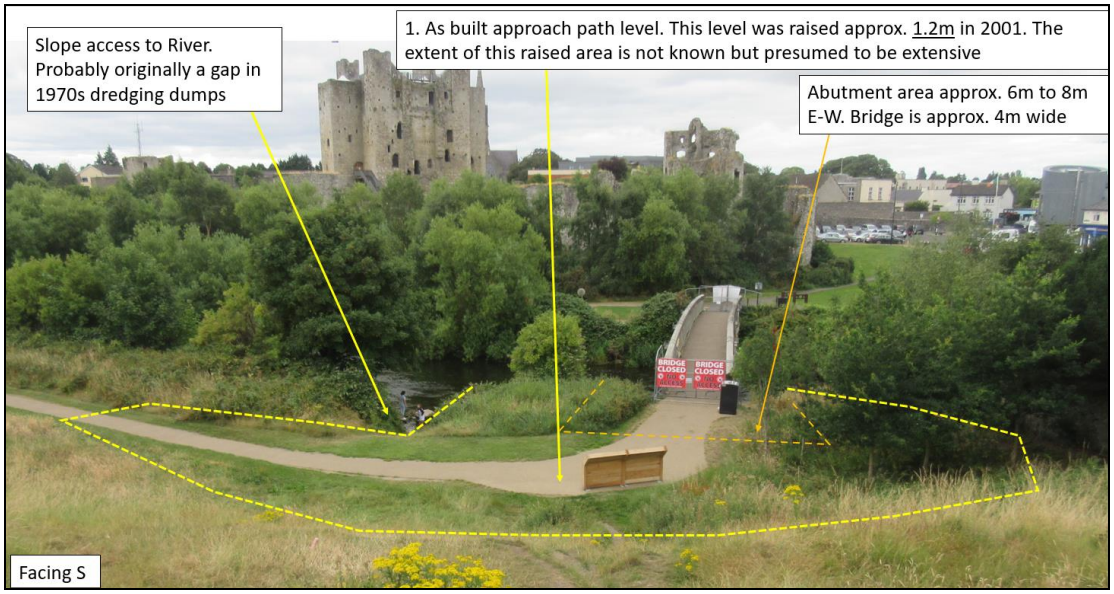
County: Meath **Site name:** Castle Street, Trim
Sites and Monuments Record No.: N/A **Licence number:** 03E1484
Author: Finola O'Carroll
Site type: Urban medieval
ITM: E 680108m, N 756705m
Latitude, Longitude (decimal degrees): 53.554145, -6.791025

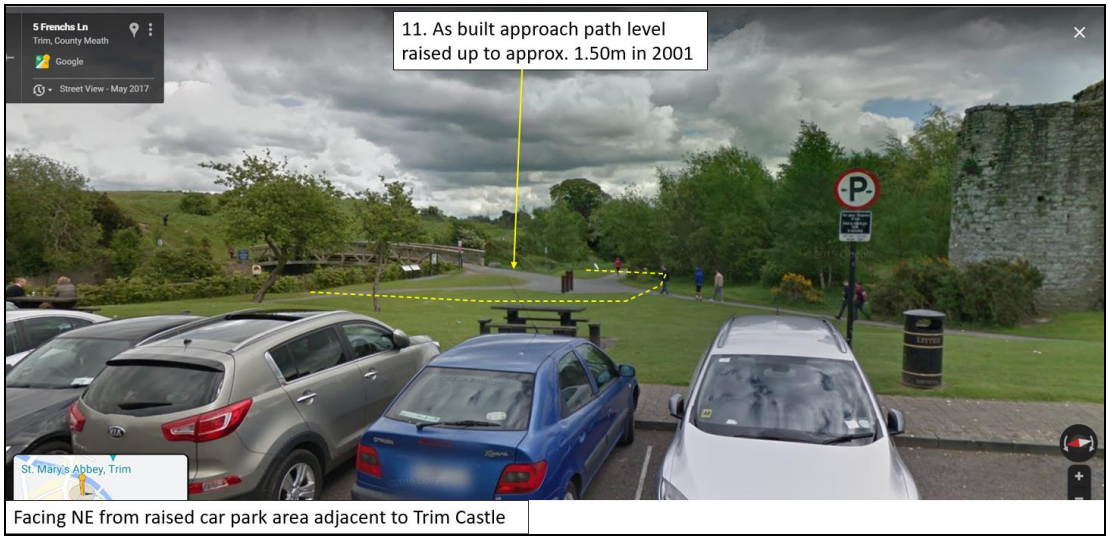
Testing and monitoring of groundworks associated with road resurfacing and the provision of services at Castle Street, Trim, Co. Meath, were undertaken at the request of Meath County Council.

(abridged)

As an extension to this licence, monitoring was carried out of the construction of a pedestrian path on the north bank of the River Boyne, opposite Trim Castle. The site is located between the Millennium Bridge and the main bridge on the R154 road. The path runs east-west, parallel to the river and at a distance of about 2-3m (*NR: 5m-12m*) from it. The total length of the path was 350m and it was 1.7m wide. The end of the path divided into two branches near the bridge on the main road, one branch connecting to the road towards the north and the other to a passage under the bridge. The maximum depth of the excavation was 0.3m, the average depth being 0.15-0.2m, just taking off sod and part of the topsoil, not reaching natural subsoil. A metal detector was used on the spoil heap produced by that excavation by Ian Elliot (04R013).

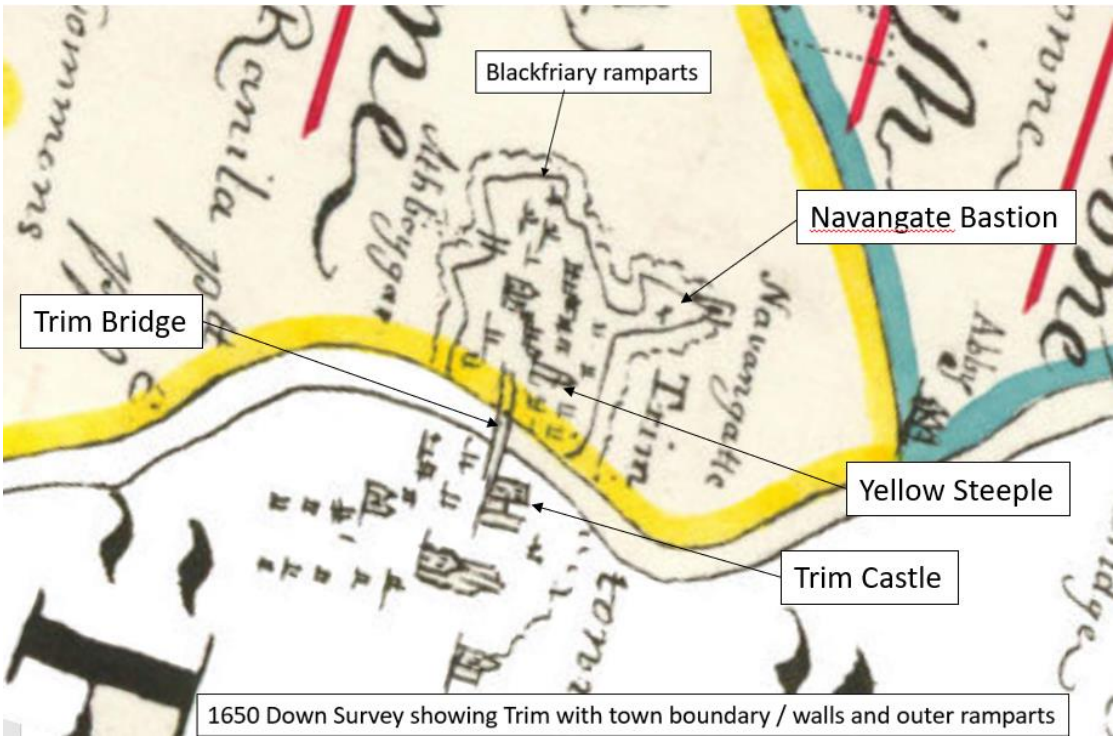
CRDS Ltd, Unit 4, Dundrum Business Park, Dundrum, Dublin 14.

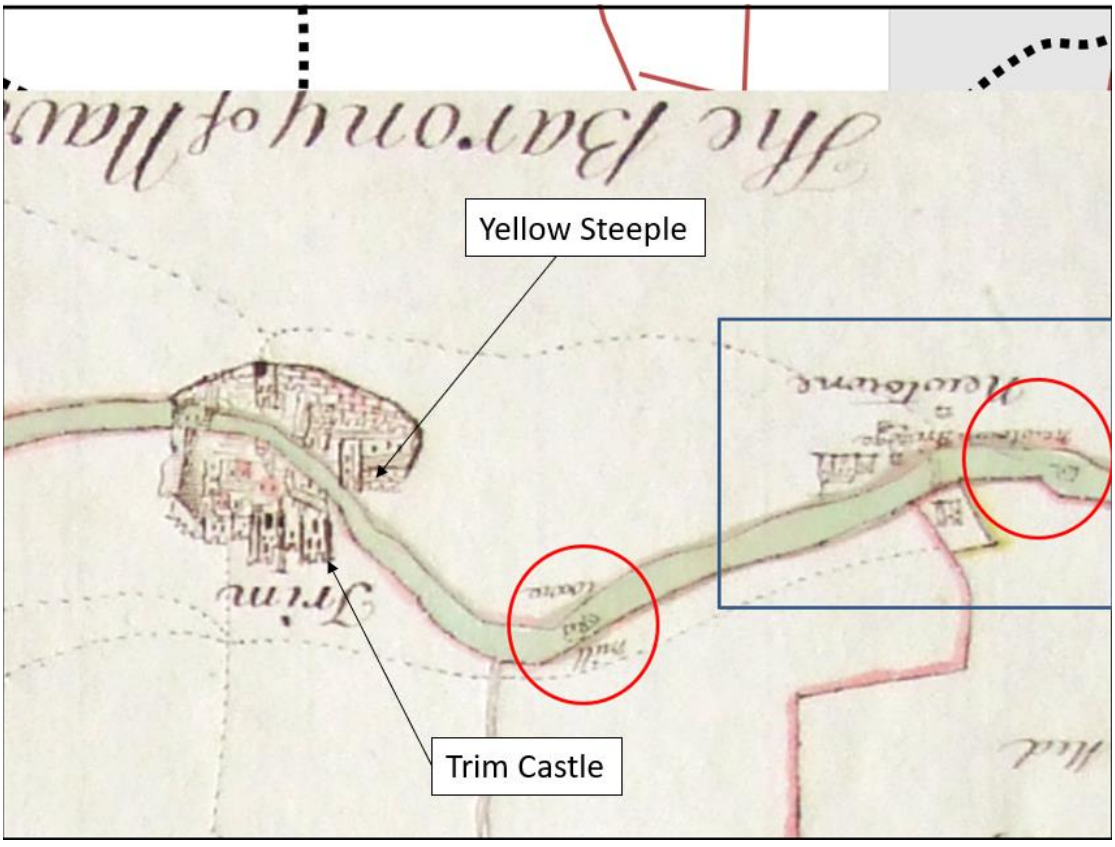

Slope access to River. Probably originally a gap in 1970s dredging dumps
1. As built approach path level. This level was raised approx. 1.2m in 2001. The extent of this raised area is not known but presumed to be extensive
Abutment area approx. 6m to 8m E-W. Bridge is approx. 4m wide
BRIDGE CLOSED
BRIDGE CLOSED
Facing S


5 Frenchs Ln
Trim, County Meath
Google
Street View - May 2017
11. As built approach path level raised up to approx. 1.50m in 2001
St. Mary's Abbey, Trim
Facing NE from raised car park area adjacent to Trim Castle

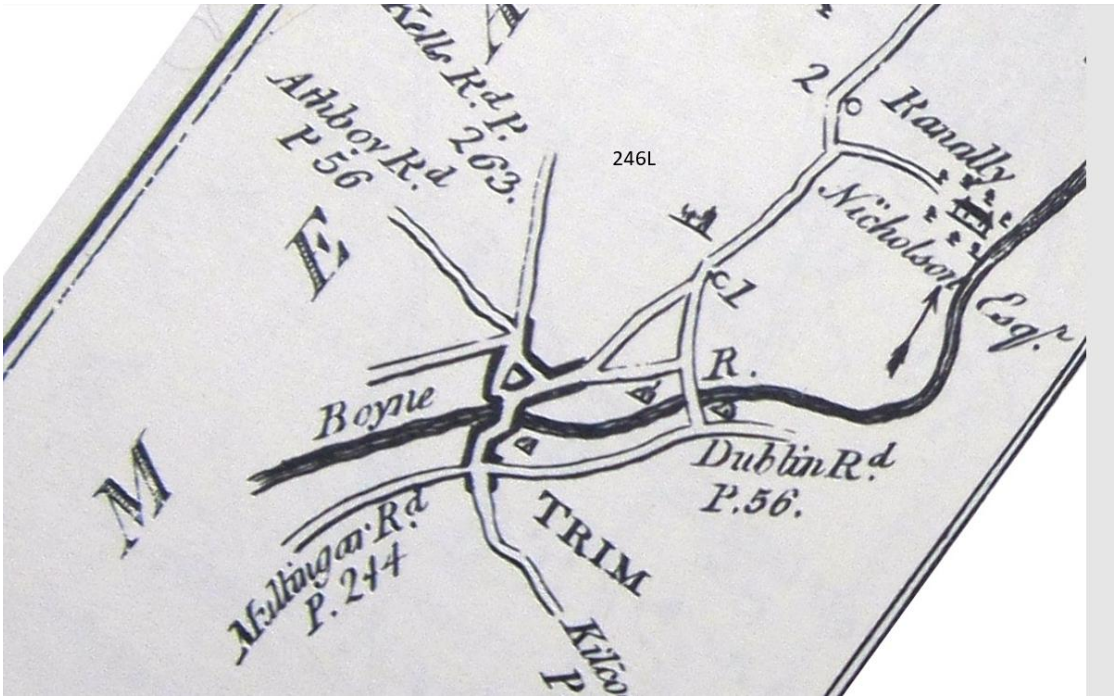
2.4 Map regression

1650s Down Survey



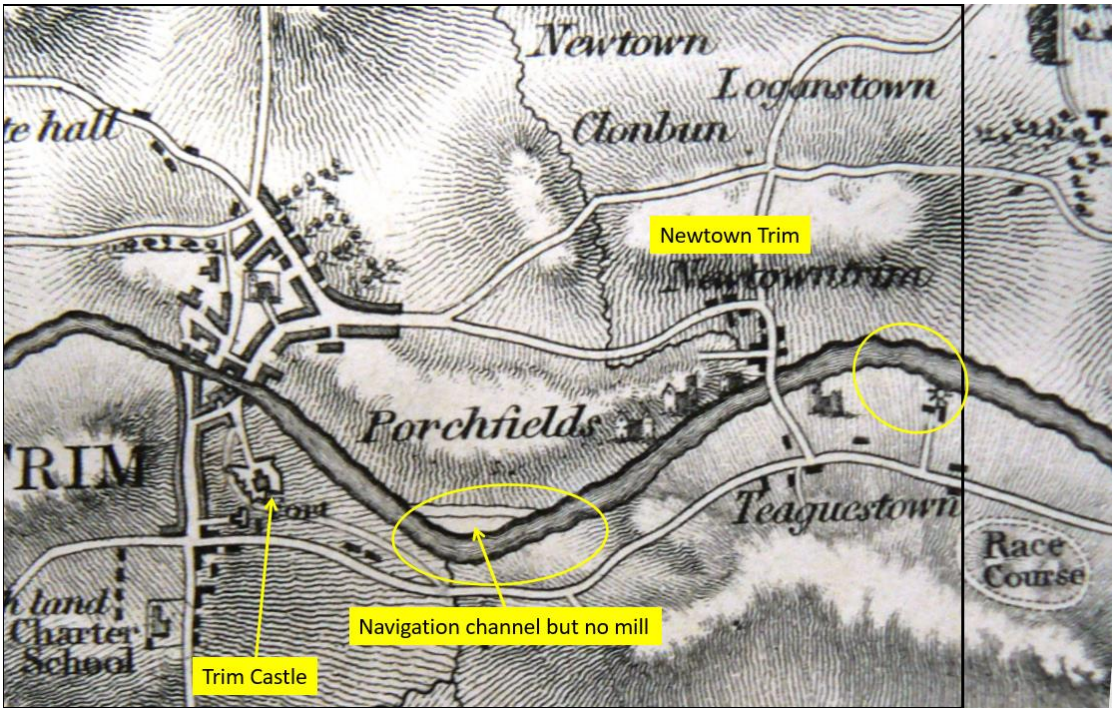


1777-1785 Taylor & Skinner

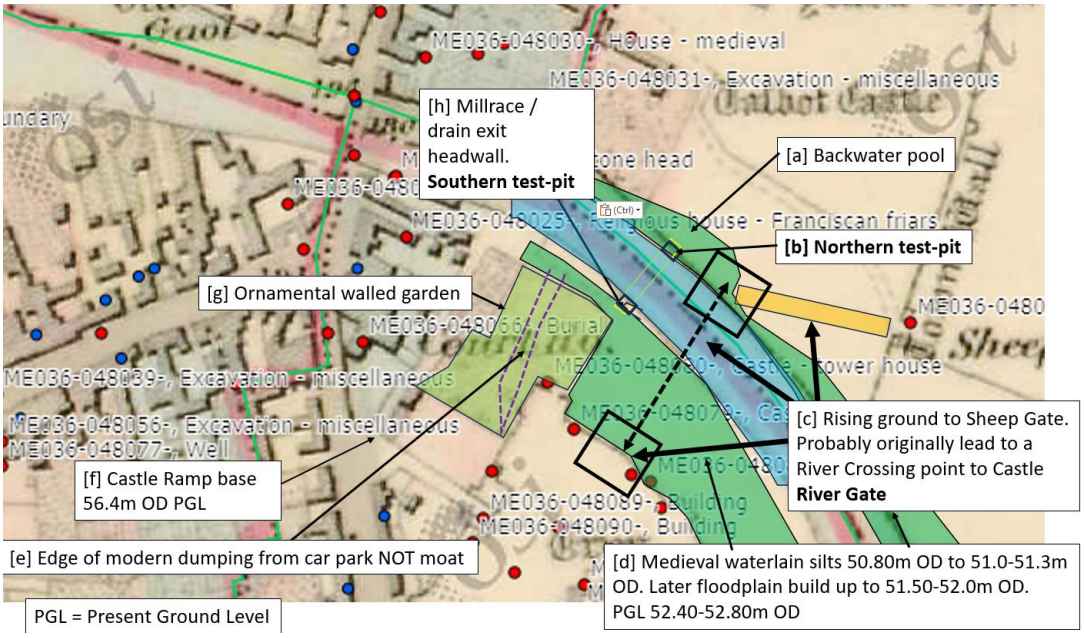


246 left

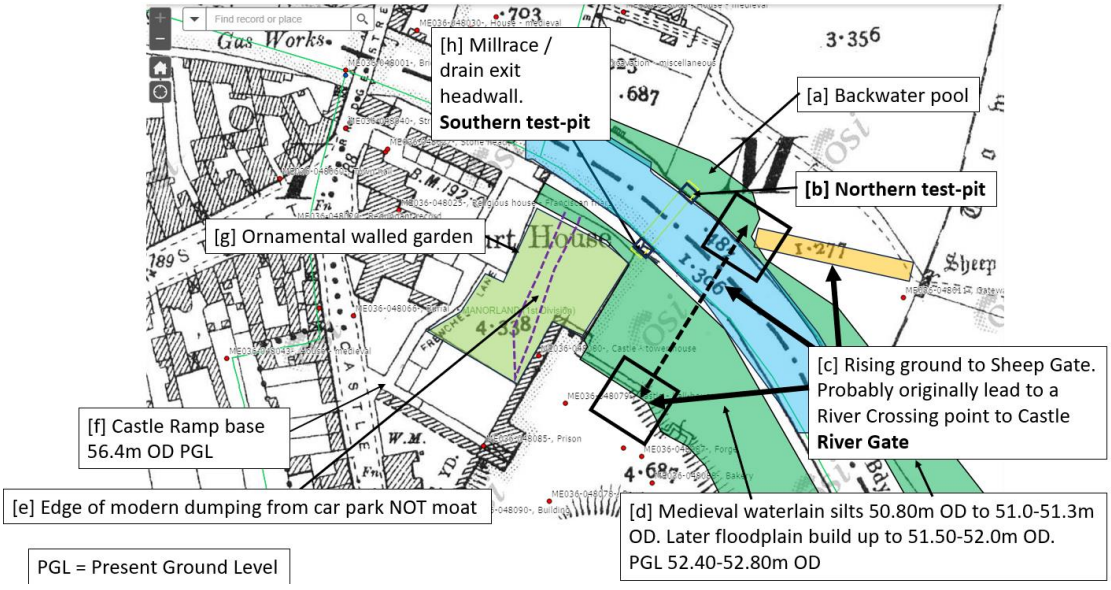
1817 Larkin



1837 OS



1909 OS

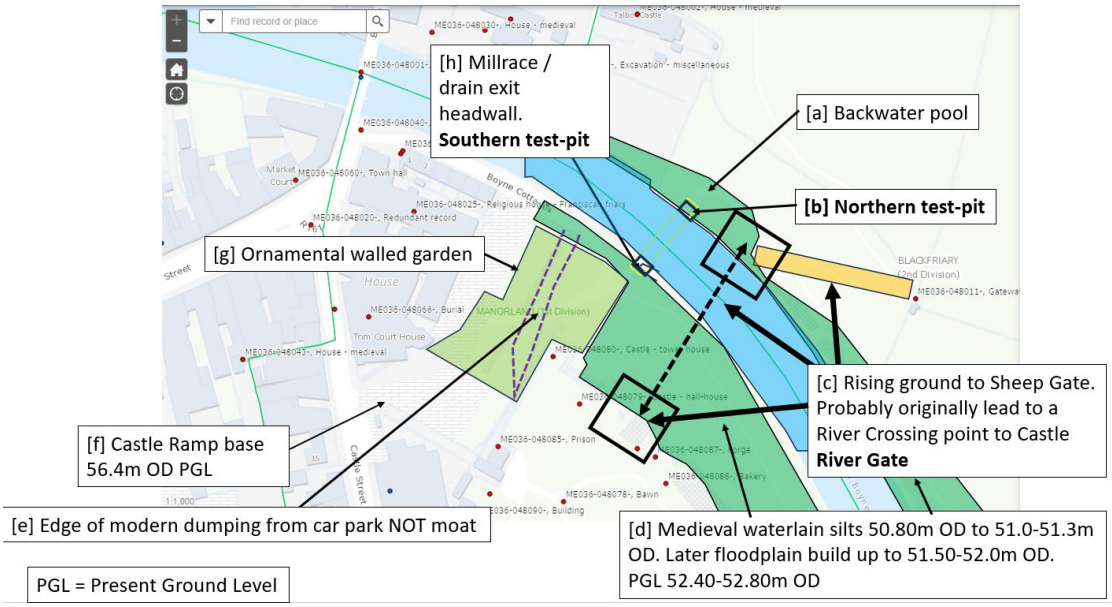


1973 Ortho: at the time of the Boyne Drainage scheme

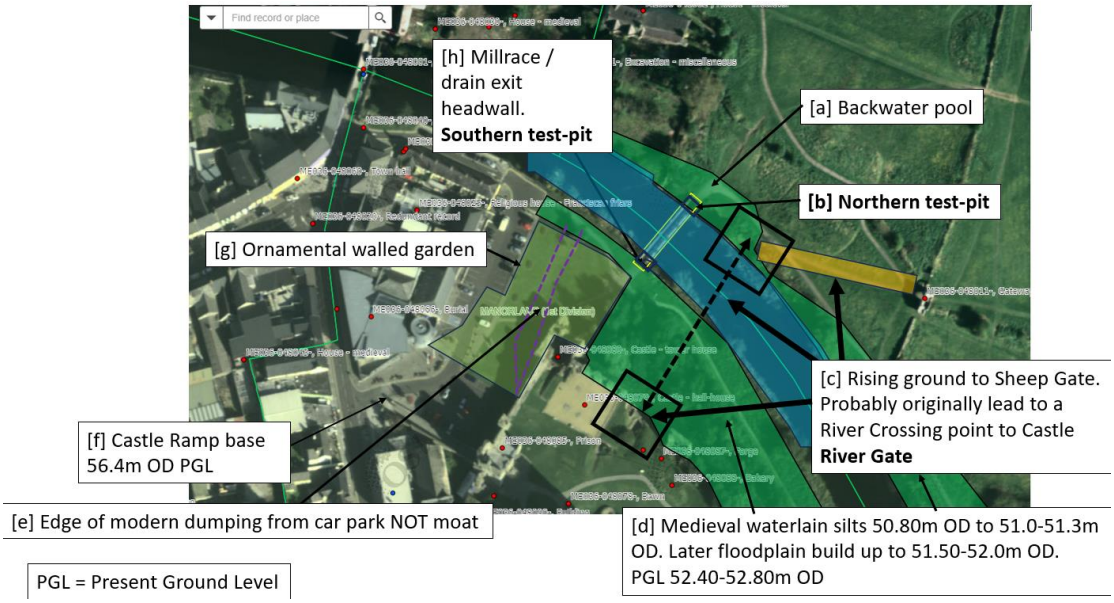
1995 Ortho

Showing extensive works in the area during the 1990s

Modern



Aerial



PAST PHOTOGRAPHS

View c.1900 from St Marys Abbey facing S

Above: Old and new photographs of works area. The foreground, whitewashed wall has now been demolished to ground level, but survives as a denuded 'facing' to the old road from Sheep Gate.

3 ARCHAEOLOGICAL MONITORING METHODOLOGY

The overall aim of monitoring was to determine the location, date, nature and extent of any potential archaeological features or deposits that may exist within the area of the proposed development.

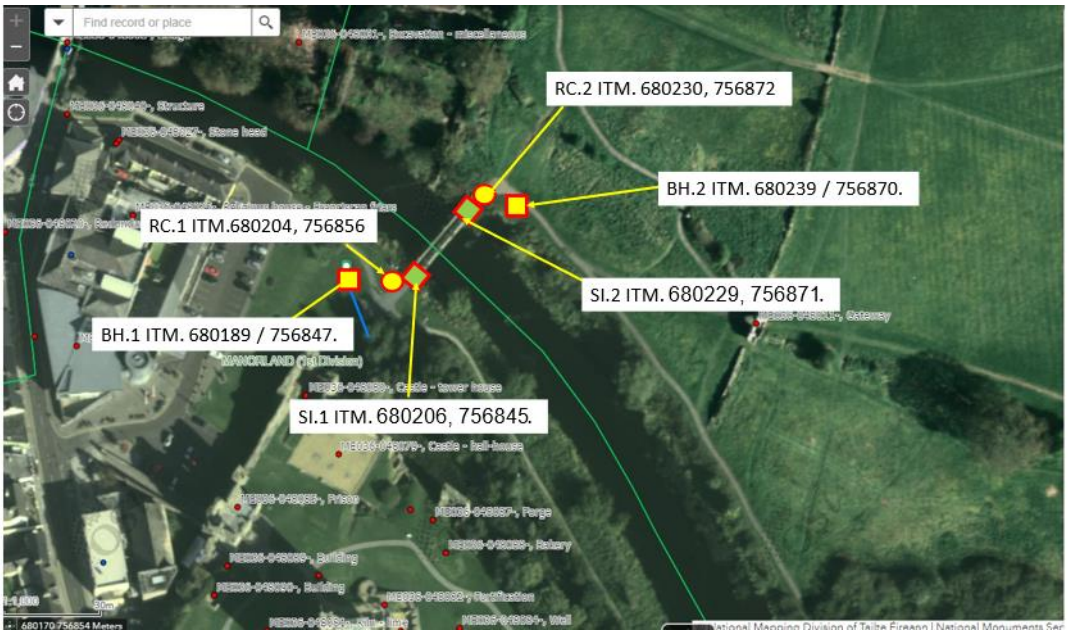
Site investigation works comprised the mechanical excavation of two test-pits at the 2001 bridge north and south abutments and a small evaluation pit on the northern side of the river in advance of a borehole. Another borehole was sunk to the south of the southern abutment location. Excavated spoil was also assessed since the test-pits were unsafe to actually enter.

The southern test-pit work ceased when water began to enter the pit above the level of bedrock. The northern test-pit ended at the surface of bedrock. Pits were recorded and backfilled.

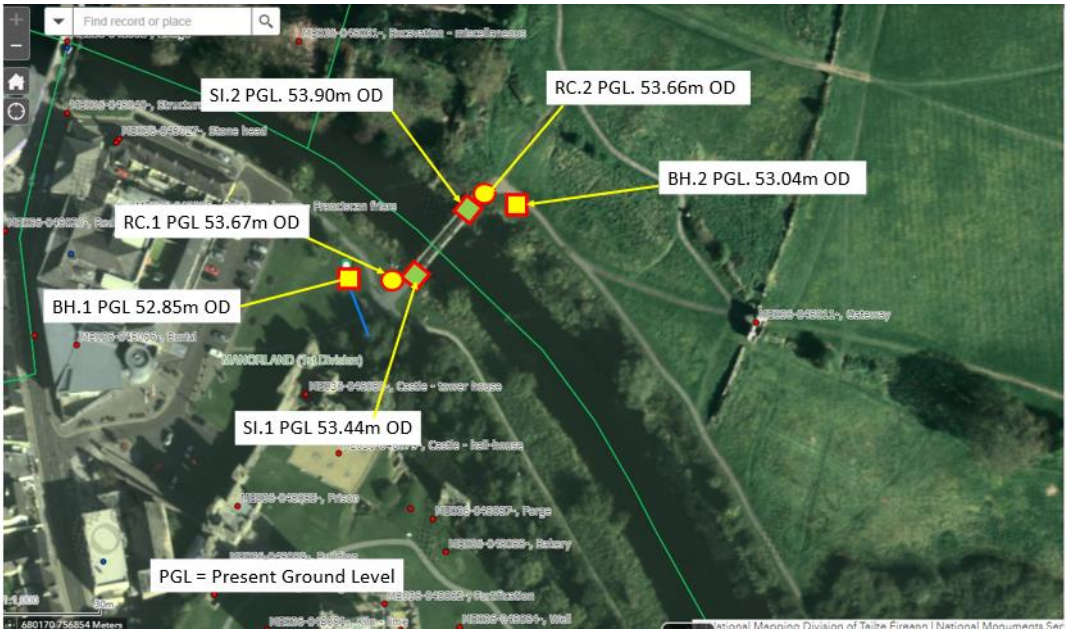
The layout of all trenches and the locations of any features recorded within them were recorded using the topographic survey commissioned in 2023 and have been tied into the Irish Transverse Mercator for the report illustrations.

No finds or samples were retained. Some oyster shells were photographed on site to ensure a record was made.

4 ARCHAEOLOGICAL MONITORING RESULTS

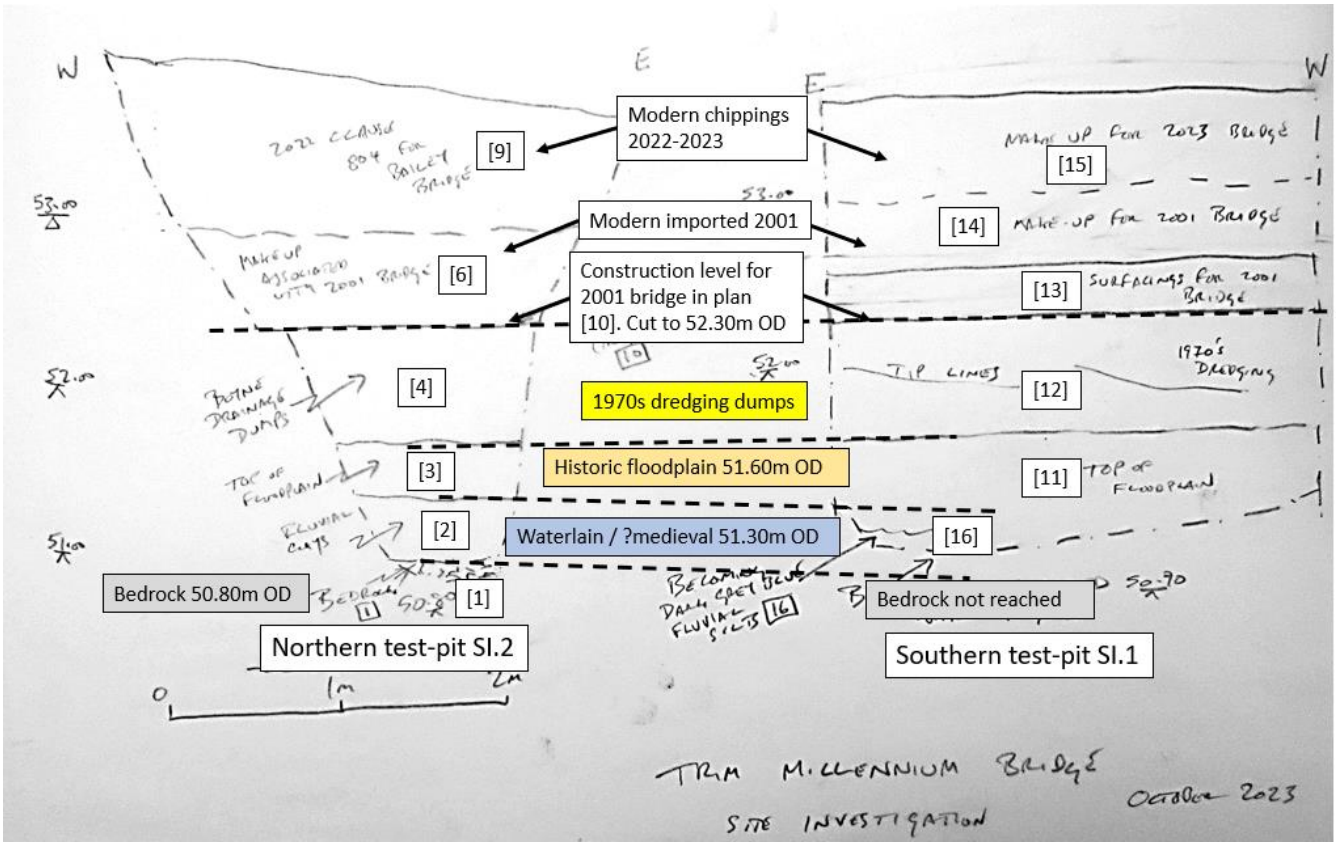


Invesitgation locations



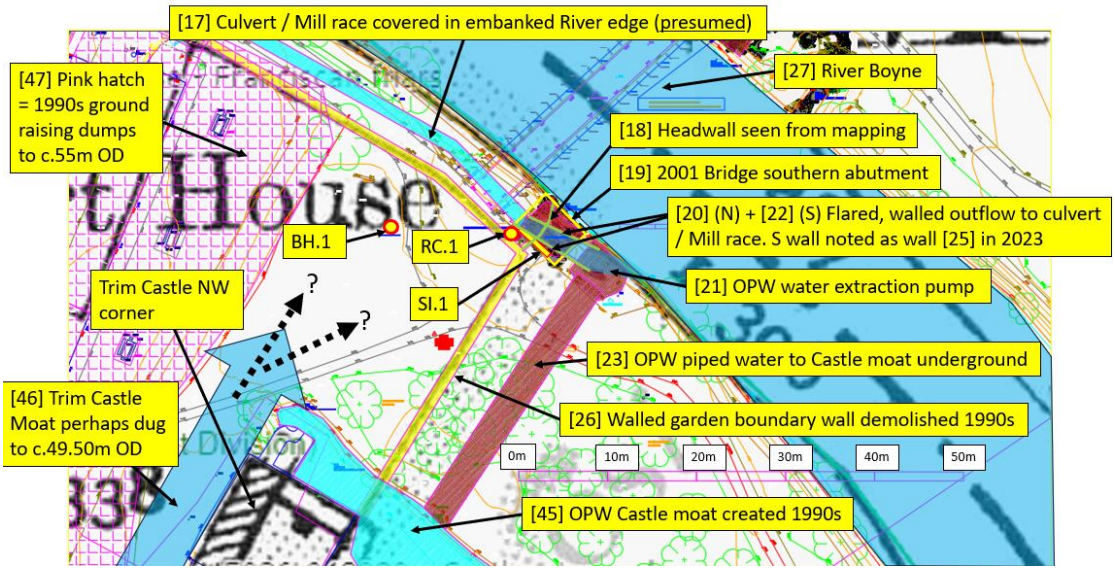
Present ground level

4.1 SI.1 Southern test-pit of 2023. ITM 680206, 756845. Approx 3m x 0.50m wide.

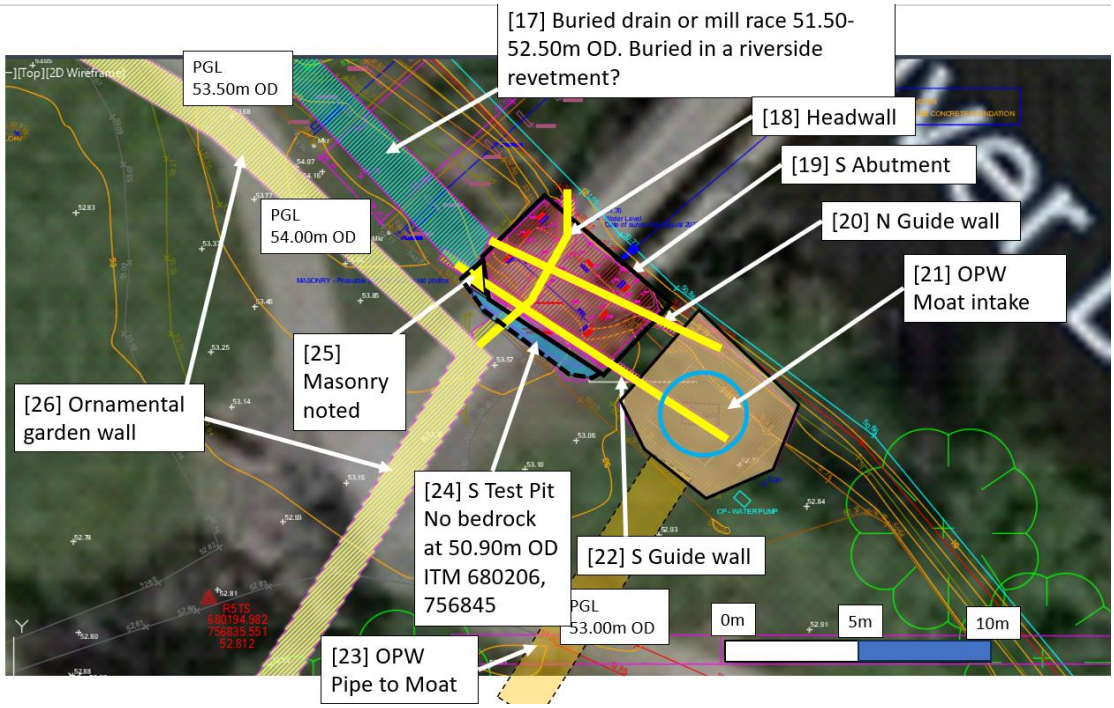


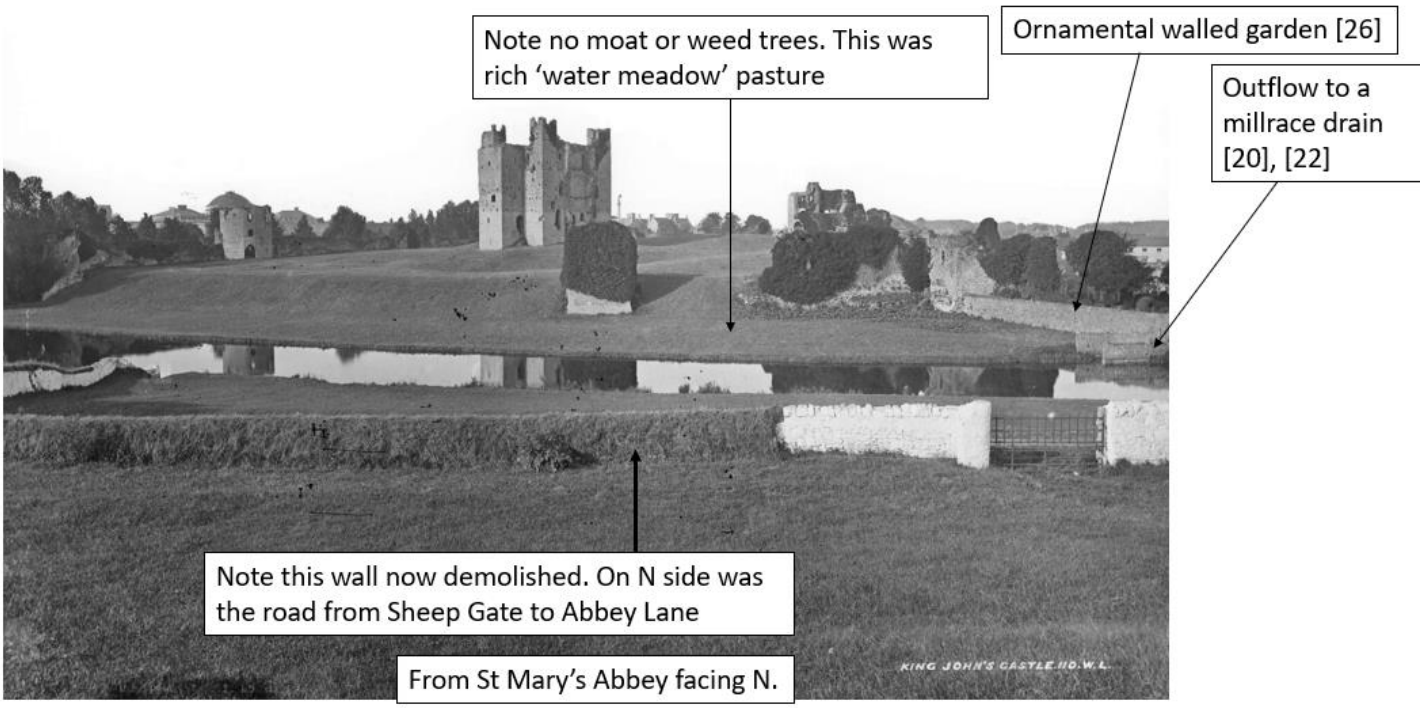
SI.1 showing water ingress at 50.90m OD. This coincided with waterlain layers [16]

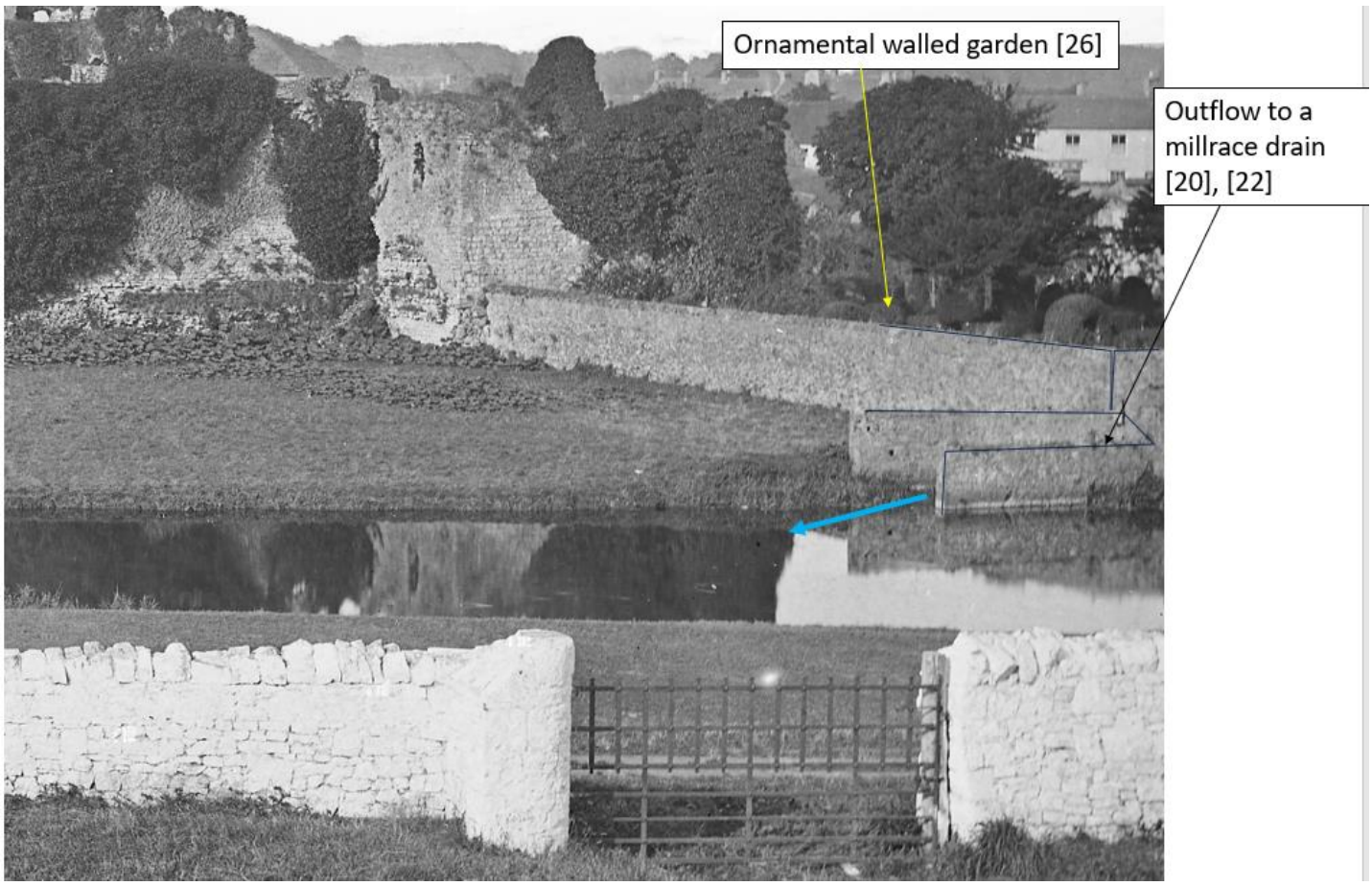
SI.1 general section face. The abutment on right was exposed for 1.50m. The upper deposits on left are infill [12] with tip lines visible and the lower are probably the old floodplain [11]



Above: overlay of modern topo survey and 1909 25-inch map




Note no moat or weed trees. This was rich 'water meadow' pasture
Ornamental walled garden [26]
Outflow to a millrace drain [20], [22]
Note this wall now demolished. On N side was the road from Sheep Gate to Abbey Lane
From St Mary's Abbey facing N.
KING JOHN'S CASTLE.TRIM.W.L.


Ornamental walled garden [26]
Outflow to a millrace drain [20], [22]

Map regression and old photos shows a pair of flaring walls [20] + [22] and a headwall [18] in the area of the southern abutment. The 2001 monitoring 2001:1071 noted the presence of the '19th century River Wall' abutted by 1.70m of river clays (a top level of around 52.5m OD which would include the 1970s-1990s dredging dumps – unless those depoists were actually the 'drain' fill). Only one wall was noted in 2001 report, but two are shown on the old photos and maps and these suggest a mill race or drain outlet emptying into the River at this point. The drain is certainly post-medieval in date, as this immediate area was presumably open water in the medieval period. The 2001 works suggested a fluvial deposit around 0.20m thick abve bedrock which would match the 2023 SI.1 works where a fluvial deposit was noted and it seemed that bedrock was almost reached at somewhere below 50.90m OD: perhaps around 50.70m OD. Nearby (2m distant) Rotary Core 1 found bedrock at c.49.50m OD and it is possible that was the Trim Castle Moat connection to the River.

[16] Waterlain clays smelling of waterlogging and a suggestion of hydrogen sulphide gas. This deposit coincided with water ingress into the trench which caused a halt to the excavations. The top of this deposit is around 51.00m OD and previous 2001 work suggests a depth of around 0.20m deep. These clays indicate a slow-moving backwater that was perhaps flushed during floods but generally waterlooged so that river water level would have been perhaps around 51.30m OD or so.

[11] Brown floodplain deposit presumably post-dating the medieval period and in normally-above-water conditions. Top level at 51.50m OD.

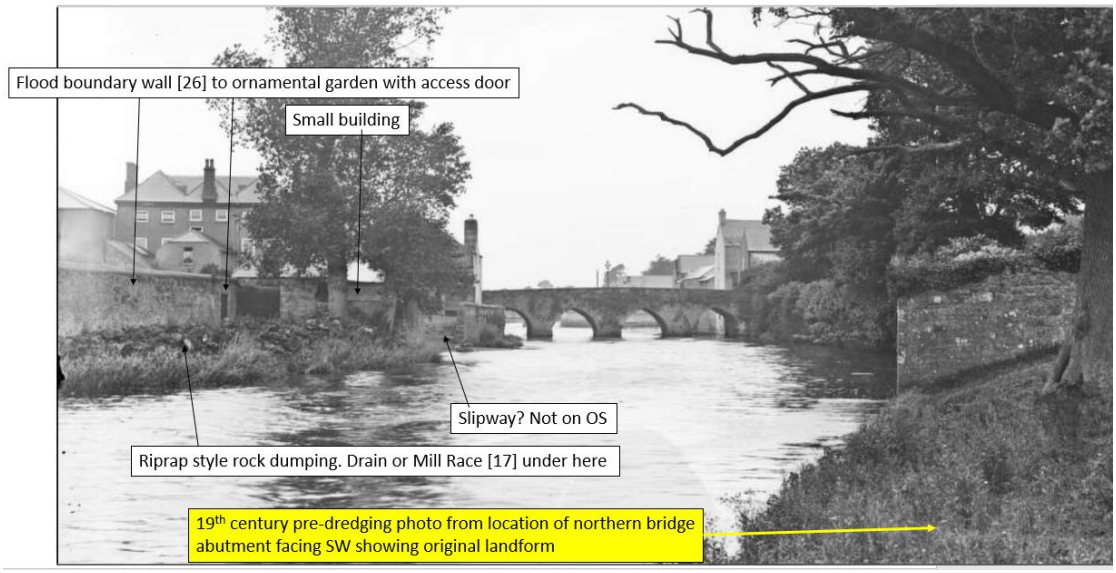
[12] Dumped, dredged deposits from the 1970s Drainage and 1990s infill works. Top level of around 52.25m OD. Photos show the nearby walled garden [26] itself was not part of the 1970s dredging works. But the riverside parts beyond the wall [24] floodplain were raised and tip lines were visible in soils [12] in 2023. In SI.1, the upper surface of this depoist had been reduced to the construction level of the 2001 bridge abutment construction – an area around 10m x 14m in plan.

[13] Mixed soils and mortar and gravels depoist around 0.30m deep with a top level of 52.35m OD. This depoisit is assumed to be a consolidation layer / construction mat associated with 2001 bridge construction.

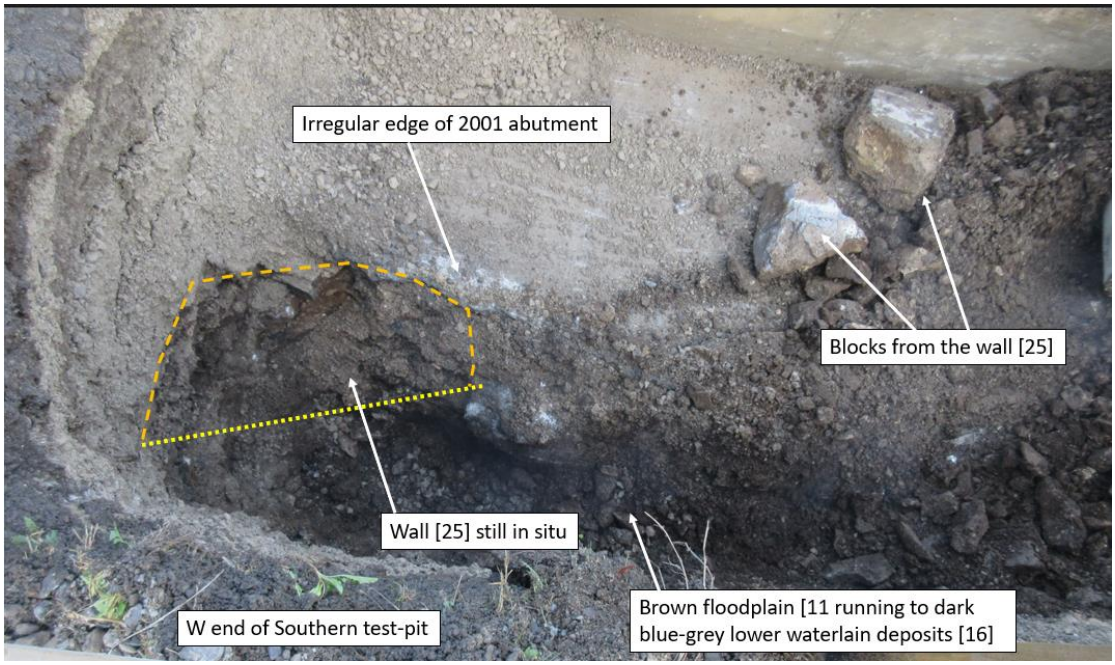
[14] Clause 804 type material ramping up to the 2001 bridge deck. Noted at 53.00m OD.

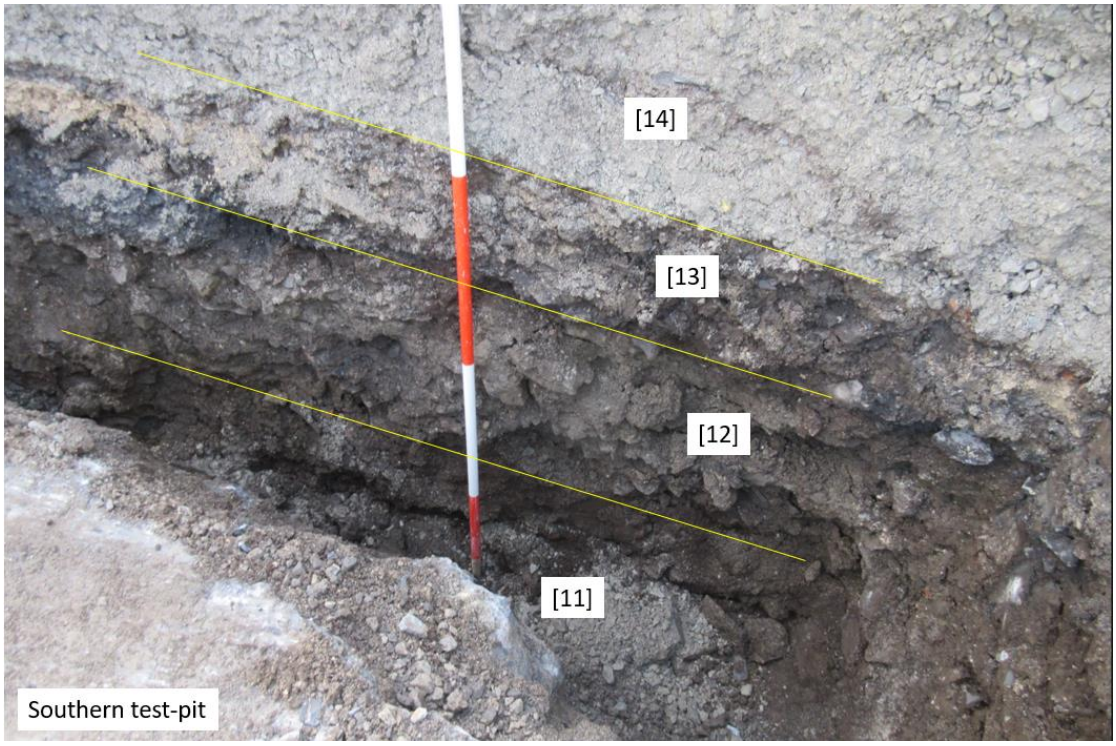
[15] Clause 804 type material ramping up to the 2022 temporary Bailey bridge deck.

[17] Buried culvert or mill race as implied by map evidence. Photographs imply the zone between the ornamental garden riverside wall [26] and the river edge seems to have been covered in large boulders giving a riprap-style armouging – but there are also occasional large, mature trees. If this is an outflow as it appears, it has been channelled outside the town to empty into the river. This could suggest the outflow formed part of some Trim town surface drainage scheme. However, it is also known the the Franciscan Friary in this area near to the Old Bridge also owned a mill, so it is possible the outflow originally formed part of a mill race.



This wall is mentioned in the 2001 original Bridge abutment monitoring report, but it was not recorded in detail at that time. The 2023 monitoring noted some large, rectangular blocks [25] that formed a small part of this wall [22] as shown below:





[18] Headwall as seen on old mapping. Not really visible in the old photos

[19] 2001 Southern bridge abutment

[20] Masonry northern guide wall for outflow seen in mapping and photos. Walls [20] and [22] flare out as a combined outflow.

[21] Following the OPW excavations at Trim Castle in the 1980s-1990s the ornamental garden wall [26] was removed and the local area cleared to grass. The present 'moat' on the

northern side of Trim castle was also built at this time. The water of the moat was supplied by a pump from the River Boyne and a pipe [23] flowing into the moat. At the SE end of the moat is another pump to direct the water back into the River Boyne. The pump [21] appears to have been dug through the old outflow walls [20] + [22].

[22] Masonry southern guide wall for outflow seen in mapping and photos. Walls [20] and [22] flare out as a combined outflow. Wall [22] noted in 2023 S test-pit as a small piece of masonry. Includes large, squared blocks. Due to the irregularity of the 2001 abutment base and the test-pit not being safe to enter, further details of the masonry was not noted.

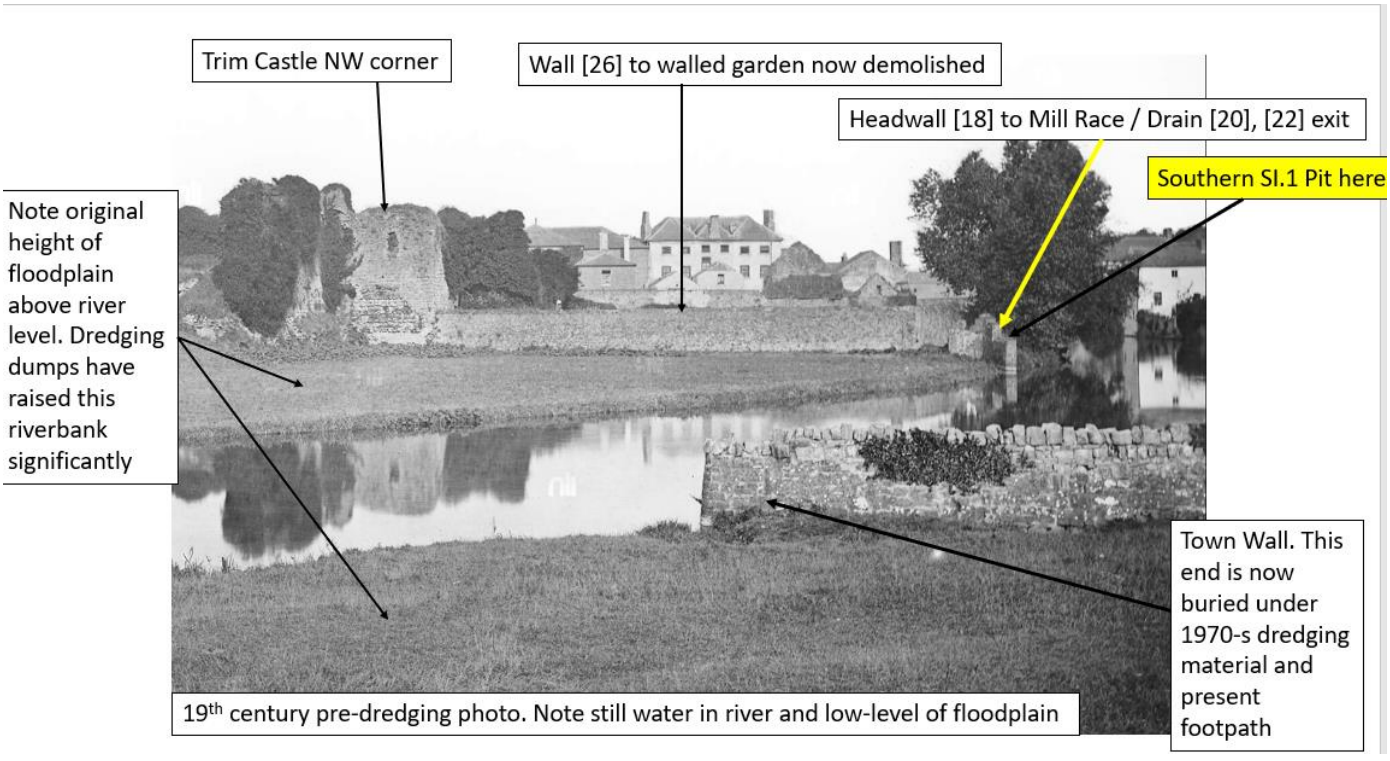
[23] OPW pipe as part of pump [21] above.

[24] General context for SI.1

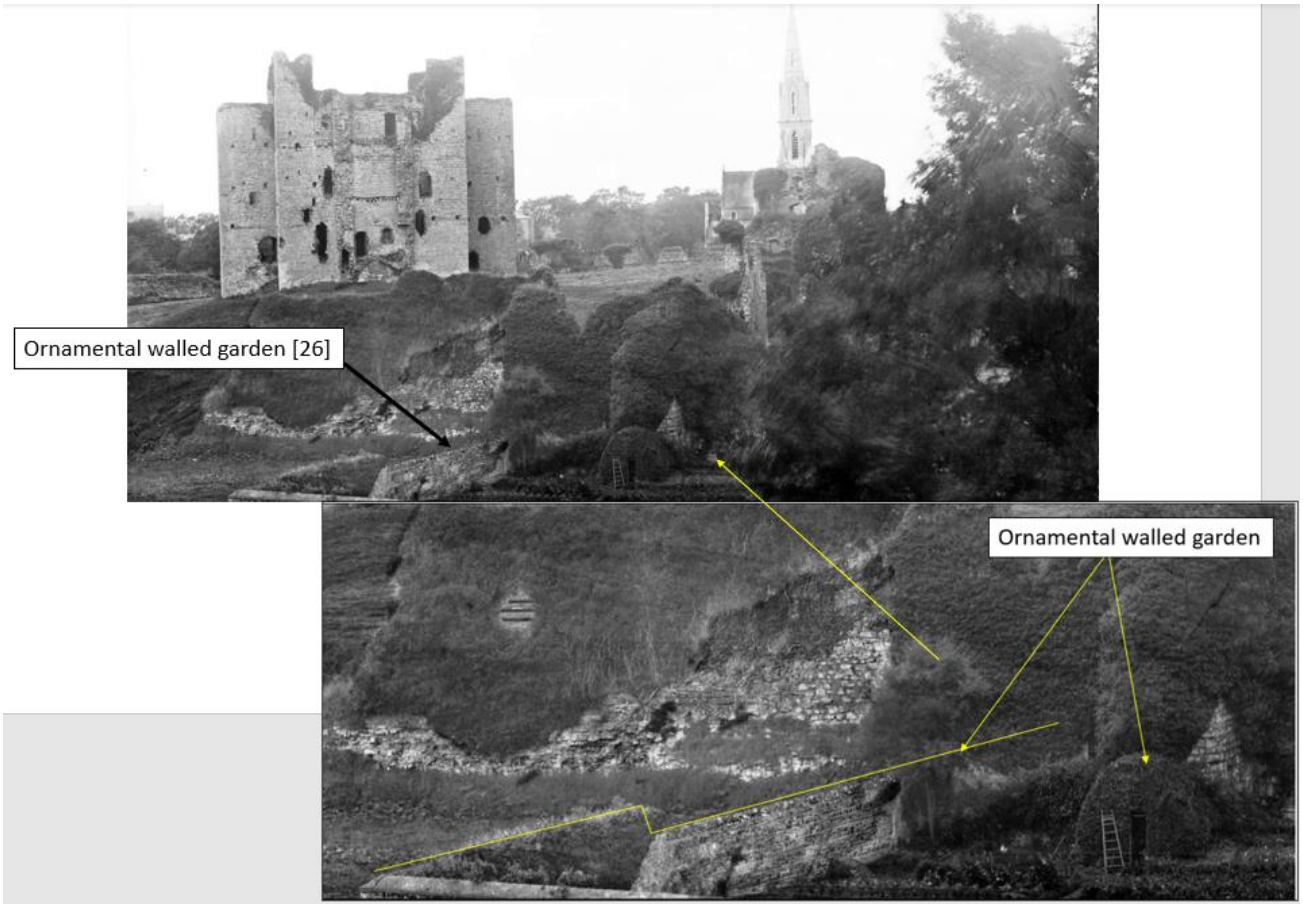
[25] Part of Wall [22] observed in SI.1. Some blocks also noted. This wall had been abutted by 2001 concrete abutment foundation and was slightly truncated again in 2023.

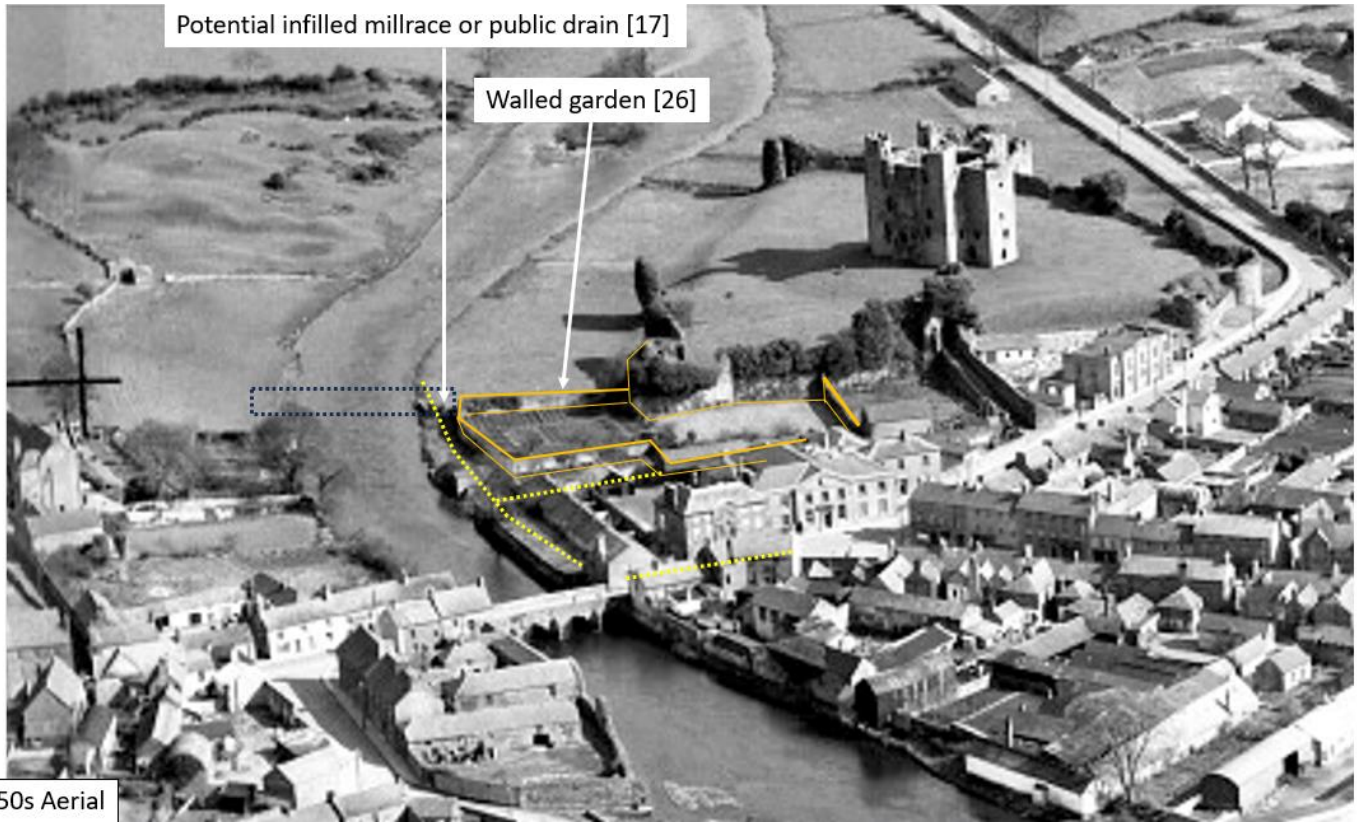
[26] Large, high wall around an ornamental / walled garden that is shown on the 1837 OS. It is likely that the walled garden is associated with the nearby Court House (built c.1805). This wall and the garden are seen in old photographs, severe 19th century-type lift lines are notable and the wall appears to have had a concrete flaunched top. The wall was retained from the 1970s dredging, but was removed by OPW by 1995. The present 'Castle Moat' [45] has been cut through the wall location and the whole general area seems to have been raised to the level of the 1970s dredged dumping during the 1990s. Additional ground raising dumping [47] occurred associated with the 1990s development of the adjacent carpark, new court house and parade of shops and restaurant.

SI.1 southern test-pit scan at:
https://poly.cam/capture/7ADD7695-C489-4F2E-853B-DA05150978AB



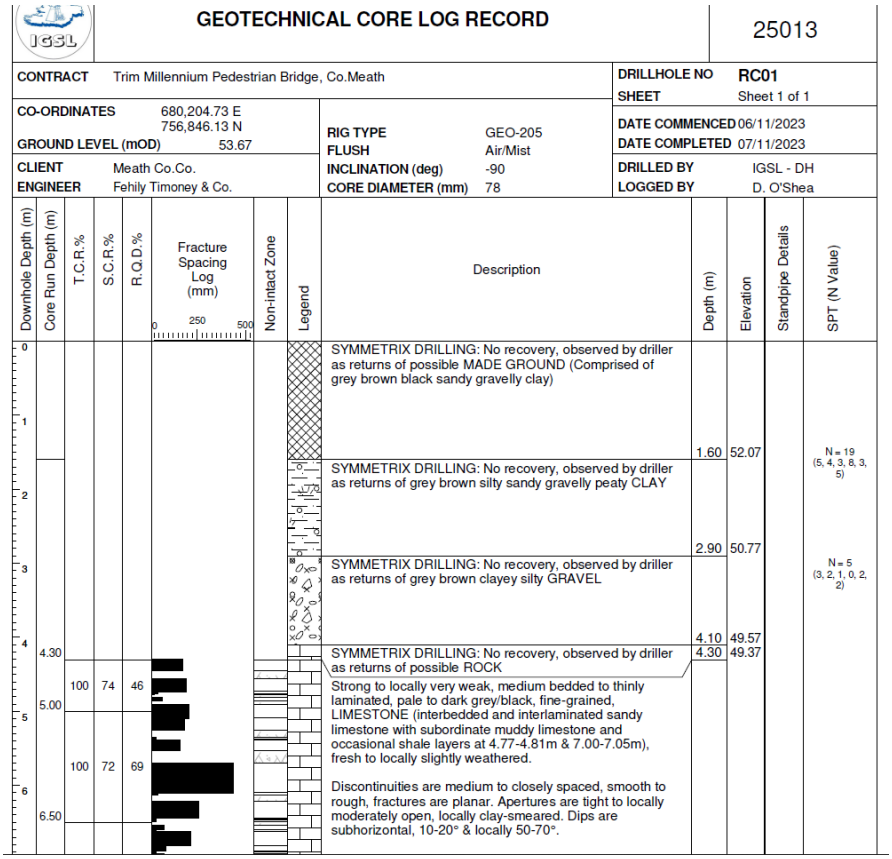

Drain / Mill Race [20], [22] exit


Ornamental walled garden [26]
Ornamental walled garden



1950s Aerial

4.2 Rotary Core 1 (RC.1) ITM.680204, 756856



LOCATION 2 = RC1 SOUTH

			M OD	Depth	Description
28	2	RC1	53.67	1.6	Grey brown black sandy gravelly clay - Made ground (IGSL)
29	2	RC1	52.07	1.3	Grey brown silty sandy gravelly peaty CLAY (IGSL)
30	2	RC1	50.77	1.2	grey brown clayey silty GRAVEL (IGSL)
31	2	RC1	49.57	0.2	Possible Rock (IGSL)
32	2	RC1	49.37	NA	Bedrock (IGSL)

The RC.1 was located 2m from the W end SI.1 and showed bedrock [31]-[32] at 49.57m OD which appears to be unusually deep. It is possible this reflects some post-glacial / historic channel or even some cutting for the medieval moat or presumed quay area around Trim Castle. If so, the feature is filled with clay-silt gravel [30] up to 50.77m OD, which is near to the level of bedrock in BH. 1 and SI.2. This deposit [30] may be waterlain – reflecting a gravel bar – or deliberate infilling.

Layer [29] seems to be a mix of waterlain 'peaty' material [16], the previous pre-dredging floodplain deposit [11] and the dumped dredged remains [12] seen in SI.1 and rising to 52.07m OD. This is covered by modern material [28] associated with the 2001 bridge and 2022 repairs seen as [13]-[14]-15] seen in SI. 1.

4.3 Borehole 1 (BH1) ITM. 680189 / 756847

GEOTECHNICAL BORING RECORD

REPORT NUMBER 25013

CONTRACT	Trim Millennium Pedestrian Bridge, Co.Meath	BOREHOLE NO.	BH01
		SHEET	Sheet 1 of 1
CO-ORDINATES	680,189.38 E 756,847.48 N	RIG TYPE	Dando 3000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)	52.85	BOREHOLE DEPTH (m)	2.30
		DATE COMMENCED	19/10/2023
		DATE COMPLETED	19/10/2023
CLIENT	Meath Co.Co.	SPT HAMMER REF. NO.	BORED BY W.Butler
ENGINEER	Fehily Timoney & Co.	ENERGY RATIO (%)	PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		52.70	0.15						
	Light brown sandy SILT/CLAY with occasional gravel		52.45	0.40						
1	Soft dark brown sandy SILT/CLAY with some gravel and occasional cobbles				AA208534	B	1.00		N = 1 (1, 1, 0, 0, 1, 0)	
			51.05	1.80						
2	Dense COBBLES/BOULDERS		50.55	2.30	AA208535	B	2.00		N = 50/75 mm (4, 6, 50)	
	Obstruction End of Borehole at 2.30 m									

37	1 BH1	52.85	0.15	topsoil (IGSL)
38	1 BH1	52.7	0.25	Light briown sandy SILT/CLAY with occasional gravel (IGSL)
39	1 BH1	52.45	1.4	soft dark brown sandy SILT/CLAY with som egravel and occasinoal cobbles (IGSL)
40	1 BH1	51.05	>0.5	Dense COBBLE/BOULDERS ending in OBSTRUCTION at 50.55m OD (IGSL)

There was some debate as to whether BH1 and BH2 had their coordinates and levels mixed up; but it was considered appropriate to go with the evidence presented. Therefore, BH.1, which was situated 13m W of RC 1 gave results of:

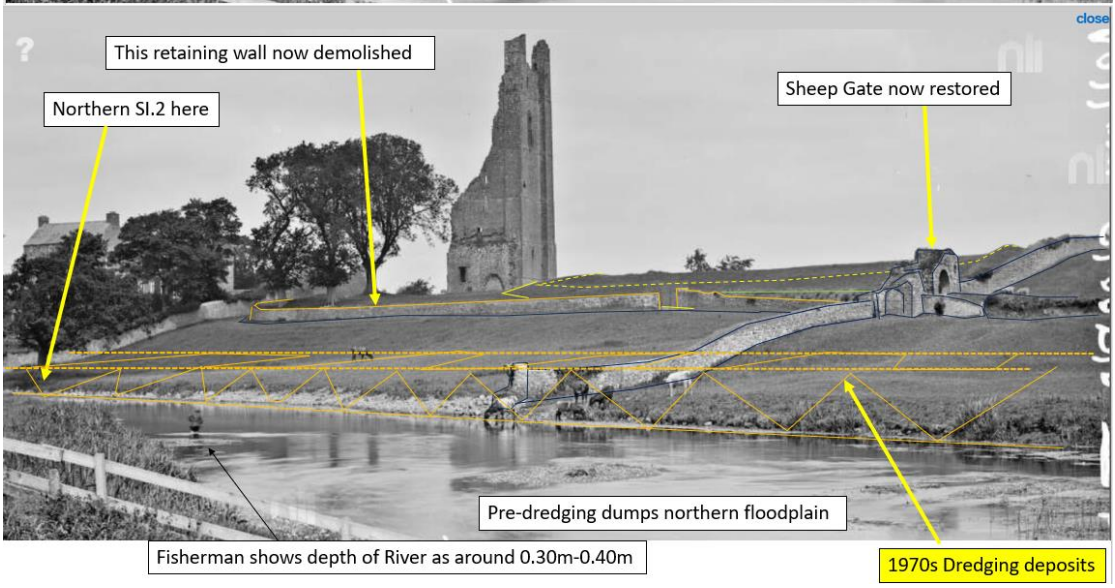
Bedrock at the 'obstruction' at 50.55m OD that is covered with 0.50m of cobbles [40] rising to 51.05m OD. This may be an in-channel bar or deliberate infilling. River water level is presumed to be around 51.30m or so at this time.

Deposit [39] seems to be a mix 1.40m deep of old floodplain and walled garden soils rising to 52.45m OD. Deposit [38] may relate to the walled garden or 1990s levelling and deposit [37] is modern turf / topsoil.

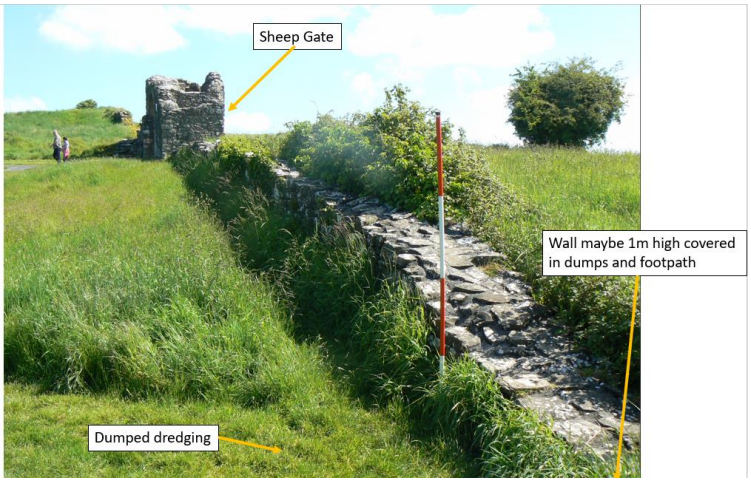
4.4 Northern Testpit SI.2 ITM. 680229, 756871

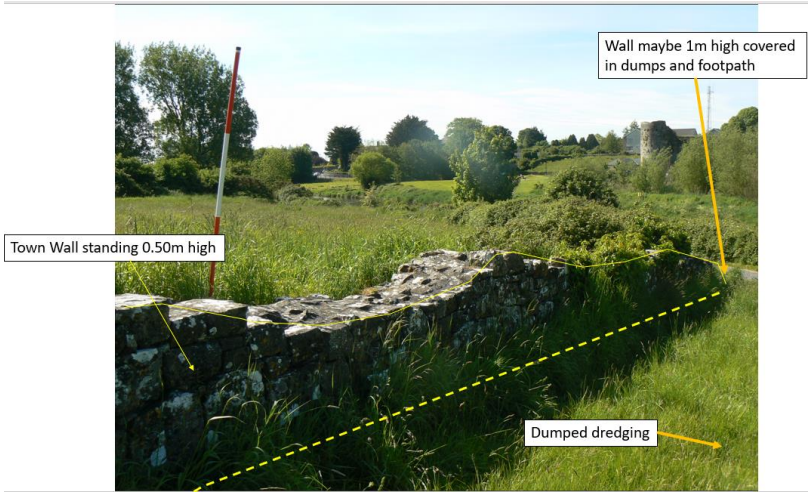
Historic photos

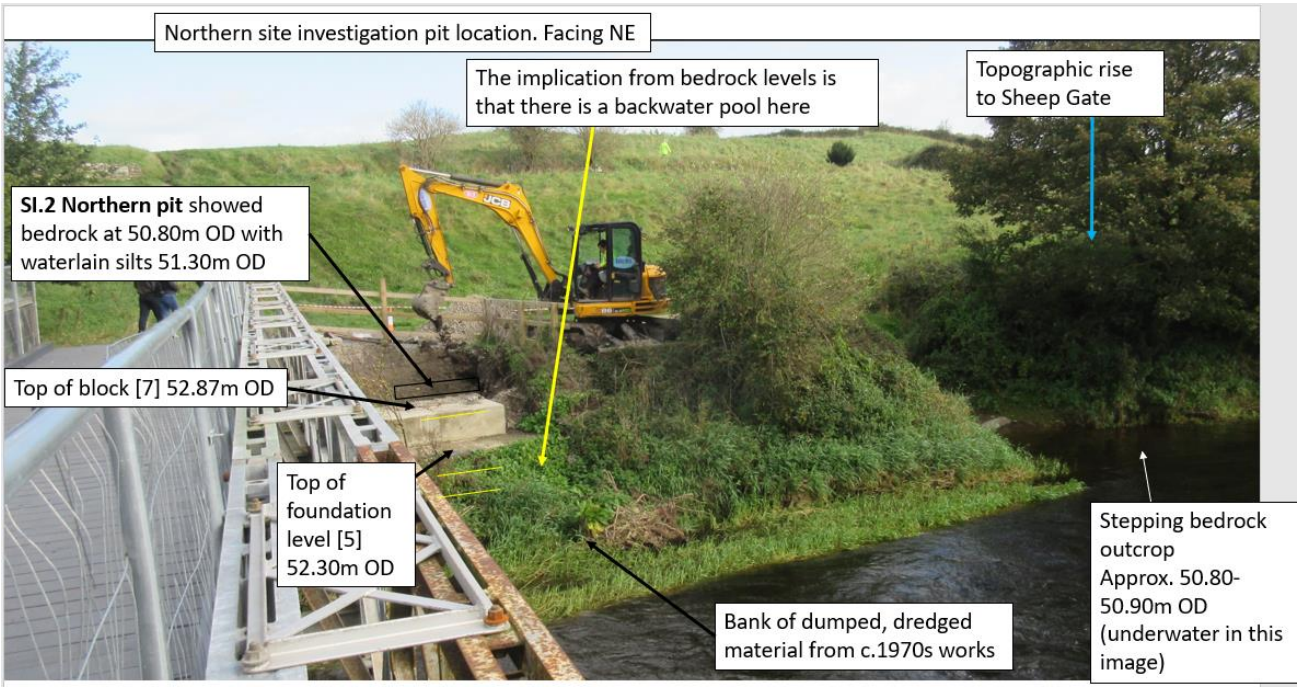
19th century pre-dredging photo. Note still water in river and low-level of floodplain

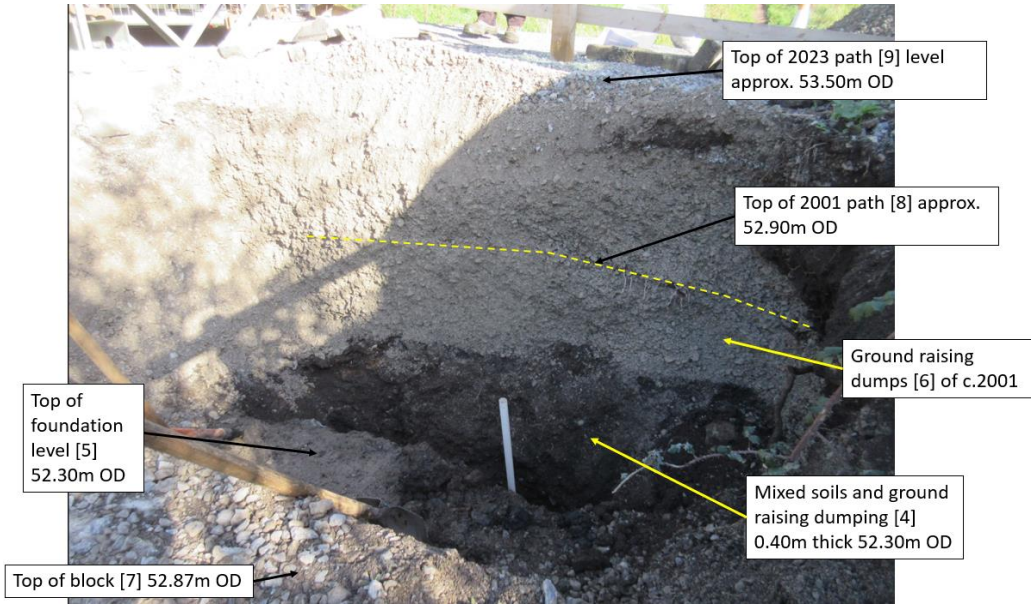


General view of northern riverbank pre-1970s Boyne Dredging and dumping on the riverbank. The river end of the Town Wall above is now buried in OPW 1970s era dredging dumps.

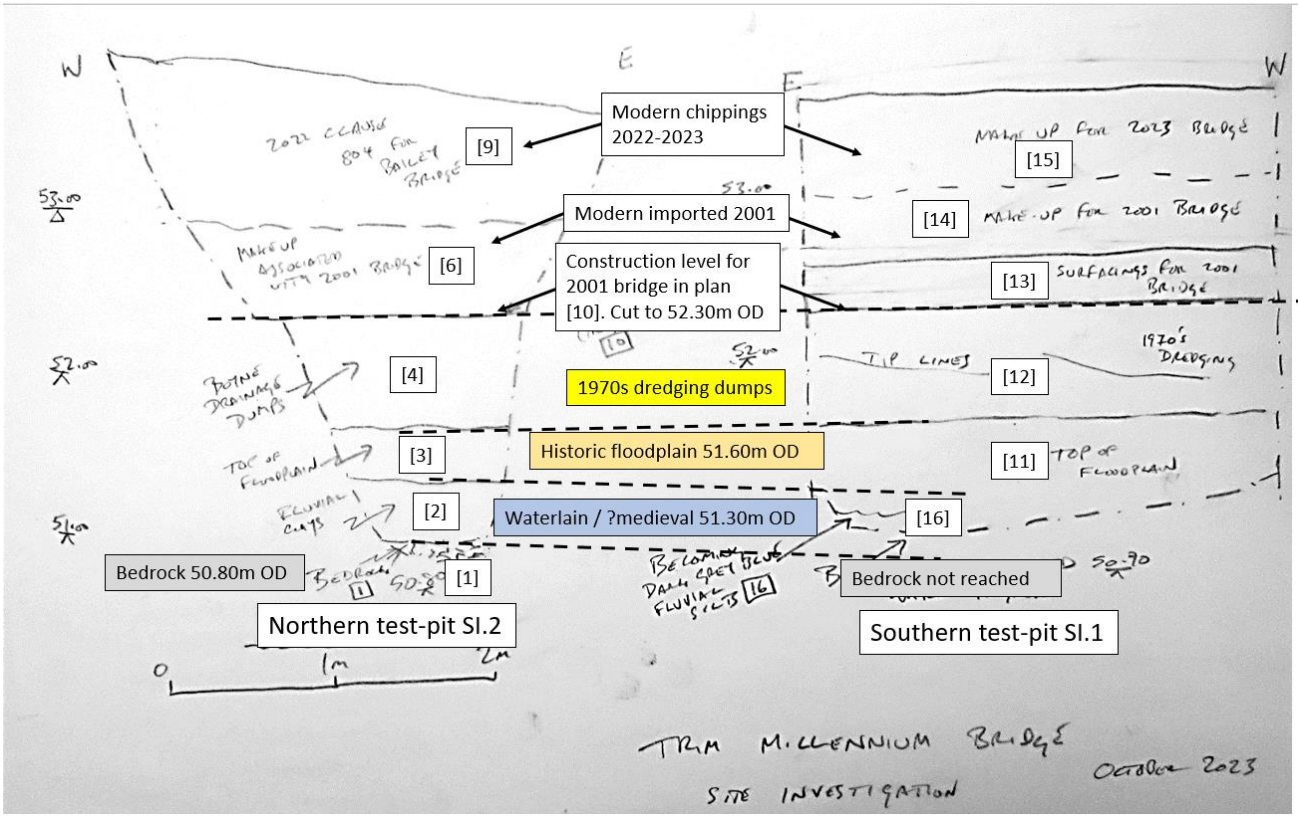

Sheep Gate
Wall maybe 1m high covered in dumps and footpath
Dumped dredging

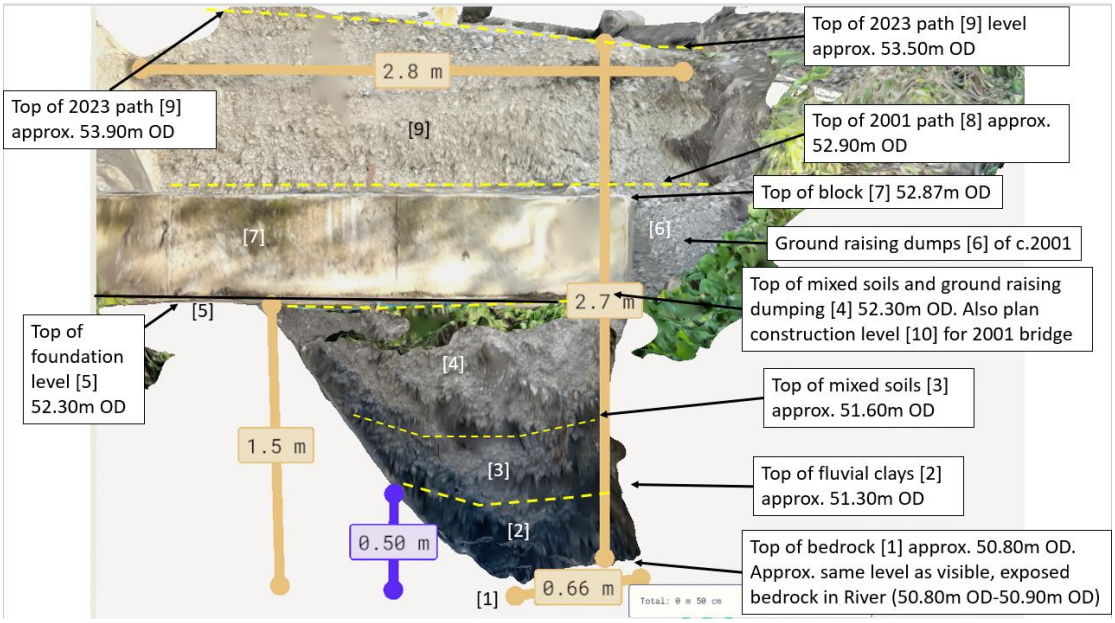

Wall maybe 1m high covered in dumps and footpath
Town Wall standing 0.50m high
Dumped dredging


Northern site investigation pit location. Facing NE
The implication from bedrock levels is that there is a backwater pool here
Topographic rise to Sheep Gate
SI.2 Northern pit showed bedrock at 50.80m OD with waterlain silts 51.30m OD
Top of block [7] 52.87m OD
Top of foundation level [5] 52.30m OD
Bank of dumped, dredged material from c.1970s works
Stepping bedrock outcrop Approx. 50.80-50.90m OD (underwater in this image)



Above and below showing location of SI.2 on N side of concrete bridge abutment. Note the hgih amount of modern chippings.





[1] Bedrock – limestone with a shattered surface at 50.80m OD – 50.90m OD. Visible bedding of the limestone in TOPO survey plan is 50.58m OD – 51.16m OD as the bed has stepping slanting layers with jumps between levels.

[2] Dark grey blue fluvial clays with water snails, oyster shells and waterlogged twigs. Presence of imported marine oyster shells presumably mean this dates to the medieval period with an upper level at c.51.30m OD. The waterlain deposit may represent a

backwater pool that lies oppoiste the Trim Castle Water Gate and could form part of a crossing point from the Castle to St Mary's Abbey. The wwaterlain material and continued waterlogging indicates that *original* normal river water level was above 51.30m OD – perhaps more like 51.50m OD.

[3] Usually dry floodplain to the River Boyne with an upper surface of around 51.60m OD. Mixed brown deposit may even indicate it was ploughed. The deposit does not seem to contain waterlogged material, but occasional oyster shells were noted. This seems to be the floodplain shown in old 19th century photos.

[4] Deposit of dumped, redeposited, dredging material mixed with brown soils up to 52.30m OD. The dreedging occurred around 1970 by OPW. OPW may have lowered the River Bed in this area at this time: they certainly lowered the River Bed below Trim Old Bridge. The top of the dredging material layer had been cut flat in plan as cut [10] when the 2001 abutment [5] was built. The report from that time says the construction area was around 10m x 12m in plan. Nearby untruncated levels in BH2 show dredging deposits up to around 52.84m OD.

[5] Mass concretre abutment base created in 2001 with a top level of around 52.30m OD. The abutment seems to have been constructed by digging a large hole to the surface of bedrock and then filling that hole with concrete without shuttering. The abutment sides are irregular and they curve in to the base following the original excavation hole shape. The abutment is around 5m – 6m N-S x 2m N-S x 1.30m – 1.50m deep and presumably based on bedrock.

[6] Ground raising dumps associated with ramping up the path to the previous Millennium Bridge either during initial construction of through 2001 Bridge and / or 2003 footpath works. Typically Clause 804' type material. Top around 53.00m OD.

[7] Concrete block as part of 2001 bridge abutment. Top at 52.87m OD.

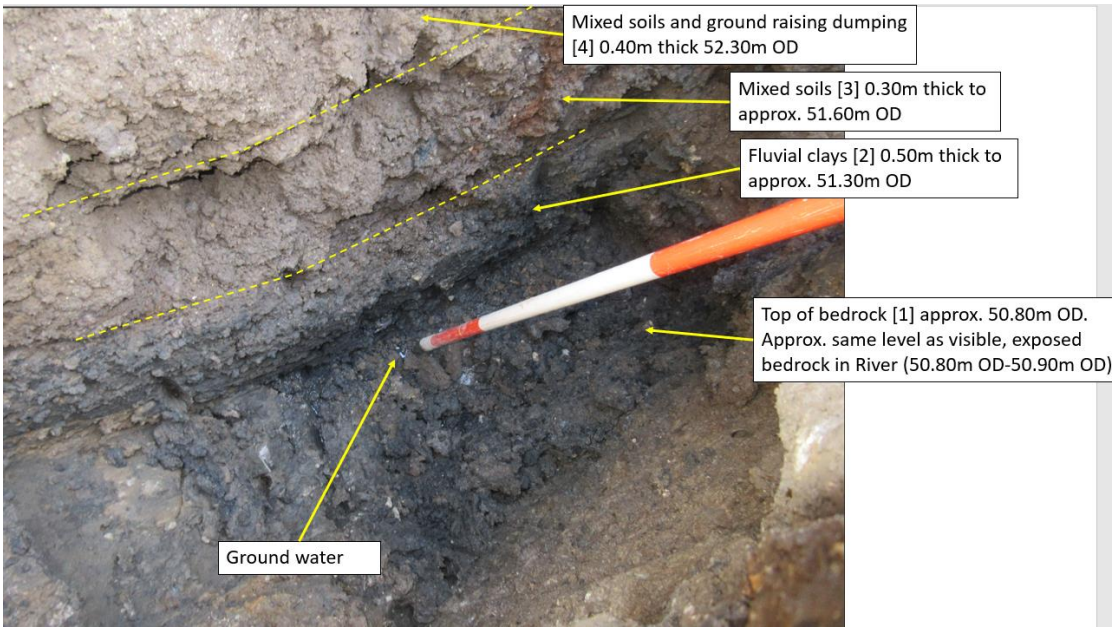
[8] 2001-2003 footpath at 52.90m OD.

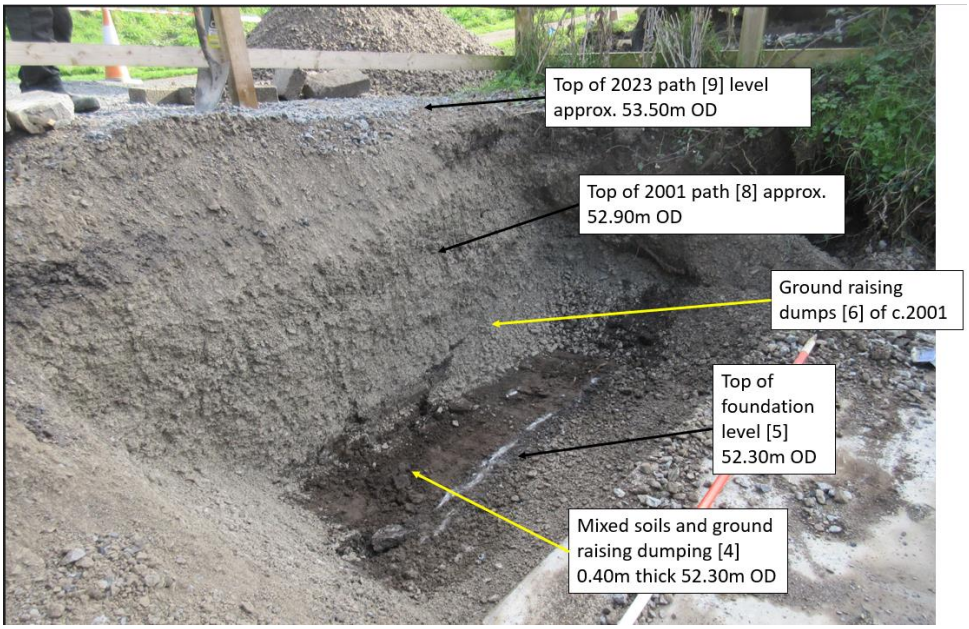
[9] 2022 layers ramping up to temporary Bailey Bridge up to 53.50m OD – 53.90m OD.

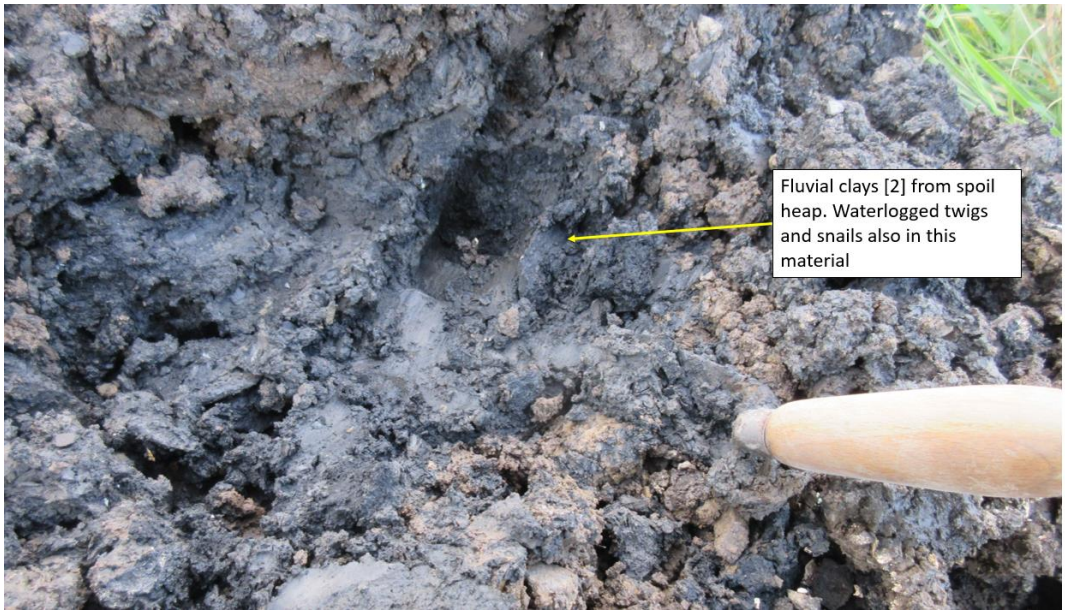
[10] 2001 construction level in plan cutting into redeposited dredged material [4].

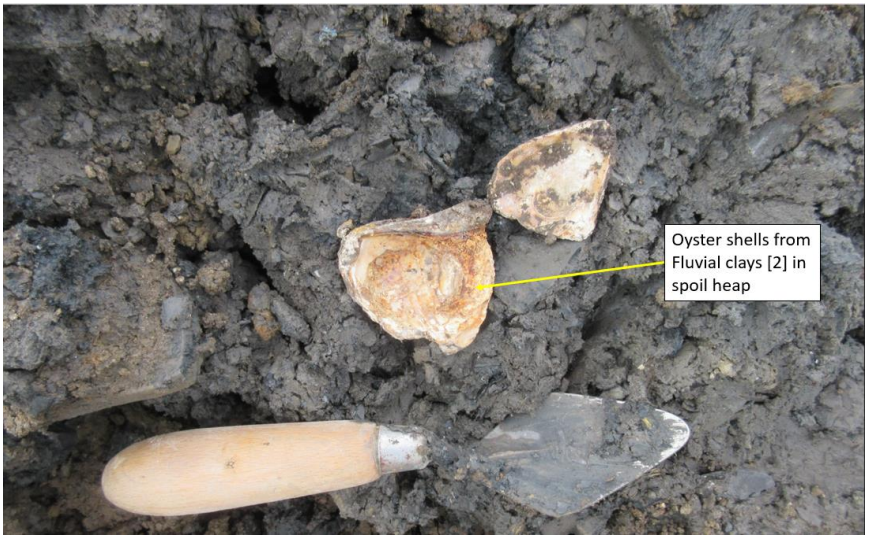
Polcam Scan of testpit at:

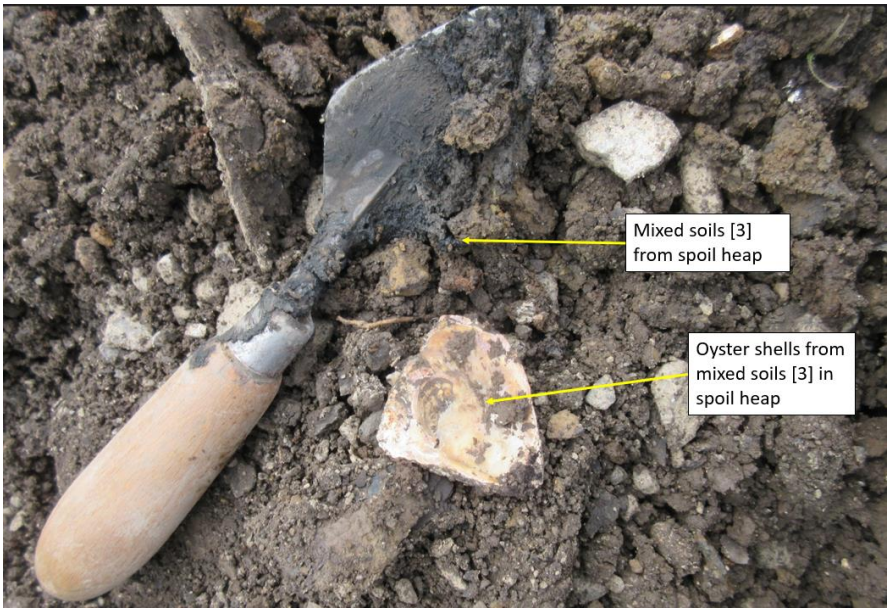
https://poly.cam/capture/865051A5-F460-4C21-A056-D578D39C6B25


Mixed soils and ground raising dumping [4] 0.40m thick 52.30m OD
Mixed soils [3] 0.30m thick to approx. 51.60m OD
Fluvial clays [2] 0.50m thick to approx. 51.30m OD
Top of bedrock [1] approx. 50.80m OD. Approx. same level as visible, exposed bedrock in River (50.80m OD-50.90m OD)
Ground water

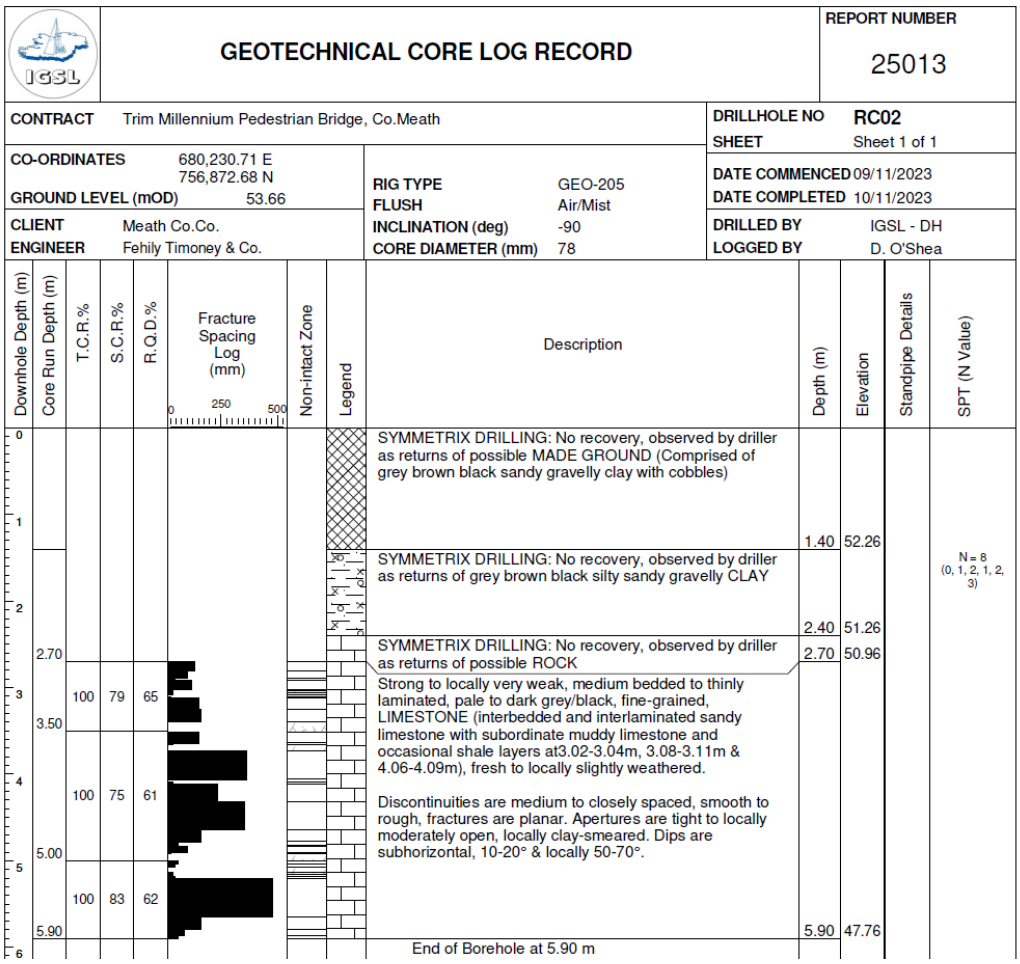

Top of 2023 path [9] level approx. 53.50m OD
Top of 2001 path [8] approx. 52.90m OD
Ground raising dumps [6] of c.2001
Top of foundation level [5] 52.30m OD
Mixed soils and ground raising dumping [4] 0.40m thick 52.30m OD


Fluvial clays [2] from spoil heap. Waterlogged twigs and snails also in this material


Oyster shells from Fluvial clays [2] in spoil heap


Mixed soils [3] from spoil heap
Oyster shells from mixed soils [3] in spoil heap

4.5 Rotary Core 2 (RC.2) . ITM 680230, 756872



GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 25013

CONTRACT Trim Millennium Pedestrian Bridge, Co.Meath

DRILLHOLE NO RC02
SHEET Sheet 1 of 1

CO-ORDINATES 680,230.71 E
756,872.68 N
GROUND LEVEL (mOD) 53.66

RIG TYPE GEO-205
FLUSH Air/Mist
INCLINATION (deg) -90
CORE DIAMETER (mm) 78

DATE COMMENCED 09/11/2023
DATE COMPLETED 10/11/2023

CLIENT Meath Co.Co.
ENGINEER Fehily Timoney & Co.

DRILLED BY IGSL - DH
LOGGED BY D. O'Shea

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Description	Depth (m)	Elevation
0					SYMMETRIX DRILLING: No recovery, observed by driller as returns of possible MADE GROUND (Comprised of grey brown black sandy gravelly clay with cobbles)	1.40	52.26
1					SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown black silty sandy gravelly CLAY	2.40	51.26
2	2.70				SYMMETRIX DRILLING: No recovery, observed by driller as returns of possible ROCK	2.70	50.96
3	3.50	100	79	65	Strong to locally very weak, medium bedded to thinly laminated, pale to dark grey/black, fine-grained, LIMESTONE (interbedded and interlaminated sandy limestone with subordinate muddy limestone and occasional shale layers at3.02-3.04m, 3.08-3.11m & 4.06-4.09m), fresh to locally slightly weathered.		
4	5.00	100	75	61	Discontinuities are medium to closely spaced, smooth to rough, fractures are planar. Apertures are tight to locally moderately open, locally clay-smeared. Dips are subhorizontal, 10-20° & locally 50-70°.		
5	5.90	100	83	62		5.90	47.76
6					End of Borehole at 5.90 m		

Fracture Spacing Log (mm): 0, 250, 500

Non-intact Zone

Legend

Standpipe Details

SPT (N Value): N = 8 (0, 1, 2, 1, 2, 3)

LOCATION 5 = RC2 NORTH

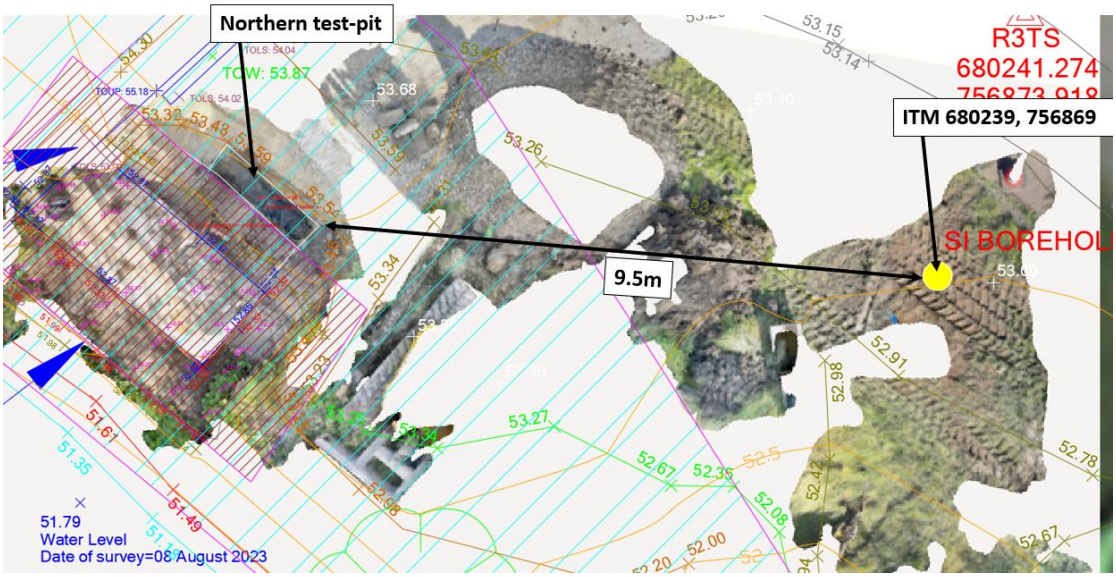
			M OD	Depth	Description
33	5	RC2	53.66	1.4	Grey brown black sandy gravelly clay with cobbles - MADE GROUND (IGSL)
34	5	RC2	52.26	1	grey brown black silty sandy gravelly CLAY (IGSL)
35	5	RC2	51.26	0.3	Possible ROCK (IGSL)
36	5	RC2	50.96	NA	ROCK (IGSL)

RC.2 was located 2m N of SI.1. Bedrock [36] is noted as 50.96m OD. This compares well to the level of bedrock seen in SI.2 and in the extant River channel. Rock [36] was covered in probable shattered rock and ?medieval waterlain deposits [35] rising to 51.26m OD.

Above this was a mix of previous medieval waterlain and probable previous floodplain and dumped deposits [34] rising to 52.26m OD.

This was overlain by deposits [33] that probably date to the 1970s ground raising dumps. The area of RC.2 seems to have been just outside the working zone for the 2001 Bridge.

4.6 Northern Borehole BH.2 evaluation pit ITM. 680239 / 756870



In order to test the location for a proposed borehole for obstructions, a small pit 1.75m deep was dug at ITM 680239, 756870 (9.5m east of the northern test-pit SI. 2 above) where the ground level is 53.00m OD. The pit showed turf 0.15m and a plastic surface drainage pipe, oriented N-S. Beneath this was 1.60m of dark brown, dumped, dredged material – probably running into old floodplain deposits at the base at c. 51.25m OD.


Borehole evaluation: North


Shallow drainage pipe
Borehole evaluation: North

4.7 Northern Borehole BH.2 in the 4.6 evaluation pit that had been dug to 1.75m deep.

GEOTECHNICAL BORING RECORD

REPORT NUMBER 25013

CONTRACT	Trim Millennium Pedestrian Bridge, Co.Meath	BOREHOLE NO.	BH02
		SHEET	Sheet 1 of 1
CO-ORDINATES	680,239.48 E 756,870.85 N	RIG TYPE	Dando 3000
GROUND LEVEL (m AOD)	53.04	BOREHOLE DIAMETER (mm)	200
		BOREHOLE DEPTH (m)	3.80
		DATE COMMENCED	20/10/2023
		DATE COMPLETED	20/10/2023
CLIENT	Meath Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	Fehily Timoney & Co.	ENERGY RATIO (%)	
		BORED BY	W.Butler
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL		52.84	0.20						
	Dark brown sandy SILT/CLAY with occasional gravel		52.54	0.50						
	Very soft light brown sandy SILT/CLAY with some gravel and occasional cobbles				AA208536	B	1.00		N = 1 (1, 0, 0, 1, 0, 0)	
1										
					AA208537	B	2.00		N = 2 (1, 0, 0, 0, 1, 1)	
2			50.34	2.70						
	Stiff light brown sandy gravelly CLAY with some cobbles				AA208538	B	3.00		N = 21 (3, 3, 4, 5, 7, 5)	
3			49.24	3.80						
	Obstruction								N = 50/75 mm (18, 21, 50)	
4	End of Borehole at 3.80 m									

41	6 BH2	53.04	0.2	topsoil (IGSL)
42	6 BH2	52.84	0.3	Dark brown sandy SILT?CLAY with occasional gravel (IGSL)
43	6 BH2	52.54	2.2	very soft light brown sandy SILT/CLAY with some gravel and occasional cobbles (IGSL)
44	6 BH2	50.34	>1.1	Stiff light brown sandy gravelly CLAY with some cobbles ending in OBSTRUCTION at 49.24m OD (IGSL)

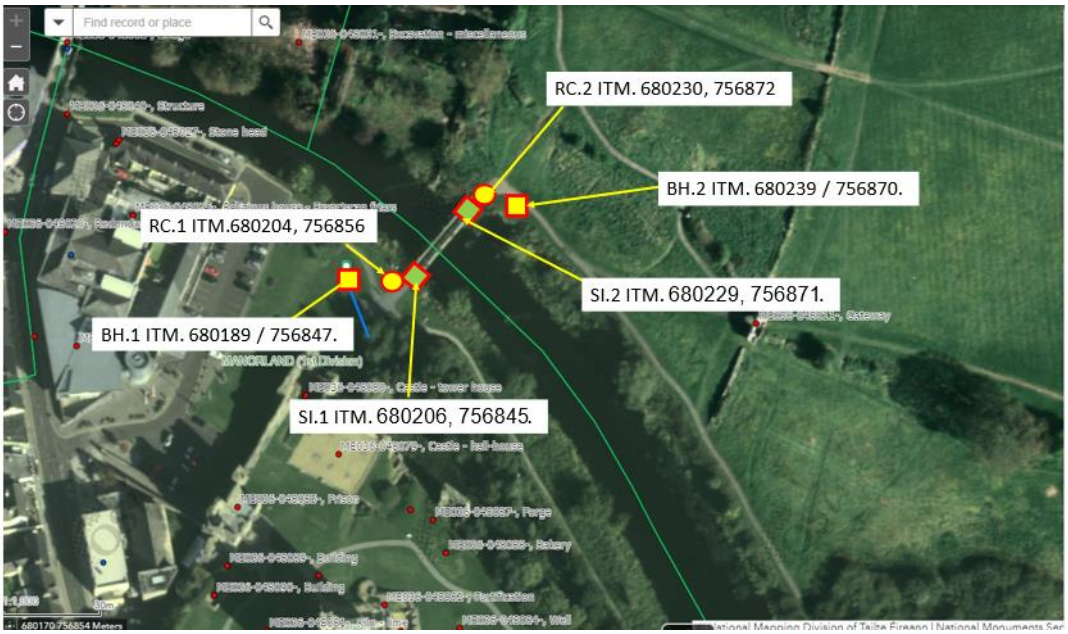
There was some discussion as to whether BH1 and BH2 had their locations confused, but it was decided to go with the evidence provided. BH2 is located 9m E of both SI.2 and RC.2.

BH.2 showed bedrock 3.80m down at a level of 49.24m OD. Both SI.2 and RC.2 showed bedrock at 50.80m OD-50.90m OD. If correct, the reason for this difference in level (c.1.6m) is not known. Either there may have ben a post-glacial erosion whirlpool here, or potentially the bedrock had been dug out to allow for a wharf to be built for St Mary' Abbey. This area is accessed by a track leading to Sheep Gate and then a switchback leading to the Abbey.

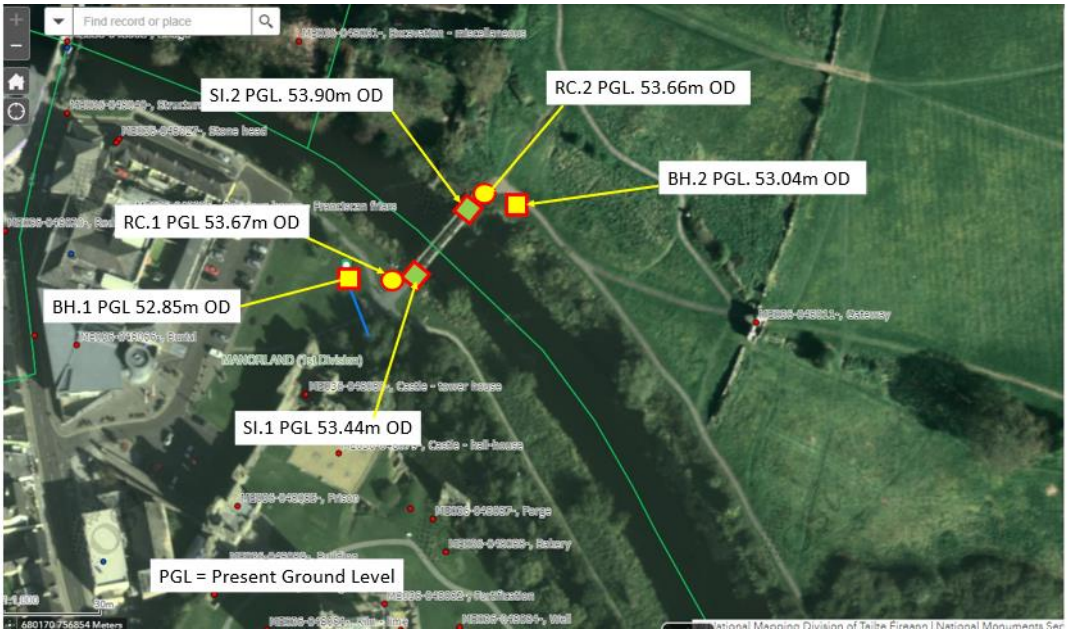
The light brown sandy clay [44] to 50.34m OD could be a waterlain or infill deposit. General, low water level is presumed to have been around 51.30m OD in the past.

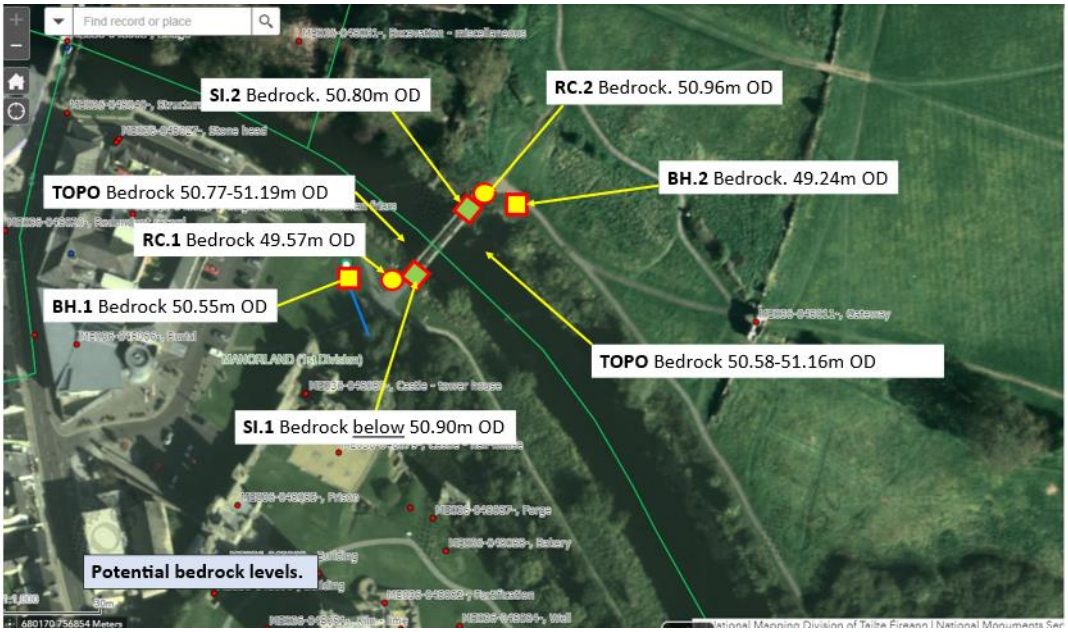
Deposits [43]-[42] seem to be a mix of waterlain ?medieval layers (compare layer [2] in SI.2), the post-medieval normally dry floodplain (compare layer [3] in SI.2) and 1970s Boyne dredging dumps (compare layer [4] in SI.2).

5 DISCUSSION

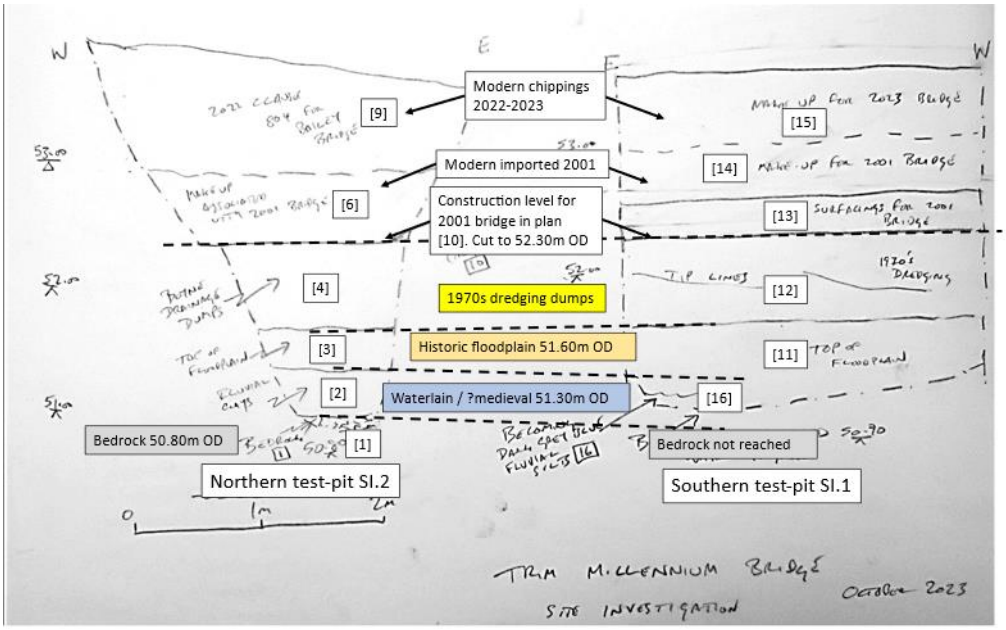


Meath County Council is proposing to replace the demolished, wooden Millennium Bridge which failed structurally in 2022 and was replaced with an adjacent temporary Bailey Bridge (supplied by Irish Defence Forces). The Millennium Bridge was originally constructed in 2001 beyond the NW corner of Trim Castle with a southern, mass concrete abutment roughly in the position of the presumed Trim Castle moat connection to the River Boyne ITM 680206, 756845. This area was infilled and landscaped during the post-medieval period and more recently it has been used for ground raising dumps from the OPW Boyne Drainage Works c.1970 to ensure the lands are above any potential flood zones. The Northern mass concrete 2001 abutment is at ITM 680229, 756871 which is near to the walled boundary of Talbot Castle that was associated with St Mary's Abbey.





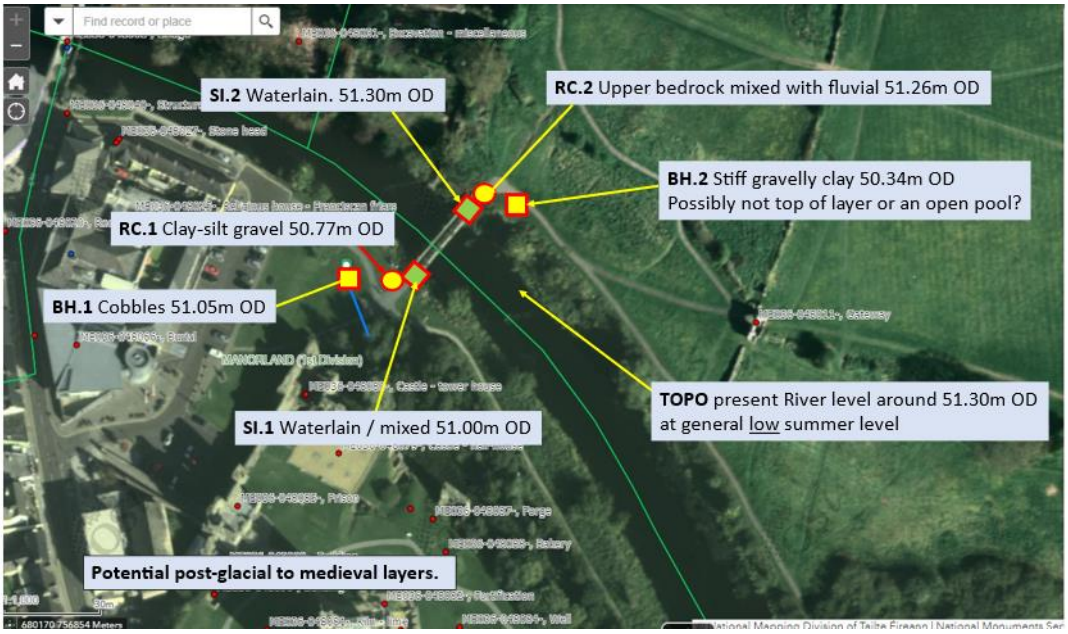
Site Investigation (SI) test pits SI.1 and SI.2 took place in October 2023 and were archaeologically monitored. Both SI.1 (south) and SI.2 (north) were placed alongside the 2001 Millennium Bridge abutments to examine their construction details. Further SI works included two Rotary Cores (RC.1 and RC.2) and two cable and percussion boreholes (BH.1 and BH.2) were also completed.

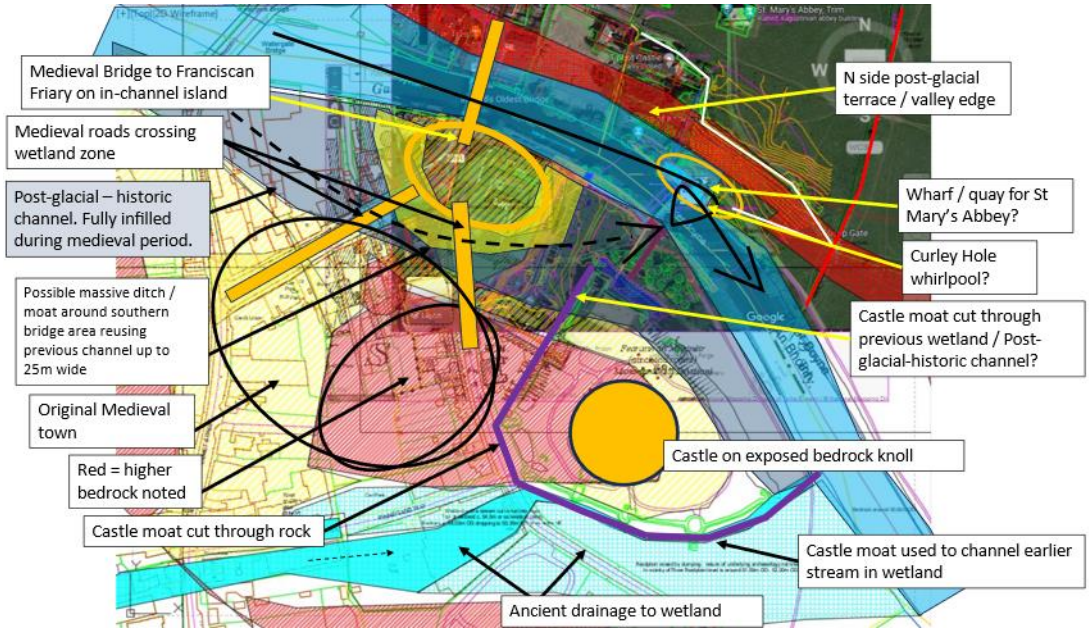


The southern test-pit SI.1 measured roughly 6m x 1m x 2.80m deep max. The pit was not entered but was visible for inspection from the abutment top at 52.30m OD, which was c.1.5m above the base. The spoil was also separated as layers appeared and these were also examined.

The pit showed water ingress at c.50.90m OD which was associated with a mixed, wetland-smelling fluvial, waterlain, dark grey-blue deposit [16] with bands of gravels and there was also a smell of possible hydrogen sulphide gas (rotting vegetation). The top of this waterlain layer was around 51.00m OD. Historic and medieval water level at normal-low flow is considered to have been around 51.30m OD-51.50m OD.

A Rotary Core (RC1) located 2m from SI.1 noted bedrock at 49.57m OD overlain by grey-brown clay-silty-gravel [30] to 50.77m OD. This bedrock level appears unusually low and, if correct, may represent medieval river bed deepening works associated with the Trim Castle Moat or a wharf in the river associated with the castle; or even a ferry crossing location. Historic photos and present River conditions show that the River Boyne is very shallow in this area at normal-low conditions and was probably not much more than 0.40m deep for much of the year in the past. The dramatic flood level rise of the River Boyne today is the result of considerable restrictions in the floodplain as the river flows through Trim. It is possible that until the medieval period there was a much wider floodplain with a back channel running along the southern side of the present river (soft wetland or moat-like deposits have been found under Market Street). This meant that the river would rise slightly but then flood over a large area laterally in the past, as opposed to the current, artificial, 'vertical' flood conditions.



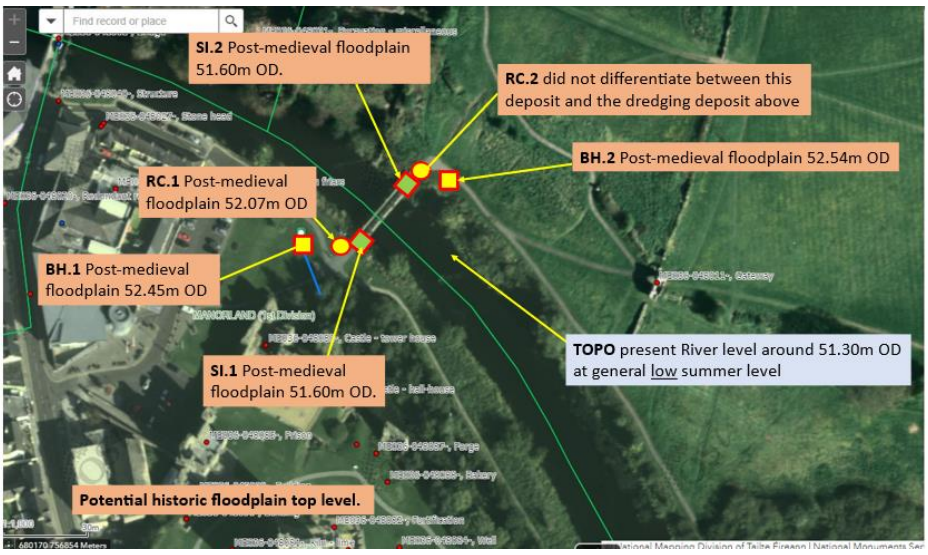


The sketch above reviews the data from the south side of Trim which shows the Castle on exposed bedrock outcrop and the present town on a combination of rock and glacial drift.

The southern end of Trim Old Bridge is known to have been the site of a Franscican Friary and this location may have been a low island in a general wetland or back channel zone that flooded in the past; until it was filled-in for the later medeival town.

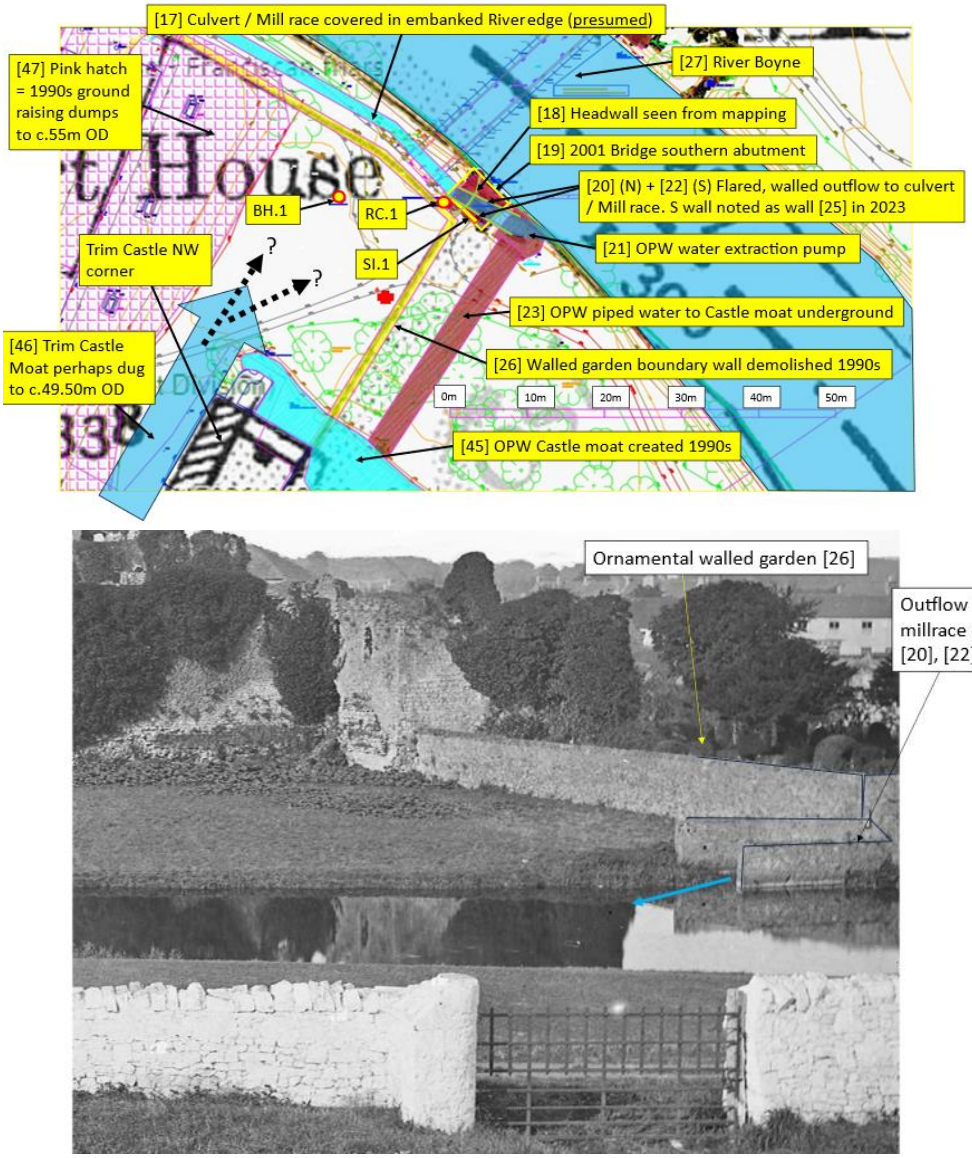
Sep 2022 showing shallow river levels and bedrock

A Borehole (BH1) dug 15m W of the Test-pit shows bedrock at 50.55m OD overlain by gravels and cobbles [40] to 51.05m OD which seems to tie in with the general levels. These results seem to indicate a mixed series of deposits 49.57m OD – 50.90m OD representing channels, bars and infilling of a potential palaeo-channel dating from the post-glacial period to the medieval period.

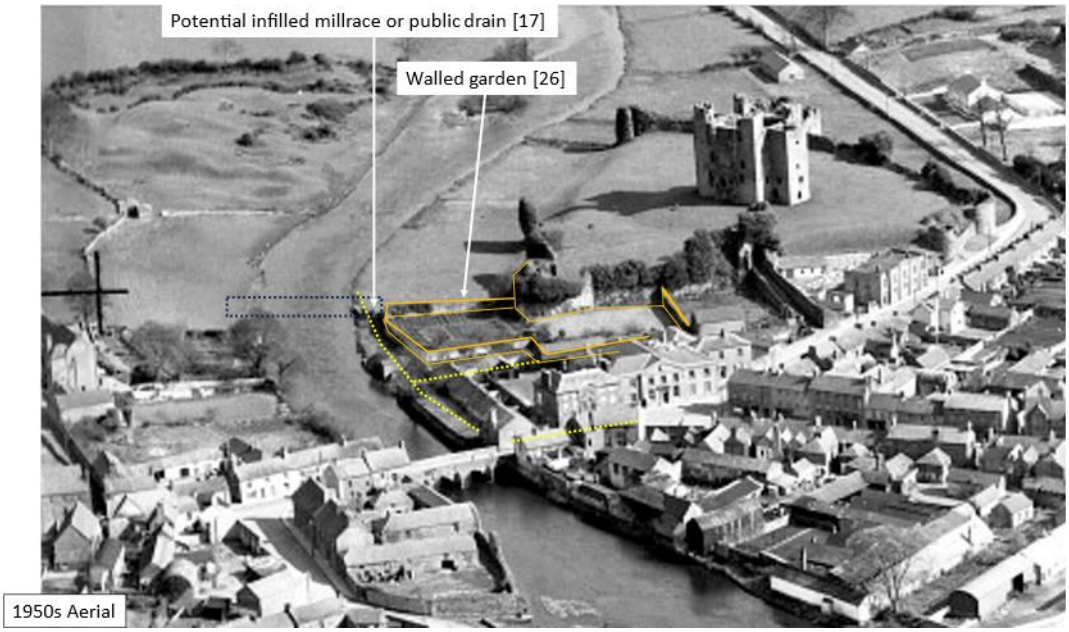


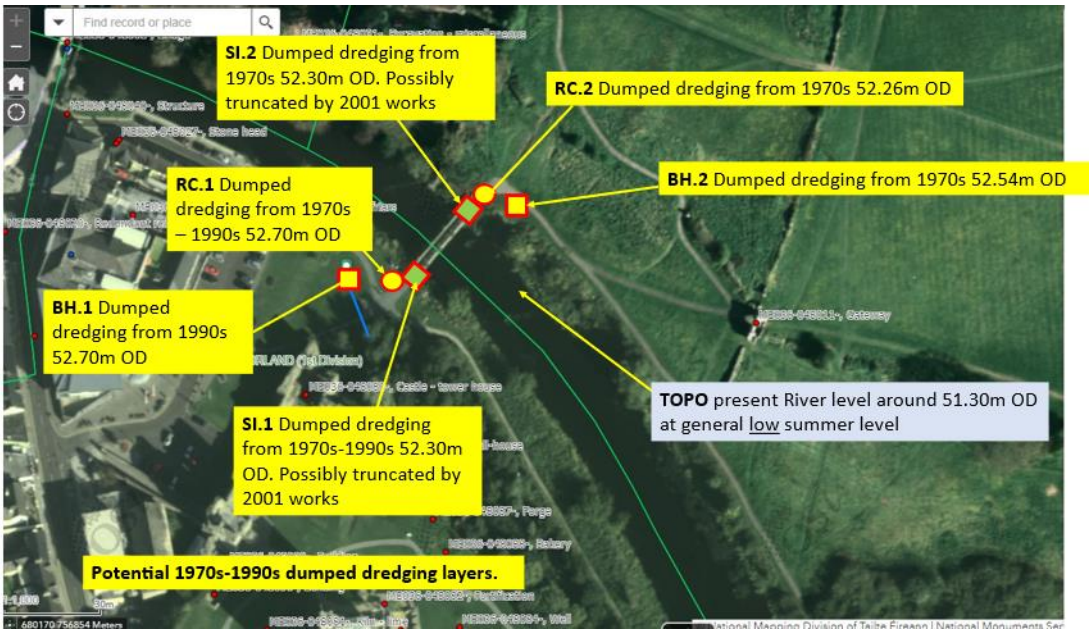
In SI.1, these waterlain / palaeo-channel / moat / medieval layers [16] were overlain by a dark grey-brown silty clay [11] with a top level of c.51.60m OD. This deposit probably represents the normally-dry floodplain to the River Boyne as seen in old photographs. Associated with this layer was a partly exposed piece of masonry [25] made of large, squared stones which probably represents a wall (one of a pair [20] and [22]) associated with a mill-race or drain [17] outflow/headwall [18] seen in 19th C photographs and mapping. This wall [25] was demolished in the early 1990s and survived to a level of 52.30m OD with a base not

visible. The wall [25] was noted in the original Millennium Bridge construction monitoring in 2001 and is also cut by the nearby OPW pumping station.

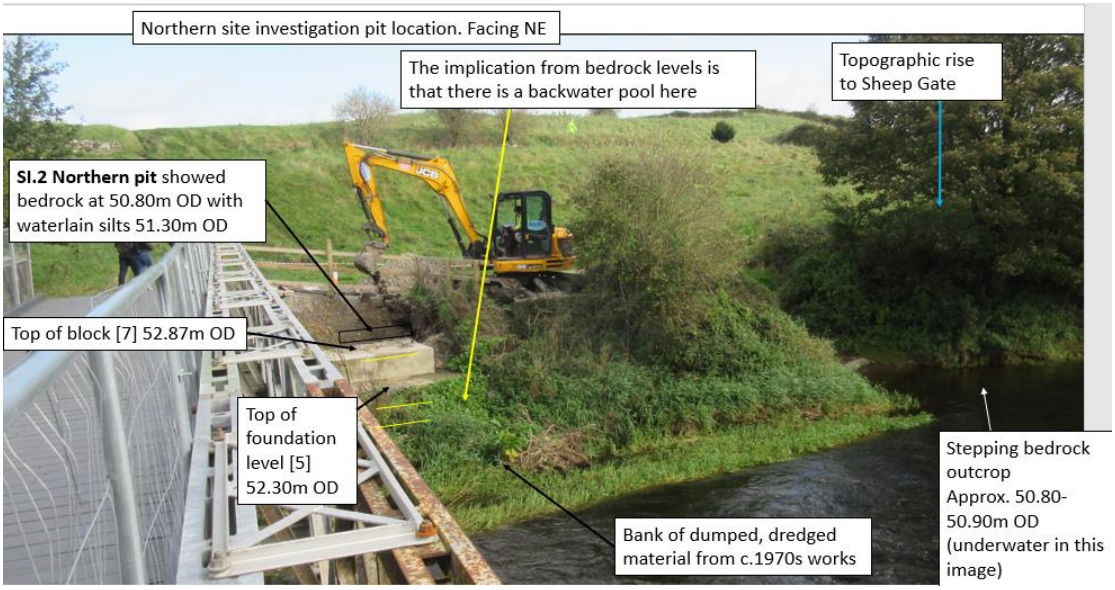


Old Photgraphs show a walled garden – perhaps associated witht the Court House - attached to Trim Castle. This walled garden [26] was preserved during the 1970s dredging but was removed during the 1990s.

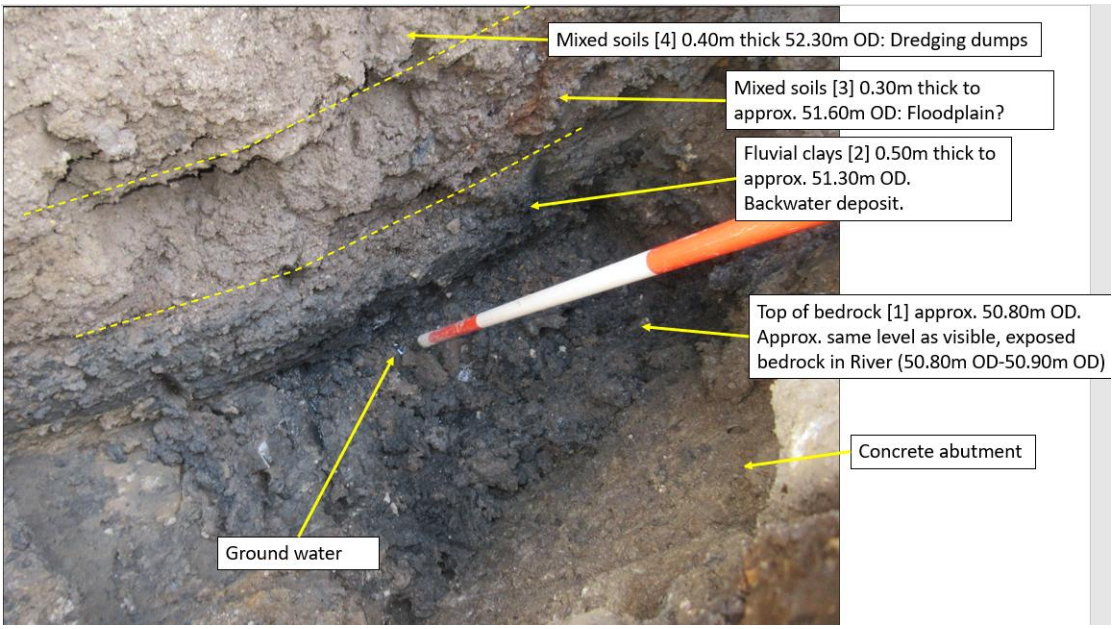


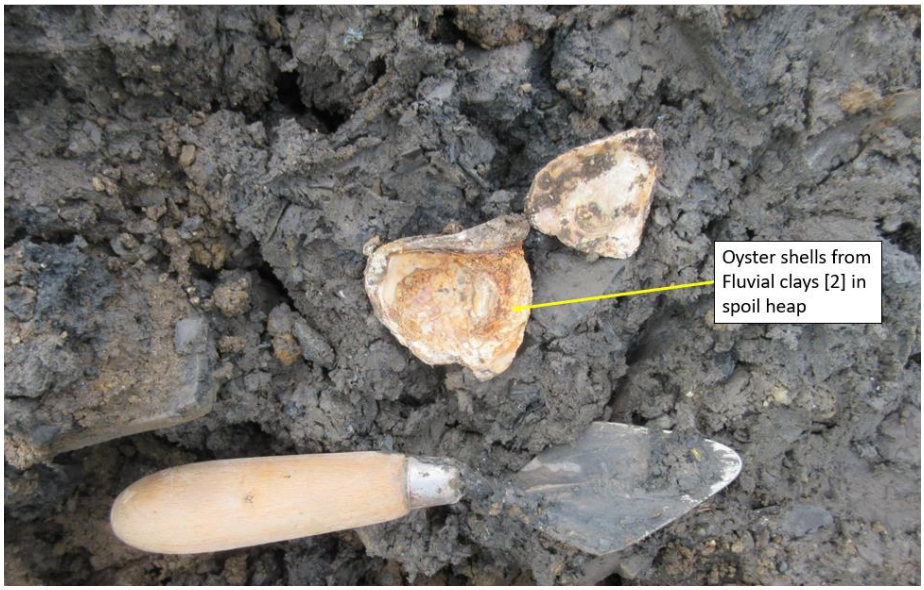


In SI.1 the old floodplain [11] was overlain by a mixed grey and dark brown, loosely compacted, silty clay [12] with a top at c. 52.30m OD (52.07m OD in RC1 and 52.45 in BH1). This is presumed to be the 1990s infilling of the of the walled garden [26] that is shown here on 1837 OS and 19th C photographs. The walled garden boundary wall [26] was demolished in the 1990s when the area was cleared to be a public space. The top of this layer at c.52.30m OD was the construction level for the 2001 Millennium Bridge and is likely to have been reduced to this level in 2001. This reduced ground area was covered in a layer [13] 0.30m thick which was probably a construction mat for the 2001 bridge. Above this were two levels [14] + [15] of Clause 804 modern gravels raising the ground to a max. of 54.00m OD



The northern test-pit SI.2 measured roughly 3m x 1m x 3.20m deep max. and was only 0.80m long at the base due to the need to batter the sides because of the nearby Bailey Bridge. The pit was not entered but was visible for inspection from the abutment top at 52.30m OD, which was c.1.5m above the base. The spoil was also separated as layers appeared, and this was also examined. The sequence showed shattered top of bedrock [1] around 50.80m OD. This was overlain by a dark grey-blue sticky, wetland-smelling, waterlain, fluvial clay [2] around 0.50m deep. In the spoil heap, this material included freshwater snails, waterlogged twigs and occasional oyster (marine) shells. The oyster shells are presumed to be medieval food waste.





This in-channel fluvial layer [2] was overlain by a dark grey-brown silty clay [3] with a top at 51.60m OD, which probably represents the normally-dry post-medieval floodplain to the River Boyne as seen in old photographs. This layer [3] was then overlain by a mixed grey and dark brown, loosely compacted, silty clay [4] with a truncated top c. 52.30m OD. This is presumed to be the 1970s redeposited dredged material. The top of this layer [4] was the construction level [10] for the 2001 Millennium Bridge and is likely to have been reduced to this level in 2001 in the vicinity of the abutment. Above this were two levels [6] + [9] of modern imported chippings raising the ground to a present max. of 54m OD. Nearby RC 2 showed the same sequence and levels to SI. 1.

A small pit in advance of BH.2 just cut through dredged material showing it rising to around 52.80m OD.

BH.2 was located 9m from SI. 1 and RC.2 but it showed a level for bedrock of 49.26m OD. This is 1.60m below the level of bedrock in SI. 1 and RC.2. If this level is correct then this deep area may possibly be part of a whirlpool or potentially a deliberate excavation into the bedrock to allow for a wharf or quay to be created to link the River to St Mary's Abbey. A historic track lead from this point – which is actually directly opposite the Water Gate of Trim Castle – to the Sheep Gate and to St Mary's Abbey. So a quay location and or medieval ferry crossing point is a possibility. As discussed above, normal river flow levels were historically quite shallow and some form of river bed deepening may have been required?

SI.1 southern test-pit scan at:
https://poly.cam/capture/7ADD7695-C489-4F2E-853B-DA05150978AB

SI.2 northern test-pit at:
https://poly.cam/capture/865051A5-F460-4C21-A056-D578D39C6B25

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OPW 1987, *Archaeological Inventory of County Meath* Dublin: The Stationary Office

William Larkin Map of Meath

Taylor & Skinner 1777-1785 Roads of Ireland

Electronic Sources

www.excavations.ie – Summary of archaeological excavation from 1970+

www.archaeology.ie – National Monuments Service website listing all SMR sites with aerial photographs.

www.osi.ie – Ordnance Survey aerial photographs (1995, 2000 & 2005) and historic OS mapping (first edition 6" and 25").

National library of Ireland, Nli.ie

Google mapping

Lewis, S 1837 Topographic dictionary of Ireland

Logainm placename database

National Inventory of Architectural Heritage

Down Survey mapping

Previous C1141 reports:

- Roycroft N, July 2022, 'Millennium Bridge, Trim. Heritage Discussion'
- Roycroft N, August 2022, 'C1141 Millennium Bridge, Trim. Demolition and removal'

APPENDIX 1 CONTEXT REGISTER

CONTEXT	LOCATION	upper level	depth	description	interpretation
1	4 (SI N)	50.80m OD – 50.90m OD	NA	visible bedding in river channel is SW-NE with layer tipping lines down to N	Bedrock – limestone with a shattered surface
2	4 (SI N)	51.30m OD	0.40m	Dark grey blue fluvial clays with water snails, oyster shells and waterlogged twigs. Presence of imported marine oyster shells presumably mean this dates to the medieval period	The waterlain deposit may represent a backwater pool that lies opposite the Trim Castle Water Gate and could form part of a crossing point from the Castle to St Mary's Abbey.
3	4 (SI N)	51.60m OD	0.3	Mixed brown deposit may even indicate it is ploughed. The deposit does not seem to contain waterlogged material but occasional oyster shells were noted.	Usually dry floodplain to the River Boyne
4	4 (SI N)	52.30m OD	0.7	Deposit of dumped, dredging material mixed with brown soils presumably dating from 1970s dredging works	The top of this layer had been cut flat in plan when the 2001 abutment was built. T.
5	4 (SI N)	52.30m OD	na	The abutment was constructed by digging a large hole and then filling that hole with concrete without shuttering. The abutment sides are irregular and they curve in to the base. The abutment is around 5m – 6m N-S x 2m N-S x 1.30m – 1.50m deep and presumably based on bedrock	Mass concrete abutment base created in 2001.
6	4 (SI N)	53.00m OD.	0.7	Typically Clause 804' type material.	Ground raising dumps associated with ramping up the path to the previous Millennium Bridge either during initial construction of through 2003 footpath works.
7	4 (SI N)	52.87m OD	1.3	Concrete block as part of 2001 bridge abutment	Concrete block as part of 2001 bridge abutment
8	4 (SI N)	52.90m OD	30mm	2001-2003 footpath	2001-2003 footpath
9	4 (SI N)	53.50m OD – 53.90m OD	1m max	Typically Clause 804' type material.	2022 layers ramping up to temporary Bailey Bridge
10	4 (SI N)	52.30m OD and then step down to form construction cut for mass concrete abutment. Base presumably on or cut into bedrock	1.5m - 1.80m deep for abutment block	2001 construction level in plan. The report from that time says the construction level was around 10m x 12m in plan	2001 construction level in plan
11	3 (SI S)	51.50m OD	0.5	Brown silty clay floodplain and potentially ploughsoil deposit presumably post-dating the medieval period	
12	3 (SI S)	52.25m OD	0.75	Dumped, dredged deposits from the 1970s Drainage works. OR this is a (back)fill of the 'drain / outflow' seen by DRAIN [17]	Photos show the nearby walled garden was not part of the dredging works at that time. But the floodplain was raised and tip lines are visible in soils [12]. The upper surface of this deposit was at the reduced construction level of the 2001 bridge abutment construction
13	3 (SI S)	52.35m OD	0.3	Mixed soils and mortar and gravels deposit around 0.30m deep	This deposit is assumed to be a consolidation layer associated with 2001 bridge construction
14	3 (SI S)	53.00m OD.	0.65m	Clause 804 type material ramping up to the 2001 bridge deck	Clause 804 type material ramping up to the 2001 bridge deck
15	3 (SI S)	53.50m OD – 53.90m OD		Clause 804 type material ramping up to the 2022 temporary Bailey bridge deck.	Clause 804 type material ramping up to the 2022 temporary Bailey bridge deck.

16	3 (SI S)	51.00m OD		Waterlain clays smelling of waterlogging and a suggestion of hydrogen sulphide gas. This deposit coincided with water ingress into the trench which caused a halt to the excavations	
17	Map regression	UNK.	UNK	Buried drain or mill race as implied by map evidence to W of SI S.	The zone between the ornamental garden wall [26] and the river edge seems to have been covered in large boulders giving a riprap-style armouring – but there are also occasional large, mature trees. If this is an outflow as it appears, it has been channelled outside the town to empty into the river. This could suggest the outflow formed part of some Trim town surface drainage scheme. However, it is also known that the Franciscan Friary in this area near to the Old Bridge also owned a mill so it is possible the outflow originally formed part of a mill race.
18	Map regression	UNK. Above 52.25m OD	UNK	Headwall as seen on old mapping. Not really visible in the old photos and not seen in SI pit	
19	3 (SI S)	Base of general area cut at 52.25m OD. Then step down to form construction cut for mass concrete abutment	Base presumably on bedrock of c.49.60m OD. So Abutment block is maybe 2.65m or so	2001 Southern bridge abutment. An area around 10m x 14m in plan	
20	Map regression	UNK.	UNK	Masonry northern guidewall for outflow seen in mapping and photos. Walls [20] and [22] flare out as a combined outflow. Fully removed by 2001 abutment works in the area of those works. By implication this wall is also removed by the OPW water pump [21] a short distance to the E	Walls [20] and / or [22] are mentioned in the 2001 original Bridge abutment monitoring report but it was note recorded in detain at that time. The 2023 monitoring noted some large, rectangular blocks [22] that formed a small part of this drains [17] southern wall
21	3 (SI S)		PGL 53.00. Presumably construction cut went down to bedrock.	OPW Water pump to take water from the River Boyne and pump it into the artificial 'Moat' created in 1990s on N side of Trim Castle. Pump feeds an underground pipe that leads to the moat. Map overlay implies this pump works truncated the terminal ends of guide walls [20] and [22]. At eastern end of the moat is another pipe and pump to take the water out and put it back into the River Boyne	OPW pumping in and out of the 1990s Trim Castle Moat
22	3 (SI S)	truncated to 52.25m OD	visible around 0.50m deep. But may descend to bedrock of	Masonry southern guidewall for outflow seen in mapping and photos. Walls [20] and [22] flare out as a combined outflow. Part of this masonry was seen in the SI S pit	Walls [20] and / or [22] are mentioned in the 2001 original Bridge abutment monitoring report but it was note recorded in detain at that time. The 2023 monitoring noted some large, rectangular blocks [22] that formed a small part of this drains [17] southern wall

			c.49.60 m OD (2.6m)		
23	Map regression	UNK	UNK	OPW underground Pipe from Pump [21] to Trim Castle Moat	OPW underground Pipe from Pump [21] to Trim Castle Moat
24	SI.1			General context for SI.1	
25	SI.1	truncated to 52.25m OD		Part of Wall [22] observed in SI.1 some blocks also noted. This wall had been abutted by 2001 concrete abutment foundation and was slightly truncated again in 2023.	
26	Map regression	UNK	UNK	Large, high wall around an ornamental garden that is shown on the 1837 OS. It is likely that the walled garden is associated with the nearby Court House (built c.1805). This wall and the garden is seen in old photographs and severe lift lines are notable and the wall appears to have had a concrete flaunched top. The wall was retained from the 1970s dredging but was removed by OPW by 1995. The present 'Moat' has ben cut through the wall location.	Now-demolished garden wall
27	River Boyne	50.80m OD - 50.90m OD	NA	Shelving bedrock visible as the base of the River Boyne. Planing at an angle SW-NE and tipping down to N. Presumably a dredged surface truncated slightly by OPW. This level matches the Bedrock levels of Location 4 SI (N). To SE of Location 4(SI N) the bedrock may be stepping up slightly with visible bedding at 51.10m OD - but this may be an untruncated / pre-OPW dredging level	
28	2 RC1	53.67	1.6	Grey brown black sandy gravelly clay - Made ground (IGSL)	Made ground
29	2 RC1	52.07	1.3	Grey brown silty sandy gravelly peaty CLAY (IGSL)	
30	2 RC1	50.77	1.2	grey brown clayey silty GRAVEL (IGSL)	
31	2 RC1	49.57	0.2	Possible Rock (IGSL)	
32	2 RC1	49.37	NA	Bedrock (IGSL)	
33	5 RC2	53.66	1.4	Grey brown black sandy gravelly clay with cobbles - MADE GROUND (IGSL)	Made ground
34	5 RC2	52.26	1	grey brown black silty sandy gravelly CLAY (IGSL)	
35	5 RC2	51.26	0.3	Possible ROCK (IGSL)	
36	5 RC2	50.96	NA	ROCK (IGSL)	
37	1 BH1	52.85	0.15	topsoil (IGSL)	
38	1 BH1	52.7	0.25	Light brown sandy SILT/CLAY with occasional gravel (IGSL)	
39	1 BH1	52.45	1.4	soft dark brown sandy SILT/CLAY with some gravel and occasional cobbles (IGSL)	
40	1 BH1	51.05	>0.5	Dense COBBLE/BOULDERS ending in OBSTRUCTION at 50.55m OD (IGSL)	
41	6 BH2	53.04	0.2	topsoil (IGSL)	
42	6 BH2	52.84	0.3	Dark brown sandy SILT?CLAY with occasional gravel (IGSL)	
43	6 BH2	52.54	2.2	very soft light brown sandy SILT/CLAY with some gravel and occasional cobbles (IGSL)	

44	6 BH2	50.34	>1.1	Stiff light brown sandy gravelly CLAY with some cobbles ending in OBSTRUCTION at 49.24m OD (IGSL)	
45	Trim Castle Moat			Trim Castle moat created in 1990s	
46	Trim Castle Moat			Presumed infilled underneath later walled garden . RC2 may have drilled through it to a base level of 49.50m OD	
47	Carpark and public space			1990s carparking and public space ground raising dumps partially infilling walled garden	

APPENDIX 2 SAMPLE REGISTER

None

APPENDIX 3 FINDS REGISTER

None