



APPENDIX 13-6

LEMANAGHAN SI MONITORING REPORT



PHASE 1 – PART 1

LEMANAGHAN SI MONITORING REPORT

Archaeological Monitoring of Site Investigations at Lemanaghan Bog, Co. Offaly

Part 1 – Licensed Archaeological Monitoring - FINAL REPORT

Excavation Licence No. 21E0132 (Annette Quinn)

Date: April 2022

5. ARCHAEOLOGICAL MONITORING RESULTS

5.1 Archaeological background

669 SMR sites are located within the EIAR site boundary 497 of which are redundant records. From the outset, buffer zones were formulated around all non-redundant records within the site boundary. These were formulated based on both the descriptions of the monuments and the zones of notifications / ZAPs. These buffer zones were provided to Bord na Mona from the outset to assist with design and the early avoidance of archaeological constraints. The site investigations were generally situated in areas where no monuments were located.

5.2 Notable Finds – Topographical Files of the National Museum of Ireland

A search of the topographical files of the National Museum of Ireland for the townlands within the proposed development site yielded several results which are provided below.

There are 4 stray finds listed in the NMI topographical file database for the townland of LEMANAGHAN:

- 1977:2338 Copper Alloy Crozier
- 1992:6 Wood Crozier
- 1992E148:99 Stone Whetstone
- 2012:262 Felt Hat

There is 1 stray find listed in the NMI topographical file database for the townland of KILLAGHINTOBER:

- 1992E148:70 Stone hammerstone

There are no stray finds listed in the NMI topographical file database for the townlands of CORNAFURRISH and CORRABEG

There are no stray finds listed in the NMI topographical file database for the townland of CAPPANALOSSET

There are no stray finds listed in the NMI topographical file database for the townland of STRADUFF

There are 10 stray finds listed in the NMI topographical file database for the townland of COOLDORRAGH:

- 1933:591 Bronze Dagger
- 1933:592 Bronze Axehead
- 1933:593 Bronze Axehead
- 1933:594 Bronze Spearhead
- 1933:595 Bronze Spearhead
- 1933:596 Bronze Spearhead
- 1933:760 Bronze Sword
- 1933:761 Bronze Sword
- 1933:762 Leather Shoe
- 1933:763 Wooden Bowl

There are no stray finds listed in the NMI topographical file database for the townland of RASHINAGH

There is 1 stray find listed in the NMI topographical file database for the townland of DERRICA MORE:

- 1997:45 Stone Axehead

There are 4 stray finds listed in the NMI topographical file database for the townland of LEABEG:

- 1991:3 Stone tool
- 2004:107 Leather shoe
- 2012:263 Wooden tool
- R1690 Wooden blade

There are no stray finds listed in the NMI topographical file database for the townland of DERRYNAGUN

There is 1 stray find listed in the NMI topographical file database for the townland of CURRAGHALASSA:

- 2019:103 Leather Shoe

There are 2 stray finds listed in the NMI topographical file database for the townland of TUMBEGH:

- 1992E148:51 wool textile
- 1992E148:70 Stone hammerstone

There is 1 stray find listed in the NMI topographical file database for the townland of BALLYDALY:

- 1992E148:5 Leather shoe

There are no stray finds listed in the NMI topographical file database for the townland of CORBANE

There are no stray finds listed in the NMI topographical file database for the townland of COR MORE and COR BEG

There are 23 stray finds listed in the NMI topographical file database for the townland of LISDERMOT:

- 1992E148:14 Silver coin
- 1992E148:15 Silver coin
- 1992E148:16 Silver coin
- 1992E148:17 Silver coin
- 1992E148:18 Silver coin
- 1992E148:19 Silver coin
- 1992E148:20 Silver coin
- 1992E148:21 Silver coin
- 1992E148:22 Silver coin
- 1992E148:23 Silver coin
- 1992E148:24 Silver coin
- 1992E148:25 Silver coin
- 1992E148:26 Silver coin
- 1992E148:27 Silver coin
- 1992E148:28 Flint Scraper
- 1992E148:33 Silver coin
- 1992E148:34 Silver coin
- 1992E148:35 Silver coin
- 1992E148:36 Silver coin
- 1992E148:37 Silver coin
- 1992E148:38 Leather shoe
- 1992E148:6 Leather shoe

There are 2 stray finds listed in the NMI topographical file database for the townland of KILNAGOOOLNY:

- 1997:46 stone ball

- 2008:12 Leather shoe

There are 3 stray finds listed in the NMI topographical file database for the townland of KILNAGARNAGH:

- 1931:312 Copper Dagger
- 2004:153 Leather Shoe
- 4432:W225 Bronze Dagger

There are no stray finds listed in the NMI topographical file database for the townland of CASTLEARMSTRONG

There are no stray finds listed in the NMI topographical file database for the townland of ROSFARAGHAN

5.3 Previous Archaeological Work Carried out on the Site

5.3.1 Cultural Heritage Assessment of the Boora Group of Bogs (2018)

A cultural heritage assessment was undertaken in 2018 as part of a rEIAR for the Boora group of bogs (Whitaker 2018) on behalf of Bord na Mona. This provided a summary of findings to date for various bogs within the Boora Group, Lemanaghan of which forms one such bog. A summary extract is provided below:

'The bog is located at the north-eastern extent of the Boora Group of Bord na Móna bogs, the bogs of Lemanaghan, Derrynagun, Castletown, Killaghintober, Kilnagarnagh, Tumbeagh, Corhill and Ballydaly are collectively known as Lemanaghan Bog. They measure a total of 1,295ha in size, c. 600ha of which is in production. These bogs are located between the villages of Ballycumber to the east and Ferbane to the west. The southern extent of the bogs is defined by the River Brosna and the Grand Canal, with the hills of Bellair, Cooldoragh and Corhill to the north and northwest. There are two dryland islands within the bog complex Broder's island and Lemanaghan Island. The dryland surrounding the bogs is mainly pasture. There is a total of 725 sites in the Sites and Monuments Record in Lemanaghan Bog all of which were recorded during the IAWU surveys of the bog between 1993 and 1997. A significant number of these sites are now considered to be 'redundant' records owing to their fragmentary nature at the time of recording. The sites are summarised below by area.

Ballydaly/Curraghlassa Bog has 135 records (OF015-131 to OF015-265) consisting of a Road-Class 2 Togher, 38 Road-Class 3 Toghers and 96 now 'redundant' records.

Castletown Bog has 82 records (OF007-197 to OF007-278) consisting of a Road-Class 1 Togher, three Road-Class 2 Toghers, 14 Road-Class 3 Toghers and 64 now 'redundant' records.

Corhill Bog has 214 records (OF015-275 to OF015-488) consisting of a Road-Class 1 Togher, a Road-Gravel/Stone trackway, 13 Road-Class 2 Toghers, 14 Road-Class 3 Toghers, a post row and 184 now 'redundant' records.

Derrynagun Bog has 107 records (OF015-024 to OF015-130) consisting of two Road-Class 1 Toghers, two Road-Class 2 Toghers, 29 Road-Class 3 Toghers, a Road-trackway, two post rows and 71 now 'redundant' records.

Killaghintober Bog has 47 records (OF007-279 to OF007-325) consisting of three Road-Class 1 Toghers, four Road-Class 2 Toghers, 13 Road-Class 3 Toghers and 27 now 'redundant records'.

Kilnagarnagh Bog has 19 records (OF007-066 to OF007-087 and OF007-343) consisting of a Road-Class 1 Togher, three Road-Class 3 Toghers and 15 now 'redundant' records.

Lemanaghan Bog has 25 records (OF007-326 to OF007-342 and OF015-266 to OF015-274) consisting of two Road-Class 1 Toghers, a Road-Gravel/Stone trackway, three Road-Class 2 Toghers, four Road-Class 3 Toghers and 15 now 'redundant' records.

Tumbeagh Bog has 96 records (OF007-084 to OF007-179) consisting of 13 Road-Class 2 Toghers, 17 Road-Class 3 Toghers and 62 now 'redundant' records.

There are a total of 27 dryland archaeological sites in the wider Lemanaghan area listed in the Sites and Monuments Records. In Ballylin townland to the southwest there are a ringfort (OF014-011), a burial ground (OF014-009) and two enclosures (OF014-012 and OF014-010). To the west in Tumbeagh is a ringfort (OF007-043) and a ruined late 17th century house (OF007-065) and in Straduff is an enclosure (OF007-045), cashel (OF007-046) and a possible earthwork (OF007-047). Glebe townland to the northwest has a cashel (OF007-044), enclosure (OF006-052) and a graveyard (OF006-062). There are two enclosures in (OF007-023 and OF007-025) in Castlereagh townland to the north, while in Rashinagh there is an enclosure (OF007-027), a graveyard (OF007-041) and the site of a former castle (OF007-061). To the northeast in Parkaree or Boherfadda is a holy well (OF007-035) and in Killaghintoiber there is a possible cashel (OF007-032) and ringfort (OF007-034). Castlearmstrong, to the east, has a fortified house and bawn (OF007-037) and a holy well (OF007-038). The Lemanaghan ecclesiastical complex (OF015-004001 to 004032) is located on the dryland island to the south. The complex consists of an early medieval ecclesiastical enclosure (OF015-004008), tower house (OF015-004001), a multi period church (OF015-004003) dating from the Romanesque to late medieval period with several early medieval cross slabs and architectural fragments in the interior of the church. To the northwest of the church is a possibly late medieval rectangular building (OF015-004009), while to the southeast is a holy well (OF015-004007), an oratory or hermitage (OF015-004006) and a togher (OF015-004011).

Previous Surveys

Archaeological survey of the eight Lemanaghan Bogs commenced in the early 1990s and was completed by 1997. A total of 753 sites were identified by the IAWU during this time. Ballydaly Bog (135), Castletown (94), Corhill (214), Derrynagun (113), Killaghintoiber (56), Kilnagarnagh (19), Lemanaghan (26) and Tumbeagh (96). Ballydaly Bog had been prepared for production at the time of the survey but no milling had taken place. This bog was subsequently set aside from production. Five of the nine bogs were re-assessed in 1998 by the IAWU on behalf of BnM prior to the commencement of the BnM Excavation Mitigation Project in 1999. This survey identified 160 wetland sites in 10 distinct archaeological zones (McDermott et al 1999). While the quantities of sites had significantly reduced in most areas, with the exception of Lemanaghan itself which increased to 29, the archaeological zones remained the same; Castletown (34), Derrynagun (64), Killaghintoiber (19) and Tumbeagh (18). A rescue excavation was carried out in Tumbeagh Bog by the IAWU after partial human remains were recovered during the 1998 survey (Bermingham 2001). These remains have been dated to between the 14th and 16th centuries. Nine cuttings were also excavated on a Road-Class 1 Togher (98LMN002) in the central part of Lemanaghan Bog to facilitate the 1999 BnM production season. A total of 40 sites were excavated by ADS Ltd in 1999 and 2000 as part of the BnM Excavation Mitigation Project (O Carroll 2001, Whitaker & O Carroll 2009) in Castletown, Corhill, Derrynagun, Killaghintoiber and Tumbeagh Bogs. The sites ranged in date from the early Bronze Age to the late medieval periods.

A re-assessment survey of Castletown was carried out by ADS Ltd on behalf of BnM in 2013 (Whitaker 2014). Three sites were identified during this survey, one of which was the previously identified and excavated early medieval Road-Class 1 Togher (OF007-215 / OF-CTN001), (McDermott et al 1999), (Whitaker & OCarroll 2009). The other two sites were Road-Class 3 Toghers (OF-CTN002 and OF-CTN003). The two Road-Class 3 Toghers (OF-CTN002 and OF-CTN003) identified in the 2013 reassessment survey were excavated by the author for IAC Ltd on behalf of BnM in 2016 as part of the BnM Excavation Mitigation Project (Whitaker 2016 & 2017). These brushwood sites were both dated to the late Bronze Age period.

The numerous archaeological sites and stray finds from the Lemanaghan Bogs, which date from the Neolithic to the late medieval period, show continuous archaeological activity in the area. Wetlands and Peatlands are considered as Areas of Archaeological Potential for their potential to contain archaeological organic preserved remains. Wetlands also provide a significant resource for environmental analysis. It must be considered therefore that there remains a moderate to high potential for additional buried features to be uncovered during the course of any future development works in the Lemanaghan Bogs, particularly but not exclusively, within the previously identified archaeological zones'.

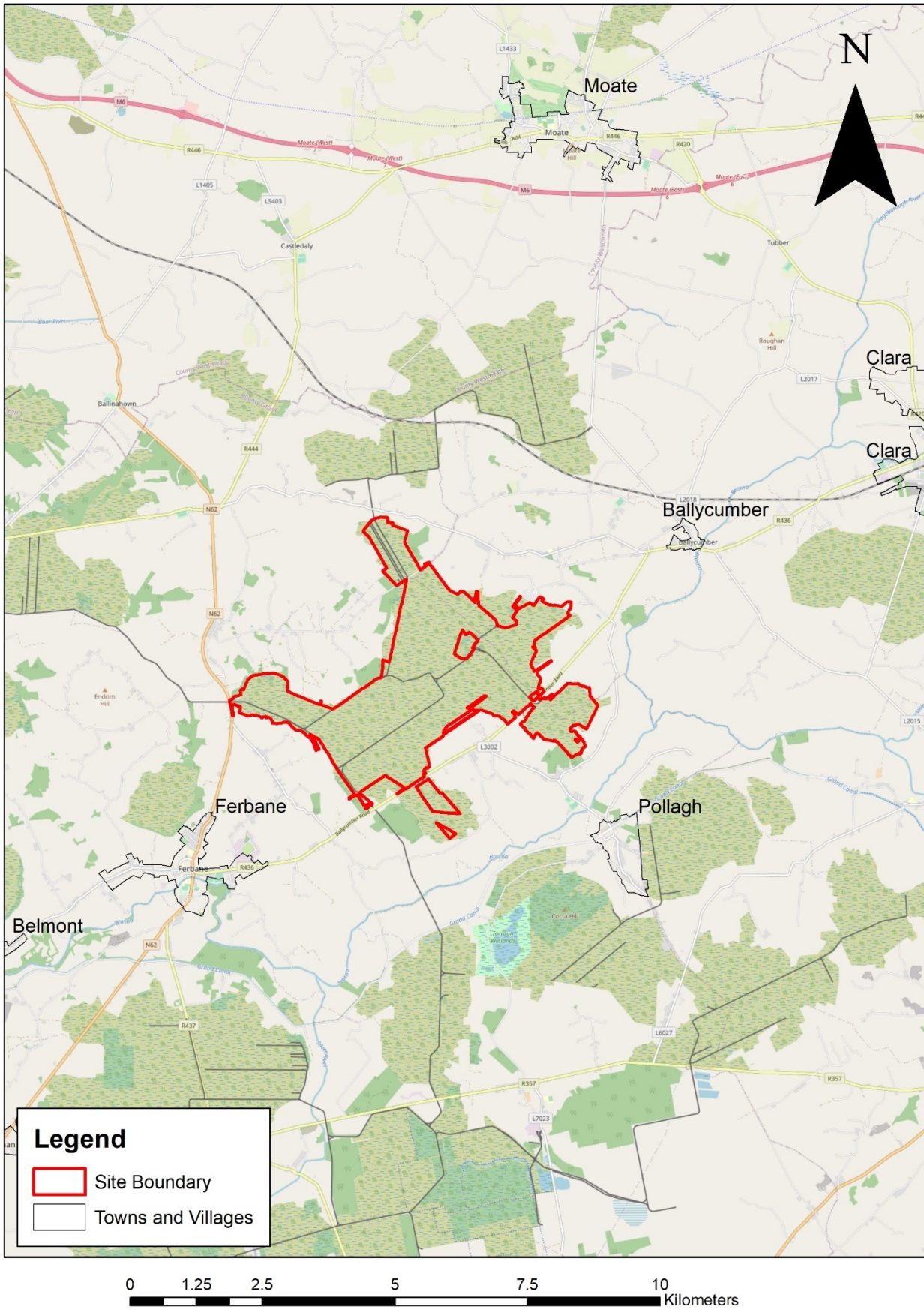


Figure 5-1: Site location map.

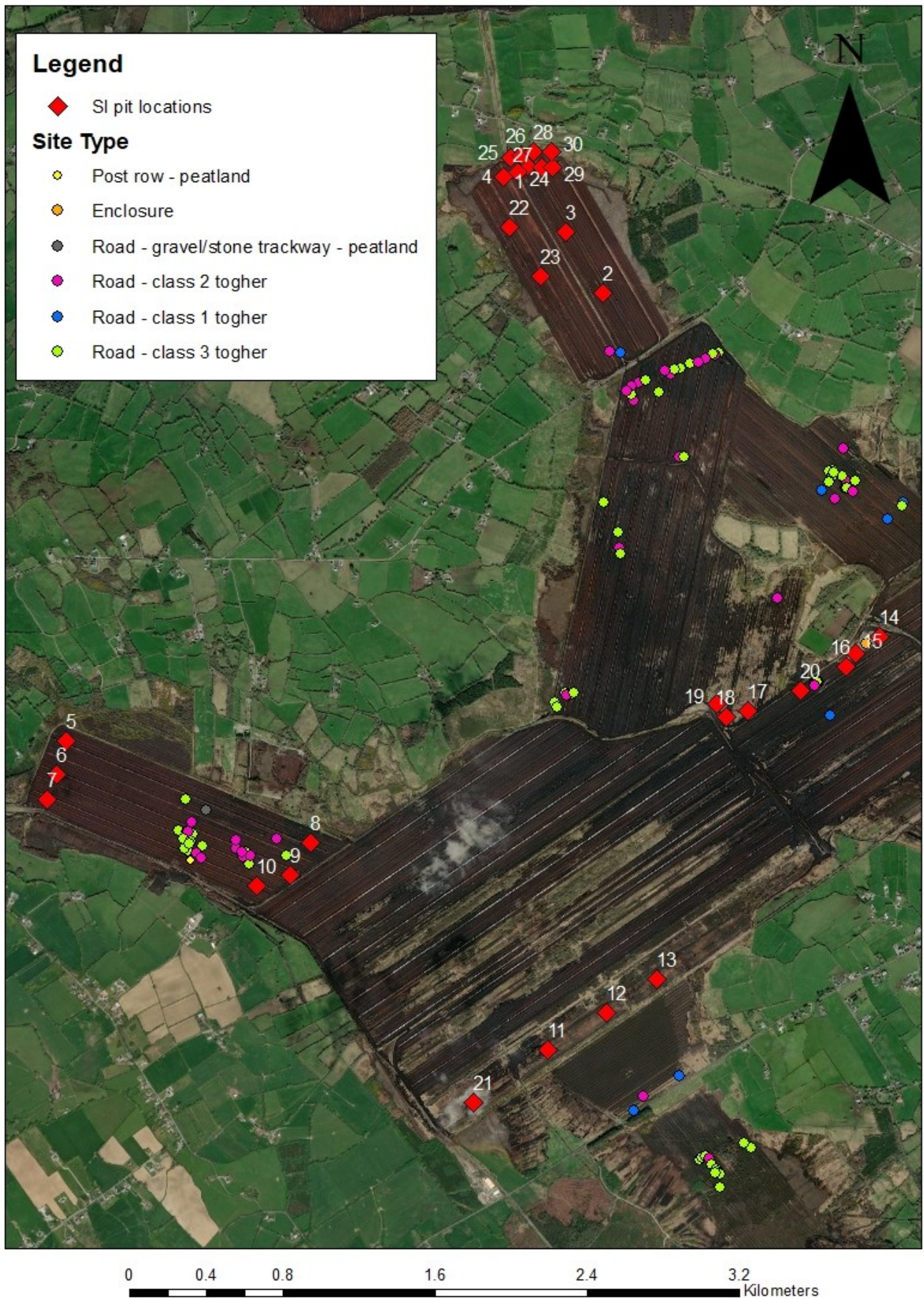


Figure 5-2: Site Investigation trial pits in relation to SMRs which are not Redundant Records .

5.4 Results of Archaeological Monitoring Phase I

Archaeological monitoring of site investigation works was carried out at over a period of 4 days in April 2021. The excavation of a total of 29 trial pits was monitored over this period within an area of predominantly cut over bog. The stratigraphy noted within the trial pits varied throughout the site with natural clay not reached in some locations owing to the sheer depth of peat. It typically consisted of an upper layer of loose, soft rooty milled peat overlying layers of fibrous peat. The underlying natural subsoil comprised a grey/blue silt or gravelly silt. No positively identified archaeological features or structures were uncovered in any of the excavated trial pits. The trial pits were positioned away from archaeological constraints.



Figure 5-3: SI Locations Phase 1.

5.4.1 TP 1

Excavated N-S in an area of recently worked bog. Loose brown peat measuring 0.20m in thickness overlay a reddish brown soft peat that was 2.4m. Beneath this was a wet black peat that had frequent inclusions of tiny fibrous roots. Subsoil was not exposed in this trial pit due to collapse.

Date	April 8, 2021
Time Recorded	11:56
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP1
Trial Pit Length (m)	4.1
Trial Pit Width (m)	1.6
Peat Depth (m)	4.0
Total Trial Pit depth (m)	4.0



Plate 1: TP1 prior to excavation



Plate 2: TP 1 after peat excavation

5.4.2 TP2

Excavated N-S in an area of recently worked bog. 0.10m brown milled peat overlay a reddish brown softer peat, 2.4m thick. At 2.5m below ground level the peat became much darker and wetter. This blackish brown peat measured 1.8m thick. Subsoil was not exposed and excavation ceased at 4.3m.

Date	April 8, 2021
Time Recorded	08:34
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP2
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.3
Total Trial Pit depth (m)	4.3



Plate 3: TP 2 prior to excavation



Plate 4: TP2 after excavation

5.4.3 TP 3

Excavated N-S in an area of recently worked bog. Loose milled brown peat, 0.20m thick overlay a reddish brown fibrous peat, 2.20m in thickness. A change in the peat colour from 2.4m below ground level saw a much blacker and wetter material.

Date	April 8, 2021
Time Recorded	09:36
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP3
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.7
Total Trial Pit depth (m)	4.9



Plate 5: TP3 prior to excavation



Plate 6: TP3 after peat excavation

5.4.4 TP4

Excavated N-S in an area of recently worked bog. Loose dark brown peat measuring 0.20m overlay a reddish brown fibrous peat measuring 2.5m in depth. Subsoil not uncovered at this trial pit.

Date	April 9, 2021
Time Recorded	13:00
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP4
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.6
Peat Depth (m)	4.7
Total Trial Pit depth (m)	4.7



Plate 7: TP4 prior to excavation



Plate 8: TP4 after peat removal

5.4.5 TP5

Excavated E-W in an area of recently worked bog. Loose brown milled peat at surface, 0.20m in depth. Below this 4m of dark brown peat was exposed overlying a blue grey clay subsoil.

Date	April 7, 2021
Time Recorded	14:01
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP5
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	2.0
Total Trial Pit depth (m)	2.0



Plate 9: TP5 prior to excavation



Plate 10: TP5 after peat removal

5.4.6 TP6

Excavated E-W in an area of recently worked bog. Blackish brown loose peat with a thickness of 0.20m overlay a orange brown peat. Excavation stopped at 4.5m in depth and natural subsoil was not exposed.

Date	April 7, 2021
Time Recorded	14:50
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP6
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.5
Total Trial Pit depth (m)	4.5



Plate 11: TP6 prior to excavation



Plate 12: TP6 after peat excavation

5.4.7 TP7

Excavated E-W in an area of recently worked bog. 0.20m of loose brownish black peat overlay a reddish brown peat which measured 4.30m in thickness. Peat overlay a grey silty clay subsoil.

Date	April 7, 2021
Time Recorded	15:30
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP7
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.5
Total Trial Pit depth (m)	4.6



Plate 13: TP7 prior to excavation



Plate 14: TP7 after peat excavation

5.4.8 TP8

Excavated E-W in a recently worked area of the bog. The area is noticeably wet and the peat soft at the surface. Excavation ceased at 2m of peat depth due to collapse. Subsoil was not exposed.

Date	April 7, 2021
Time Recorded	12:45
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP8
Trial Pit Length (m)	4.0
Trial Pit Width (m)	3.0
Peat Depth (m)	2.0
Total Trial Pit depth (m)	2.0



Plate 15: TP8 prior to excavation



Plate 16: TP8 after collapse of peat

5.4.9 TP 9

Excavated E-W in an area of recently worked peat bog. 0.20m of loose black peat overlay a dark reddish brown peat that was at least 3.8m in thickness. Subsoil was not exposed.

Date	April 7, 2021
Time Recorded	11:53
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP9
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.0
Total Trial Pit depth (m)	4.0



Plate 17: TP9 prior to excavation



Plate 18: TP9 after peat excavation

5.4.10TP 10

Excavated E-W in an area of recently worked bog. 0.30m of loose black soft peat over overlay 2.90m of a reddish brown fibrous peat. The peat sealed a blue grey clay subsoil.

Date	April 7, 2021
Time Recorded	11:14
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP10
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	3.6
Total Trial Pit depth (m)	3.5



Plate 19: TP10 prior to excavation



Plate 20: TP10 after peat removal

5.4.11TP11

Excavated N-S in a grass covered area of bog. Black root filled peat with a thickness of 0.40m overlay dark brown peat measuring 2.8m in thickness. The peat sealed a blue grey clay subsoil. Modern rubbish seen at a depth of 0.60m from ground level.

Date	April 7, 2021
Time Recorded	08:56
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP11
Trial Pit Length (m)	4.8
Trial Pit Width (m)	1.6
Peat Depth (m)	3.2
Total Trial Pit depth (m)	4.0



Plate 21: TP11 prior to excavation



Plate 22: TP11 after peat removal

5.4.12TP 12

Excavated E-W in a grass and heather covered area of bog. Ground water from base of trench at 0.50m. Pipe running E-W on south side of trench. Excavation cased at 4m due to water ingress and collapse. Subsoil was not exposed at this location.

Date	April 6, 2021
Time Recorded	15:45
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP12
Trial Pit Length (m)	4.5
Trial Pit Width (m)	1.6
Peat Depth (m)	4.0
Total Trial Pit depth (m)	4.0



Plate 23: TP12 prior to excavation



Plate 24: TP12 after peat removal

5.4.13TP13

Heather and grass covered area of bog. Excavated SE-NW. 0.40m of black root filled peat overlay a soft dark brown fibrous peat measuring 3.30m in thickness. Only peat removed to depth of 3.7m.

Date	April 6, 2021
Time Recorded	15:16
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP13
Trial Pit Length (m)	5.0
Trial Pit Width (m)	1.6
Peat Depth (m)	3.7
Total Trial Pit depth (m)	3.7



Plate 25: TP13 prior to excavation



Plate 26: TP13 after peat removal

5.4.14TP14

Excavated E-W in a heather and grass covered area of bog. Dark brownish fibrous peat noted throughout the trial pit. Natural subsoil not exposed.

Date	April 6, 2021
Time Recorded	12:51
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP14
Trial Pit Length (m)	4.8
Trial Pit Width (m)	1.6
Peat Depth (m)	4.4
Total Trial Pit depth (m)	4.4



Plate 27: TP14 prior to excavation



Plate 28: TP14 after peat removal

5.4.15TP15

Excavated N-S in a raised area of the bog containing trees and grass. Gravels seen on surface surrounding ground. Black peat overlay a grey brown sandy clay subsoil.

Date	April 6, 2021
Time Recorded	12:13
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP15
Trial Pit Length (m)	4.5
Trial Pit Width (m)	3.2
Peat Depth (m)	0.30
Total Trial Pit depth (m)	4.50



Plate 29: TP15 prior to excavation



Plate 30: TP15 after peat removal.

5.4.16TP16

Excavated E-W in an area containing mixed gravel and peat. Loose brownish black peat with gravel inclusions sealed a gravel and sandy subsoil.

Date	April 6, 2021
Time Recorded	11:43
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP16
Trial Pit Length (m)	4.8
Trial Pit Width (m)	1.6
Peat Depth (m)	0.20
Total Trial Pit depth (m)	2.50



Plate 31: TP16 prior to excavation



Plate 32: TP16 after peat removal

5.4.17TP17

Excavated E-W in a grass covered area of bog. Rooty black peat overlay a grey silty clay subsoil.

Date	April 6, 2021
Time Recorded	10:18
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP17
Trial Pit Length (m)	5.0
Trial Pit Width (m)	1.6
Peat Depth (m)	1.4
Total Trial Pit depth (m)	3.1



Plate 33: TP17 prior to excavation



Plate 34: TP17 after peat removal

5.4.18TP18

Excavated N-S along a raised area of peat. The area was in use as an access way to the bog. Black milled peat overlay a grey silty clay subsoil. Water ingress was apparent at 2.7m.

Date	April 6, 2021
Time Recorded	09:58
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP18
Trial Pit Length (m)	5.5
Trial Pit Width (m)	1.6
Peat Depth (m)	1.75
Total Trial Pit depth (m)	3.2



Plate 35: TP18 prior to excavation



Plate 36: TP18 after peat removal

5.4.19TP 19

Excavated E-W in a grass covered area of bog. Black peat overlay a orange grey clay sub soil that turned to gravel as excavation continued.

Date	April 6, 2021
Time Recorded	09:19
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP19
Trial Pit Length (m)	4.5
Trial Pit Width (m)	2.0
Peat Depth (m)	0.30
Total Trial Pit depth (m)	3.0



Plate 37: TP19 prior to excavation



Plate 38: TP19 after peat removal

5.4.20TP20

Excavated in an area of high ground. Gravel visible on surface. Grey brown gravelly peat overlay gravel.

Date	April 6, 2021
Time Recorded	11:16
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP20
Trial Pit Length (m)	5.0
Trial Pit Width (m)	1.6
Peat Depth (m)	0.5
Total Trial Pit depth (m)	2.0



Plate 39: TP20 prior to excavation



Plate 40: TP20 after peat removal

5.4.21TP21

Excavated E-W in a grass covered area of bog. Surrounding area is at a higher level to where the trial pit is located. Black rooty peat measuring 0.30m overlay a dark reddish brown peat. Very unstable throughout with sides collapsing constantly as excavation took place. Excavation ceased at depth of 3.8m and the subsoil was not exposed.

Date	April 7, 2021
Time Recorded	09:43
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP21
Trial Pit Length (m)	5.0
Trial Pit Width (m)	1.6
Peat Depth (m)	3.8
Total Trial Pit depth (m)	3.8



Plate 41: TP21 prior to excavation



Plate 42: TP21 showing peat collapse

5.4.22TP 22

Excavated N-S in an area of recently worked bog. Loose brown peat with a thickness of 0.20m overlay a reddish brown soft peat 4.4m thick. A tree stump was noted at 2.5m deep.

Date	April 9, 2021
Time Recorded	12:17
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP22
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.6
Peat Depth (m)	4.6
Total Trial Pit depth (m)	4.8



Plate 43: TP22 prior to excavation



Plate 44: TP22 after peat excavation

5.4.23TP 23

Excavated N-S in an area of recently worked bog adjacent to a drain. 0.20m of loose blackish brown peat overlay reddish brown more fibrous peat (3.60m in depth).

Date	April 9, 2021
Time Recorded	11:34
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP23
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	3.8
Total Trial Pit depth (m)	4.0



Plate 45: TP23 prior to excavation



Plate 46: TP23 after peat excavation

5.4.24TP24

Excavated N-S in an area of recently worked bog. Area is very soft and wet on the field surface. A shallow depth of loose black milled peat measuring 0.10m overlay a reddish brown peat, 2.40m in thickness. Subsoil not reached in this trial pit.

Date	April 8, 2021
Time Recorded	11:07
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP24
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.3
Total Trial Pit depth (m)	4.3



Plate 47: TP24 prior to excavation



Plate 48: TP24 after excavation

5.4.25TP 25

Excavated N-S in an area of recently worked bog. Loose wet black milled peat with a thickness of 0.10m overlay a reddish brown fibrous peat. Tree roots were noted at 2.8m depth.

Date	April 8, 2021
Time Recorded	09:49
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP25
Trial Pit Length (m)	3.9
Trial Pit Width (m)	1.6
Peat Depth (m)	4.8
Total Trial Pit depth (m)	4.8



Plate 49: TP25 prior to excavation

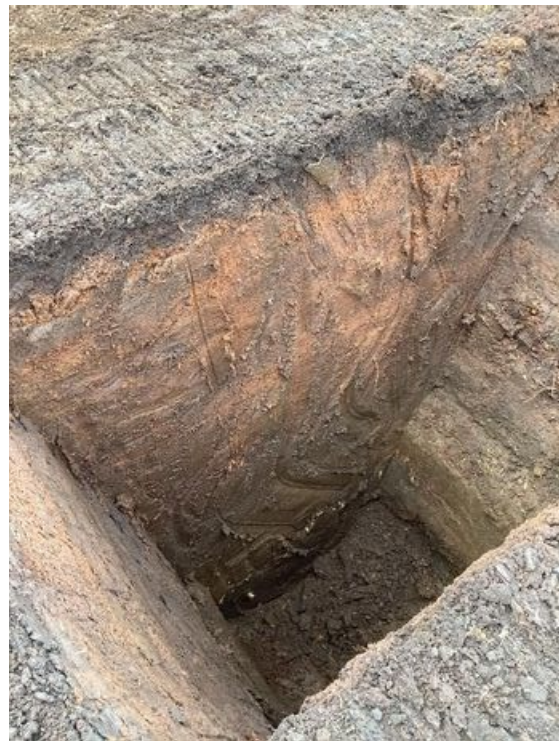


Plate 50: TP25 after excavation

5.4.26TP26

Excavated N-S in an area of recently worked bog. Loose dark brown milled peat at surface measuring 0.20m in thickness overlay a dark reddish brown peat 4.4m in thickness. Roots were noted at 2.6m deep. Tree stump also noted at base.

Subsoil not exposed and excavation ceased at 4.6m depth.

Date	April 8, 2021
Time Recorded	12:23
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP26
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.6
Total Trial Pit depth (m)	4.6



Plate 51: TP26 prior to excavation



Plate 52: TP26 after peat removal

5.4.27TP27

Excavated E-W in a recently worked area of bog. A loose dark brown peat with a thickness of 0.20m overlay a reddish black soft more fibrous peat (3.60m in depth) sealed a grey soft silty clay subsoil.

Date	April 8, 2021
Time Recorded	16:02
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP27
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	3.8
Total Trial Pit depth (m)	4.0



Plate 53: TP27 prior to excavation



Plate 54: TP27 after peat removal

5.4.28TP 28

Excavated N-S in an area of recently worked bog. Brown loose peat at surface with a thickness of 0.20m overlay a reddish brown peat. Notably rooty at 2.20m deep.

Date	April 8, 2021
Time Recorded	15:47
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP28
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.6
Peat Depth (m)	4.2
Total Trial Pit depth (m)	4.4



Plate 55: TP28 prior to excavation



Plate 56: TP28 after peat removal

5.4.29TP30 (not completed)

Excavation stopped because the trial hole is located within private property.

Date	April 9, 2021
Time Recorded	10:21
Recording Archaeologist	Paul Fingleton
Trial Pit Number	TP30
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.6
Peat Depth (m)	0.5
Total Trial Pit depth (m)	0.5



Plate 57: TP30 prior to excavation

6. CONCLUSION

Archaeological monitoring of site investigation Phase 1 works was carried out between 6th and 9th April 2021 by Tobar Archaeological Services. The client intends to develop lands at Lemnaghan Killaghintober Cornafurish And Corrabeg Cappanalsosset Straduff Cooldorragh Rashinagh Derrica More Leabeg Derrynagun Curragalassa Tumbeagh Ballydaly Corbane Cor More and Cor Beg Lisdermot Kilnagoolny Kilnagarnagh Castlearmstrong and Rosfaraghan townlands for a proposed wind farm, although there is no planning application for such a development at this time. The purpose of the site investigations is to determine general ground conditions on the proposed wind farm site. Monitoring of site investigations in the form of geotechnical trial pits was carried out under licence (21E0132) from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH). The excavation of a total of 29 trial pits thusfar was monitored over this period within an area of predominantly cut over bog, some parts of which are colonised with vegetation. Where such vegetation was present it largely took the form of heather and grasses. Natural subsoil and clay/gravel was not exposed within the excavated trial pits due largely to the depths of peat and in some cases collapse.

The stratigraphy noted within the trial pits varied throughout the site but typically consisted of an upper layer of loose, soft rooty peat or milled peat overlying layers of lighter brown fibrous peat with some evidence of roots. The underlying natural subsoil comprised a grey / blue silt or gravelly silt. No archaeological structures were exposed in any of the trial pits. It must be noted, however that the trial pits were small in footprint and were positioned away from archaeological constraints previously identified.

7. BIBLIOGRAPHY

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- Aalen, F.H.A. *et al.*, 1997, *Atlas of the Irish Rural Landscape*. Cork University Press, Cork.
- Department of Arts, Heritage, Gaeltacht and the Islands, 1999, *Framework and Principles for the Protection of the Archaeological Heritage*, 1999.
- Guidelines on the information to be contained in Environmental Impact Statements, EPA 2017.
- 1st Edition 6 inch OS maps
- 2nd Edition OS maps

www.archaeology.ie/historicenvironment



PHASE 1 – PART 2

LEMANAGHAN SI MONITORING REPORT



An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

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Site Owner: Bord na Mona Powergen
Address: EDENDERRY POWER LTD
BALLYKILLEEN, EDENDERRY

Planning Authority: Offaly County Council

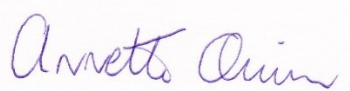
Planning Reg. No.: Pre-planning **Excavation Type:** Monitoring
[as per licence
application]

Contractor/Developer: As Above

Address: As Above

Background to excavation:

Archaeological Monitoring of Geotechnical Site Investigations

Signed: 	Date: April 2022
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Archaeological Monitoring of Site Investigations at Lemanaghan Bog, Co. Offaly

Part 2 – Licensed Archaeological Monitoring - FINAL REPORT

Author:	Annette Quinn, BA, MA, MIAI
Excavation Licence No.	21E0132 X (Annette Quinn)
Planning Ref:	Pre-Planning
Planning Status:	Pre-Planning report

Client: Bord na Mona Powergen Ltd

Date: April 2022

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1. REPORT DETAILS

Excavation report	Part 2 Report
Excavation licence No.	21E0132 X
Licensee:	Annette Quinn
Planning Ref:	Pre-planning
Townland:	Lemanaghan Killaghintober Cornafurrish And Corrabeg Cappanalosset Straduff Cooldorragh Rashinagh Derrica More Leabeg Derrynagun Curraghalassa Tumbeagh Ballydaly Corbane Cor More and Cor Beg Lisdermot Kilnagoolny Kilnagarnagh Castlearmstrong Rosfaraghan
County:	Offaly
ITM Coordinates (Centre point)	ITM 616035 N728186
Planning Status:	Pre-planning report

2. INTRODUCTION

2.1 Scope of Work

Archaeological monitoring of site investigations (Phase 1) at Lemanaghan Bog was undertaken between the 6th and 9th April by Tobar Archaeological Services. The client intends to develop lands at Lemanaghan Killaghintober Cornafurrish And Corrabeg Cappanalosset Straduff Cooldorragh Rashinagh Derrica More Leabeg Derrynagun Curraghalassa Tumbeagh Ballydaly Corbane Cor More and Cor Beg Lisdermot Kilnagoolny Kilnagarnagh Castlearmstrong Rosfaraghan townlands for a proposed wind farm, although there is no planning application for such a development at this time. The purpose of the site investigations is to determine general ground conditions on the proposed wind farm site and to inform peat stability risks. Monitoring of site investigations in the form of geotechnical trial pits was carried out under licence (21E0132) from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH). It must be noted that the sole purpose of this phase of the project was for geotechnical / engineering investigations the results of which were used to assess ground conditions on site. While the trial pits were archaeologically monitored under licence, it was not a full archaeological investigative exercise. An opportunity to assess for the presence or otherwise of potential archaeological features was presented however, albeit limited by the programme timeframe and Health and Safety constraints. As agreed in the archaeological method statement, any potential features would be preserved in-situ. Twenty-nine trial pits were excavated on the site during Phase 1.

2.2 Development Description and Site Location

Lemanaghan Bog is located north east of Ferbane in County Offaly. The site is bounded by the N62 which runs to the west side of the site. The regional road R436 runs through the south of the site and there are many tertiary roads running around the site perimeter. The bog has good access points off both these roads. A rail line runs through the site from the southeast to the northwest. The site has been in production until very recently so very little instances of heavy vegetation are present. It is surrounded by farmland on most sides. No water courses exist on site; however, the River Brosna and the Grand Canal run approximately 2km and 2.25km, respectively, to the south of the site. The main population centres around the site are Ferbane to the west, Ballycumber to the east and Cloghan to the south west. The total area of the site is circa 1,250 hectares.

3. STATUTORY CONTEXT

3.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All proposed works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

Under the Heritage Act (1995) **architectural heritage** is defined to include '*all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents...*'. A heritage building is also defined to include '*any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally*'.

The Planning and Development Act 2000 (as amended), sets out the legal framework for the protection of buildings/structures which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Such protection is afforded through the mechanism of the Record of Protected Structures (RPS). In relation to a protected structure or proposed protected structure, the term 'structure' includes the interior of the structure, the land lying within the curtilage of the structure, any other structures lying within that curtilage and their interior, and all fixtures and features which form part of the interior or exterior of that structure. The protection also extends to any features specified as being in the attendant grounds.

4. ARCHAEOLOGICAL PLANNING REQUIREMENTS

The archaeological monitoring of site investigation trial pits was carried out at the pre-planning stage of a proposed wind farm development and therefore there is currently no associated planning reference.



PHASE 2

LEMANAGHAN SI MONITORING REPORT



An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

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Site Owner: Bord na Mona Powergen
Address: EDENDERRY POWER LTD
BALLYKILLEEN, EDENDERRY

Planning Authority: Offaly County Council

Planning Reg. No.: Pre-planning **Excavation Type:** Monitoring
[as per licence
application]

Contractor/Developer: As Above

Address: As Above

Background to excavation:

Archaeological Monitoring of Geotechnical Site Investigations

Signed: 	Date: 04/04/2022
---	-------------------------

Archaeological Monitoring of Site Investigations at Lemanaghan Bog, Co. Offaly

Part 2 – Licensed Archaeological Monitoring - FINAL REPORT

Author:	Annette Quinn, BA, MA, MIAI
Excavation Licence No.	21E0132ExtX (Annette Quinn)
Planning Ref:	Pre-Planning
Planning Status:	Pre-Planning report

Client: Bord na Mona Powergen Ltd

Date: 12/04/2022

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1. REPORT DETAILS

Excavation report	Part 2 Report
Excavation licence No.	21E0132Ext X
Licensee:	Annette Quinn
Planning Ref:	Pre-planning
Townland:	Lemanaghan Killaghintober Cornafurrish Corrabeg Cappanalosset Straduff Cooldorragh Rashinagh Derrica More Leabeg Derrynagun Curragalassa Tumbeagh Ballydaly Corbane Cor More and Cor Beg Lisdermot Kilnagoolny Kilnagarnagh Castlearmstrong Rosfaraghan
County:	Offaly
ITM Coordinates (Centre point)	ITM 61535232 N727574
Planning Status:	Pre-planning report

2. INTRODUCTION

2.1 Scope of Work

A second phase of archaeological monitoring of site investigations at Lemanaghan Bog was undertaken between the 23rd to the 28th March by Tobar Archaeological Services. It is proposed to further develop lands within the townlands of Lemanaghan, Killaghintober, Cornafurrish, Corrabeg, Cappanalosset, Straduff, Cooldorragh, Rashinagh, Derrica More, Leabeg, Derrynagun, Curragalassa, Tumbeagh, Ballydaly, Corbane, Cor More and Cor Beg, Lisdermot, Kilnagoolny, Kilnagarnagh, Castlearmstrong and Rosfaraghan townlands for a proposed wind farm, although there is no planning application for such a development at this time. The purpose of the site investigations is to determine general ground conditions on the proposed wind farm site and to inform peat stability risks. Monitoring of site investigations in the form of geotechnical trial pits was carried out under licence (21E0132Ext) from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH). It must be noted that the sole purpose of this phase of the project was for geotechnical/ engineering investigations the results of which were used to assess ground conditions on site. While the trial pits were archaeologically monitored under licence, it was not a full archaeological investigative exercise. An opportunity to assess for the presence or otherwise of potential archaeological features was presented however, albeit limited by the programme timeframe and Health and Safety constraints. As agreed in the archaeological method statement, any potential features would be preserved in-situ. Eighteen trial pits were excavated on the site during Phase 2.

2.2 Development Description and Site Location

Lemanaghan Bog is located north east of Ferbane in County Offaly. The site is bounded by the N62 which runs to the west side of the site. The regional road R436 runs through the south of the site and there are many tertiary roads running around the site perimeter. The bog has good access points off both these roads. A rail line runs through the site from the southeast to the northwest. The site has been in production until very recently so very little instances of heavy vegetation are present. It is surrounded by farmland on most sides. No water courses exist on site; however, the River Brosna and the Grand Canal run approximately 2km and 2.25km, respectively, to the south of the site. The main population centres around the site are Ferbane to the west, Ballycumber to the east and Cloghan to the south west. The total area of the site is circa 1,250 hectares.

3. STATUTORY CONTEXT

3.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All proposed works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

Under the Heritage Act (1995) **architectural heritage** is defined to include '*all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents...*'. A heritage building is also defined to include '*any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally*'.

The Planning and Development Act 2000 (as amended), sets out the legal framework for the protection of buildings/structures which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Such protection is afforded through the mechanism of the Record of Protected Structures (RPS). In relation to a protected structure or proposed protected structure, the term 'structure' includes the interior of the structure, the land lying within the curtilage of the structure, any other structures lying within that curtilage and their interior, and all fixtures and features which form part of the interior or exterior of that structure. The protection also extends to any features specified as being in the attendant grounds.

4. ARCHAEOLOGICAL PLANNING REQUIREMENTS

The archaeological monitoring of site investigation trial pits was carried out at the pre-planning stage of a proposed wind farm development and therefore there is currently no associated planning reference.

Archaeological Monitoring of Site Investigations at Lemanaghan Bog, Co. Offaly

Part 1 – Licensed Archaeological Monitoring - FINAL REPORT

Excavation Licence No. 21E0132Ext (Annette Quinn)

Date: 12/04/2022

5. ARCHAEOLOGICAL MONITORING RESULTS

5.1 Archaeological background

669 SMR sites are located within the EIAR site boundary 497 of which are redundant records. From the outset, buffer zones were formulated around all non-redundant records within the site boundary. These were formulated based on both the descriptions of the monuments and the zones of notifications / ZAPs. These buffer zones were provided to Bord na Mona from the outset to assist with design and the early avoidance of archaeological constraints. The site investigations were generally situated in areas where no monuments were located.

5.2 Notable Finds – Topographical Files of the National Museum of Ireland

A search of the topographical files of the National Museum of Ireland for the townlands within the proposed development site yielded several results which are provided below.

There are 4 stray finds listed in the NMI topographical file database for the townland of LEMANAGHAN:

- 1977:2338 Copper Alloy Crozier
- 1992:6 Wood Crozier
- 1992E148:99 Stone Whetstone
- 2012:262 Felt Hat

There is 1 stray find listed in the NMI topographical file database for the townland of KILLAGHINTOBER:

- 1992E148:70 Stone hammerstone

There are no stray finds listed in the NMI topographical file database for the townlands of CORNAFURRISH and CORRABEG

There are no stray finds listed in the NMI topographical file database for the townland of CAPPANALOSSET

There are no stray finds listed in the NMI topographical file database for the townland of STRADUFF

There are 10 stray finds listed in the NMI topographical file database for the townland of COOLDORRAGH:

- 1933:591 Bronze Dagger
- 1933:592 Bronze Axehead
- 1933:593 Bronze Axehead
- 1933:594 Bronze Spearhead
- 1933:595 Bronze Spearhead
- 1933:596 Bronze Spearhead
- 1933:760 Bronze Sword
- 1933:761 Bronze Sword
- 1933:762 Leather Shoe
- 1933:763 Wooden Bowl

There are no stray finds listed in the NMI topographical file database for the townland of RASHINAGH

There is 1 stray find listed in the NMI topographical file database for the townland of DERRICA MORE:

- 1997:45 Stone Axehead

There are 4 stray finds listed in the NMI topographical file database for the townland of LEABEG:

- 1991:3 Stone tool
- 2004:107 Leather shoe
- 2012:263 Wooden tool
- R1690 Wooden blade

There are no stray finds listed in the NMI topographical file database for the townland of DERRYNAGUN

There is 1 stray find listed in the NMI topographical file database for the townland of CURRAGHALASSA:

- 2019:103 Leather Shoe

There are 2 stray finds listed in the NMI topographical file database for the townland of TUMBEGH:

- 1992E148:51 wool textile
- 1992E148:70 Stone hammerstone

There is 1 stray find listed in the NMI topographical file database for the townland of BALLYDALY:

- 1992E148:5 Leather shoe

There are no stray finds listed in the NMI topographical file database for the townland of CORBANE

There are no stray finds listed in the NMI topographical file database for the townland of COR MORE and COR BEG

There are 23 stray finds listed in the NMI topographical file database for the townland of LISDERMOT:

- 1992E148:14 Silver coin
- 1992E148:15 Silver coin
- 1992E148:16 Silver coin
- 1992E148:17 Silver coin
- 1992E148:18 Silver coin
- 1992E148:19 Silver coin
- 1992E148:20 Silver coin
- 1992E148:21 Silver coin
- 1992E148:22 Silver coin
- 1992E148:23 Silver coin
- 1992E148:24 Silver coin
- 1992E148:25 Silver coin
- 1992E148:26 Silver coin
- 1992E148:27 Silver coin
- 1992E148:28 Flint Scraper
- 1992E148:33 Silver coin
- 1992E148:34 Silver coin
- 1992E148:35 Silver coin
- 1992E148:36 Silver coin
- 1992E148:37 Silver coin
- 1992E148:38 Leather shoe
- 1992E148:6 Leather shoe

There are 2 stray finds listed in the NMI topographical file database for the townland of KILNAGOOLNY:

- 1997:46 stone ball
- 2008:12 Leather shoe

There are 3 stray finds listed in the NMI topographical file database for the townland of KILNAGARNAGH:

- 1931:312 Copper Dagger
- 2004:153 Leather Shoe
- 4432:W225 Bronze Dagger

There are no stray finds listed in the NMI topographical file database for the townland of CASTLEARMSTRONG

There are no stray finds listed in the NMI topographical file database for the townland of ROSFARAGHAN

5.3 Previous Archaeological Work Carried out on the Site

5.3.1 Cultural Heritage Assessment of the Boora Group of Bogs (2018)

A cultural heritage assessment was undertaken in 2018 as part of a rEiAR for the Boora group of bogs (Whitaker 2018) on behalf of Bord na Mona. This provided a summary of findings to date for various bogs within the Boora Group, Lemanaghan of which forms one such bog. A summary extract is provided below:

'The bog is located at the north-eastern extent of the Boora Group of Bord na Móna bogs, the bogs of Lemanaghan, Derrynagun, Castletown, Killaghintoher, Kilnagarnagh, Tumbeagh, Corhill and Ballydaly are collectively known as Lemanaghan Bog. They measure a total of 1,295ha in size, c. 600ha of which is in production. These bogs are located between the villages of Ballycumber to the east and Ferbane to the west. The southern extent of the bogs is defined by the River Brosna and the Grand Canal, with the hills of Bellair, Cooldoragh and Corhill to the north and northwest. There are two dryland islands within the bog complex Broder's island and Lemanaghan Island. The dryland surrounding the bogs is mainly pasture. There is a total of 725 sites in the Sites and Monuments Record in Lemanaghan Bog all of which were recorded during the IAWU surveys of the bog between 1993 and 1997. A significant number of these sites are now considered to be 'redundant' records owing to their fragmentary nature at the time of recording. The sites are summarised below by area.

Ballydaly/Curraghlassa Bog has 135 records (OF015-131 to OF015-265) consisting of a Road-Class 2 Togher, 38 Road-Class 3 Toghers and 96 now 'redundant' records.

Castletown Bog has 82 records (OF007-197 to OF007-278) consisting of a Road-Class 1 Togher, three Road-Class 2 Toghers, 14 Road-Class 3 Toghers and 64 now 'redundant' records.

Corhill Bog has 214 records (OF015-275 to OF015-488) consisting of a Road-Class 1 Togher, a Road-Gravel/Stone trackway, 13 Road-Class 2 Toghers, 14 Road-Class 3 Toghers, a post row and 184 now 'redundant' records.

Derrynagun Bog has 107 records (OF015-024 to OF015-130) consisting of two Road-Class 1 Toghers, two Road-Class 2 Toghers, 29 Road-Class 3 Toghers, a Road-trackway, two post rows and 71 now 'redundant' records.

Killaghintoher Bog has 47 records (OF007-279 to OF007-325) consisting of three Road-Class 1 Toghers, four Road-Class 2 Toghers, 13 Road-Class 3 Toghers and 27 now 'redundant records'.

Kilnagarnagh Bog has 19 records (OF007-066 to OF007-087 and OF007-343) consisting of a Road-Class 1 Togher, three Road-Class 3 Toghers and 15 now 'redundant' records.

Lemanaghan Bog has 25 records (OF007-326 to OF007-342 and OF015-266 to OF015-274) consisting of two Road-Class 1 Toghers, a Road-Gravel/Stone trackway, three Road-Class 2 Toghers, four Road-Class 3 Toghers and 15 now 'redundant' records.

Tumbeagh Bog has 96 records (OF007-084 to OF007-179) consisting of 13 Road-Class 2 Toghers, 17 Road-Class 3 Toghers and 62 now 'redundant' records.

There are a total of 27 dryland archaeological sites in the wider Lemanaghan area listed in the Sites and Monuments Records. In Ballylin townland to the southwest there are a ringfort (OF014-011), a burial ground (OF014-009) and two enclosures (OF014-012 and OF014-010). To the west in Tumbleagh is a ringfort (OF007-043) and a ruined late 17th century house (OF007-065) and in Straduff is an enclosure (OF007-045), cashel (OF007-046) and a possible earthwork (OF007-047). Glebe townland to the northwest has a cashel (OF007-044), enclosure (OF006-052) and a graveyard (OF006-062). There are two enclosures in (OF007-023 and OF007-025) in Castlereagh townland to the north, while in Rashinagh there is an enclosure (OF007-027), a graveyard (OF007-041) and the site of a former castle (OF007-061). To the northeast in Parkaree or Boherfadda is a holy well (OF007-035) and in Killaghintober there is a possible cashel (OF007-032) and ringfort (OF007-034). Castlearmstrong, to the east, has a fortified house and bawn (OF007-037) and a holy well (OF007-038). The Lemanaghan ecclesiastical complex (OF015-004001 to 004032) is located on the dryland island to the south. The complex consists of an early medieval ecclesiastical enclosure (OF015-004008), tower house (OF015-004001), a multi period church (OF015-004003) dating from the Romanesque to late medieval period with several early medieval cross slabs and architectural fragments in the interior of the church. To the northwest of the church is a possibly late medieval rectangular building (OF015-004009), while to the southeast is a holy well (OF015-004007), an oratory or hermitage (OF015-004006) and a togher (OF015-004011).

Previous Surveys

Archaeological survey of the eight Lemanaghan Bogs commenced in the early 1990s and was completed by 1997. A total of 753 sites were identified by the IAWU during this time. Ballydaly Bog (135), Castletown (94), Corhill (214), Derrynagun (113), Killaghintober (56), Kilnagarnagh (19), Lemanaghan (26) and Tumbleagh (96). Ballydaly Bog had been prepared for production at the time of the survey but no milling had taken place. This bog was subsequently set aside from production. Five of the nine bogs were re-assessed in 1998 by the IAWU on behalf of BnM prior to the commencement of the BnM Excavation Mitigation Project in 1999. This survey identified 160 wetland sites in 10 distinct archaeological zones (McDermott et al 1999). While the quantities of sites had significantly reduced in most areas, with the exception of Lemanaghan itself which increased to 29, the archaeological zones remained the same; Castletown (34), Derrynagun (64), Killaghintober (19) and Tumbleagh (18). A rescue excavation was carried out in Tumbleagh Bog by the IAWU after partial human remains were recovered during the 1998 survey (Bermingham 2001). These remains have been dated to between the 14th and 16th centuries. Nine cuttings were also excavated on a Road-Class 1 Togher (98LMN002) in the central part of Lemanaghan Bog to facilitate the 1999 BnM production season. A total of 40 sites were excavated by ADS Ltd in 1999 and 2000 as part of the BnM Excavation Mitigation Project (O Carroll 2001, Whitaker & O Carroll 2009) in Castletown, Corhill, Derrynagun, Killaghintober and Tumbleagh Bogs. The sites ranged in date from the early Bronze Age to the late medieval periods.

A re-assessment survey of Castletown was carried out by ADS Ltd on behalf of BnM in 2013 (Whitaker 2014). Three sites were identified during this survey, one of which was the previously identified and excavated early medieval Road-Class 1 Togher (OF007-215 / OF-CTN001), (McDermott et al 1999), (Whitaker & O'Carroll 2009). The other two sites were Road-Class 3 Toghers (OF-CTN002 and OF-CTN003). The two Road-Class 3 Toghers (OF-CTN002 and OF-CTN003) identified in the 2013 reassessment survey were excavated by the author for IAC Ltd on behalf of BnM in 2016 as part of the BnM Excavation Mitigation Project (Whitaker 2016 & 2017). These brushwood sites were both dated to the late Bronze Age period.

The numerous archaeological sites and stray finds from the Lemanaghan Bogs, which date from the Neolithic to the late medieval period, show continuous archaeological activity in the area. Wetlands and Peatlands are considered as Areas of Archaeological Potential for their potential to contain archaeological organic preserved remains. Wetlands also provide a significant resource for environmental analysis. It must be considered therefore that there remains a moderate to high potential for additional buried features to be uncovered during the course of any future development works in the Lemanaghan Bogs, particularly but not exclusively, within the previously identified archaeological zones'.

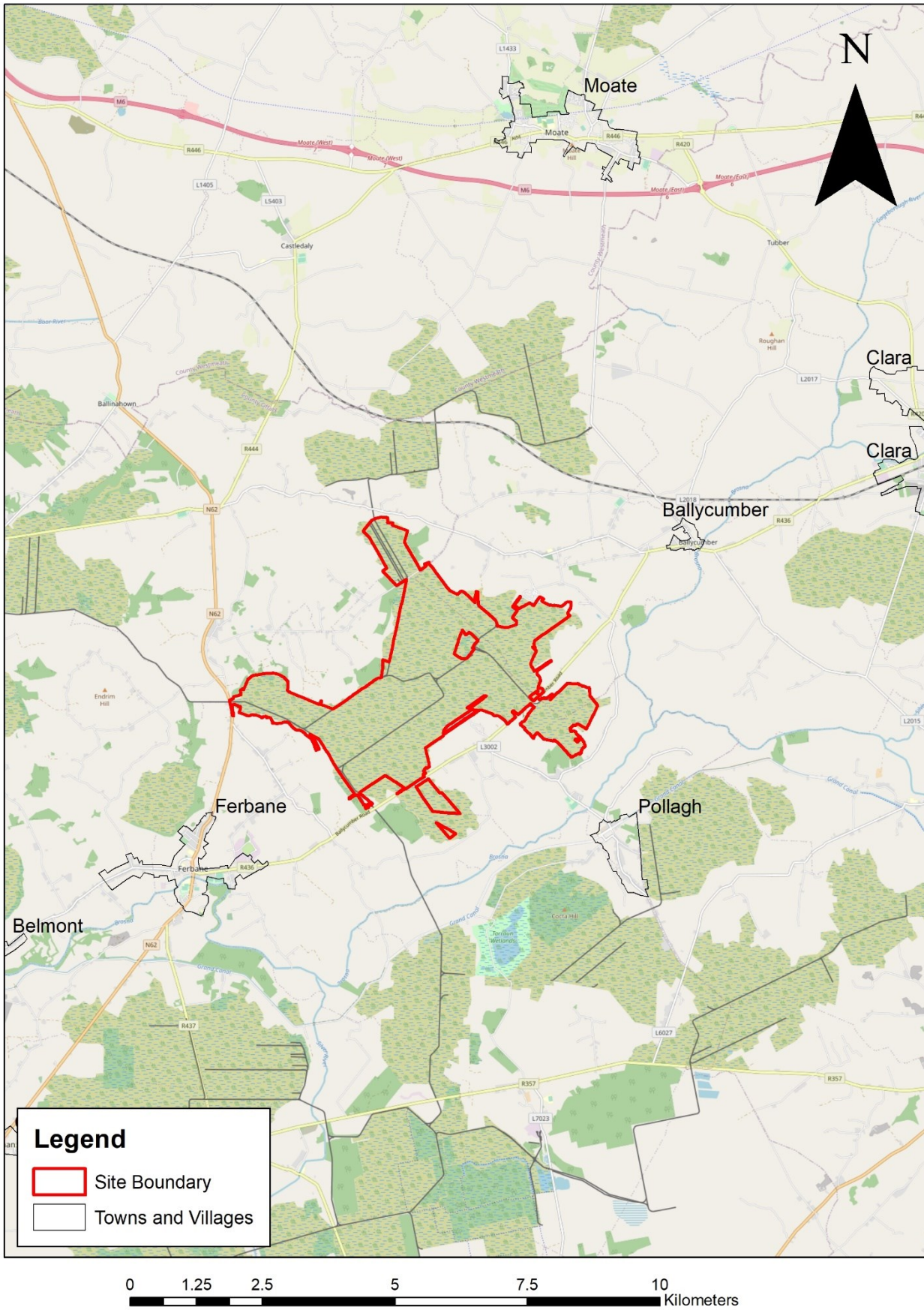


Figure 5-1: Site location map.

AWAITING LORRAINES FINAL AS DUG COORDINATES

Figure 5.2: Site Investigation trial pits in relation to recorded monuments within the site boundary.

5.4 Results of Archaeological Monitoring Phase 2

Archaeological monitoring of site investigation works was carried out over a period of three days in March 2022. The excavation of 18 trial pits was archaeologically supervised within an area of predominantly previously worked bog. While the stratigraphy noted within the trial pits varied across the investigated area, it typically consisted of an upper layer of loose, soft rooty milled peat overlying layers of fibrous peat. The underlying natural subsoil varied from a creamy white calcareous silty clay to a stone-free blue/grey clay to stony wet clay. The trial pits were positioned away from archaeological constraint zones and no features of archaeological significance were uncovered in any of the 18 excavated trial pits. Details of the individual trial pits are provided below.



Figure 5-2: SI Trial pit locations.

5.4.1 TP 1

Excavated E-W in an area of recently worked bog. Loose brown peat measuring 0.2m in thickness overlay a reddish brown soft peat that was 4m in depth. Blue/grey clay was exposed at a depth of 4.2m and excavation ceased at this level.

Date	23 March 2022
Time Recorded	12.30
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP1
Trial Pit Length (m)	4
Trial Pit Width (m)	1.5
Peat Depth (m)	4.2
Total Trial Pit depth (m)	4.3



Plate 1: TP1 prior to excavation



Plate 2: TP 1 after excavation

5.4.2 TP2

Excavated E-W in an area of recently worked bog. 0.2m brown milled peat overlay a reddish brown softer peat, 1.4m in depth. The upper peat layer sealed a blue/grey clay excavated to a maximum depth of 0.6m where excavation ceased due to presence of rock and water.

Date	23 March 2022
Time Recorded	11.45
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP2
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.5
Peat Depth (m)	1.6
Total Trial Pit depth (m)	2.2 – 3



Plate 3: TP 2 prior to excavation



Plate 4: TP2 after excavation

5.4.3 TP 3

Excavated E-W in an area of recently worked bog. Loose milled brown peat, 0.20m thick overlay a reddish brown fibrous peat, 3.1m in depth. The peat deposit overlay blue/grey clay which was excavated to a depth of 0.7m.

Date	23 March 2022
Time Recorded	11.05
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP3
Trial Pit Length (m)	4.0
Trial Pit Width (m)	1.5
Peat Depth (m)	3.3
Total Trial Pit depth (m)	4



Plate 5: TP3 prior to excavation



Plate 6: TP3 after excavation

5.4.4 TP4

Excavated N-S in a wooded area within the bog. A loose fibrous topsoil measuring 0.25m in depth overlay a thin cover of fibrous peat which varied in depth from 0.28m to 0.35m. The peat overlay loosely compacted grey stony clay which was excavated to a depth of 1.25m.

Date	28 March 2022
Time Recorded	13:00
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP4
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.5
Peat Depth (m)	0.28-0.35
Total Trial Pit depth (m)	1.8



Plate 7: TP4 prior to excavation



Plate 8: TP4 after excavation

5.4.5 TP5

Excavated E-W in an area of recently worked bog. Dark brown peat reached a maximum depth of 1.1m and it overlay blue/grey clay with large stones at the base. The clay was excavated to a maximum depth of 1.9m.

Date	28 March 2022
Time Recorded	12.34
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP5
Trial Pit Length (m)	4
Trial Pit Width (m)	1.1
Peat Depth (m)	1.3
Total Trial Pit depth (m)	3



Plate 9: TP5 prior to excavation

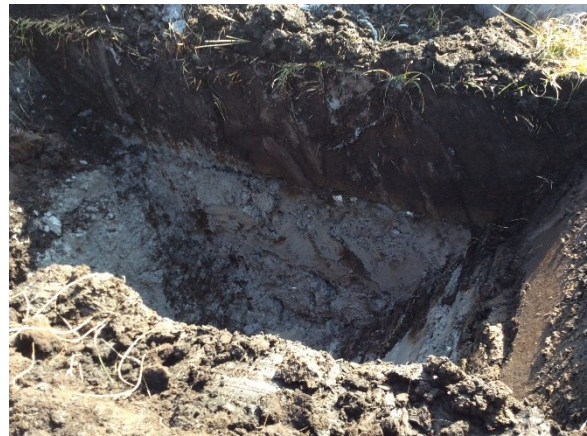


Plate 10: TP5 after excavation

5.4.6 TP6

Excavated NE-SW in an overgrown ridge of higher ground between linear areas of worked bog. Fibrous topsoil measuring 0.25m in depth overlay blackish brown loose peat which reached a maximum depth of 3.15m. This overlay a thin layer of creamy white calcareous silt which in turn overlay blue/grey clay.

Date	23 March 2022
Time Recorded	14:15
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP6
Trial Pit Length (m)	3.9
Trial Pit Width (m)	1.7
Peat Depth (m)	3.15
Total Trial Pit depth (m)	4



Plate 11: TP6 prior to excavation



Plate 12: TP6 after excavation

5.4.7 TP7

Excavated E-W in an area of recently worked bog. The upper peat layer measured 3m depth and it overlay blue/grey clay which was excavated to a maximum depth of 1m. Excavation ceased at this level as large boulders were encountered at the base.

Date	24 March 2022
Time Recorded	9.00
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP7
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.5
Peat Depth (m)	3
Total Trial Pit depth (m)	4



Plate 13: TP7 prior to excavation



Plate 14: TP7 after excavation

5.4.8 TP7A

Excavated N-S in a recently worked area of the bog. The upper peat layer reached a maximum depth of 1.9m and it overlay stony light grey clay excavated to a depth of 0.7m. Naturally felled tree branches were noted at the N side of the trench.

Date	24 March 2022
Time Recorded	9.30
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP7a
Trial Pit Length (m)	4
Trial Pit Width (m)	2.9
Peat Depth (m)	1.9
Total Trial Pit depth (m)	2.6



Plate 15: TP7a prior to excavation



Plate 16: TP7a after excavation

5.4.9 TP 8

Excavated E-W in an area of recently worked peat bog. A surface deposit of loose black peat (0.2m deep) overlay a dark reddish brown peat that was at least 1.7m in depth. This overlay wet grey gravelly clay excavated to a depth of 1.3m.

Date	24 March 2022
Time Recorded	10.25
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP8
Trial Pit Length (m)	4
Trial Pit Width (m)	1.5
Peat Depth (m)	1.7
Total Trial Pit depth (m)	3



Plate 17: TP8 prior to excavation



Plate 18: TP8 after excavation

5.4.10 TP9

Excavated E-W in an area of grass-covered previously worked bog. A thin cover of peat (0.5m deep) sealed a blue grey stony clay excavated to a depth of 1.2m.

Date	24 March 2022
Time Recorded	11.30
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP9
Trial Pit Length (m)	4
Trial Pit Width (m)	1.5
Peat Depth (m)	0.5
Total Trial Pit depth (m)	1.7



Plate 19: TP9 prior to excavation



Plate 20: TP9 after excavation

5.4.11 TP10

Excavated E-W in an area of worked bog. The peat layer measured 2.3m in depth and it overlay grey clay which was very wet at the base due to the existence of a natural spring. The clay was excavated to a maximum depth of 1.4m.

Date	24 March 2022
Time Recorded	12.00
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP10
Trial Pit Length (m)	3.9
Trial Pit Width (m)	1.6
Peat Depth (m)	2.3
Total Trial Pit depth (m)	3.7



Plate 21: TP10 prior to excavation



Plate 22: TP10 after excavation

5.4.12 TP 11

Excavated E-W in an area of worked bog. Peat reached a maximum depth of 1.5m and some tree trunks were exposed at the W side of the trench. The peat overlay wet stony grey clay excavated to a maximum depth of 1.5m. Natural spring at the base of the trench led to water ingress and excavation ceased at this level.

Date	24 March 2022
Time Recorded	2.45
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP11
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.6
Peat Depth (m)	1.5
Total Trial Pit depth (m)	3



Plate 23: TP11 prior to excavation



Plate 24: TP11 after excavation

5.4.13 TP12

Excavated E-W in an area of previously worked bog. A thin cover of reddish brown peat (0.6m deep) overlay creamy white calcareous clay which reached a maximum depth of 0.6m. The marl overlay soft blue/grey clay excavated to a maximum depth of 2.5m. Solid ground was not reached as the sides of the pit were prone to collapse and excavation ceased at a depth of 3.7m.

Date	28 March 2022
Time Recorded	11.23
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP12
Trial Pit Length (m)	3.9
Trial Pit Width (m)	1.5
Peat Depth (m)	0.6
Total Trial Pit depth (m)	3.7



Plate 25: TP12 prior to excavation



Plate 26: TP12 after excavation

5.4.14 TP12A

Excavated E-W in a partially grass-covered area of previously worked bog. Dark brown fibrous peat measured 1m in depth and it overlay a creamy white calcareous marl measuring 0.7m in depth. Beneath this was blue/grey clay which was excavated to a maximum depth of 1.8m.

Date	28 March 2022
Time Recorded	11.37
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP12a
Trial Pit Length (m)	4
Trial Pit Width (m)	1.6
Peat Depth (m)	1
Total Trial Pit depth (m)	3.5



Plate 27: TP12a prior to excavation



Plate 28: TP12a Post excavation

5.4.15 TP12B

Excavated NE-SW in an area of worked bog. The peat reached a maximum depth of 1.8m and it overlay grey clay with sheets of fractured rock. Excavation ceased at this level.

Date	28 March 2022
Time Recorded	9.15
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP 12B
Trial Pit Length (m)	4.1
Trial Pit Width (m)	3
Peat Depth (m)	1.8
Total Trial Pit depth (m)	2



Plate 29: TP12B prior to excavation



Plate 30: TP12B after excavation

5.4.16 TP13

Excavated E-W in an area of previously worked bog. Dark brown milled peat reached a maximum depth of 1.3m and it overlay grey clay containing large stones and boulders. Excavation ceased at a depth of 2m due to presence of boulders.

Date	28 March 2022
Time Recorded	9.53
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP13
Trial Pit Length (m)	4
Trial Pit Width (m)	1.5
Peat Depth (m)	1.3
Total Trial Pit depth (m)	2m



Plate 31: TP13 prior to excavation



Plate 32: TP13 after excavation

5.4.17 TP14

Oriented NE-SW in a raised grass-covered ridge of bog. A black fibrous peat reached a maximum depth of 1.3m and it overlay wet grey silty clay, excavated to a maximum depth of 1.4m.

Date	28 March 2022
Time Recorded	9.45
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP14
Trial Pit Length (m)	4.1
Trial Pit Width (m)	1.6
Peat Depth (m)	1.3
Total Trial Pit depth (m)	2.7



Plate 33: TP14 prior to excavation



Plate 34: TP14 after excavation

5.4.18 TP14A

Oriented E-W in an area of grass-covered previously worked bog. A thin cover of black milled peat (0.8m deep) overlay grey clay with large boulders at the base, at which level excavation ceased.

Date	28 March 2022
Time Recorded	9.39
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP14A
Trial Pit Length (m)	3.8
Trial Pit Width (m)	1.5
Peat Depth (m)	0.8
Total Trial Pit depth (m)	1.9



Plate 35: TP14A prior to excavation



Plate 36: TP14A after peat removal

5.4.19TP 15

Excavated E-W in an area of previously worked bog. Loose light brown peat collapsed into the trench almost from the beginning and excavation was abandoned after a short while. Peat was estimated to be 4.4m in depth.

Date	24 March 2022
Time Recorded	3.30
Recording Archaeologist	Margaret McCarthy
Trial Pit Number	TP15
Trial Pit Length (m)	4.2
Trial Pit Width (m)	1.5
Peat Depth (m)	Estimated 4.4
Total Trial Pit depth (m)	4.4



Plate 37: TP15 prior to excavation



Plate 38: TP15 after excavation

6. CONCLUSION

Archaeological monitoring during a second phase of site investigation works in Lemanaghan Bog was carried out between 23rd to the 28th March 2022 by Tobar Archaeological Services. It is proposed to develop lands at Lemanaghan, Killaghintober Cornafurrish, Corrabeg, Cappanalsosset, Straduff, Cooldorragh, Rashinagh, Derrica More, Leabeg, Derrynagun, Curraghalassa, Tumbleagh, Ballydaly, Corbane, Cor More, Cor Beg, Lisdermot, Kilnagoolny, Kilnagarnagh, Castlearmstrong and Rosfaraghan townlands for a wind farm, although there is no planning application for such a development at this time. The purpose of the site investigations is to determine general ground conditions on the proposed wind farm site. Monitoring of site investigations in the form of geotechnical trial pits was carried out under licence (21E0132Ext) from the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH). The excavation of 18 trial pits was archaeologically supervised over this period within an area of predominantly previously worked bog. One of the trial holes was located within an area of woodland on the southern flanks of the bog. The stratigraphy noted within the trial pits varied across the investigated area but typically consisted of an upper layer of soft fibrous peat overlying stone-free blue/grey clay, creamy white calcareous silty clay and uncompacted stony grey clay. No archaeological features or finds were uncovered in any of the excavated trial pits.

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- Guidelines on the information to be contained in Environmental Impact Statements, EPA 2017.
- 1st Edition 6 inch OS maps
- 2nd Edition OS maps



PHASE 3

LEMANAGHAN SI MONITORING REPORT

**ARCHAEOLOGICAL MONITORING AT
LEMANAGH BOG
CO. OFFALY**

LICENCE NO.: 23E0885

ON BEHALF OF: BORD NA MONA

PLANNING REG.: PL2/16/341

ITM: 616228, 727980

**LICENCEE: JANE WHITAKER
AUTHORS: JANE WHITAKER & ENDA LYDON**

**REPORT STATUS: FINAL
DECEMBER 2023**

IAC PROJECT REF.: J4226

DOCUMENT CONTROL SHEET

DATE	DOCUMENT TITLE	REV.	PREPARED BY	REVIEWED BY	APPROVED BY
12.12.23	Archaeological Monitoring at Lemanagh Bog, Co. Offaly	0	J. Whitaker, S. Marandola, J. Fowler	J. Whitaker	J. Whitaker

ABSTRACT

IAC Archaeology has prepared this report on behalf of Bord na Móna, to present the results of archaeological monitoring of groundworks associated with the permitted solar farm development at Lemanagh Bog, Co. Offaly (ITM 616228, 727980). The report was undertaken by Jane Whitaker and Enda Lydon under Licence No. 23E0885 and in response to a planning condition (PL2/16/341) attached to the development by Offaly County Council. The proposed works follow on from Phase 1 and Phase 2 of pre-planning Site Investigation works, carried out in 2022 by Tobar Archaeological Services, during which archaeological monitoring of trial pits failed to identify any features of archaeological significance; however, because the pits were small in footprint and were positioned at a significant distance away from each other further monitoring was suggested. A previous programme of unlicensed archaeological monitoring was carried out in 2019 by Dermot Neil Archaeology, during groundworks for the construction of a meteorological mast. Also in this case, works failed to reveal any feature of archaeological significance.

Site Investigations works followed on from a cultural heritage assessment carried out by IAC Archaeology in 2018. This revealed that the site contains 725 sites listed in the Sites and Monuments Record, along with a number of stray finds, which demonstrates continuous archaeological activity in the area.

Archaeological monitoring of site investigations works were carried out between the 24th and 26th of October 2023. The programme of monitoring aimed to establish whether archaeological features and/or deposits exist within the site investigation pits. A total of 16 trial pits were excavated; nothing of archaeological potential was identified during this phase of works. In compliance with the aforementioned condition, additional monitoring will be carried out during any further ground disturbance works associated with the development.

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1 INTRODUCTION

1.1 GENERAL

The following report details the results of a programme of archaeological monitoring undertaken at Lemanagh Bog, Co. Offaly, prior to a permitted development (Figure 1; ITM 616228, 727980). The monitoring of groundworks was undertaken by Jane Whitaker and Enda Lydon of IAC Archaeology (IAC), on behalf of Bord na Móna and under Licence No. 23E0885, as issued by the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DoHLGH). Monitoring was carried out in response to a planning condition (PL2/16/341) attached to the development by Offaly County Council. The proposed works follow on from Phase 1 and Phase 2 of pre-planning Site Investigation works, carried out in 2022 by Tobar Archaeological Services (Quinn 2022, Licence No. 21E0132 and Licence No. 21E0132ext.), a previous programme of unlicensed archaeological monitoring was carried out in 2019 by Dermot Neil Archaeology (Flynn 2019) and a cultural heritage assessment carried out by IAC Archaeology in 2018 (Whitaker 2018).

Archaeological monitoring ‘involves an archaeologist being present in the course of the carrying out of developments’ and has been defined as being carried out ‘so as to identify and protect archaeological deposits, features or objects which may be uncovered or otherwise affected by the works’ (Department of Arts, Heritage, the Gaeltacht and Islands, 1999b).

1.2 THE DEVELOPMENT

The permitted development will comprise a wind farm within an 80ha site. The construction methodology requires excavation site investigation pits. The purpose of the site investigations is to determine general ground conditions on the wind farm site and to inform peat stability risks. Phase 1 and Phase 2 of Site Investigation pits have already been completed. The current phase 3 of works includes the excavation of 16 trial pits, as per Figure 2.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 SUMMARY OF DESKTOP ASSESSMENT

A cultural heritage assessment was undertaken for the site in 2018 (Whitaker 2018), below is a summary of its findings.

Lemanaghan Bog is located north east of Ferbane in County Offaly. The site is bounded by the N62 which runs to the west side of the site. The regional road R436 runs through the south of the site and there are many tertiary roads running around the site perimeter. A rail line runs through the site from the southeast to the northwest. The site has been under commercial production until very recently so very little instances of heavy vegetation are present. It is surrounded by farmland on most sides. No water courses exist on site; however, the River Brosna and the Grand Canal run approximately 2km and 2.25km south, respectively. The main population centres around the site are Ferbane to the west, Ballycumber to the east and Cloghan to the south west.

Lemanaghan Bog is situated at the north-eastern extent of the Boora Group of Bord na Móna bogs. The bogs Lemanaghan, Derrynagun, Castletown, Killaghintober, Kilnagarnagh, Tumbleagh, Corhill and Ballydaly are collectively known as Lemanaghan Bog. They measure a total of 1,295ha in size.

There is a total of 725 sites in the Sites and Monuments Record in Lemanaghan Bog, all of which were recorded during the IAWU surveys of the bog between 1993 and 1997. A significant number of these sites are now considered to be 'redundant' records owing to their fragmentary nature at the time of recording. The sites are summarised below by area (Figure 2).

Ballydaly/Curraghlassa Bog has 135 records (OF015-131 to OF015-265) consisting of a Road-Class 2 Togher, 38 Road-Class 3 Toghers and 96 now 'redundant' records.

Castletown Bog has 82 records (OF007-197 to OF007-278) consisting of a Road-Class 1 Togher, three Road-Class 2 Toghers, 14 Road-Class 3 Toghers and 64 now 'redundant' records.

Corhill Bog has 214 records (OF015-275 to OF015-488) consisting of a Road-Class 1 Togher, a Road-Gravel/Stone trackway, 13 Road-Class 2 Toghers, 14 Road-Class 3 Toghers, a post row and 184 now 'redundant' records.

Derrynagun Bog has 107 records (OF015-024 to OF015-130) consisting of two Road-Class 1 Toghers, two Road-Class 2 Toghers, 29 Road-Class 3 Toghers, a Road-trackway, two post rows and 71 now 'redundant' records.

Killaghintober Bog has 47 records (OF007-279 to OF007-325) consisting of three Road-Class 1 Toghers, four Road-Class 2 Toghers, 13 Road-Class 3 Toghers and 27 now 'redundant records'.

Kilnagarnagh Bog has 19 records (OF007-066 to OF007-087 and OF007-343) consisting of a Road-Class 1 Togher, three Road-Class 3 Toghers and 15 now 'redundant' records.

Lemanaghan Bog has 25 records (OF007-326 to OF007-342 and OF015-266 to OF015-274) consisting of two Road-Class 1 Toghers, a Road-Gravel/Stone trackway, three Road-Class 2 Toghers, four Road-Class 3 Toghers and 15 now 'redundant' records.

This group includes the enclosure OF007-048, Not visible at ground level. Marked on all editions of the Ordnance Survey maps as a sub-circular enclosure. Test Pit TPB008 was excavated in close proximity to this site, but it possesses no upstanding remains and has been subject to a large degree of disturbance due to quarrying.

Tumbeagh Bog has 96 records (OF007-084 to OF007-179) consisting of 13 Road-Class 2 Toghers, 17 Road-Class 3 Toghers and 62 now 'redundant' records.

There are a total of 27 dryland archaeological sites in the wider Lemanaghan area listed in the Sites and Monuments Record. In Ballylin townland to the southwest there is a ringfort (OF014-011), a burial ground (OF014-009) and two enclosures (OF014-012 and OF014-010). To the west in Tumbeagh is a ringfort (OF007-043) and a ruined late 17th century house (OF007-065) and in Straduff is an enclosure (OF007-045), cashel (OF007-046) and a possible earthwork (OF007-047).

Glebe townland to the northwest has a cashel (OF007-044), enclosure (OF006-052) and a graveyard (OF006-062). There are two enclosures in (OF007-023 and OF007-025) in Castlereagh townland to the north, while in Rashinagh there is an enclosure (OF007-027), a graveyard (OF007-041) and the site of a former castle (OF007-061). To the northeast in Parkaree or Boherfadda is a holy well (OF007-035) and in Killaghintober there is a possible cashel (OF007-032) and ringfort (OF007-034). Castlearmstrong, to the east, has a fortified house and bawn (OF007-037) and a holy well (OF007-038).

The Lemanaghan ecclesiastical complex (OF015-004001 to 004032) is located on the dryland island to the south. The complex consists of an early medieval ecclesiastical enclosure (OF015-004008), tower house (OF015-004001), a multi period church (OF015-004003) dating from the Romanesque to late medieval period with several early medieval cross slabs and architectural fragments in the interior of the church. To the northwest of the church is a possibly late medieval rectangular building (OF015-004009), while to the southeast is a holy well (OF015-004007), an oratory or hermitage (OF015-004006) and a togher (OF015-004011).

2.2 SUMMARY OF PREVIOUS ARCHAEOLOGICAL FIELDWORK

Archaeological monitoring of previous Phase 1 and Phase 2 of Site Investigation works at Lemanaghan Bog were carried in 2022 by Tobar Archaeological Services (Quinn 2022, Licence No. 21E0132). During Phase 1 of works 29 trial pits were monitored over a period of four days within an area of predominantly cut over bog. During Phase

2, 18 trial pits were archaeologically supervised within an area of predominantly previously worked bog. Nothing of archaeological significance was uncovered during monitoring.

Several archaeological excavations have been carried out within the Lemanaghan complex of bogs, and these are reported below.

Archaeological survey of the eight Lemanaghan Bogs commenced in the early 1990s and was completed by 1997. A total of 753 sites were identified by the IAWU during this time. Ballydaly Bog (135), Castletown (94), Corhill (214), Derrynagun (113), Killaghintoiber (56), Kilnagarnagh (19), Lemanaghan (26) and Tumbeagh (96). Ballydaly Bog had been prepared for commercial production at the time of the survey but no milling had taken place. This bog was subsequently set aside from production.

Five of the nine bogs were re-assessed in 1998 by the IAWU on behalf of BnM prior to the commencement of the BnM Excavation Mitigation Project in 1999. This survey identified 160 wetland sites in 10 distinct archaeological zones (McDermott et al. 1999). While the quantities of sites had significantly reduced in most areas, with the exception of Lemanaghan itself which increased to 29, the archaeological zones remained the same; Castletown (34), Derrynagun (64), Killaghintoiber (19) and Tumbeagh (18).

A rescue excavation was carried out in Tumbeagh Bog by the IAWU after partial human remains were recovered during the 1998 survey (Birmingham 2001). These remains have been dated to between the 14th and 16th centuries.

Nine cuttings were also excavated on a Road-Class 1 Togher (98LMN002) in the central part of Lemanaghan Bog to facilitate the 1999 BnM production season.

A total of 40 sites were excavated by ADS Ltd in 1999 and 2000 as part of the BnM Excavation Mitigation Project (OCarroll 2001; Whitaker & OCarroll 2009) in Castletown, Corhill, Derrynagun, Killaghintoiber and Tumbeagh Bogs. The sites ranged in date from the early Bronze Age to the late medieval periods.

A re-assessment survey of Castletown was carried out by ADS Ltd on behalf of BnM in 2013 (Whitaker 2014). Three sites were identified during this survey, one of which was the previously identified and excavated early medieval Road-Class 1 Togher (OF007-215 / OF-CTN001), (McDermott et al 1999; Whitaker & OCarroll 2009). The other two sites were Road-Class 3 Toghers (OF-CTN002 and OF-CTN003).

The two Road-Class 3 Toghers (OF-CTN002 and OF-CTN003) identified in the 2013 reassessment survey were excavated by the applicant on behalf of BnM in 2016 as part of the BnM Excavation Mitigation Project (Whitaker 2016 & 2017). These brushwood sites were both dated to the late Bronze Age period.

2.3 CARTOGRAPHIC ANALYSIS

The Ordnance Survey maps (1840, 1911 and 1912) were examined for this study for evidence of features of potential archaeological, architectural and cultural heritage significance. The entire area is marked as wetland on the maps and no additional features of archaeological potential were identified. The only major change between the cartographic depictions is the installation of the rail line by the 1911 edition, running southeast to northwest through the site.

2.4 AERIAL PHOTOGRAPHIC ANALYSIS

Aerial photographs of the Lemanaghan Bogs were examined. No features of archaeological interest were identified within the bogs.

2.5 TOPOGRAPHICAL FILES

There are 47 stray finds recorded from the Lemanaghan Bog complex. Information on these finds comes from two main sources: the Topographical Files of the National Museum of Ireland (NMI) and the IAWU survey records (prefixed by 92E148). The finds are summarised below by bog area.

There are seven finds from Ballydaly/Curraghlassa Bog. These were all recorded during the 1996 IAWU survey of the bog. Leather fragments (92E148:98) were recorded in Ballydaly townland. A leather shoe (92E148:05) and two leather shoe fragments (92E148:95 & 92E148:32) were recovered from Ballydaly and Lemanaghan townlands respectively. An Ash wooden vessel base (92E148:12) and alder lid (92E148:11); a perforated alder wooden shaft (92E148:09) and alder stave fragments (92E148:13) were recording in Ballydaly townland.

A leather shoe (99E0326:09) and a dressed hazel rod (99E0326:08) were recovered during the 1999 excavation of the early medieval Road-Class 1 Togher (OF007-215) in Castletown Bog. A wooden artefact fragment (92E148:67) was recovered during the IAWU survey in 1998.

Nine finds were recovered in Corhill Bog during the IAWU survey. These consisted of a flint side scraper (92E148:28), two leather shoe fragments (92E148:06 & 92E148:07), 14 silver coins (92E148:14-27), six further silver coins (92E148:33-38) from Lisdermot townland. Two ash perforated wooden shafts (92E148:31 & 92E148:10) were recovered from Lisdermot and Lemanaghan townlands respectively, along with an internally decorated ash bowl (92E148:08) and a dressed hazel brushwood rod (92E148:30).

A leather fragment (92E148:97); a small stone with worn surfaces (92E148:99); a wooden vessel roughout (92E148:66) and a perforated alder shaft (92E148:39) were recovered in Leabeg and Lemanaghan townlands in Derrynagun Bog.

Three finds were recovered from Killaghintoiber Bog. These consisted of a leather shoe (99E0448:30) that was found on the field surface during the excavation of a nearby trackway. A possible hammer stone (92E148:70) and a carved wooden crozier

(99E0445:26) were found during the excavation of an early medieval Road-Class 1 Togher.

There is a single stray find of a copper dagger (1931:212) from Kilnagarnagh Bog.

The largest number of finds have 'Lemanaghan Bog' as their find spot. In many cases their exact locations are not recorded. From Ballylin townland there is a hoard of ten amber beads (1982:75a-j); a brass mortar (1937:3389); three bronze axe heads (1937:3386-3388) and an iron sword (1920:64). Lemanaghan townland contains the find spot of a silver, bronze and wood crozier, part of which was recovered in 1992 (1992:006) and the remainder in 1997 (1997:2338). Other finds consist of a stone axe and a leather shoe found by BnM worker in 2000 (no reference numbers); a whetstone fragment (92E148:40) and an alder wooden shaft (92E148:03). A stone axe head (1997:45) was found by a BnM worker in Derica More/Derica Beg townland and a stone ball (1997:46); wooden shaft (92E148:41) and a miscellaneous wooden object (92E148:42) were recovered during the IAWU survey in Kilnagoolny.

A squared ash shaft (92E148:50) was recovered during the IAWU survey of Tumbleagh Bog in Kilnagoolny townland.

3 ARCHAEOLOGICAL MONITORING

3.1 GENERAL

Archaeological monitoring of ground disturbance was undertaken between the 24th to 26th of October 2023. The work was undertaken by Jane Whitaker and Enda Lydon of IAC Archaeology. Works included the monitoring of 16 trial pits across the site (Figures 5 and 6; Plates 1-9).

3.2 RESULTS

The stratigraphy observed within the trial pits was largely uniform in composition, with various strata varying in depths. The pits were excavated to varying depths between 1.7-4.9m. The upper c. 0.50m primarily consisted of a dark brown humified peat containing carex and sphagnum fibres. In some instances, this overlays another layer of orangey-brown peat, continuing for c. 0.50m. The lower stratus comprised marls consisting of gritty sand, silt and clay (occasionally containing fragments of shell), with the bottom-most strata containing frequent stones and small boulders (Plates 1-8).

Test pit TPB008 encountered evidence of previous disturbance, with the strata in this test pit consisting of an upper layer of made-up ground comprising peaty sandy gravel mix overlaying gravel banding, gravelly sands and dense, firmly compacted silt (Plate 9).

Test pit TPCC002 was moved from its original location due to waterlogging. The stratigraphy at its relocated position is consistent with that described above.

3.3 CONCLUSIONS

Archaeological monitoring was carried out at Lemanagh Bog in fulfilment of conditions attached to the permitted development. Monitored groundworks consisted of the excavation of Site Investigation pits. Previous phases of monitoring have been carried out on the site (Quinn 2022, Licence No. 21E0132 and Licence No. 21E0132ext.; Flynn 2019), during which nothing of archaeological significance was identified.

Monitoring of site investigation pits was carried out by IAC Archaeology from the 24th to 26th of October 2023. A total of 14 trial pits were monitored. Nothing of archaeological potential was identified during this phase of works. In alignment with the attached condition however, additional monitoring may be required for further ground disturbance works associated with the development.

4 REFERENCES

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CARTOGRAPHIC SOURCES

Ordnance Survey maps of County Dublin, 1840, 1911 and 1912

ELECTRONIC SOURCES

www.excavations.ie – Summary of archaeological excavation from 1970–2023.

www.archaeology.ie – DoH/HLGH website listing all SMR/RMP sites.

www.heritagemaps.ie – The Heritage Council web-based spatial data viewer which focuses on the built, cultural and natural heritage.

www.geohive.ie– Ordnance Survey Ireland National Townland and Historical Map Viewer (including Aerial imagery 1995, 2000, 2005 and 2013)

www.googleearth.com – Satellite imagery (2005–2023).

APPENDIX 1 LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The *National Monuments Act 1930 to 2014* and relevant provisions of the *National Cultural Institutions Act 1997* are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as ‘a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto’ (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These

perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Housing, Local Government and Heritage) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989*, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Offaly County Development Plan 2021-2027

Archaeological Heritage Policies:

BHP-33 It is Council policy to support and promote the protection and appropriate management and sympathetic enhancement of the county's archaeological heritage within the Plan area, in particular by implementing the Planning and Development Act 2000 (as amended) and the National Monuments Act 1930 (as amended).

BHP-34 It is Council policy to seek to promote awareness of and access to archaeological sites in the county where appropriate.

BHP-35 It is Council policy to consult with the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht (DCHG) in relation to archaeological sites within and/or adjoining a proposed development.

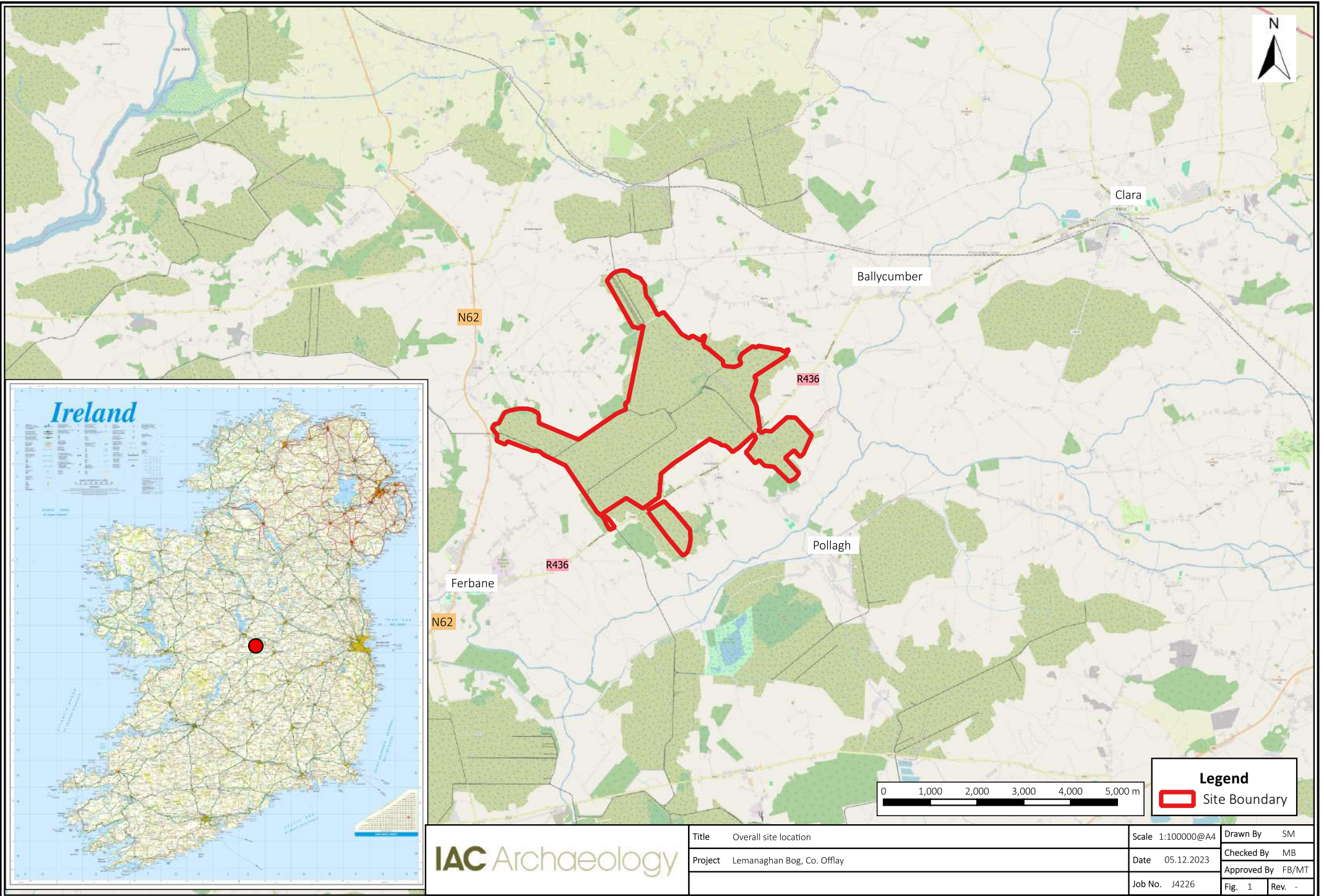
BHP-36 It is Council policy to facilitate the identification of important archaeological landscapes in the county.

BHP-37 It is Council policy that any development that may, due to its size, location or nature, have implications for archaeological heritage (including both sites and areas of archaeological potential / significance) shall be subject to an archaeological assessment. When dealing with proposals for Offaly County Development Plan 2021-2027 Chapter 10 Built Heritage Page 335 development that would impact upon archaeological sites and/or features, there will be presumption in favour of the 'preservation in situ' of archaeological remains and settings, in accordance with Government policy. Where permission for such proposals is granted, the Planning Authority will require the developer to have the site works supervised by a licenced archaeologist.

BHP-38 It is Council policy to ensure that archaeological excavation is carried out according to best practice as outlined by the National Monuments Service, Department of Culture, Heritage and the Gaeltacht, the National Museum of Ireland and the Institute of Archaeologists of Ireland and to protect previously unknown archaeological sites and features, where they are discovered during development works.

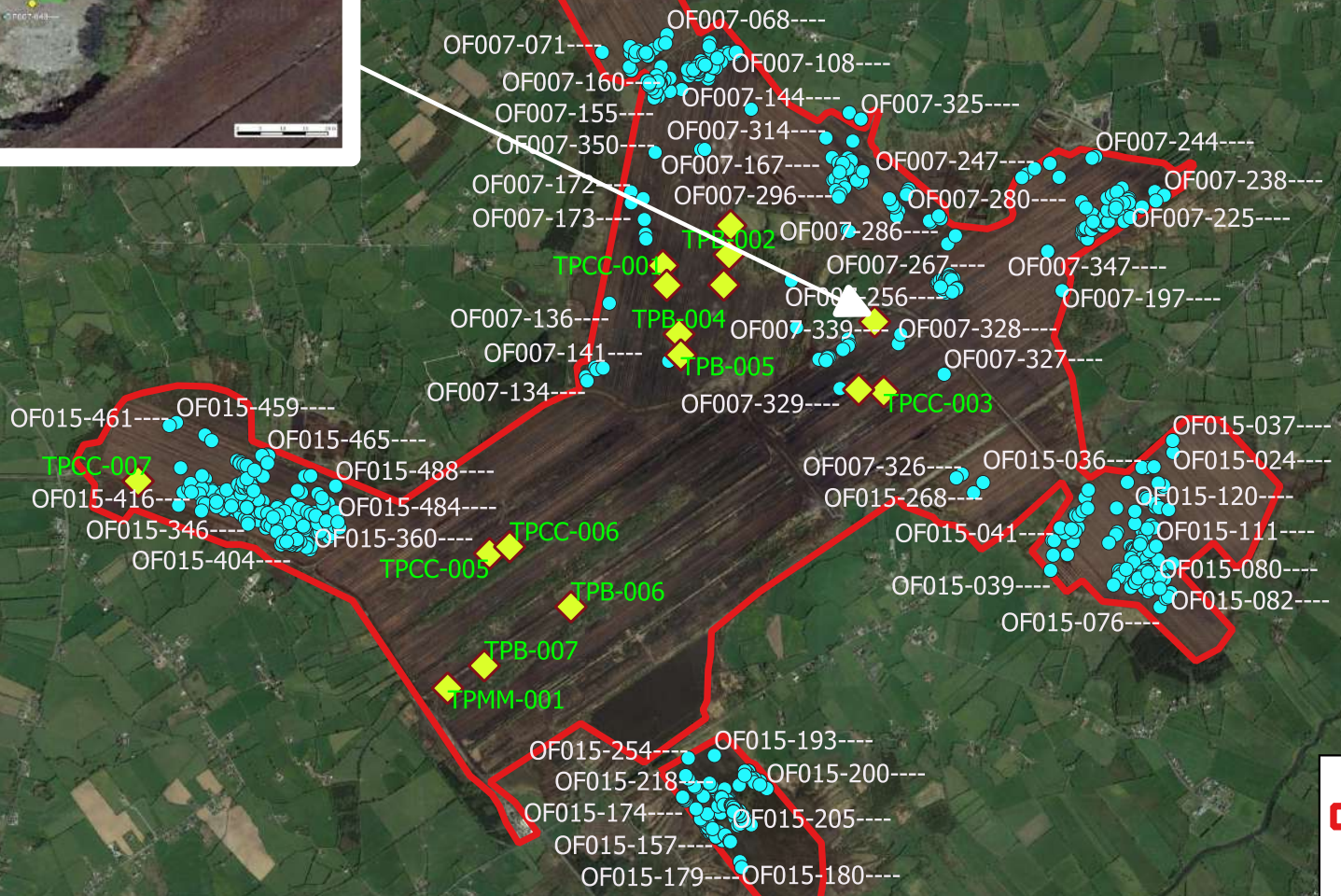
BHP-39 It is Council policy to ensure the protection and preservation of underwater and terrestrial archaeological sites, both known and potential in riverine or lacustrine locations including wrecks such as the remains of bridges.

BHP-40 It is Council policy to require archaeological assessment, including underwater archaeological assessment where relevant, for such developments that due to their location, size or nature may have implications for archaeological heritage. Such developments include those that are located at or close to an archaeological monument or site, those that are extensive in terms of area (0.5 hectares or more) or length (1 kilometre or more) and developments that require an Environmental Impact Statement.



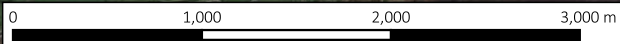
IAC Archaeology

Title	Overall site location	Scale	1:100000@A4	Drawn By	SM
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		Job No.	J4226	Fig. 1	Rev. -

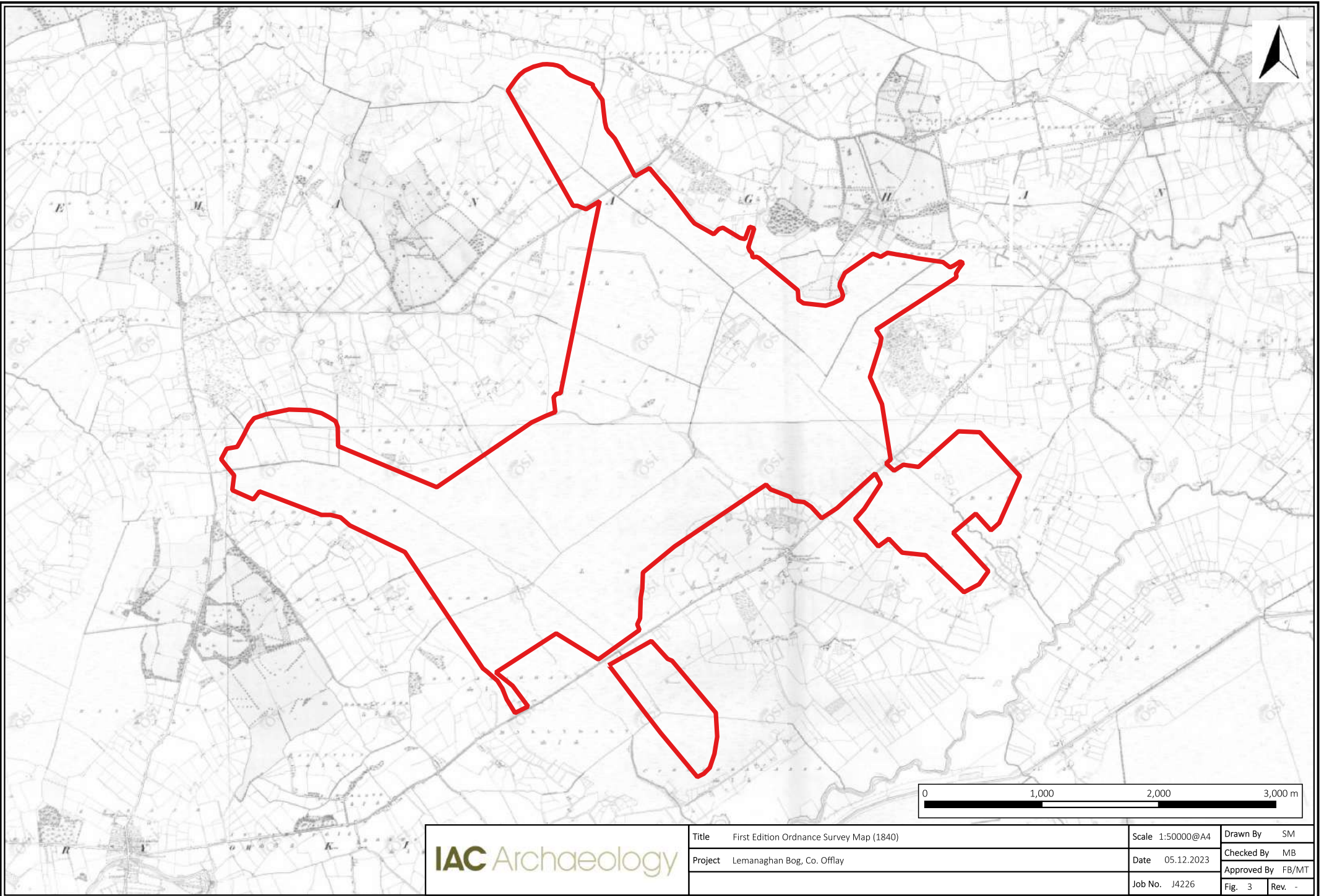


Legend

- Site Boundary
- Location of Trial Pits
- SMR Leganaghan Bog

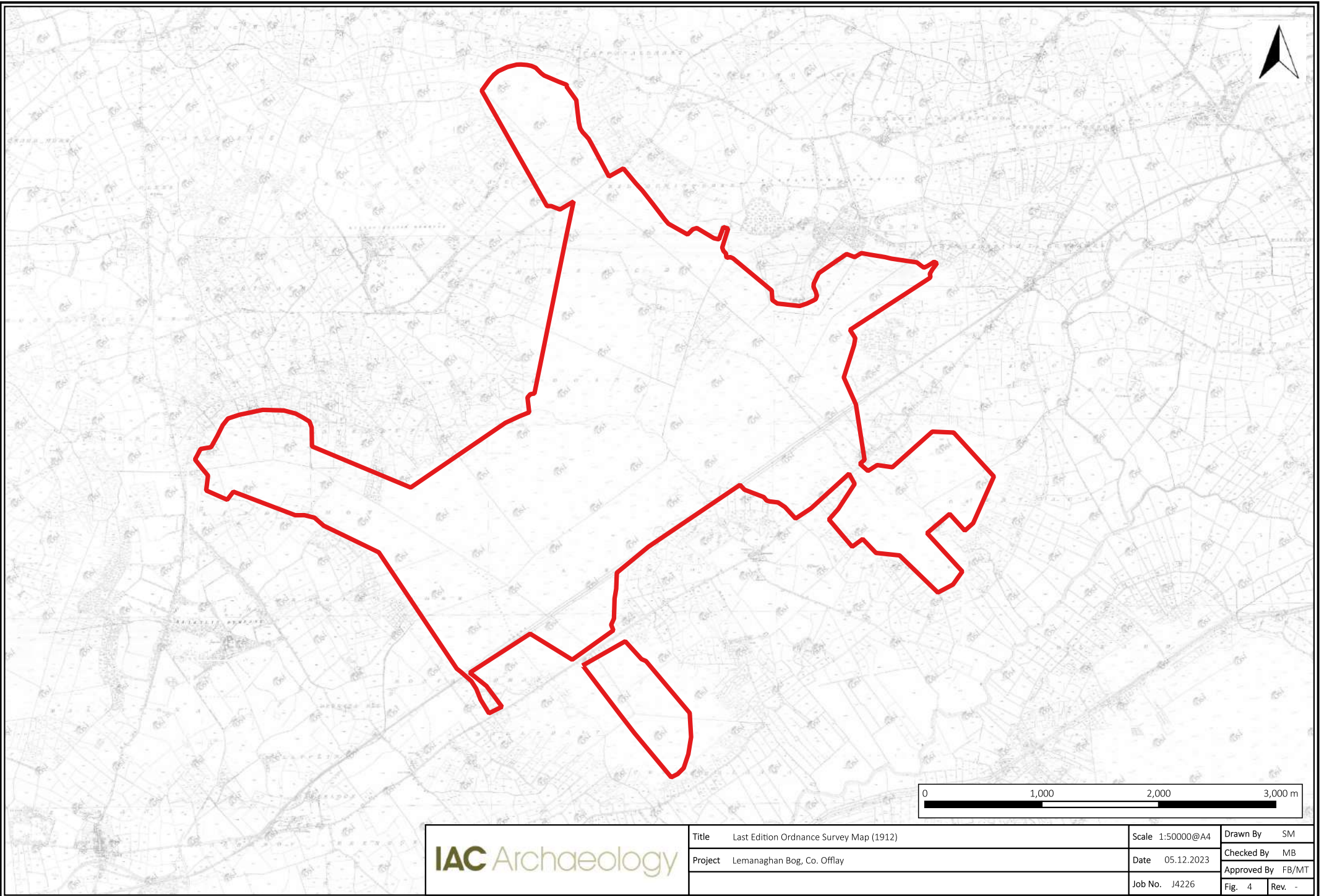


Title	Site location showing nearby Recorded Monuments and Trial Pit locations	Scale	1:50000@A4	Drawn By	SM
Project	Lemanaghan Bog, Co. Offlay	Date	05.12.2023	Checked By	MB
				Approved By	FB/MT
		Job No.	J4226	Fig.	2
				Rev.	-



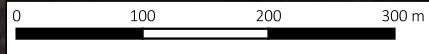
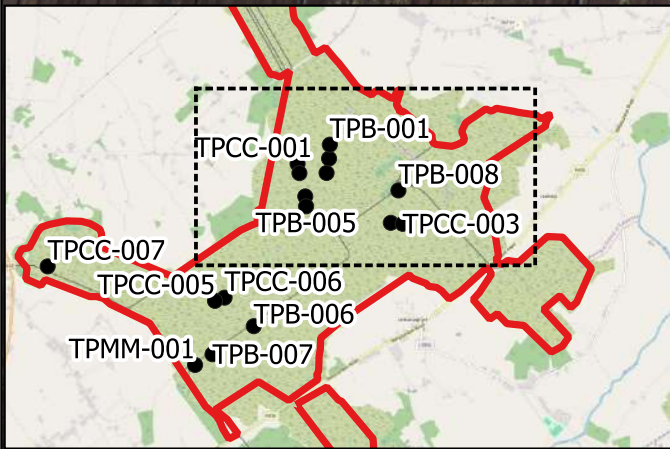
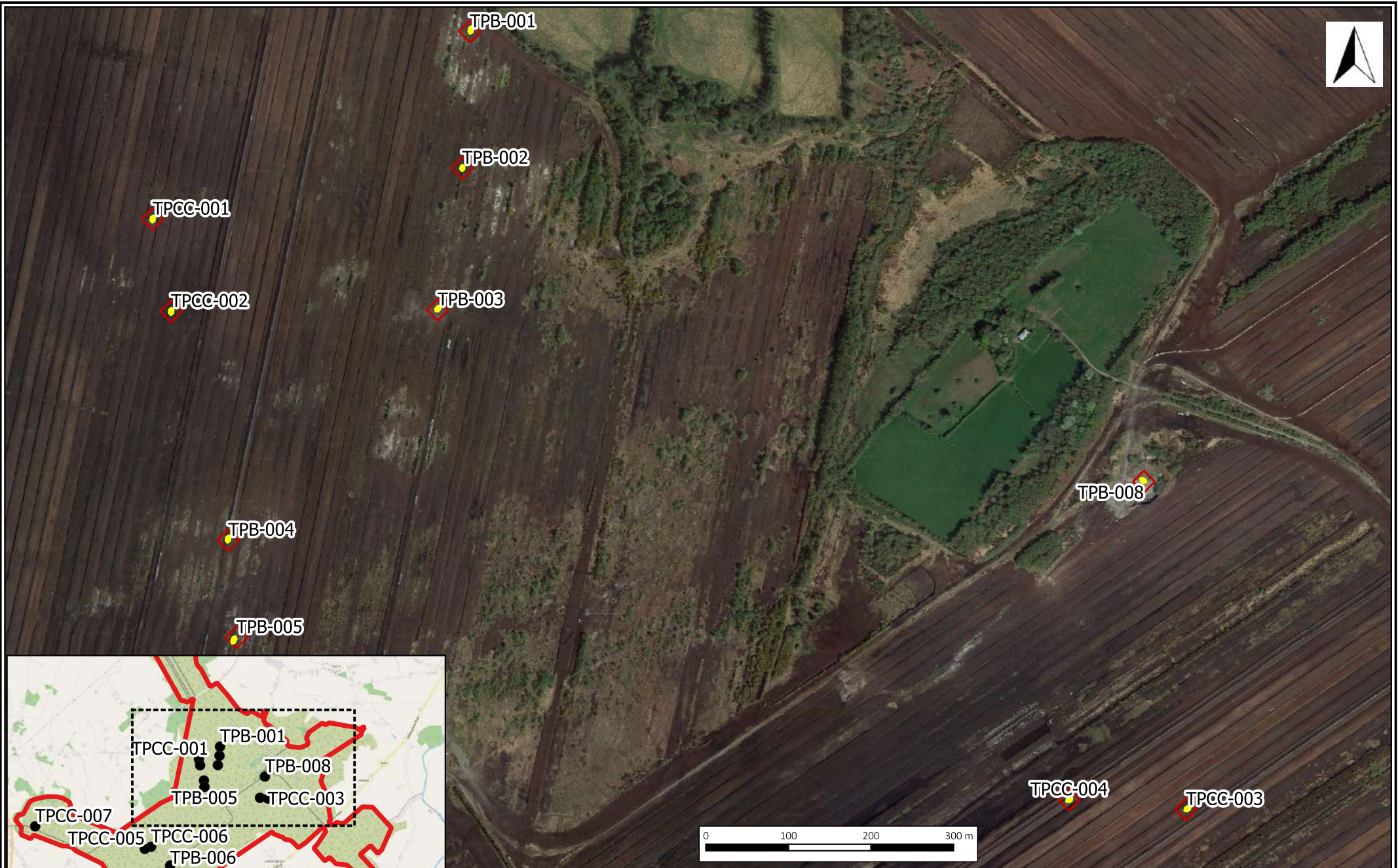
IAC Archaeology

Title	First Edition Ordnance Survey Map (1840)	Scale	1:50000@A4	Drawn By	SM
Project	Lemanaghan Bog, Co. Offlay	Date	05.12.2023	Checked By	MB
		Job No.	J4226	Approved By	FB/MT
				Fig.	3
				Rev.	-



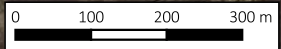
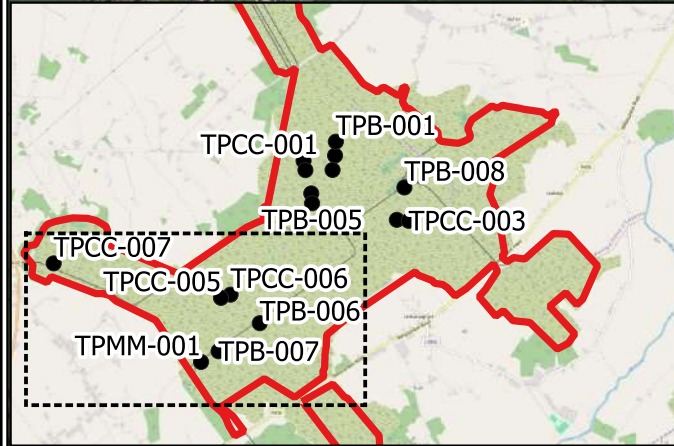
IAC Archaeology

Title	Last Edition Ordnance Survey Map (1912)	Scale	1:50000@A4	Drawn By	SM
Project	Lemanaghan Bog, Co. Offaly	Date	05.12.2023	Checked By	MB
		Job No.	J4226	Approved By	FB/MT
		Fig.	4	Rev.	-



IAC Archaeology

Title	Test Pits Survey	Scale	1:10000@A4	Drawn By	SM
Project	Lemanaghan Bog, Co. Offlay	Date	05.12.2023	Checked By	MB
		Job No.	J4226	Approved By	FB/MT
		Fig.	5	Rev.	-



IAC Archaeology

Title	Test Pits Survey	Scale	1:10000@A4	Drawn By	SM
Project	Lemanaghan Bog, Co. Offlay	Date	05.12.2023	Checked By	MB
		Job No.	J4226	Approved By	FB/MT
				Fig.	6
				Rev.	-



Plate 1: General shot of southwest of site, facing southwest



Plate 2: Stripping of TPCC003 at northwest of site, facing southwest



Plate 3: Stratigraphy within TPCC005, facing west



Plate 4: Stratigraphy within TPCC006, facing west



Plate 5: Stratigraphy within TPCC007, facing northeast



Plate 6: Stratigraphy within TPB002, facing west



Plate 7: Stratigraphy within TPB005, facing west



Plate 8: Stratigraphy within TPCC001, facing west-northwest



Plate 9: Stratigraphy of TPB008, facing north