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CULTURAL HERITAGE / ARCHAEOLOGY

MAIN CONTRACT

NFMHS, PORTRAINE, CO. DUBLIN

Stone Cist & Other Features

FINAL EXCAVATION REPORT

LICENCE REF: 17E0303

PLANNING REF: 06F. PA0037

Director: Redmond Tobin

For: Rhatigan OHL Ltd

On behalf of: HSE

May 2019

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ABSTRACT

This report presents the results of the archaeological excavation (Licence ref: 17E0303) of an anomalous stone cist and spatially associated prehistoric remains, which were located along the southern limit of the footprint for the proposed National Forensic Mental Health Services (NFMHS) hospital site, St.Ita's Hospital, Portrane Demesne, County Dublin (Figs 1-4). The National Forensic Mental Health Services (NFMHS) facility is currently being developed at Portrane to replace the Central Mental Hospital in Dundrum as the State's main centre providing psychiatric treatment in conditions of high and medium security, including acute, medium and longer term psychiatric care.

The excavation was carried out as part of the main works contract for Rhatigan OHL Ltd. The excavation was directed by Red Tobin of RedArc Consulting Limited under licence ref: 17E0303, between 10th July and the 3rd of August 2017. Preservation by record was the preferred mitigation in this case as the site would sustain direct impacts during the construction of the NFMHS Hospital.

The construction of the NFMHS Hospital at Portrane is designated as a Strategic Infrastructural Development (SID) and falls under the planning approval (An Bord Pleanála 06F. PA0037), and the conservation of the archaeological heritage was a specific condition (Condition 10). Condition 10 provides for *"the preservation, recording and protection of archaeological materials or features which may exist within the site".* It goes on to state that the developer *"employ a suitably-qualified archaeologist prior to the commencement of development. The archaeologist shall assess the site and monitor all site development works".*

Monitoring of the topsoil strip was carried out from the 8th May 2017 (Licence ref: 17E0210 and extensions). The stone cist was unearthed during topsoil stripping along the southern limit of the site on the 18th May 2017.

Excavations on the site (Licence ref: 17E0303) revealed a stone cist, a number of pits and a linear ditch. In the absence of C14 dateable material from the excavation, a general prehistoric date is suggested based on the lithics, pottery and the receiving archaeological landscape. Structural evidence from the stone cist would suggest a middle Neolithic date for this structure while the artefact assemblage from the pit scatter and ditch to the west is likely to date to the Bronze Age.

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1 Introduction

This report presents the results of archaeological excavations of prehistoric remains located on the southern boundary of the National Forensic Mental Health Services Hospital (NFMHS) site[1] (Figs 1-4). These excavations took place as part of the Main Works contract carried out at the NFMHS site by Rhatigan OHL Ltd. The remains consisted of a stone cist and a spread of pits, and a ditch. The stone cist was unearthed on the 18th May 2017 during monitored topsoil removal (Licence ref: 17E0210 and extensions), the preliminary phase of groundworks associated with the construction of the NFMHS Hospital. The site was secured while mitigation was discussed with the National Monuments Service. It was decided that preservation in-situ was not an option in this case and that the site would be best preserved by record. The site was excavated under licence (Licence ref: 17E0303). The site location is shown in Figures 1 to 4 inclusive.

Archaeological fieldwork on site was carried out by RedArc Consulting Ltd, under licence (17E0303) issued by the National Monuments section of the Department of Culture, Heritage and the Gaeltacht in consultation with the National Museum of Ireland. The work was directed by Red Tobin. The excavation commenced on the 10th July 2017 and was completed on the 3rd August 2017. During the preliminary clean-up of the site, the pits and ditches were identified to the west of the stone cist.

An Archaeological Impact Assessment (AIA) was undertaken by Archaeological Projects Ltd in 2014, which formed Appendix K of the Environmental Impact Statement (EIS) prepared for the NFMHS project. The assessment report highlighted several areas of archaeological potential requiring mitigation prior to the development. These areas were consequently excavated during 2016 (Licence ref: 15E0396 and extensions – Final Reports, Tobin 2019). The Archaeological Impact Assessment defined the risk for extant archaeological remains within the footprint of the development as low.

The construction of the NFMHS Hospital at Portrane is designated as a Strategic Infrastructural Development (SID) and under the planning approval (An Bord Pleanála 06F. PA0037), the conservation of the archaeological heritage was a specific condition (Condition 10). Condition 10 provides for *"the preservation, recording and protection of archaeological materials or features which may exist within the site".* It goes on to state that the developer *"employ a suitably-qualified archaeologist prior to the commencement of development. The archaeologist shall assess the site and monitor all site development works".*

[1] Td: Portraine Demesne. By: Nethercross Ph: Donabate/Portraine. ITM: 724540.017 / 750438.456. OD: 17.40m

Condition 10 (ABP 06F.0037) ensured that the footprint of the development was topsoil stripped under archaeological supervision (Licence ref: 17E0210) and that any sites unearthed were preserved by record. The topsoil strip also exposed a sizeable burnt spread close to the northern boundary of the development site (Licence ref:17E0377 – Tobin 2019 (forthcoming).

The site of the stone cist was located on the crest of an east to west ridge which runs through the St Ita's Hospital campus terminating on the coast slightly to the south of Portrane and overlooking Lambay Island to the east. This ridge offers a good settlement location with the village of Portrane nestled to the north east in its lee. The ridge crest and southern facing slope offer extraordinary views over Dublin Bay from Ireland's Eye to Bray Head, with the Dublin and Wicklow mountains dominating the skyline. The views to the north from the ridge crest encompass the coastline north to include Clogher Head and the Mournes. This ridge was one of the principal reasons for siting the Portrane Mental Asylum at this location and also tantamount to the location of Portrane House (Mount Evans) and Demesne (Figs 1-4). The area has long been associated with habitation from isolated Bronze Age settlements to more defined Medieval boroughs. While the land is arable it is poorly drained and historically would have been better suited to pasture and woodland.

The stone cist and other features are just part of a wider prehistoric landscape. The general area has been subject to archaeological investigations and assessments as part of various developments including the NFMHS hospital. These developments and excavations are summarized in the archaeological background section that follows. In 2016 the results of an excavation in the western part of the NFMHS site (Area 5, licence ref: 15E0396 ext.) was suggestive of scattered or marginal prehistoric activity, with later post-medieval agricultural and industrial activity also recorded.

To the east north east of the stone cist, a complex of features was unearthed and excavated. The main focus of activity was a large burnt spread / levelled mound (Licence ref: 17E0377) which was bisected by later ditches, possibly medieval or post medieval in date. The burnt spread is typical of the Bronze Age pyrolithic monument type, the fulachta fiadh / burnt mound. The excavation revealed considerable evidence for water management and industrial processes including a fine wicker liner to the main trough/well. Throughout the project large quantities of lithics have been gathered from the footprint of the site and the coastal fields. These will be subject to analysis and presented in a separate report (Licence ref:17E0210 and extensions, Tobin, forthcoming).

2 Archaeological Background – Prehistoric

Archaeological remains, in the form of field monuments and artefacts, point to occupation in this part of north Dublin from early prehistoric times.

Large numbers of flint artefacts have been collected along the coastal stretch from Howth to Balbriggan. This massive scatter along the north Dublin coastline shows that the area was exploited for flint throughout prehistory beginning in the Mesolithic and extending through to the later Bronze Age / Iron Age interface. The extent of the flint scatter is also problematic as this material has been ploughed over through time and does contaminate later archaeological deposits and features.

2.1 Mesolithic Period

Evidence for Ireland's earliest inhabitants in the Mesolithic was traditionally thought to have been confined to the coast. Archaeological research has shown that contrary to this traditional viewpoint, the hunter gatherers that personify the Mesolithic lifestyle moved throughout the country. In County Dublin the Mesolithic is easily identifiable through the stone technology, and collectors of worked flints, other stone tools have identified the coastal area of north County Dublin as particularly rich. The nature of the Mesolithic economy is defined by hunting and gathering and is considered to be transitory and seasonal, with small mobile groups exploiting richly available foodstuffs along the coast.

One of the earliest artefacts from north County Dublin dates from the Mesolithic (*c.* 7000–4000 BC), an early Mesolithic microlith found at Knocklea near Rush. Two later Mesolithic flint Bann flakes are also recorded from Kilcrea (NMI IA/52/62). In addition, quantities of Mesolithic material have been recovered through systematic fieldwork on Lambay Island (Dolan and Cooney, 2010). The results of the analysis of these artefacts show clear evidence of a presence in the later Mesolithic and also in the early Mesolithic.

The presence of Mesolithic groups on Lambay also demonstrates that, even at this early period of prehistory, vessels were being constructed to facilitate off-shore activities. In the 1930s, workers in Sutton, Co. Dublin unearthed the remains of a log boat formed out of oak. This vessel was never dated but its discovery indicates that boats capable of coastal activity were being built in prehistory.

Midden sites found at Sutton and Bremore suggest that hunter gatherer groups were staying along the coast for extended periods.

2.2 Neolithic Period

The Neolithic period is characterised by the advent of agricultural practice and with that a more sedentary lifestyle. The widespread development of long term settlement and housing occurred as the Neolithic progressed. The Neolithic is also defined by organised burial practices as demonstrated through the construction and use of megalithic tombs. Flint artefacts continue to represent this period although the style varies considerably from the Mesolithic forms. The artefact record also includes polished stone axes and various types of pottery vessels.

A cave in the cliffs at Portrane has yielded flint artefacts dating from the Neolithic period (*c.* 4000–2400BC). Other finds from this area include a flint flake from Newtown Haggard (NMI 1976:37)

The Rogerstown estuary is particularly rich in evidence for early human activity (Stout and Stout 1992).

In addition to the flint finds described above, evidence for prehistoric activity in the environs of the Rogerstown estuary and at Knocklea include a Neolithic passage tomb, and three cist burials, at least one of which was a secondary insertion into the passage tomb.

Thomas K Moylan (1947) in reference to the construction of Portrane Mental Asylum (St. Ita's Hospital), states that '*in making excavations for the foundations of the building, the workmen found a sepulchral chamber, lined with long stones. A long passage, also lined with stone, led to it and in the chamber was the skeleton of a man of large size. The whole was unfortunately cleared away without any expert examination and, according to Rev. Edmund Hogan S.J., the bones were thrown on the bank of rubbish'.* This anecdotal evidence is not supported by any other records but may indicate the existence of another Passage Tomb on the Portrane Peninsula.

When considering the archaeological and historical landscape in this part of north County Dublin, the island of Lambay must be considered. From 1993-2001, Professor Gabriel Cooney identified a Neolithic axe factory where porphyritic andesite was quarried and formed into high quality axes. All stages of production have been recorded at this site. During this research project, large scatters of flint flakes and artefacts have been recovered on the island and the location of two burial mounds, possibly passage graves, recorded.

A collection of flint artefacts gathered in the 1950s and 60s by Miss Gwendoline Stacpoole, a member of the Royal Society of Antiquaries of Ireland, was examined and attributed to the 'Larnian Culture'. The collection which was gathered from a variety of

locations including Portrane is of particular interest. The 'Larnian Culture' was long held to be of Mesolithic date but the discovery of similar artefact types on late Neolithic / early Bronze Age sites would suggest a much later date for the collection. Similar flint artefact types are found in conjunction with Grooved Ware and suggest a possible interface between the Stone Age and the Bronze Age of later prehistory.

2.3 Bronze Age

The Bronze Age sees a consolidation of agricultural practices and the introduction of new, distinctive ritual and burial practices. While stone tools continue to be used, their forms change. Different pottery types also characterise the Bronze Age along with different house forms.

Bates (2001) notes the discovery of a possible Beaker vessel and cist graves at Burrow, but these finds could not be located in the files of the National Museum.

Excavations in the townland of Beaverstown south of the Rogerstown Estuary (02E1708) produced evidence of Neolithic, Bronze Age and Beaker material (4000-1500BC) (Hagen, 02E1708 and 03E1634).

Test excavation within the Donabate Local Area Action Plan identified the remains of two circular enclosures, a circular hut, several pits and two burnt mounds in the townland of Ballymastone.

A spread of burnt mound material and a *fulacht fíadh* with associated ditches and pits were identified in Corballis Lands, directly to the south of Turvey Avenue (Baker 2006; Frazer 2007).

Further evidence for prehistoric activity in this area comes in the form of a stone axehead (NMI 1932:5626) and two flint waste flakes (NMI1978:20-21).

Recorded prehistoric sites in the area include a possible prehistoric burial in Portrane (DU008-032), a ring barrow (DU012-060) in Kilcrea and an enclosure site in Turvey (DU012-025). An archaeological complex (DU012-00101-102) is recorded in Bellinstown and ring ditch in Lissenhall Little (DU012-003). Test excavation in 1999 revealed no archaeological deposits within the archaeological complex (DU012-001). An earthwork (DU0012-004) illustrated in Corballis townland on the 1837 edition OS map also indicated prehistoric activity in this area.

Several flint flakes and artefacts are also recorded from the townlands surrounding Donabate, such as from Balcarrick (NMI 1946:292), Ballymadrough (NMI 1978:69-72), Kilcrea (NMI 1965:56, 1967:180-184 and 1976:147), Lanestown (NMI 1978:27-42 and 1978:73-74) and Turvey (NMI 1978:80-116). Two hammer stones from Balcarrick (NMI

1941:409) and Donabate (no NMI ref.) may also belong to this period. A flint scraper was found in the townland of Portrane (NMI 1978:8).

Bronze age material was identified during previous archaeological work. In advance of the construction of the Portrane, Donabate, Lusk and Rush Waste Water Treatment Scheme geophysical survey was carried out under licence ref: 08R0029 – David Harrison, MGL. Arising from this survey a programme of archaeological testing was carried out in 2010 by Melanie McQuade (Licence ref: 10E0121). The test excavation confirmed the findings of the geophysical survey and any features sustaining a direct impact during construction were preserved by record. A dense scatter of features identified as a Bronze Age habitation site/structure and ancillary features was preserved in situ as it could be avoided during the construction phase. This site, designated as 'Portrane 1', is now listed on the RMP for Co. Dublin as DU012 – 095001, 002 and 003. 'Portrane 2' lies to the north of the preserved site. It too proved to represent prehistoric settlement activity but dateable evidence was not retrieved. 'Portrane 3', a burnt mound/spread, was located to the east along the route of the wayleave for the outflow from the Waste Treatment Plant. It was excavated, returning an Early Bronze Age date of 2272 – 2037 cal. BC.

Further archaeological remains were found in the area to the north of Portrane and north of Rogerstown Estuary, in the townlands of Whitestown and Rogerstown. The scattered features identified at Whitestown Site 1 and Rogerstown Site 1 were the only surviving remains of what was probably a large area of settlement. Some structural remains and associated domestic features were excavated further west at Rogerstown Site 2. A number of flint artefacts (including a scraper) and several pieces of worked flint were recovered from the plough soil during monitoring at Whitestown and Portrane. Although these artefacts were not in their primary context, their presence does indicate that some level of prehistoric activity took place in the wider area surrounding the identified sites.

A test excavation was carried out over the footprint of the proposed NFMHS Hospital development in 2014 by Claire Walsh of Archaeological Projects Ltd (Licence reference 14E0140). Twenty test trenches were excavated which revealed surviving foundations on the site of Portrane House (Mount Evans) and foundations of the yards associated with Portrane House which were altered and used as part of the Temporary Asylum (Tobin, R. Forthcoming. Licence reference; 15E0396). The Temporary Asylum accommodated 400 individuals while the main Portrane Mental Asylum was under construction (1896-1903). This test excavation also identified prehistoric features in a greenfield site on the western extremity of the site. The area was subsequently stripped and scattered prehistoric features excavated under licence ref 15E0396 (ext).

An unstratified petit tranchet derivative arrowhead may suggest a late Neolithic / Early Bronze Age date to the features excavated.

2.4 Lusk

Evidence for prehistoric settlement around the area of the town of Lusk comes from a series of excavations that were undertaken. Prehistoric burial pits and kilns, dated by possible Groove Ware vessels (2800-2400 BC), were recorded to the south of Lusk (McCabe, 02E0871). A ring-ditch of possible Bronze-Age date was also discovered (McCabe, 02E1029). Excavations north of Lusk found features of similar type and date (McCabe, 02E0794; 02E1031). A possible Bronze Age burnt mound / *fulachta fiadh* was also discovered west of Lusk (Wallace, 02E1719).

2.5 Rush

Prehistoric evidence for Rush and its surrounding environs comprises a passage grave and a cist burial (DU008-01301, RPS-259), which produced a food-vessel and skeletal remains (NMI 1934:432,433). Cist burials were also uncovered in the townland of Beau (DU008-035, RPS-285) and were found with several fragments of cremated bone (NMI 1977:1204) and worked flint (NMI 1977: 1198-1199). Probable burial mounds in Balleally West (DU008:019-01;02; 033) and Regles (DU008-008) all indicate activity from the Neolithic Period through to the Bronze Age. A polished stone axehead from the townland of Lusk, along with a flat bronze axehead and various finds of cinerary urns and human bone from Balleally West (NMI 1940: 81-a/c; 1958: 37-a/b) are noted from the National Museum files. In addition, bone fragments (NMI 2004:196) and pottery sherds (NMI 2004:195) were recovered from Rush Demesne.

2.6 Iron Age

Settlement in the Iron Age is well-attested on the east coast, with the notable promontory fort of Drumanagh at Loughshinny (DU008-006001), where Roman finds (including sherds of 1st century AD Samian ware) have been recovered from ploughsoil. Illegal metal detectorists have uncovered Roman coins and decorative metalwork from the site, now impounded and held by the National Museum. Warner promoted the idea that Drumanagh was a bridgehead of a planned Roman invasion of Ireland in 82 A.D. National Monuments files (Archaeology.ie) state that the site may have served as a distribution centre for Roman produce on the east coast. Burials with Roman brooches and other decorative metalwork have been uncovered at nearby Lambay Island, also indicating a Roman presence in the area. Lambay may be identified as Limnos in Ptolemy's Geography, compiled in Alexandria (Stout and Stout 1992, 12). Drumanagh is now in the ownership of Fingal County Council.

3 Historical Background

3.1 Early Medieval Period

In the early medieval period, Portrane formed part of the southern Uí Neill kingdom of Brega. Ringforts and associated field systems are known from the area, identified from oblique aerial photography, but none are close to the site. It is probable that at this period, several settlements along the coast were not enclosed, thereby having little surface expression. Major ecclesiastic centres of Lusk and Swords lay inland of the site.

Localised and scattered ecclesiastic settlement is attested from numerous holy wells, DU008-00902 (St Kenny's well) DU008-007, and DU012-009), St Mochuda's Church, the "Chapel Bank' (DU008-028), St Canice's church (DU008-03101) and a chapel site close to the cliff at Portraine Demesne (DU012-009001).

The 'Chapel (site of)' DU012-009001 and St Kenny's Well DU012-009002 are situated within the property boundary of the St Ita's (HSE Estates) Hospital Campus in land long used for agriculture. The cartographic location of the two sites has been considered erroneous and the geophysical surveying carried out in 2008 (Licence ref:08R0029 – Harrison) suggested a more likely location to be approximately 70m to the north. This chapel site may be earlier than St Canice's. Peadar Bates (2001, 67) states that approximately 40 years ago, what was left of this church was dismantled and the stones used to fill the adjoining St Kenny's well. Cartographic analysis carried out as part of this assessment would dispute the validity of these statements.

North east of the chapel site and St Kenny's well is Chink Well (DU012-007). This natural spring rises in a cave along the shoreline. Accessible only at low tide the well was supposed to cure Whooping cough or 'chin cough'. An offering of bread was placed in the well and if taken out with the tide demonstrated that a cure was forthcoming (Cordner 1946, 32).

3.2 Norse Period

No archaeological sites of the Norse period have been identified to date in the area of Portrane. However, place name evidence along the coast from Dublin, Howth to Skerries, indicates that lands along the coast were settled. Raids on the monasteries of the east coast are documented from 795A.D. (Courtney and Goucher 2007, 11).

More anecdotal evidence from local historian Peadar Bates mentions Knockaman in the Burrow as the site of a battle, possibly of the Norse period. The finds were apparently placed in the National Museum in 1872, however Courtney and Goucher

(2007, 12) could find no trace of their donation. The Black Book of Christ Church states that in 1040, King Sitric of Dublin granted Portrane to Bishop Donatus of Dublin, along with the lands of Baldoyle (Comerford, accessed 13/03/2013).

3.3 Anglo-Norman Period

Evidence from field work in north county Dublin indicates that patterns of settlement continued from the early medieval period into the Anglo-Norman period. Following the Anglo-Norman invasion, the rich lands of Portrane and Donabate were intensively settled and confirmed to the See of Dublin. When Archbishop John Comyn of Dublin asserted his claims to Portrane in 1197 the canons of Christ Church agreed to forgo their claims to Portrane on condition they received 100 rabbits a year from the 'warren of Portrahen' (Mc Neill 1950, 30). The church in Portrane was granted to the Prioress of Grace Dieu, an Augustinian convent at Ballyboghill founded in 1190 by Archbishop Comyn (Comerford, accessed 13/03/2013).

The tower house at Portrane, DU008-030, known as Stella's Castle due to the association with Jonathan Swift's correspondent Esther Johnston, is one of a distinctive type in Fingal, having a projecting turret. The first castle on this site was probably built in the thirteenth century as '*one of four castles stretching in a defensive line from the coast to Belinstown*' (Bates 2001, 207). It was held by Grace Dieu, and tenanted by the Cusack family, until the Reformation, when the lands and buildings were transferred to the Barnewalls of Turvey (Comerford, accessed 13/03/2013).

Some placenames in Portrane have gone out of use, with tenancies noted in 1326 A.D. at Englishtown, and Ballycaman. Rocque's map depicts a sizeable settlement on the headland at Oldtown, now gone.

There was probably a harbour at Portrane throughout the medieval period. Peadar Bates (2001, 220) states that the Corporation of Dublin obtained a grant for the ensuing 40 years from revenues on all merchandise imported into the harbours of, including others, Portrane. In 1529, a small fishing port was noted in 1529 at Portraine (Griffith Inquisitions 77, cited by Courtney and Goucher 2007, 40). Portraine is included in the list of harbours and havens in county Dublin mentioned in medieval sources by Niall Brady (2009, 309). The quay is prominent on Rocque's map of 1760. Shipping had its dangers, with the presence of numerous nationalities of pirates at Lambay Island noted in 1467-8 (O' Neill 1987, 125).

3.4 Dissolution to the Twentieth Century

The nuns of Grace Dieu may have moved to Portrane and were living there with their own chaplain until at least 1577, when they were finally dispersed. In 1576, the church and rectory of Portrane were granted to Francis Agard, when 18 acres of land were attached to Portrane Rectory, along with Portrane Castle, a close east of the castle, and a house in ruins north of the old hall, a range of stables, the slaughterhouse of the manor, the kitchen and *'a long stretch of houses called the New Hall in the south corner of which the chaplain to the said prioress had his chamber, and celebrated divine service in the parish church'.* Clearly there was a sizeable household in the castle at this time.

Tenancies of the rectory of Portrane changed throughout the following centuries. Lands and cottages in Portrane are also noted, although no locations are given (Bates 2001, 222- 223).

In 1654, Portrane was the property of Ralph Wallis, which lands included '*an old castle with a thatch hall adjoining'*, a diminution since the inventory of 1576 (Bates 2001, 223; Comerford, accessed 13/03/2013). The farm of Portrane, as indicated in Petty's survey, consisted of 156 acres, and contained one barn, one stable, four small cabins, and one old parish church. Several small holdings, consisting in total of five tenements and garden plots, were also listed by Petty.

The lands of Portrane, belonging to the archbishop, were auctioned in 1649 to Christopher Mapas to fund Trinity College, who sold them to Wallis. A small interest was retained by the Archbishop, entitling him to an annual rent until the lands were sold in the late 19th century.

Several large estates grew following the Dissolution, when the bulk of the lands of the Portrane-Donabate peninsula were conveyed to the Barnewall family. Turvey House was built in the 16th century, allegedly using much of the stone from the nunnery at Grace Dieu. Several houses of significance are indicated on the 1654-6 Down Survey map of the area, including a house at Beaverstown (DU008-044), another at Ballisk, Balliellis, and Balmastowne. No manor house is shown at Portrane, however Portrane Castle and the church (unroofed) are shown on the map. Two '*coney warrens'* are also depicted on the map, indicating the continuing importance of rabbits as a source of food and fur.

Portrane Castle appears to have been substantially rebuilt in the early 18th century and is known as '*Stella's castle'* because Swift's '*Stella'* spent some time there. It was the residence of the tenancy of the lands of Portrane. The castle was sold to Eyre Evans, MP for Limerick, in 1728 who built a new house (Mount Evans/ Portrane House) on the

estate soon after (Comerford, accessed 13/03/2013, also Bates 2001). In the dispute which arose between Cobbe of Donabate and Evans concerning the extent of the lands in legal ownership, it was noticed in 1744 that Evans had destroyed the boundary ditch which had separated the lands belonging to the nuns from those of the archbishop. The ditch began at the sea and ran by the castle to the recently built house.

In 1709, the tenant of Portrane estate is listed as Charles Wallis, with the tenancy of the estate being sold by Ralph Wallis to Eyre Evans MP. Mount Evans, the house constructed on the Portrane Estate, was either built by Eyre Evans or his son George Evans who was MP for Queen's County (Laois). George Evans was succeeded by his brother Hampden. Rocque's map of 1760 reveals the nature of the demesne prior to the development of the later landscape park. There are two houses shown in the area which later became the centre of the demesne, one of them likely to be the precursor of Portrane House. George Evans, MP and Sheriff for County Dublin, succeeded his father Hampden in 1820.

William Duncan's map of 1821 shows a smaller demesne laid out, probably by Hampden Evans. The line of the avenue to the house from the northwest appears to follow the course shown on later maps. The walled garden is shown in its current location to the west of the house and outbuildings. The location of the house appears to correlate with that of Portrane House, though the plan is different. The outbuildings, as shown, appear to be in a different location and are of a different plan from those shown on later map editions.

By the 1837 edition of the Ordnance Survey, the landscape park was fully laid out. The house is shown in a parkland setting, approached by an entrance drive through a wide swath of woodland which envelops the house, outbuildings and walled garden. A second service entrance leads directly to the outbuildings from the Portrane road in the north. Farmland is shown extending along the public road towards Portrane, while the parkland to the south front of the house opens out towards the coastline. A large deer park and rabbit warren are located on the eastern side of the demesne. Thomas K Moylan (1946, 28) stated that the northern boundary of this Deer Park, adjacent to the road was lined with the ruins of houses. This 'settlement' was known as Oldtown. Moylan goes on to say that '…there are various indications in the adjoining field that Oldtown must have been a fairly extensive place'.

Samuel Lewis describes Portrane House and Demesne in *A Topographical Dictionary of Ireland* (1837), as *'a spacious brick building in the centre of a fine demesne of 420 acres, well stocked with deer, and commanding extensive and splendid views'.*

When George Evans died in 1844, his wife Sophie erected a Celtic Revival round tower on the grounds of the demesne. A *'pigeon house'* is annotated on Duncan's map which may well have been removed to accommodate the new tower or integrated within the structure. Sophie Evans died in 1853 and bequeathed Mount Evans and its demesne to her nephew George. He was resident at Portrane until 1864, leaving Ireland due to health reasons. Portrane Demesne was rented for some years to St John Butler, Sheriff for Dublin County and son of James Butler 13th/23rd Baron Dunboyne.

In April 1884, 461 acres of the Evans' lands including Mount Evans were put up for auction. The sale took place in November 1885 and James Considine, a Clare landowner bought the house and lands for £9,000.

Considine, in turn, sold it on some seven years later to the Governing Board of Lunatic Asylums in Ireland for £10,000.

4 The Excavation

4.1 Background & Methodology

Topsoil stripping over the footprint of the NFMHS Hospital site was carried out in May 2017 under constant archaeological supervision. The monitoring archaeologists on site were James Kyle, Red Tobin and Peter Kerins. All monitoring work on the NFMHS site has been licenced by the National Monuments Service and the National Museum of Ireland (Licence ref: 17E0210 and extensions). Topsoil stripping commenced in the north east portion of the site to the west of the derelict farm buildings. On the 8th May 2017 the topsoil strip revealed a burnt spread and other archaeological features which were preserved by record (Licence ref: 17E0377). The topsoil strip continued over the whole site and on the 18th May 2017 revealed the surface evidence for the stone cist, which was preserved by record (Licence ref: 17E0303).

The location of the stone cist (Figs 1-4) was south of but adjacent to the Avenue that originally serviced Portrane House while also later providing access to the Portrane Mental Asylum. This route was closed off to through traffic from Donabate but continued to be used to access the western blocks of St Ita's Hospital. This route was also open to pedestrian access for patients / clients of the Hospital while also serving as a footpath/right of way for local pedestrians. The Avenue also provided access to the enclosing woodlands for anti-social practices and fly tipping. These latter practices rendered the site of the stone cist vulnerable to vandalism and possible destruction. The location of the site was cleaned, photographed and then sealed beneath a layer of geotextile and secured under a steel plate raised above the archaeological features and resting on concrete blocks. The associated pits and ditches were also unearthed during this process.

An area measuring 6m north-south and 37m east-west was stripped and excavated to mitigate for the dispersed nature of the archaeological remains (Fig 5 and Fig 13, Plate 1). The topsoil was reduced to the level of archaeological deposits using a tracked 360° excavator equipped with a flat, toothless bucket under constant archaeological supervision. On completion of the topsoil strip the areas to be excavated were secured with geotextile and Heras fencing.

A site grid was set up at 10m centres and subsequently calibrated to the national grid (ITM) using GPS survey equipment. Ordnance datum was established at 17.40m. All features revealed by the topsoil removal process were investigated to establish their archaeological authenticity. Some of these features were natural in origin and others were the result of agricultural practices or landscaping activities throughout the

development of the Portrane Demesne. Any archaeological features and/or deposits identified were cleaned and excavated by hand, and then recorded using customised field record sheets or feature sheets. Supporting archival records in the form of registers or lists of drawings and photographs were also created.

All archaeological features were drawn to scale and photographed, and levels taken. Comprehensive drawings were produced at appropriate scales. Soil samples were taken from all features for analysis.

A complete photographic record was maintained throughout the excavation. Digital photographs were taken of all features and of work in progress. As part of the topsoil removal, cleaning and excavation process, all archaeological finds recovered from were logged and bagged for specialist analysis. In some cases, levels and grid co-ordinates were taken on particular finds and find sites.

A number of issues constrained the excavation. Principally was the handling of the steel plate. To ensure the ongoing integrity of the stone cist this plate was replaced at the end of each work day and removed first thing each morning. This work was expedited by either a 360˚ excavator or alternatively, a teleporter supplied and operated by Rhatigan OHL Ltd. A further constraint was a live gas main which passed in close proximity to the excavation site. This gas main had to be re-routed to fall immediately south of the new buildings of the NFMHS Hospital. The extent of pipe trench that passed due south of the excavation was monitored and was hand dug as access for plant was not possible.

4.2 Geological Background

The ridge on which the archaeological material was excavated appears to originate in the Carboniferous, being a marine shelf bioclastic limestone. The ridge extends eastwards into an area of Ordovician basalt. The ridge is flanked to the north by a localised deposit of sandstone conglomerate. This area is noted as a source for porphyritic andesite, used in the manufacture of polished stone axes. This material was mined in prehistory on the island of Lambay. The conglomerate is also noted as a source of Red Jasper, a material favoured in antiquity because of its vibrant colour. In prehistoric Ireland it saw widespread use in the manufacture of wrist bracers. Further inland the bioclastic limestone gives way to calp limestone which extends westwards to the Shannon basin. Greywacke sandstone is also present on the ridge (St Ita's formation).

The natural subsoil over the development site is a glacial till whose derivation is defined by the local sandstone and shale. Tills are densely packed, mixed glacial deposits containing multiple angular rock fragments. The pH of the soils varies between 5 and 7

The subsoil (C2) over the excavation site was a yellow brown till that contained sand and silt and a high frequency of decayed, weathered stone fragments. The stone inclusions are typical for a glacial till, being sharp and angular. The frequency of the stone inclusions increases toward the western, downslope portion of the site.

All the deposits, including the topsoil and archaeological features contain flint in varying concentrations in the natural subsoil. Flint scatters are typical of most of the east coast of Ireland with flint present in varying concentrations in a strip extending from Wexford to Louth. Some of this flint is in the form of natural pebbles while some shows signs of the knapping process and/or plough strikes. The density of the flint spread meant that all man-made features on site, even those readily identifiable as modern contained flint. The topsoil layer (C1) contained considerable quantities of natural and worked flint. Initial interpretation of some of the features on site was skewed by the presence of intrusive worked flint. Further excavation showed these features to be either modern in origin or pockets of residual topsoil truncated during the process of stripping. The flint in the topsoil has no clear context of origin. This material has either been ploughed up over time from buried archaeological strata or, in the case of waste flakes and debitage, dropped or discarded during the knapping process.

4.3 Archaeological Features & Stratigraphy

The natural subsoil (C.2) was a yellowy-brown, sandy, silty clay of glacial origin, with weathered stone inclusions and a large concentration of roots throughout the site. It should be noted that the stone cist and other features were unearthed on the edge of the treeline defining the southern edge of the avenue to Portrane House and the southern boundary of the NFMHS development. The frequency of the root activity present in almost every feature is a result of the proximity to the tree line and to the vegetation extending from there.

During stripping, the topsoil of the site (C.1) showed a considerable frequency of flint, both natural and worked. The quantity of flint noted in the topsoil increased in frequency towards the western downslope portion of the site.

10 archaeological features were found in the western end of the site. These included nine pits (C26, C22, C24, C18, C20, C16, C34, C36, C39), and a ditch (C32) extending beyond the northern and southern limits of the excavation (LoE) (Fig 13).

On the east end of the site, several features appeared to be modern postholes. Excavation indicated that features C6, C8, C10, C12 and C14 are post-medieval – a clay pipe and post-medieval pottery were found in C8. These features formed an alignment of postholes, running from the first (C6), in the northeast, to C14 in the southwest. These possibly were part of a fence structure (Fig 5).

The possible stone cist site (**C4**) was located 2m southeast of C10 and 6m west of the eastern limit of excavation. 0.4m northeast of C4, there was a shallow pit (C29) contemporary with C6, C8, C10, C12 and C14 (Fig 5).

5m east of C4, the site was crossed by a modern gas pipeline running SE-NW.

0.6m north of C8, there was one of three tree stumps that were located within the footprint of the excavation site.

4.4 Prehistoric Activity

Stone Cist (C4)

The earliest archaeological features excavated on site, are likely to be prehistoric in date. The principal feature that identified this area to be of archaeological interest was the stone cist which was exposed during monitored topsoil stripping on the 18th May 2017 (Fig 5). The surface presentation of the feature was the outline of the pit itself (C4) and the uppermost structural layer or capping (C3) (Fig 6, Plates 2-6). Initial considerations for the preservation of the features and contexts that formed the stone cist were based on the appearance that it was intact and undisturbed. While some minor disturbance was apparent this was written off to root activity and the impact of the ditching bucket while stripping the topsoil. The nature of the capping material (C3), made it possible to determine the integrity of the site. Careful removal of part of the C3 capping demonstrated that the site was indeed stone-lined but of unusual construction and partially flooded. There was no visible evidence for either an inhumation or funerary vessel. The C3 capping that had been removed was reinstated and the site secured. No other intrusive measures were taken. The Client was informed of the discovery and both the National Monuments Service and the National Museum of Ireland were notified within the statutory period of 96 hours.

The stone cist was excavated / deconstructed with extreme care and attention to detail. The whole site was planned and photographed prior to the removal of the dry stone / corbelled capping (C3). Following the removal of the capping the exposed plan form of the feature was photographed and planned. Levels were taken at each clearly defined structural ‘stratum’. This enabled the structure to be drawn in cross section as part of

the excavation (Fig 11). The stone cist was treated as a complex piece of archaeology and recorded using single context methodology and a structural matrix where necessary. All fills were retained, and a 100% sampling strategy applied.

At the outset it was not known if the structure contained any form of funerary vessel or food vessel. A contract conservator was available to assess the most appropriate way to remove the vessel(s) without incurring damage.

If the structure contained inhumed human remains, an osteologist was available to provide advice as to the best approach for recording the remains in-situ and their removal for analysis.

The orthostats of the structure (C42) were numbered, photographed and planned and retained for further examination. Upon removal of the side slabs of the structure the cut of the C4 pit was examined and recorded.

The same excavation strategy was applied to all of the satellite features. All features were subjected to single context and matrix recording. 100% sampling was carried out of fills from selected contexts.

The C4 pit, during excavation, revealed a well-defined cut: 1m from east to west by 1.10m from north to south. The plan form of C4 was almost square (Fig 5, Plates 33-34). The north west corner was rounded – a feature which extended through the full depth of the cut. The north east corner was angular, almost 90˚. The south west and south east corners could not be fully defined due to the proximity of the live gas main. C4 was 1.10m in depth with uniformly straight / vertical sides. The surface edges of C4 displayed a sharp angled break to the internal sides of the pit. Due to the historical landscaping of this area and the recent topsoil stripping the upper edges of C4 may not represent the original surface presentation of the cut.

The base profile of C4 (Fig 10) was only determined on the removal of the structural slabs lining the pit. The base was concave in profile sloping gradually from the sides to a central nadir 0.12m below the basal level of the side slabs. This 0.12m deep deposit of material (C41) was composed of a yellow brown sandy clay, moist and friable with evidence for root activity. The C41 deposit contained small fragments of shell, natural flint and some quartz pebbles. This C41 material provides a stable base for the side slabs and is therefore likely to be the original basal fill of the pit although disturbed by roots and contaminated by material that either filtered into the C4 pit or was washed in over time. The form of the C4 pit / cut suggests that it was planned and executed with care. The concave base shows the difficulty experienced by the builders working in this confined space. These problems were rectified with the C41 deposit, used to level the base of C4 prior to the placement of the structural side slabs. 100% of the C41 deposit

was retained for analysis (Sample No 22). This material was sieved and sorted and produced no dateable material. It produced one fragment of burnt bone, several fragments of baked clay and a sherd of glass.

C42 was allocated to the structural orthostats resting on C41 and lining C4. C42 consists of 8, evenly sized, slabs of Greywacke sandstone (Fig 9). Two contiguously set stones lined each side of the C4 cut. The slabs were numbered (S5-S12 inclusive) for recording purposes (Fig 9, Plates 30-32) and for post excavation analysis (Ivor Kenny – Appendix 1). Slab No 5 was set against the northern side of C4 and extended into the north eastern corner. Slab No.5 formed the north eastern corner with Slab No.6 which rested against the eastern face of C4. Contiguous with Slab No.6 was Slab No.7. Also resting against the east face of C4, it was overlapped slightly on its northern side by Slab No.6 and slightly on its southern side by Slab No.8. Slab No.8 extended into the south eastern corner of C4 forming the south eastern corner of the structure with Slab No.7. Slab No.9 rested against the southern face of C4 with Slab No.8 overlapping its eastern edge. Slab No.10 rested against the western face of C4 and also extended into the south western corner of C4 forming the corner with Slab No.9. Slab No.11 overlapped the northern edge of Slab No.10. Slab No.11 extended north to butt onto the southern face of Slab No.12, thereby forming the north western corner of the structure (Plates 27-29).

The 8 slabs / orthostats defined a trapezoidal space with maximum internal dimensions of 0.62m north to south and 0.59m from east to west. The setting of the stones was of interest as they all rested on the C41 basal deposit while leaning against the internal faces of the C4 cut / pit. While the stones were set largely in a contiguous manner the partial overlaps and abutments afforded the structure some integrity. This partial structural integrity might have allowed the structure to stand freely until the orthostats were stabilised using the C43 material.

At the time of the excavation it was apparent that the upper surface of Slabs No.7, No.8 and No.10 were flat and level to accommodate a lintelled covering / capping. The height of the orthostats varies from north to south. The height of the orthostats (Slabs 7-10 inclusive) was about 0.4m above the floor level while the northern orthostats (Slabs 5, 6, 11 & 12 and including Slab No.4) were between 0.6m and 0.7m in height.

Slab No.4 is anomalous in that it was set, unsupported, slightly in the north eastern quadrant of the chamber / space formed by the 8 orthostats. Its long axis is aligned north to south (Fig 9, Plates 25-26). Its sole purpose was to support Slab No.3 (part of the C28 covering lintels) (Plates 21-24). The removal of Slab No.3 made Slab No.4 unstable and it had to be propped with wooden blocks between Slab No. 6 and Slab

No.11 to facilitate recording and planning (Plates 25-26). The fact that Slab No.4 was similar in height to the orthostats lining the northern portion of C4 might indicate that it was an original feature but alternatively it may well be a re-used component of F28, a capping lintel. If the latter is the case, then it may well be evidence that the structure was disturbed in antiquity.

C43 was a yellow brown sandy clay material that occupied the space between the C42 structural orthostats and the C4 cut. C43 was loose, displaying little in the way of compaction. The loose nature of C43 allowed it to absorb more moisture making it quite plastic. C43 contained some small shells and was affected by root activity. C43 was quite similar to the C41 basal deposit but with different proportions of sand to clay. Both C41 and C43 were similar to the C2 natural and their structural use in the stone cist structure would suggest that they both originated from the natural removed during the excavation of the C4 pit. Both C41 and C43 were affected over time by intrusions of surface material being washed in or deposited and sorted by the root activity that was evident in both deposits during excavation. C43 appears to have been deposited, at least in part, to support the orthostats and to maintain the form of the chamber redefining the C4 cut tight to the orthostats.

C28 was the capping layer of slabs partially covering the chamber within C4 and lined with the 8 orthostats of C42 (Fig 8, Plates 17-20). C28 also delimited the vertical extent of C43. C28 as a context consisted collectively of the horizontally set slabs 1, 2 and 3. C28 could be extended to include the anomalous orthostat, Slab 4, as its sole function appears to have been to give additional support to Slab 3 (Plate 24). C28 did not fully seal the chamber defined by the orthostats C42. The three slabs together only partially sealed the chamber, leaving voids between. Slab 3 was a substantial sub-rectangular slab of greywacke sandstone. It extended over the four northern orthostats (11, 12, 5 and 6), resting on Slabs 12 and 5 with the additional support of Slab 4. Slab 2 was a long angular slab of greywacke that rested on Slab 9 and Slab 6 with a clear notch that avoided Slab 7. Slab 1 rested on Slabs 9 and 10 and overlapped onto Slab 2 and 3. The arrangement of Slabs 1-3 left a number of voids in the capping. Some of these voids were effectively obscured by the orthostats of C42 projecting upwards. Other component slabs of C28 may have been mistaken for C27 or possibly C3 and removed during the excavation. The differentiation between C28 and C27 was tenuous at best. The difference seems to have been based on the permanence of the slabs and a distinct change in the form of the structure.

C27 was the upper layer of deliberately place covering slabs which overlaid and filled the gaps between the C28 slabs (1-3) (Fig 7, Plates 7-16). The slabs that formed C27 were sub-rectangular to sub-angular slabs of greywacke sandstone between 0.3m and

0.6m in diameter and generally thin in section (0.04m – 0.08m). While these C27 slabs served to fill the gaps within the C28 slab layer, they also coalesced with the C28 layer to create a substantial capping over the C42 lined chamber. During the excavation this layer of slabs appeared to be contemporary with the carefully placed 'mural' stones that lined the upper part of the C4 cut on its northern and southern sides (Plates 10-11). These settings of slabs appear to create an upper chamber to the structure. Stratigraphically there is no evidence of a temporal difference in construction and this 'upper' chamber was clearly a designed structure. The 'mural' stones evident on the northern and southern faces of the C4 cut originally lined the four sides of the 'upper' chamber. The western face (C4/C27) is predominantly flat / vertical but shows the imprint of the side slabs that lined the western side of the upper chamber. It is likely that these side slabs were disturbed either during the topsoil strip or at some time in the more distant past and became incorporated into the C3 stone deposit. The eastern face (C4/C27) displays more severe damage although with one side slab remaining in-situ in the south eastern corner (Plate 11). The flat/sharp surface edges displayed some imprints of the backs of the side slabs similar to the western side. The main damage was sustained on the eastern and western side which reflects the direction of the topsoil strip in this area which might indicate that the damage was sustained during the clearance of topsoil. Again, it was likely that the side slabs or fragments thereof could well have been mixed in the C3 stone deposit.

The northern 'upper' chamber side slabs, three flattened, sub-rectangular stones lined the northern C4 cut set on top of the C27/C28 layers (Plate 10). Each stone overlapped the other slightly from east to west. It is likely that they sat contiguously but were loosened at some stage as a result of surface disturbance. The southern 'upper' chamber side slabs, two flattened sub-rectangular stones abut the western face on the only in-situ side slab lining the eastern C4 cut (Plate 11). Both southern side slabs of the 'upper' chamber were slightly skewed away from the C4 cut face and the western slab had fallen slightly. This slight disarray to the southern side may be further evidence of surface disturbance.

Excavated evidence would suggest that the upper chamber was originally fully slab lined and that C27/C28 slab layers served as a floor to the upper chamber while acting as a roof to the more substantial lower chamber. The C27 slab lined 'upper' chamber was filled with a rubble deposit C3 (Fig 6, Plates 2-6). It is worth noting that to access the lower chamber the whole upper chamber (C3, C27) had to be fully removed before it was possible to remove the C28 capstones.

C3 represented a rubble infill or structural collapse contained within the C27 'upper' chamber (Fig 6). C3 consisted of 12 flat sub-angular to sub-rectangular pieces / slabs

of greywacke sandstone. 10 of the pieces were at least 0.4m in diameter with the remainder being smaller fragments or 'packing' type stones. Some of the larger, flatter slabs probably were part of the western and eastern slab lining (C27) of the overall C4 cut. These were probably moved during surface disturbance. C3 was contained within a space 0.88m from north to south, 0.90m from east to west and 0.44m in maximum depth. The stones that form C3 were randomly 'corbelled' overlying each other in a manner that might be suggestive of a collapse inwards or as a result of impact damage which displaced some of the side slabs which became intermingled with the rest of the C3 deposit.

The first expression of this site identified during the topsoil strip (Licence ref:17E0210) was this C3 stone deposit (Plates 1-6). It is not possible to determine what the original surface presentation was. During the excavation a subtle difference in the C2 natural surrounding the C4 pit was noted and examined (C31). C31 was defined as natural but with a subtly different consistency and plasticity. It might represent up cast from the original excavation of the C4 pit or the remnants of a slight covering mound (Fig 5, Plates 35-36).

Pit Scatter (C15/16, C17/18, C19/20, C21/22, C23/24, C25/26)

During the monitored topsoil strip (Licence ref: 17E0210) a scatter of prehistoric pits was identified 17m to the west of C4, the stone cist (Fig 13). The scatter of 5 pits (C15-C24 inclusive) formed a north to south arc open to the west. A possible associated feature, C25/26, was identified 1.00m to the north east of C21/22. A number of other possible archaeological features were examined during the course of the excavation but were dismissed as natural or pockets of residual topsoil (C1/C2). All of the pits were similar in form and the nature of their fills consistent throughout. This would suggest that the pits were associated by function and likely to have been contemporaneous in date. All of the pits were quite shallow and may have been truncated over time by landscaping and/or agricultural practices.

C15/C16 (Fig 13, Fig 14, Plate 43 and Plates 57-59) formed the north western terminus of the arc. The pit, C16, was sub circular in plan with its longer axis orientated from north to south. C16 was 0.82m in length and 0.78m in width, with a maximum depth of 0.18m. The pit displayed a concave profile throughout but with sharp definition at surface level (Fig 14). The base was uneven and at its deepest (0.18m) to the east. C16 was filled by C15. C15 was a single deposit of silty clay with some fine sand throughout (10% of C15). C15 contained quantities of burnt stone, flint/flint debitage (25 pieces) and charcoal flecking. C15 was sampled in its entirety (Sample #2).

C21/C22 was the next pit on the arc, located 0.52m to the east of C15/C16 (Fig 13, Fig 14, Plates 47-48 and Plates 57-59). The pit, C22, was sub circular to oval in plan with its longer axis orientated from north to south. C22 was 0.51m in length and 0.42m in width, with a maximum depth of 0.10m. C22 displayed a largely straight sided profile (Fig 14), sharply defined at the surface and at the base. The west side displayed a concave profile while the eastern side was convex. The variations in profile may reflect the stony nature of the C2 subsoil/natural. The base, as was the case with C16, was uneven and deepest on the eastern side. C22 was filled by C21. C21 was a single deposit of dark brown clay with a very small percentage of coarse sand throughout (5%). C21 was well compacted but moist and showed considerable root activity. C21 contained fragments of burnt bone, some small fragments of pottery and a relatively large amount of struck flint (58 pieces). C21 was also charcoal flecked and displayed some fragments of charcoal. C21 was sampled in its entirety (Sample #1) and the burnt bone was also taken as a sample (Sample #4).

C23/C24 formed the next pit of the arc, located 0.26m due south of C21/C22 (Fig 13, Fig 14, Plate 49 and Plates 57-59). The pit, C24, was sub circular in plan with its slightly longer axis orientated from east to west. C24 was 0.40m in length and 0.35m in width, with a maximum depth of 0.18m. C24 displayed a largely straight sided, V-shaped profile, sharply defined on the surface and at the base (Fig 14). The base is uneven and slightly concave reaching its maximum depth to the south west. The plan form and profile would suggest that C24 was a posthole. C24 was filled by C23. C23 was a single deposit of light yellow brown silty clay heavily compacted. It produced some flint (16 pieces). C23 was sampled in its entirety (Sample #6).

C17/C18 was located 0.34m west south west of C23/C24 and was the next pit in the arc (Fig 13, Fig 14, Plates 45-46 and Plates 57-59). The feature, C18, was circular in plan and as such had no clear orientation. C18 was 0.30m in diameter and had a maximum depth of 0.12m. C18 displayed a wide concave profile sharply defined on the surface, with relatively straight sides (Fig 14). The base of C18 was irregular/uneven. C18 was filled by C17. C17 was a single deposit of brown silty clay which contained a small percentage (5%) of fine sand. C17 was quite loose and moist and displayed evidence for root activity throughout but with a higher intensity to the west. Apart from the root activity, C17 was charcoal flecked throughout and contained some burned stone. No flint was recovered from this fill (C17).

C17/C18 completed the arc of pits but a single stake hole C19/C20 could be viewed as having been part of or associated with this arc.

C19/C20 was located 0.30m south west of C17/C18 and due south of C15/C16 (Fig 13, Fig 14, Plates 45-46 and Plates 57-59). C20, a stake hole, was circular in plan 0.10m in diameter and 0.10m in depth. C20 displayed a U shaped profile, sharply defined on the surface with straight, almost vertical sides and a rounded concave base (Fig 14). C20 was filled by C19. C19 was a single deposit of brown coarse sandy clay, loose and moist with some gravel inclusions. Some root activity was noted.

C25/C26 was identified during the initial trowelling of the site. The C25 deposit was clearly visible against the dominant background of C2 subsoil (Fig 13, Fig 14, Plates 50-51 and Plates 57-59). C25 was a dark grey silty clay that showed an orange/brown mottling throughout. It contained burnt sub angular stones, patches of charcoal and heavy root disturbance. C25 looked like a surface spread but for the fact that it was fully contained within a shallow rectangular pit, C26. C26 was rectangular in plan and orientated from north west to south east. The south eastern limit of the C26 cut was unclear as it had suffered extreme damage by tree roots (Fig 13). C26 had a maximum width of 0.77m from north east to south west and survived to a maximum depth of 0.15m. The sides of C26 were uneven as was the base (Fig 14). Breaks in slope from the sides to the ground surface were gradual as was the sides to the base. The form of C26 was not conclusive as to its authenticity but the C25 fill was quite similar in depth and content to C15, C17, C21 and C23 and might be indicative of a temporal association.

Local weather for the duration of the excavation was very dry. The C2 subsoil/natural dried to a pale sandy colour making the identification of other features quite difficult. Towards the end of the excavation some other features were noted within the pit scatter in the western portion of the site (C34/C35/C44, C36/C37 and C39/C40) (Fig 13 and Plates 57-59).

C34 was located 0.44m to the west north west of C15/C16 and 0.46m east of C32/C33 (Fig 13, Fig 14, Plate 60 and Plates 57-59). C34 was the cut of a posthole with a shallow ‘shelf’ forming the western part of the post pit. C34 was filled by C35 and C44 (Fig 14). C34 was a bipartite feature consisting of a roughly circular posthole to the west, which measured 0.33m (E-W) by 0.31m (N-S) and had a maximum depth of 0.27m. The splayed shelf flanking the posthole on the east measured 0.30m (E-W) and 0.39m (N-S) and a maximum depth of 0.08m. The posthole displayed a U shaped profile with a steep western face. The upper portion of the western face was vertical, but the lower portion broadened out to a concave profile. The eastern face of the posthole displayed a more gradual concave profile, sloping up to the ‘shelf’. The northern and southern faces were straight and quite steep. C34 contained two fills C35 and C44. C35 was the main fill associated with C34. C35 displayed a long axis

orientation from east to west and measured 0.50m in length by 0.20m in width. C35 extended over the full depth of C34 (0.27m). C35 was mid grey clay with a slight silt inclusion (5%). The mid grey colour was mottled black where it contained charcoal concentrations. The C35 fill was well compacted and dry. C35 was identified within both the posthole and the shelf and contained charcoal, burnt bone (Sample #18), flint (48 pieces including 1 scraper) and pottery fragments. There is also evidence for root activity and the presence of insects was noted. The C35 fill was taken in its entirety for analysis (Sample #17). The nature of formation of the C35 fill and its relation to the secondary C44 deposit would imply that the post had, over time leaned to the east before either decaying in situ or having been removed. C44 forms a secondary fill to C34 associated with the movement of the post in situ. C44 is an orange/yellow sandy clay with occasional gravel throughout. C44 bears a striking similarity to the surrounding C2 natural but for the presence of charcoal flecks and burnt bone fragments. While these inclusions are not in any great quantities, they do alter the nature of C44 making it a distinct fill. C44 was noted on the base of the 'shelf' to the east while also lining the western extremity of the posthole. The deposition of C44 on the western extremity of C34 might indicate that this material slumped into C34 after the post had fallen to the east or had been removed. C44 was likely to have been a natural deposition as against designed placement. The C44 on the 'shelf' was also likely to have slumped in while the post was physically being disturbed, removed or during the natural process of decay.

C36 was located 1.40m north west of C34 and was cut by the linear feature C32 (Fig 13, Fig 14). As a result, only the partial remains of C36/C37 were excavated. C36 measured 0.30m from north west to south east, along the cut line of C32. C36 was 0.15m in width with a maximum depth of 0.09m. The extant sides of C36 were concave gradually giving way to an uneven base (Fig 14). The uneven nature of the base was again likely to be a result of the stone content in the C2 natural. C36 was filled by C37. C37 was a dark brown sandy, silty clay with occasional inclusions of gravel and pebbles. C37 also contained some sizeable fragments of charcoal. C36/C37 had similarities to the other features in the pit scatter being shallow, with an uneven base and a single fill. C36/C37 was likely to be a small shallow pit or a truncated posthole.

C39/C40 was located 0.25m east south east of C15/C16, 0.80m south west of C26 and 0.20m north west of C22 (Fig 13, Fig 14, Plate 61 and Plates 57-59). C39 was 0.34m in length south west to north east, 0.22m in width and 0.08m in depth. The C39 cut was irregular in plan with a concave profile. The sides vary between straight and concave with a concave base. C39 was filled with C40, an orange brown silty clay with some

gravel inclusions (5%). The fill was very sterile disturbed by root activity, but the evidence presented would suggest that C39/C40 was not archaeological in nature.

C32/C33/C38 were located to the west of the pit scatter and mark the limit of the westward spread of archaeological features (Fig 13, Fig 15, Plates 52-56 and Plates 57-59).

C32 was a linear cut 5.40m in length from north east to south west. C32 was 1.00m in width and 0.55m in depth. C32 had a concave profile, with concave sides and a concave base (Fig 15). C32 was the remains of a ditch that was truncated to the north by the old Avenue leading to Portrane House. Any trace of C32 further north were obliterated during the 1950s by the construction of the Reilly's Hill Unit (Blocks 2 and 10). C32 was not excavated to the south as it extended into the treeline beyond the limit of the NFMHS development footprint. C32 contained two distinct fills C33 and C38. C38 was the primary fill of C32 (Fig 15). C38 extended southwards from the northern limit of excavation for 2.60m. C38 was 0.30m in width and 0.30m at its maximum depth (north west). C38 was a moderately compacted grey/brown fill with orange mottling throughout. C38 was darker than C33 and notably stonier, containing gravel and some larger stones (10-20cm). C38 was sampled in bulk (Sample #20). C33 is the secondary, upper fill of C32 and extending over 4.00m from north west to south east (Fig 15). C33 was 1.00m in width and reached a maximum depth of 0.50m towards the southern end of C32 where it becomes the sole fill of C32. C33 was a yellow/brown silty clay with a slight inclusive content of fine sand and gravel. The C33 fill also contained tree roots and produced burnt bone fragments (Sample #24) and animal bone (Sample #25). C32/C33/C38 cut C36/C37 which gives a later date stratigraphically for C32. C33 did produce flint and possible stone artefacts. Some of the flint pieces were prehistoric in origin and one of the stone pieces was a hammer stone likely used for flint knapping.

4.5 Later Activity

The antiquity of C32/C33/C38 is not clear. The C38 primary fill did not produce any evidence that might suggest a rough date range for the C32 ditch. C38 was of moderate compaction and with a lot of root activity. In reality, the C38 basal fill was quite sterile. The C33 fill produced burnt bone fragments and animal bone and flint including a variety of cores and flakes and a single sandstone hammerstone. The presence of prehistoric material in the C33 fill would suggest that C32/C33/C38 was prehistoric in origin. However, it is also possible that the C32 ditch post-dates the prehistoric activity on the site and that the prehistoric material was intrusive possibly being deliberate backfill, or material that originated from the definite prehistoric features

to the east being redeposited in C32 within the C33 fill through agricultural or landscaping activities. The extent of the surface flint scatters throughout the C1 topsoil/plough soil layer is dense and caused interpretative problems on the excavation in Area 5 (15E0396 and extension). This excavation was carried out within the NFMHS development footprint a short distance to the west north west of this site (17E0303). While the C32 ditch may well have had prehistoric origins, it could also be substantially later with extensive prehistoric intrusions.

The main evidence for later activity on the site came from a series of pits/postholes that crossed the eastern part of the site from north east to south west. They originated in the north east with C5/C6 and progressed south west punctuated by C7/C8, C9/C10, C11/C12 and terminating with C13/C14 (Fig 5, Fig 12). They were set generally equidistant throughout and appeared to be the foundation of a field fence or possibly some landscape feature associated with Portrane House (Mount Evans).

C5/C6 was located 4.30m north east of C4, the cut of the slab lined pit / cist (Fig 5, Plate 37). C6 was a circular pit 1.03m by 1.03m in diameter and it reached a maximum depth of 0.19m. C6 had a regular profile throughout with concave sides that broke gradually to a flat base (Fig 12). C6 was filled by C5. C5 was a single fill of grey/brown silty clay with orange brown mottling (Sample #10). The majority of stone inclusions in C5 were gravel but with a smaller proportion of pebbles. The C5 fill was dry and contained burnt stone, red brick fragments, slag, coal and shell.

C7/C8 lay 2.58m south west of C5/C6 and 1.95m due north of C4 (Fig 5, Fig 12, Plate 38). C7 was circular in plan, a probable pit/post pit 0.43m in diameter with a maximum depth of 0.12m. C7 displayed a concave profile with gradual sloping sides breaking to a concave base (Fig 12). C7 was cut into the C2 subsoil and was filled by C8. C8 was a mid/dark brown silty sand, dry and moderately compacted (Sample #11). Stone inclusions were all naturally occurring from the glacial till in the C1 and C2 strata. C8 contained a single piece of butchered bone, some mollusc fragments and some lime mortar.

C9/C10 was located 1.80m south west of C7/C8 and 1.90m north west of C4 (Fig 5, Fig 12, Plate 39). C10 was a circular pit/post pit 0.28m in diameter and 0.10m in depth. C10 displayed a concave profile with gradual sloping sides and a concave base (Fig 12). C10 was filled by C9. C9 was a loose, moist, brown coloured silty clay with some pebble content (Sample #9). C9 also showed extensive root activity and produced a single sherd of post medieval to modern pottery, a clay pipe fragment and a fragment of struck flint. The latter fragment was likely to be intrusive.

C11/C12 was sited 1.70m to the south west of C9/C10 (Fig 5, Fig 12, Plate 40). C11/C12 followed the same alignment defined by C5/C6, C7/C8 and C9/C10. C11/C12 lay due west of C4 and 2.60m north of the southern limit of excavation. C12 was a circular pit/post pit 0.31m in diameter and 0.10m in depth with a largely concave profile including the base (Fig 12). C12 was filled by C11. C11 was a dark brown silt with some clay content making it friable but moist (Sample #8). There was a lot of evidence for root activity in the C11 fill along with naturally occurring gravel.

C13/C14 lay 1.80m south west of C11/C12 and west of C4 (Fig 5, Fig 12, Plates 41-42). C13/C14 forms the southern terminus of the alignment (C5/C6, C7/C8, C9/C10, C11/C12). It may continue beyond the limits of excavation which places it outside the footprint of the NFMHS development. C14 was a circular pit/post pit 0.30m in diameter and 0.30m in depth. C14 displayed a V shaped profile steepest on the east facing side. The other sides were more gradual and concave (Fig 12). The base was also concave. C14 was filled by C13. C13 was a dark brown silty clay, moderately compacted and holding some moisture (Sample #7). C13 had a high concentration of stone inclusions of various sizes and also contained some mollusc shell fragments.

C29/C30 was located 0.22m to the west of the stone cist (C4) (Fig 5. Fig 12) with C12 being 2.60m to the west and C10 1.64m to the north west. C29 was sub circular in plan with a concave profile (Fig 12). C29 was 0.43m in length (north to south) and 0.32m in width, with a maximum depth of 0.07m. C29 was filled with C30, a mid to dark brown silty clay. It had been disturbed by extensive root activity and produced modern ceramics, slag, mollusc shell and a piece of flint debitage. It was more likely to have been associated with the post medieval pits/post holes forming the north east to south west alignment rather than the prehistoric stone cist.

The alignment formed by the pits/post pits (C5/C6, C7/C8, C9/C10, C11/C12, C13/C14) is indicative of a fence structure likely to have been post medieval to modern in construction. The nature of the inclusions in the fills C5, C8 and C9 would indicate backfilling of the post pit with surface material contaminated with domestic debris of a late post medieval date possibly quite modern. The remaining pits on the alignment were similar in form and size and suggest a clear association.

Any later features of this location were clearly modern and associated with St Ita's Hospital and its development and functionality. The excavation was completed on the 3rd August 2017. The location of the excavation was used for storage until such time as the foundation excavation commenced at which stage the ground was reduced during which the remains of the site were removed. The site is now occupied by the MHID (Mental Health Intellectual Disability) Unit of the NFMHS Campus.

5 Finds

5.1 Lithic Assemblage

During the excavation of the stone cist and the pit scatter a considerable quantity of lithics was recovered. The lithic assemblage was collected over the whole site including the C1 topsoil. The highest density of lithics retrieved in secure archaeological contexts was from the pit scatter in the western portion of the site. The analysis of the lithics assemblage was carried out by Dr Killian Driscoll (Appendix 2), his findings are summarised here (Plates 62-74 – pieces photographed selected by Dr Driscoll)[2].

The lithic assemblage totalled 168 artefacts, along with 42 finds deemed to be natural, and with a further 15 indeterminate pieces. The 168 artefacts include flaked stone tools – cores and flakes – formed on flint, and 1 ground stone tool, a sandstone hammerstone. The flaked stone tool component is dominated by bipolar cores along with small to medium flakes, with the retouched artefacts dominated by convex scrapers and edge retouched flakes. The majority of the lithics would appear to represent a Neolithic or Bronze Age assemblage.

The flint appears to be derived from pebbles and small cobbles. Such flint is available in the glacial till and nearby beaches, while the sandstone may also be locally sourced.

The majority of the artefacts were patinated or weathered with a very small number burnt. Over half have some degree of edge damage. While some of this edge damage may represent pre-depositional use and/or damage, it may imply a degree of post-depositional disturbance. The artefacts, however, do not appear to have a high level of fragmentation, which suggests a relative lack of post-depositional breakage.

The flaked stone tool component of the assemblage is dominated by small to medium-sized cores and flakes, with a significant proportion of bipolar artefacts. The relatively infrequent occurrence of retouched lithics – along with the probable use of some of the unretouched flakes and blades as tools suggests that alongside stone tool production, some of the prehistoric communities' lithic-focused activity in the area was stone tool use for a variety of tasks, with scrapers and retouched cores and flakes dominating.

Cores comprise 43% of the flaked stone tools. Debitage is dominated by small to medium-sized flake fragments, with bipolar flakes accounting for 59% of the flakes.

Modified artefacts comprise only 6% of the flaked stone tools, dominated by retouched cores and flakes and convex end scrapers. The retouched core is a split pebble with

[2] Photographs by R Tobin 2019

lateral edge retouch, while two of the retouched flakes may be scraper roughouts. The 5 scrapers include 2 bipolar cores retouched as convex end scrapers.

The lithic assemblage was distributed as follows:

C1 – Topsoil

The topsoil contained 27 lithics including 2 convex end scrapers and 2 retouched flakes.

C15 – Fill of Pit C16

C15 contained 23 lithics including 1 retouched flake.

C22 – Pit

Pit C22 contained 54 lithics

C23 – Fill of C24 a Circular-shaped Feature

C23 contained 15 lithics including 1 convex end scraper.

C31 – Redeposited Natural Upper Fill of C4, the Cist

C31 contained 2 lithics.

C33 – Fill of Possible Ditch F32

C33 contained 14 lithics including the hammerstone and 1 retouched bipolar core.

C35 – Fill of F34, a Shallow Feature

C35 contained 33 lithics including 1 retouched flake and 2 convex end scrapers formed on bipolar cores.

As with most lithic assemblages, the majority of the lithics from the excavation cannot be assigned to a particular time period. The direct percussion and bipolar knapping techniques were used throughout the later prehistoric period (Woodman *et al*. 2006), with bipolar becoming more prevalent during the Bronze Age (O'Hare 2005) but seen from the Early Neolithic (Driscoll 2016). None of the retouched artefacts are particularly diagnostic to a time period. The lack of blades, however, and the significant proportion of bipolar artefacts, does suggest a Bronze Age date for some of the assemblage.

5.2 Pottery

Pottery recovered during the excavation was limited to a few fragments from the pit scatter in the western portion of the site (Plates 75-78)[3]. The fragments were in poor condition. They were recovered from the shallow pits C34/C35 and C21/C22. The

[3] Photographs, R .Tobin

pottery fragments were sent to Ms Rose Cleary for analysis. The findings are summarised as follows.

The fragments of pottery appear to have a form and fabric that is likely to be Beaker style. The fragments are not particularly diagnostic and are undecorated. The surfaces of the fragments display considerable wear which may imply that the pottery originated elsewhere and was brought (here) for deposition. The Beaker form and fabric is suggestive of an early Bronze Age date. The pottery fragments recovered from C21/C22 were found in association with 54 lithics. The pottery fragments from C34/C35 were associated with 33 lithics including a retouched flake and two convex end scrapers. This association along with burnt bone and charcoal inclusions in both contexts would suggest a structured depositional nature for the fills of the two pits.

5.3 Orthostats

The greywacke sandstone orthostats used to form the two chambered structure within the excavated cut C4 were all planned and examined during excavation and retained for further examination. All of the structural orthostats and capstones were given individual numbers (1-12). Other structural stones were allocated context numbers and viewed as single contexts within the overall structure. The slabs 1-12 were retained and removed off site for analysis by Mr Ivor Kenny. His analysis demonstrates that the stones display evidence of quarrying and trimming which would be consistent with the sourcing of raw material (greywacke) and the creation of the structure within the C4 pit. Several of the stones display incised striations which are viewed as originating through a process similar to plough strikes. It is possible that these marks and striations came about during the building of the structure, the extraction process and / or the movement of the greywacke sandstone from its quarry site to the construction site. The likely quarry site is the St Ita's Formation which is convenient to the location of the C4 pit.

6 Discussion

6.1 The Stone Cist

The excavation revealed an unusual stone-built structure constructed in a deep pit and consisting of two chambers vertically arranged. The whole structure was built using greywacke sandstone probably quarried locally (St. Ita's Formation).

The upper chamber was defined by overlapping orthostats to the north and south (C27). The east and west sides showed evidence for damage although the orthostats lining the east and west sides of the pit may well have been present, ex situ, contained within the upper chamber fill (C3). The northern orthostats overlapped each other slightly from west to east and were set in a slight arc tending to the north thereby giving a slightly polygonal plan form. The southern orthostats were similarly arrayed with the same west to east overlap and an arced setting tending to the south. Only one orthostat remained in situ on the east side (south eastern corner). The arrangement of the extant orthostats suggested a polygonal plan form for the upper chamber approximately 1.00m from north to south and 0.80m from east to west. The orthostats defined the chamber as having a depth of between 0.30m and 0.40m. There was no evidence for a capstone or capstones. The orthostats were set / leaned against the sides of the pit and rested on the greywacke slabs that formed the floor of the upper chamber and the roof of the lower (C27/C28). The space that formed the upper chamber was occupied by C3, a rubble layer of 12 greywacke sandstone slabs. These slabs appeared to have been placed in a style reminiscent of corbelling, overlapping from west to east and from north to south. This may have been a designed deposition or possibly a result of surface damage or a collapse. The fact that the C3 rubble layer was contained within the confines of the upper chamber might be more indicative of deposition by design. The whole of this upper structure had to be completely removed to access the lower (main) chamber.

The lower chamber was formed using 8 greywacke orthostats which were placed in the pit, leaning against the sides and resting on the base. The orthostats were not set in sockets and their bases rested on the basal deposit of the pit (C41). The chamber defined by the orthostats was trapezoidal in plan widening to the south. The eastern orthostats (S6 and S7) overlapped from north to south and the western orthostats (S10 and S11) also overlapped from north to south. The northern orthostats (S12 and S5) overlapped S6 to the east and S11 to the west and extended to the eastern and western limits of the C4 pit. Visually, in plan, S12 and S5 formed a well-defined closing element on the northern side of the chamber, butting onto S6 and S11 completely,

rather than a slight overlap. The eastern orthostat S7 extended to the southern face of the C4 pit, as did the western orthostat S10. These two orthostats defined the widest (southern) portion of the trapezoidal chamber. The southern orthostats (S8 and S9) fill the gap defined between S7 and S10. S8 slightly overlapped S9 forming a southern closing element to the trapezoidal chamber. S8 butted onto the western face of S7 and S9 butted onto the eastern face of S10. Together, S8 and S9 form a bipartite septal slab to close the southern side of the chamber.

The plan form of the lower chamber, defined by its orthostats, was reminiscent of the ground plan of megalithic structures. The layout of the orthostats forming the chamber was very similar in plan to that of Portal Tombs. The overlapping orthostats to the west (S10 and S11) and east (S6 and S7) forming the splayed sides of the chamber, sealed to the north with the butted orthostats (S12 and S5) and closed on the south by the bipartite septal slab formed by overlapping orthostats (S8 and S9). The receiving pit (C4) was dug to accommodate a square/rectilinear setting of orthostats but the slabs were deliberately placed within that rectilinear space to create a trapezoidal shaped chamber. Following the portal tomb form, the bipartite septal slab (S8 and S9) defined the entrance to the tomb on the south giving a south to north orientation for the chamber.

The trapezoidal plan form of the chamber is not a feature unique to portal tombs. The overlapping of the orthostats is a feature generally reflected in megalithic tombs, but the plan form and alignment of the chamber can be a variable.

The overlapping of the orthostats is a regular feature within megalithic monuments of the Neolithic. It is noted in all of the main tomb types including portal tombs, passage tombs, court tombs and Linkardstown-type cists. This overlapping is not a feature of bronze age cists where slabs are sought to create a simple four-sided ‘box’ with a close fitting capstone.

The material used for the orthostats in forming the Portrane structure was greywacke sandstone quarried locally from the ‘St Ita’s Formation’. The St. Ita’s Formation is a localised outcrop of greywacke sandstone to the south east of the development site. The use of greywacke sandstone for the orthostats can be viewed as significant as it offers a further link to megalithic monuments of the Neolithic period. The significance of greywacke sandstone in prehistory is demonstrated by its use in the construction of the Boyne Valley tombs of Newgrange, Knowth and Dowth. Greywacke was also used in the passage tomb cemetery at Loughcrew and in the passage tomb of Clonasillagh (ME010-041). The source for the greywacke used in the Boyne Valley is thought to have been Clogher Head in Co Louth. The orthostats were quarried here and

transported to the construction site in the Boyne Valley. The strength of the greywacke sandstone was likely to be a major consideration in its selection for use in the construction of the great passage tombs, as they were built to survive in perpetuity. Along the Monaghan / Louth border outcrops of greywacke sandstone were consistently selected as platforms for prehistoric rock art (O'Connor; 2006). This use of greywacke as a permanent canvas for prehistoric rock art is also replicated at Loughcrew.

While the greywacke used in the Portrane structure was locally sourced it is likely to have been selected because of its particular physical attributes and possibly its material association with the structures of the Boyne Valley complex.

12 orthostats / slabs (1-12) were retained for analysis following the completion of the excavation. Slabs 1-12 included the orthostats forming the lower chamber (Slabs 5-12), the C28 layer of capstones (Slabs 1-3) and the propping stone (Slab 4). These slabs were retained because they displayed various markings and striations. The 12 slabs were analysed for evidence of quarrying and dressing / trimming. All 12 slabs displayed evidence of quarrying with, at least, one face naturally weathered which demonstrated that the slabs were quarried from an exposed outcrop. Most of the stones also exhibited trimming carried out using a pointed implement. The markings and striations visible on some of the slabs have been interpreted as plough strikes. Considering the likely antiquity of the structure it is far more likely that the markings originate through the manipulation of the slabs during quarrying, transit and construction. Trimming of the slabs is likely to have been carried out on site simultaneously with construction, at which time some surface damage may have occurred. The receiving pit was small and the available work space limited. This would suggest that manipulation of the orthostats into position was a one person task, assisted by another on the surface. Again, it is possible that surface damage to some of the orthostats was incurred at this point in construction.

To suggest that the marks on the stones are as a result of plough strikes is to question the antiquity and authenticity of the structure. Archaeological excavation has proven that the basic ard plough was in use during prehistory. Stone ard ploughshares have been recovered from Neolithic sites in the Shetlands and Orkneys (Rees 1979, 1981). It has been generally assumed that the ard plough was introduced to Ireland during the Bronze Age but there is a body of evidence that pushes the use of such technology back to the Neolithic (M.A. Monk pers comm.). A fragment of a possible ard point was recovered during excavations of a Neolithic house at Ballyharry, Co Antrim (Moore 2003). Ard marks were identified in the Neolithic strata during the Queen's University excavations at Ballygalley, Co Antrim (Simpson et al.) and in Neolithic strata at Navan

Fort, Co Armagh (Waterman 1997). Ard points have been recovered in Ireland bearing strong similarities to those found in Shetland and Orkney. They vary in length from 25 to 40cms, pointed at both ends with flattened sides and a flat base. The material used in their manufacture varies including sandstone, mudstone and siltstone. They display striae indicative of their use on their upper surface running from the point to the heel. The patterns of striae on the sides and base suggest they were pulled through the soil. The ard ploughs and shares would suffer considerable damage if they encountered a large slab of stone during the course of ploughing.

It is far more likely that the marks resulted from the extraction process. This would include the possibility that strikes occurred while digging to expose the rock face. The nature of the markings would suggest that they occurred through a direct impact on or by a material of similar strength and hardness. This would support the idea that the marks originated either at the quarry site or during their placement in the C4 pit.

Thomas K Moylan (1947) in reference to the construction of Portrane Mental Asylum (St. Ita's Hospital), states that '*in making excavations for the foundations of the building, the workmen found a sepulchral chamber, lined with long stones. A long passage, also lined with stone, led to it and in the chamber was the skeleton of a man of large size. The whole was unfortunately cleared away without any expert examination and, according to Rev. Edmund Hogan S.J., the bones were thrown on the bank of rubbish'.* The material used in the orthostats described by Moylan is not known but there is a likelihood that it was greywacke sandstone from the St Ita's formation. The discovery of this 'sepulchral chamber' and long passage demonstrates that quarrying in this location was more extensive and that the stone was being sourced and quarried here for use both locally and possibly further afield. The obvious popularity of the greywacke sandstone as a structural material increases the likelihood that the greywacke formation was quarried extensively over time and that smaller 'cast off' slabs from these quarries could have been utilised in the construction of the Portrane structure. These slabs, abandoned in the quarries could have incurred surface damage through direct impacts from other, possibly larger stones being removed from these quarries.

The fact that the orthostats lining the chamber of the Portrane structure were placed at a depth in excess of between 0.6m to 1.0m makes it unlikely that the marks on them could be attributed to random plough strikes while in situ. While the use of the plough is in the archaeological record from the Neolithic onwards, the physical nature of a prehistoric plough would require repeated, precisely targeted, impacts to leave a deep incision into the greywacke (M.A. Monk pers comm). Such impacts could not be

random events which would imply that the marks indicate an alternate origin probably linked to the extraction process or a form of basic art work / trial piece.

To consider that the marks on the orthostats and capstones were post 1300AD plough strikes means that the structure could not be authentic having been constructed in the last 700 years. The construction of estate furniture or follies is well documented and the commemorative Round Tower for George Evans at Portrane is a example. But to build a megalithic styled cist in a pit and then bury it is not in keeping with the aesthetic purpose of a folly, which is built to be seen and admired within the planned landscape setting as a celebration of wealth and decadence.

A marked difference between the Portrane structure and megalithic monuments is its location. Megalithic monuments were built to be seen and visited, part of a ritual landscape. They served as community burial places, houses for the dead and in the case of the passage tomb cemeteries, necropoleis. The Portrane structure, while displaying material and design similarities to megalithic monuments, particularly the Boyne Valley tombs, was constructed in a pit and then sealed. This form of structure limits the ritual interaction potentially to a single event, the interment of the remains after which the structure was sealed. In this way the Portrane structure was broadly similar to chambers associated with the Linkardstown-type cists.

Linkardstown-type cists were so named after the excavation of a funerary monument in Co Carlow by Joseph Raftery in 1944 (Linkardstown, Co Carlow – Raftery 1944). This type of monument seems to congregate in the south eastern portion of the country. They are defined by round mounds / tumuli which range in diameter from 18m (Baunogenasraid, Co Carlow – Raftery 1974) to 35m (Norrismount, Co Wexford – Lucas 1950). The tumuli were often of a composite construction with unusual stone settings underneath. These settings included arcs and circles and in the case of Jerpoint West, Co Kilkenny (Ryan 1973) radial settings. The Linkardstown-type monument also had stone built chambers similar in design to some passage tomb chambers. The principal difference between the Linkardstown-type monument and other megalithic monuments is that the chamber was sealed. The entrance to Baunogenasraid was blocked by a limestone slab and the entrance area at Ashleypark, Co Tipperary (Manning et al. 1985) was packed with stones. Once the chamber was closed and sealed and the mound constructed over the chamber, all potential ritual interaction ceased.

The Linkardstown-type monument is associated with individual interments, predominantly adult male. The remains, either articulated or disarticulated are placed in

a central cist with grave goods. The date range currently offered for these burials is the middle Neolithic (3500-3300BC – Brindley and Lanting 1989/90).

This monument type has not been examined to the same level as the mainstream megalithic tombs but in general they appear to be sited in a visually commanding location in an undulating landscape (Cooney 2000, Ryan 1973).

The Portrane structure was located on an east to west ridge commanding views in all directions and it displayed megalithic stylings executed in locally sourced greywacke sandstone. However, there is no surface evidence for a tumulus. The structure was located to the north west of the site of Portrane House (Mount Evans). The site fell within the Mount Evans estate, located between areas of planned plantation and the main Avenue to the House. It is possible that a tumulus may have been removed during the evolution of the Demesne in the 18th and 19th centuries. During the 2017 excavation a substantial spread of redeposited C2 (subsoil / natural) (C31) was noted in the immediate area around the C4 pit. C31 differed from the C2 (natural) in the frequency of stone inclusions and the presence of worked lithics (2 bipolar flakes). The C31 deposit was 0.40m in depth (east to west) but varied from 0.20m to 0.30m in depth from north to south. Its extent was estimated during the excavation and it did not display any representative form. The nature of its deposition is subject to speculation. If the C31 deposit was removed, the upper chamber of the structure would have been partially exposed. This might suggest that C31 was deliberately placed to seal the structure in the manner associated with the Linkardstown-type chambers. But considering the location of the structure within a 18th-19th century planned landscape the question must be asked if C31 is evidence for the accidental or deliberate disturbance of the site? It was clear from the excavation that the eastern and western side slabs (C27) of the upper chamber were disturbed, but the remainder of the structure appeared intact. To all intents and purposes the structure appeared undisturbed but equally unoccupied. Neither of the two chambers produced human remains or any form of grave goods either fragmentary or intact. It seems unlikely that any recent (18th-20th century) disturbance of this structure would have involved its careful reassembly following the removal of the occupant. Following the excavation 42 litres of soil, constituting the complete basal fill of the C4 pit and structure, were sieved and examined under microscope. This process produced one tiny fragment of burnt bone and quantities of baked clay. At the time of the excavation the lower chamber was flooded, and it appeared likely that this flooding was commonplace. The natural (C2) material is clay rich and not free-draining. The soil series for this area show a range of pH levels from 5 to 7 but with a tendency to the more acidic levels. It was considered that the acid in the soil and in solution with the retained water brought about the total

break down of any skeletal remains in the lower chamber. However, when examined, the borehole logs (Site Investigations Ltd, 2013) showed the pH levels to be in excess of 8. This would suggest that the soils over the development site are not acidic but alkaline. Alkaline soils and water could create a caustic solution that would break down human skeletal remains over time. Different chemistry, same outcome.

David Bayley (Irish Archaeological Consultancy) excavated a flat cemetery (Carn More 5; licence ref:03E0873) on the townland of Carn More, Co Louth in advance of the M1 Dundalk Western Bypass. C21, part of this cemetery, was an oval, steep sided, flat bottomed pit 1.00m by 0.82m and 0.44m in depth. The chamber constructed within the C21 pit was a sub pentagonal structure formed with 5 large stone slabs defining a space 0.88m in length, 0.55m in width and 0.45m in depth, the floor of which was not stone lined. The chamber was sealed with a layer of smaller stones which overlapped one another and supported a capstone. The chamber was devoid of any human remains or grave goods (Bayley 2010). The chamber was aligned north to south.

This polygonal cist shares several of the features displayed in the Portrane structure. Seen as a parallel to the Portrane structure, it might imply the original presence of a capstone, supported by the C3 greywacke ‘corbelled’ layer sealing the upper chamber. The capstone may have been removed during estate works between the 18th and 20th centuries without disturbing the chamber below. The Carn More 5 site in Co Louth offers the most direct parallel to the Portrane structure. The Carn More 5 site has been interpreted as a cemetery site with funerary activity that dates from the middle Neolithic into the Bronze Age (Bayley 2010).

A second cist at the Carn More 5 site again displayed similarities (C72/C128/C129). C129 was a steep sided pit 1.90m in length and 1.70m in width with a long axis alignment from north east to south west. The pit was 0.50m in depth with an unpaved base. C128 was the sub oval cist built within the pit. The cist structure was formed of 7 large slabs and 9 smaller stones defining a chamber 1.40m in length, 0.95m in width and 0.60m in depth. C72 was a capstone which had fallen ex situ into the chamber. This structure was well built and spacious but was not occupied. In both of the Carn More 5 structures it was suggested that inhumed remains may well have dissolved through the acidity of the soil (Bayley 2010).

The presence of the overlapped stone ‘corbelling’ in both structures (Carn More 5 C28 and Portrane C3), raises the question as to the method applied for sealing the structure. The presence of the overlapping stone ‘corbelling’ in the Carn More 5 cist (C28) to support a capstone (Bayley 2010) might suggest that the C3 deposit of overlapping greywacke ‘corbelling’ in the Portrane structure served the same function.

If this was the case, then the C3 deposit at Portrane might well have been undisturbed. This in turn raises a question in respect of the upper chamber and its function. Was the upper 'chamber' constructed as a chamber or as a recessed entrance portico formed by the C27 side slabs, sealed by the C3 overlapping greywacke and roofed by a large greywacke capstone (now absent)?

The theory that the upper chamber might represent a vertically arranged entrance portico probably roofed with a substantial capstone is in keeping with the Linkardstown-type traditions. The key difference is the fact that the chamber is constructed within a pit rather than the characteristic circular mound. That said the chamber is sealed by the C3 layer of overlapping (corbelled) rubble laid on top of a double layer of close-fitting greywacke capstones (C28). The overlapping 'pseudo' corbelling (Bayley 2010) was noted at Carn More 5 and at Ashleypark Co Tipperary (Manning et al. 1985) where a trapezoidal chamber was sealed by a large deposit of loose stones. In the case of the Portrane chamber the trapezoidal plan gives a north to south orientation. The bipartite septal slab that closes the widest part of the trapezoidal chamber opens to the south but directly onto the side of the pit, while the only direct access to the chamber is from above. In the case of the Portrane structure the line of access is sealed by the 'pseudo' corbelling, two layers of close-fitting capstones and possibly a large capstone of greywacke which was visible above the surface of the ground. Considering the lack of evidence for any form of covering mound / cairn / tumulus, a visible capstone might attract later ritual activity as is the case in Portrane with the pit scatter to the west.

6.2 The Pit Scatter

The pit scatter was located 17m to the west of the stone cist. 5 of the pits (C15/C16, C17/C18, C19/C20, C21/C22 and C23/C24) were arrayed in a north to south arc bowed to the east and open to the west. C34/C35/C44 was another pit/posthole which may have extended the arc to the north west further emphasised by merit of its artefact content. Another pit (C36/C37) sited 1.40m to the north west of C34/C35/C44 was similar in form to the pits that defined the arc. This pit was clearly cut and bisected by the linear feature C32/C33/C38. This action demonstrated stratigraphically that C32/C33/C38 was temporally later than C36/C37. C36/C37 could not stratigraphically be linked to the arc of pits and possibly represents earlier or later activity. C25/C26 was a shallow rectangular pit which contained burnt stones and oxidised clay mixed through the general fill (C25). While C25/C26 lay north east of the arc of pits the content might serve to forge a temporal connection.

Apart from C36/C37, all of the pits appear to have contained structured deposits and were representative of a ritual site or at the very least, ritual activity at this location.

C15/C16 produced 23 lithics, including 1 retouched flake, and quantities of burnt stone fragments. C17/C18 produced quantities of burnt stone fragments and evidence of oxidised clay through the fill. C21/C22 produced 54 lithics, pottery fragments and fragments of burnt bone. C23/C24 produced 15 lithics, including 1 convex end scraper. C25/C26 produced quantities of burnt stone and oxidised clay. C34/C35/C44 produced 33 lithics, including 1 retouched flake and 2 convex end scrapers fashioned on bipolar cores (Driscoll 2018 – Appendix 2) and also fragments of burnt bone and pottery. All of the fills displayed extensive charcoal flecking throughout.

The structured nature of these depositional fills is suggestive of some form of ritual activity. The cultural materials contained therein were collected and placed within this series of pits. C21/C22 and C34/C35/C44 could be termed as 'token' cremations based on the presence of burnt bone fragments.

The lithics recovered from the pits included finished tools and various forms of debitage. This material is representative of all of the processes of flint knapping to manufacture tools. The fact that the tools are deposited is of interest. The pottery fragments show clear evidence of local manufacture (Cleary 2019 – Appendix 3) and also display abrasion on the surface, suggestive of having been exposed to weathering prior to its deposition. It is likely that the fragmentary remains of pottery were brought to the location specifically to be deposited.

Other structured deposits consisted of burnt stone fragments and oxidised clay. These deposits were separated from the lithics rich deposits which also contained burnt bone and pottery fragments. The burnt stone fragments and oxidised clay were by-products of burning or of direct exposure to fire. These deposits were of particular interest as the material directly affected by the burning was recovered ex situ and deposited in these pits.

There was no vestigial surface evidence of ritual activity on the site, for example oxidised clay patches in the C2 subsoil. However, the pits show evidence of having been truncated, probably by agricultural or landscaping activities. Such activities may have wiped out any such evidence. The C1 plough soil produced 27 lithics including 2 convex end scrapers and 2 retouched flakes. It is probable that these lithics originated from these pits and were redistributed in the topsoil through ploughing.

The pit, C36/C37, was cut/bisected by the linear ditch, C32/C33/C38. C38, the basal fill of the C32 ditch was quite sterile. C38 was identified as a different fill mainly on the merit of its colour and the presence of larger stones. The colour differentiation might well have been as a result of water retention. The C33 fill was a silty clay which produced 14 lithics, including a hammerstone and 1 retouched bipolar core, fragments

of burnt bone and animal bone. The presence of burnt bone and lithics is suggestive of contemporaneity between the pits to the east and the deposition within the C33 fill. Stratigraphically that would suggest that the C32 ditch is an earlier feature on the site and that the pit C36/C37 predates C32. Alternatively, C32 could be a much later feature with the C33 fill being deposited during agricultural works or as a result of natural processes. The presence of lithics and bone in C33 does not confirm C32/C33/C38 as a secure prehistoric context. The presence of this cultural material within C33 is quite random and not structured as in the case of the pit scatter. These artefacts may have been ploughed out of the pit scatter and redeposited in the C32 cut either through natural deposition or deliberate backfilling. However, it is worth noting that the excavation of C32 and its component fills C33 and C38 did not produce any cultural material from the later use / occupation of the landscape even though post medieval deposits and artefacts were identified to the east of C32 and the pit scatter.

This conflict of context was previously noted during the Area 5 excavation (Licence ref: 15E0396 extension – Tobin 2019) where quantities of prehistoric lithics were being recovered from the fills of relatively modern French drains. Archaeological evidence from Area 5 (Tobin 2019) and the Burnt Mound/Spread excavation on the NFMHS site (Licence ref: 17E0377. Tobin 2019 - forthcoming) demonstrated that this landscape was subjected to agricultural impacts during the medieval, post medieval and modern periods. In the case of the ditch C32, the absence of medieval and post medieval material in either C33 or C38 is supportive of a prehistoric date for this feature although not stratigraphically aligned with the pit scatter.

Land use patterns, agricultural use, landscaping, the creation of the avenue to Portrane House and the later development for extensions to the St Ita's Hospital (Reilly's Hill – Block 2 and 10) impacted heavily on this particular part of the site. The survival of the stone cist, the pit scatter and the C32 ditch is fortunate when these impacts are considered. While the evidence would support that the archaeological material recorded during this excavation (Licence ref: 17E0303) was impacted upon, these impacts were negligible. However, it is likely that these features may have extended further to the north, north east and north west. Monitoring (Licence ref: 17E0210) was carried out during the subsequent removal of the avenue/road surface immediately north of the site but no archaeological material was identified during that process. Monitoring during the demolition and site clearance on Reilly's Hill (Licence ref: 15E0396) did not show any evidence for an extension of these features to the north. However, testing carried out during the advance works contract to the north of the Reilly's Hill units and revealed a substantial build-up of soil and subsoil this was previously noted by Claire Walsh (Licence ref: 14E0140). This would appear to

represent the material generated during site clearance in advance of the construction of the Reilly's Hill units (John Sisk & Co 1950s). During topsoil monitoring in 2017 (Tobin 2019 – forthcoming) lithics were recovered on the surface of this material and during the subsequent bulk excavation. The presence of these features to the south of the Portrane House avenue and the Reilly's Hill units and the features excavated as Area 5 (Licence ref: 15E0396 ext) to the west would suggest that further prehistoric material may well have been present on the Reilly's Hill development site and destroyed in the process of construction.

The pit scatter and possible prehistoric linear (C32) were the remains of a probable ritual site. The absence of human remains either inhumed or cremated would suggest that this location was not used as a cemetery site and there was no clear archaeological association between the scatter and the stone cist. The only tenuous connection was in their proximity to each other and it is a possibility that the presence of the stone cist was the reason the site was chosen for ritual activity. Pit scatters and ritual sites have been identified in the east of the country. They have been found in association with burials but in some cases without a clear association with funerary activity. What sets them apart from domestic pits are the structured deposits. At Faughart Lower, Co Louth (Delaney 2003) four pits were identified forming at arc from north east to south west and a fifth pit forming a central point for the arc. 153 sherds of undecorated pottery were recovered. At Harlockstown, Co Meath (O'Connor 2003), the earliest evidence from this excavation were pits with structured deposits of lithics broadly dated to the later neolithic or early bronze age. During excavations at Cookstown, Co Meath (Clutterbuck 2003), 59 prehistoric features were identified, the majority being shallow pits broadly dated to the bronze age. Some of these pits contained deposits of burnt bone and lithics. Excavations at Littlemill, Co Louth (O'Donnachadha 2002) revealed 18 pits, 2 of which produced structured deposits of sub angular stones, burnt animal bone and pottery. A third pit on this site produced 62 lithics. Of particular interest was the site excavated at Colp West, Co Meath (Murphy 2000). This site was classified as a prehistoric ritual site and later Early Christian settlement site. The prehistoric activity at Colp West was separated from the later activity by a linear ditch running from north to south. All prehistoric activity excavated lay to the west of this ditch. This activity took the form of pits and post holes. 4 of the pits produced large quantities of pottery sherds while the majority of the others contained cremated bone and dense charcoal deposits. The linear ditch produced prehistoric pottery, lithics and a whetstone.

Similar sites are recorded all over the country being uncovered during infrastructural developments including large scale housing projects, gas pipelines and road networks.

The routing of and location of these developments tends to bias the archaeological record spatially showing a distribution pattern that is not representative of the actual spread.

The selection of the site for ritual activities and the collection of weathered pottery for deposition gives an interesting insight into the psyche of the bronze age population. The selection of the site appears to have been associated with the presence of the stone cist and the general archaeological landscape as it existed at the time. Whatever surface evidence was apparent over the stone cist, if any, was recognised by the Bronze Age population as indicative of a burial place and as such the area was deemed as 'consecrated' ground. The use of the adjacent area for ritual activity acknowledges both the sanctity of the burial site and the continuity of association with ritual tradition. Collecting pottery fragments from elsewhere shows respect for the past generations and a heightened awareness of the landscape and its previous occupants. The placement of the weathered pottery fragments within the structured deposit is indicative of the value placed on the ancestors through a ritualised acknowledgement of their artefacts. The analysis of the pottery demonstrated that it was probably fabricated local to Portrane. It is likely, but not definite, that the cooking ware was used, broken and discarded locally and ultimately collected years, possibly generations later for deposition. If this is the case, then it is also possible that the lithics were collected locally for inclusion within the structured deposit. The foreshore and immediate coastal hinterland are littered with lithics representing all stages of the knapping process. In the absence of any archaeological strata or deposit that might indicate a specific activity it is quite probable that the ritual was the deposition of these artefacts, possibly as votive offerings to those buried at this location.

The excavations cited above all contained pits with structured deposits and other features forging a clear association with those excavated at Portrane. The sites above could also be said to include token burials as with the pits at Portrane. The full extent of the features at Portrane is not known. The area to the north was subject to agricultural activity through time, developed to accommodate the entrance avenue to Portrane House and landscaped and planted as the Portrane Demesne land developed. Finally, the area immediately to the north was dug out to accommodate an extension to the St Ita's Hospital buildings.

It is possible that some partial remains may survive within the tree line to the south but the root activity over several hundred years will have impacted severely on any and all archaeological stratigraphy.

6.3 Summary

It is fortunate that the stone cist and the ritual array of pits and postholes survived. While the stone cist and the pits, postholes and the linear ditch cannot be directly associated through stratigraphy or dating, it is possible that the presence of the stone cist attracted the later ritual activity. It is likely that some surface manifestation of the cist was apparent to identify what lay beneath. The form of that manifestation is unknown, but it could well have been a low mound/tumulus, a visible capstone or a combination of both. Both agriculture and / or landscape design may have removed the visible surface remains of the stone cist.

The term ‘cist’ describes a stone lined/built box-like structure, coffin or ossuary. The use of such cist burials appears to have flourished in the bronze age and consequently cist burials have been broadly designated as a bronze age phenomenon. This is not the case; with the identification of Linkardstown type burials came the recognition of single inhumed burial practices in the middle Neolithic period in Ireland. These inhumations, either articulated or disarticulated, are placed within a stone cist and sealed, both within the cist and ultimately under a composite mound. Not all such burials follow in the classic form of the Linkardstown type, but they do manifest many of the features that are particular to the Linkardstown type burials. The Portrane stone cist fits the descriptive classification of ‘cist’ in that it was a stone lined/built ‘box’, but that is where the similarities end.

The Portrane stone cist was anomalous in its construction. Built within a pit, the lower chamber displayed clear megalithic stylings forming a trapezoidal chamber aligned north to south. The chamber was sealed by a double layer of capstones. The upper part of the pit was again lined with side slabs to form a second chamber above the first or possibly a stylised entrance portico. This upper chamber/portico was deliberately filled with overlapping stones, forming an abstract form of corbelling. The whole structure was significantly executed in greywacke sandstone and contained no remains either inhumed or cremated. The Portrane stone cist was designed and built to be completely sealed. While there is no dateable evidence from the excavation of the stone cist, its structural form is more in keeping with the Linkardstown type chambers and its megalithic stylings have more in common with Portal Tombs and Passage Tombs. Tentatively, based on its structural form and the use of greywacke sandstone in its construction, would suggest a date placing the structure in the middle to late Neolithic period.

The pit scatter and linear ditch were representative of later ritual activity adjacent to the location of the stone cist. In general, the pits contained a variety of structured deposits

from angular burnt stone to large quantities of lithics, interspersed with pottery fragments, burnt bone and charcoal. Again, dateable material was not recovered in sufficient quantities for C14 analysis and broad dating was applied using the artefact assemblage. The lithics were generic Neolithic / Bronze Age in style but the presence of bipolar cores is suggestive of a Bronze Age date for the lithics material deposited. The pottery fragments were not diagnostic but the fabric and use wear patterns indicated that they were from pottery used for cooking. The thinness and fabric are suggestive of Bronze Age manufacture. The sherds also showed weathering on the surface which suggests that they had lain in the open for a considerable period of time before being collected and brought to this location for deposition.

The evidence from the lithics, specifically the flint cores and from the pottery would suggest that the materials deposited here date to the Bronze Age. This would indicate that the ritual activities, culminating in the structured deposition, were carried out in the Bronze Age.

Later activity on the site was identified as a series of truncated post holes, evenly set and aligned north east to south west. The fill of these post holes contained domestic and structural debris of post medieval to early modern date. The holes were probably the remains of a fence line associated with the 19th century occupation of Portrane House and Demesne. The fence line originates with a substantial post hole / pit C5/C6 which is located due south of the avenue of Portrane House. This might suggest that the fence line post dates the construction of the avenue. The avenue is shown on William Duncan's map of 1821 which potentially would place the fence line in the 19th century.

Excavations on this site were completed on the 3rd August 2017. The excavation site was backfilled with stone and utilised for storage. Ultimately this location was reduced to a lower foundation level to accommodate the Mental Health Intellectual Disability (MHID) unit of the new National Forensic Mental Health Services Hospital due to be completed in 2019.

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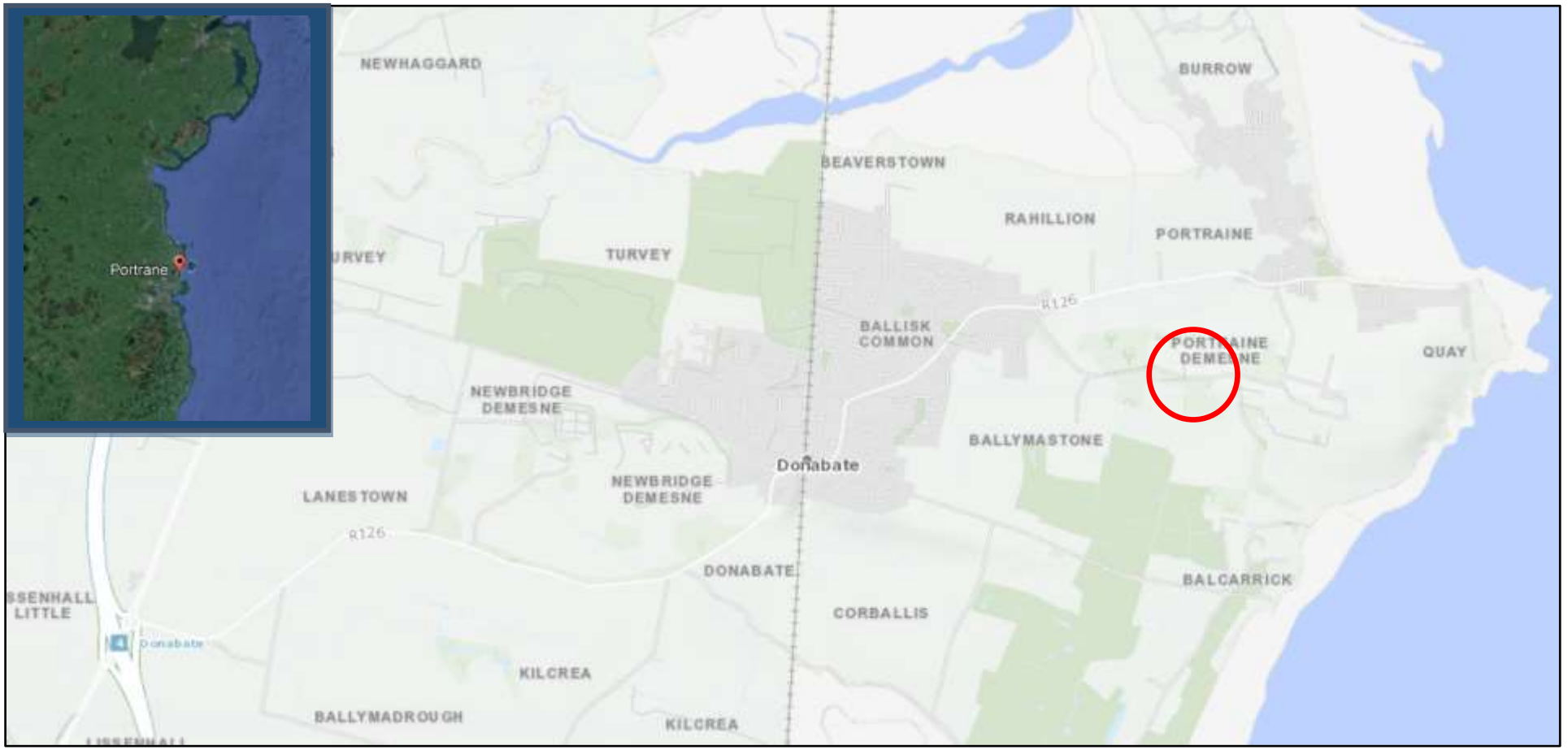


Fig 1. General site location (indicated in red)

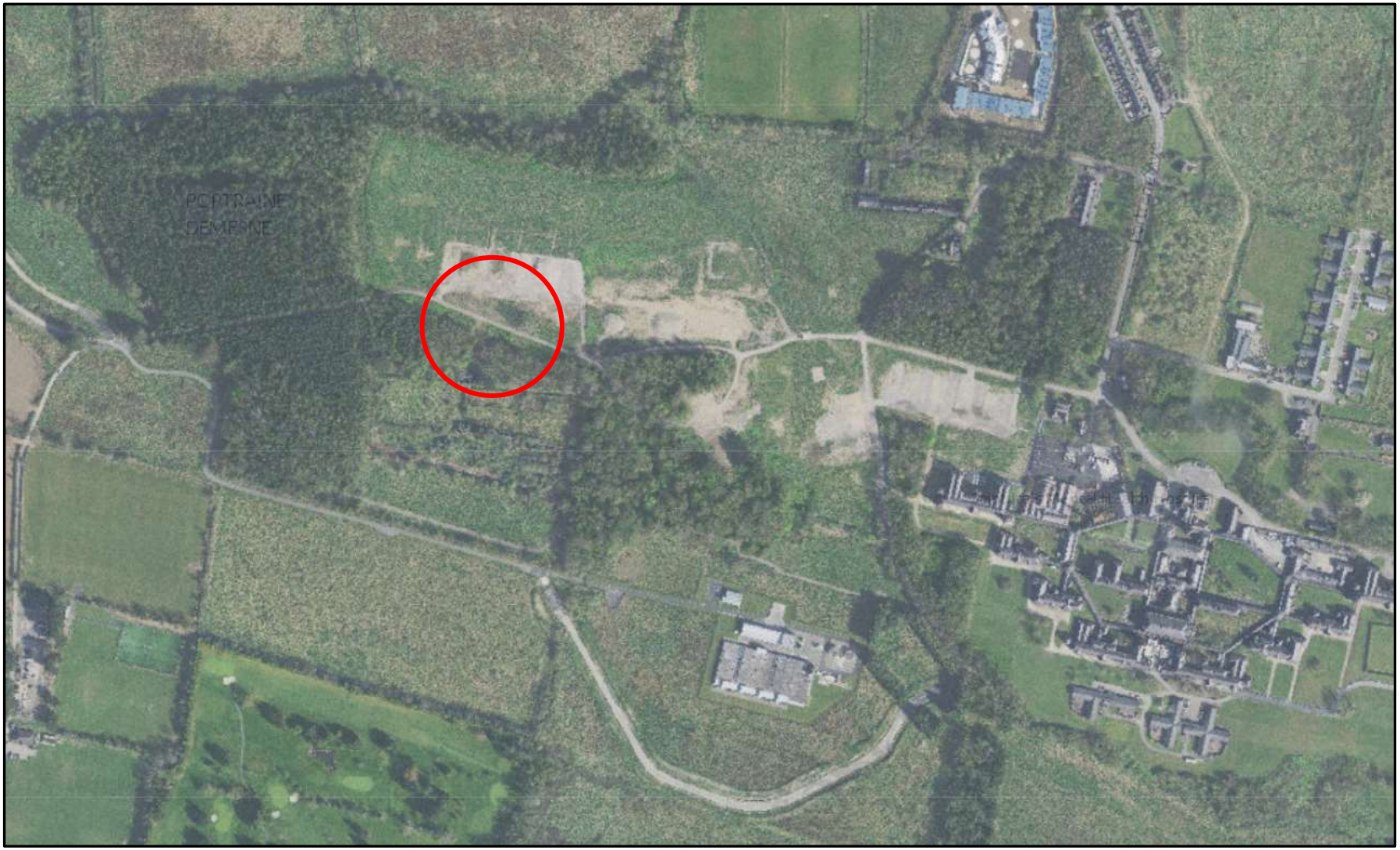


Fig 2. Aerial image of site after the Advance Works contract 2016 – location of 2017 stone cist excavation indicated in red

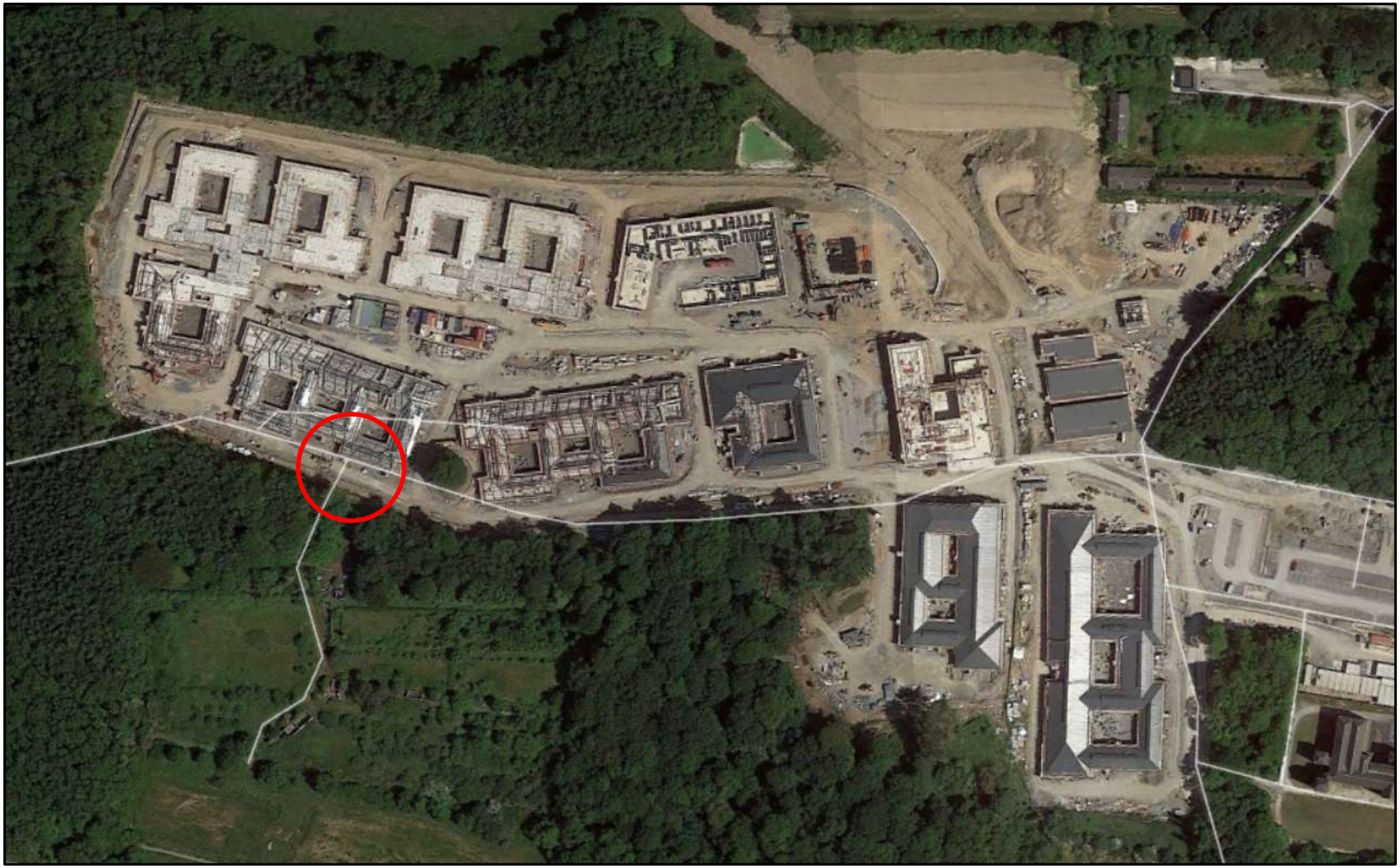


Fig 3. Google Earth image of the NFMHS site during construction (2018). Location of stone cist excavation indicated in red.

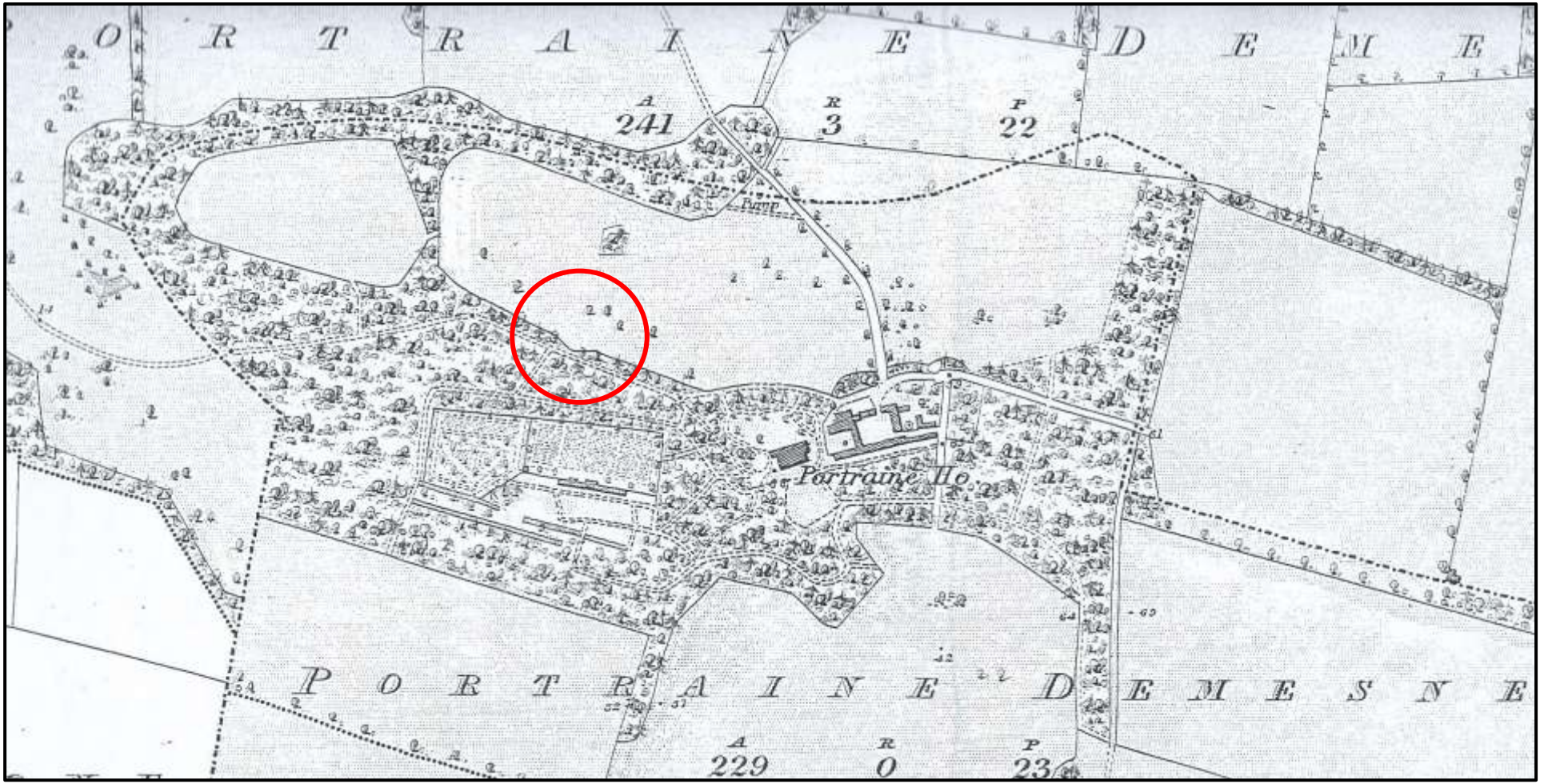


Fig 4. 1st edition OS map (1837-43) – Location of excavation indicated in red

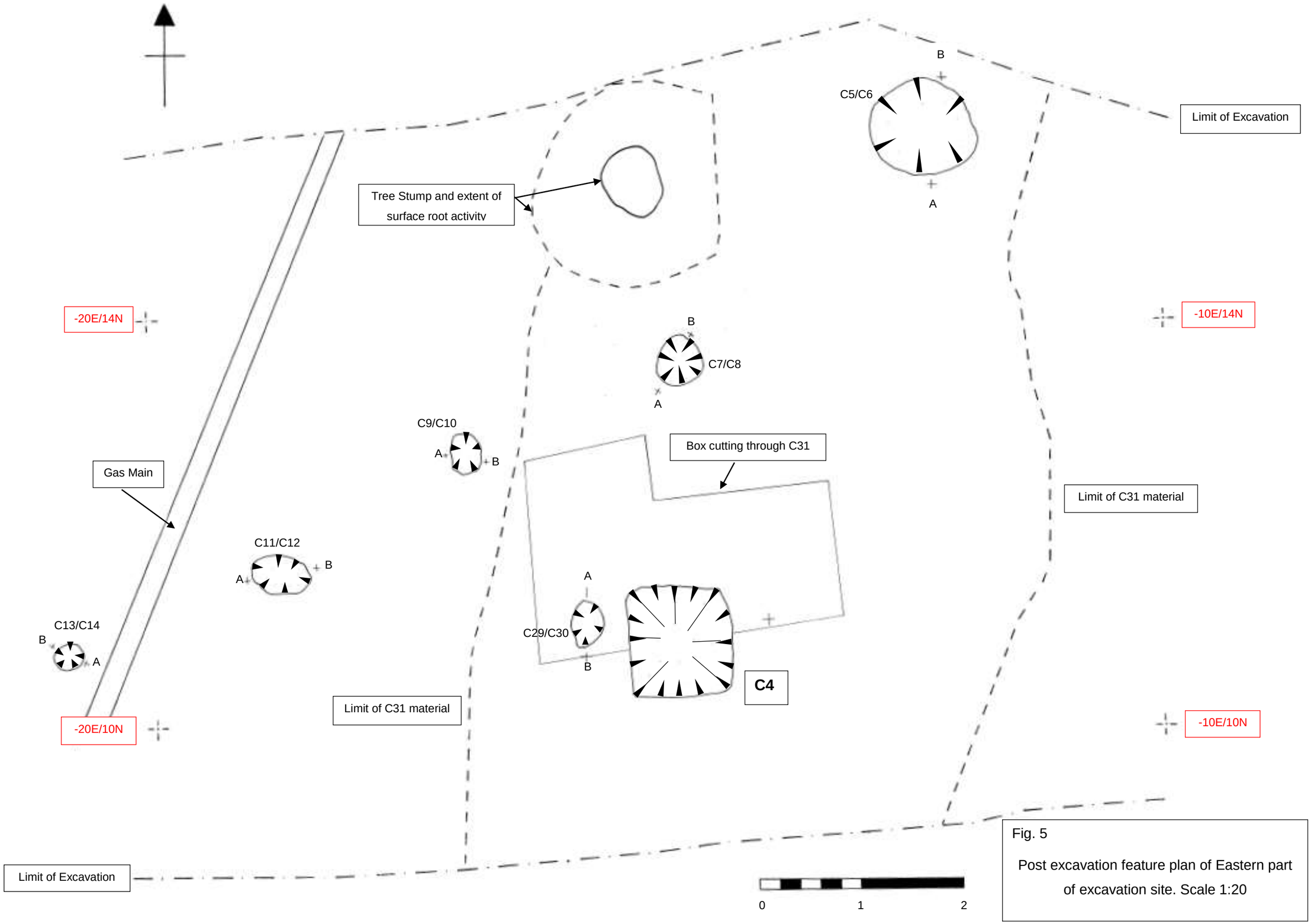


Fig. 5

Post excavation feature plan of Eastern part of excavation site. Scale 1:20

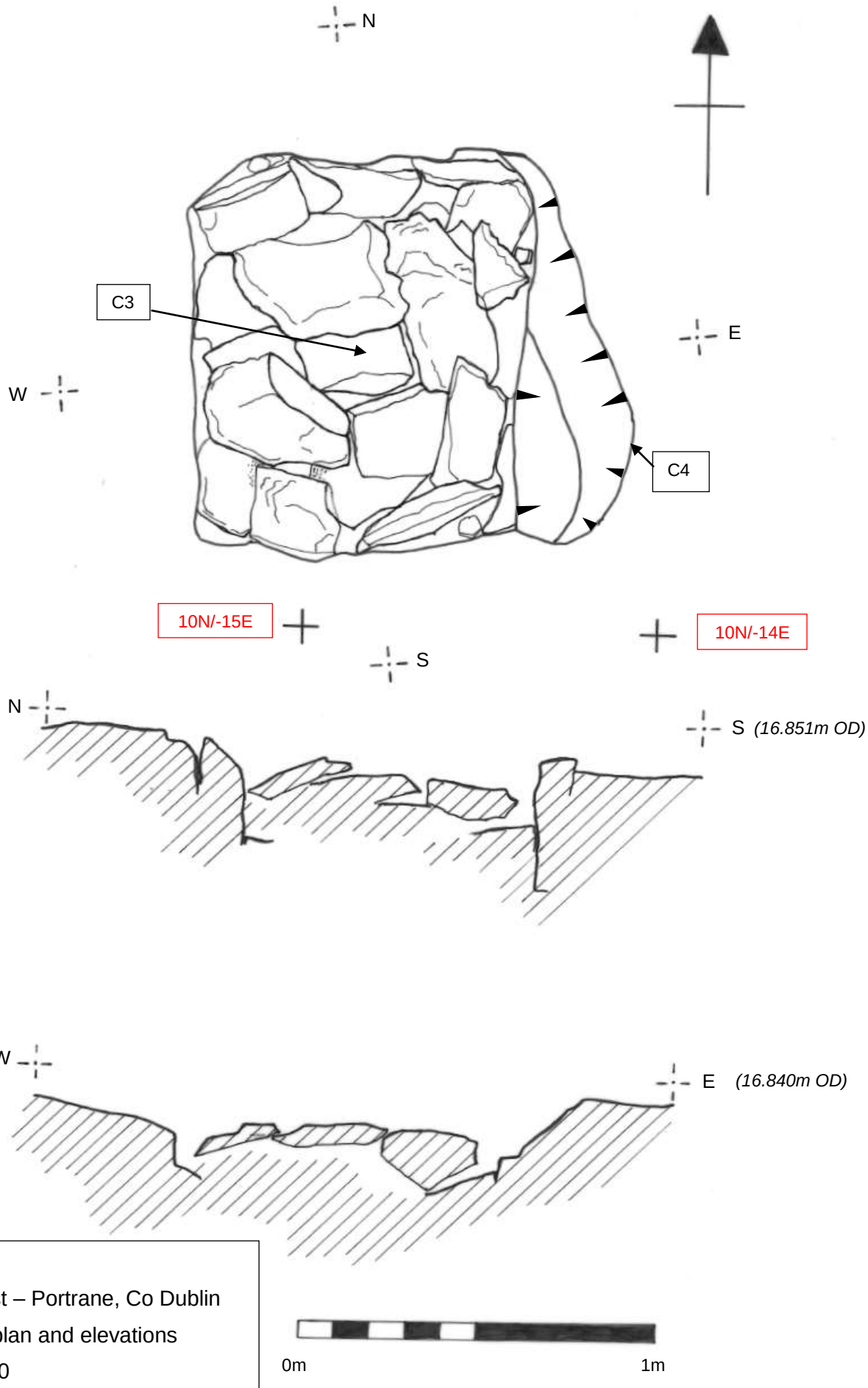


Fig. 6
Stone Cist – Portrane, Co Dublin
C3 level plan and elevations
Scale 1:10

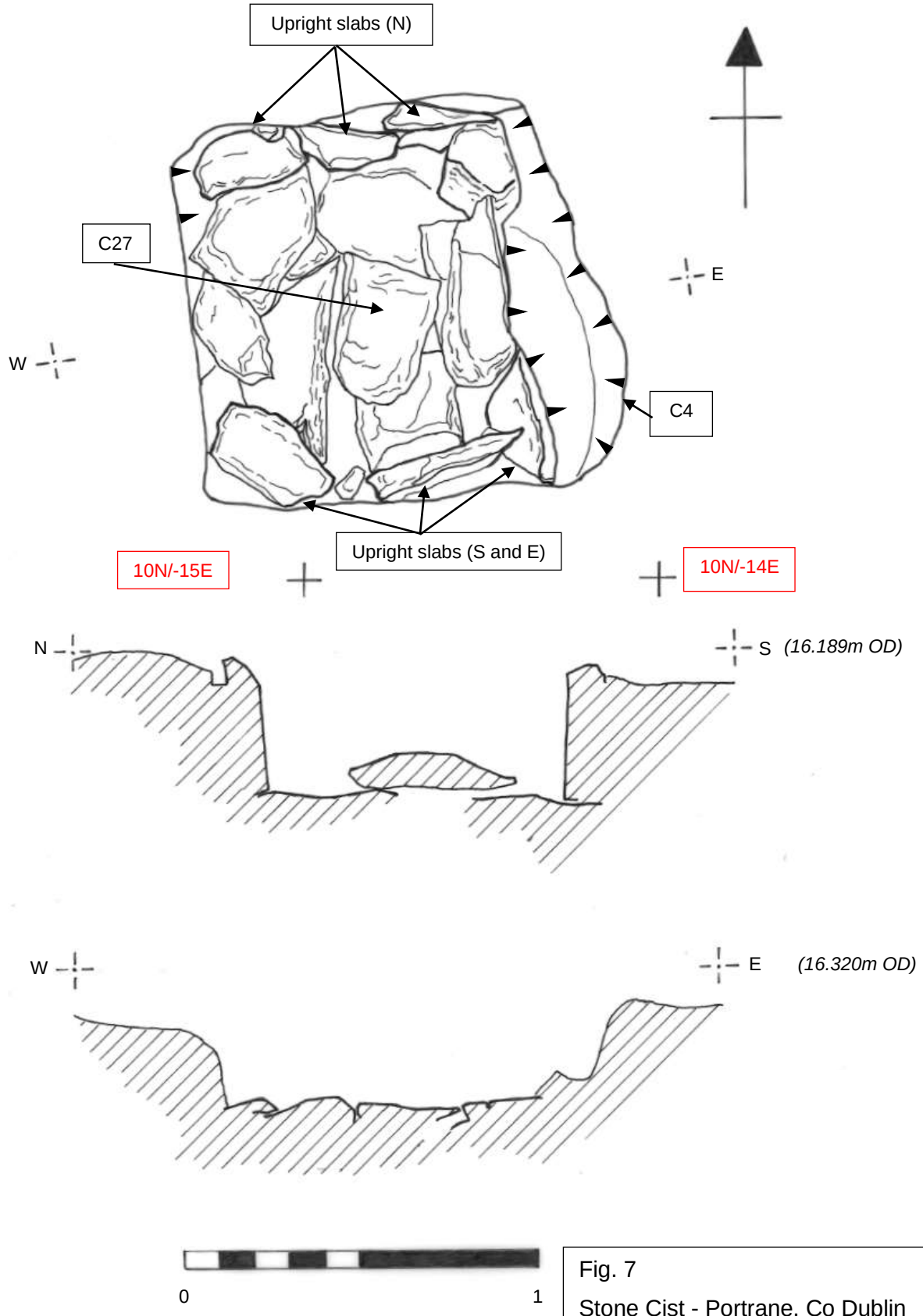


Fig. 7
Stone Cist - Portrane, Co Dublin
C27 level plan and elevations
Scale 1:10

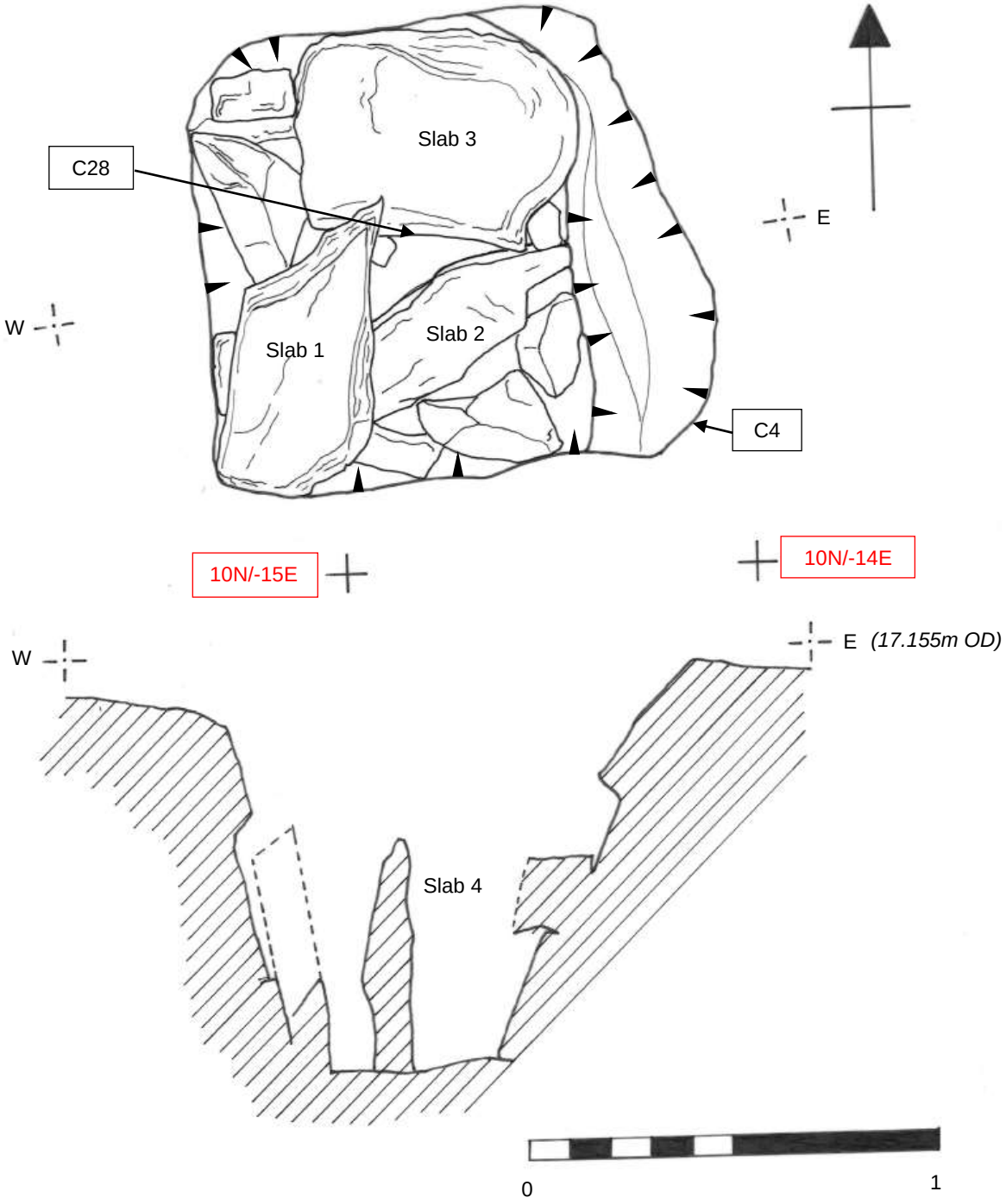


Fig. 8

Stone Cist – Portrane, Co Dublin

C28 level plan and elevation

Scale 1:10

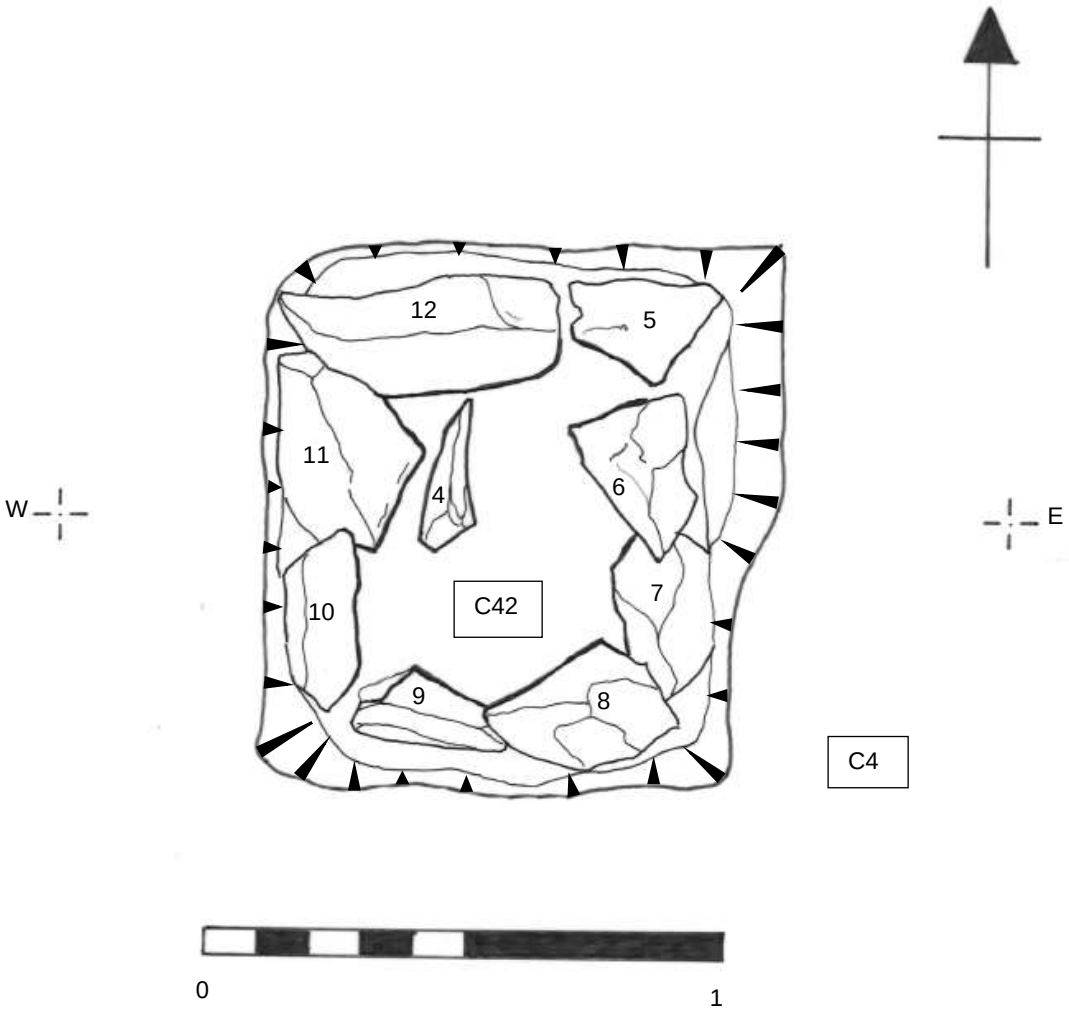


Fig. 9

Stone Cist – Portrane, Co Dublin

C42 – Orthostats plan

Scale 1:10

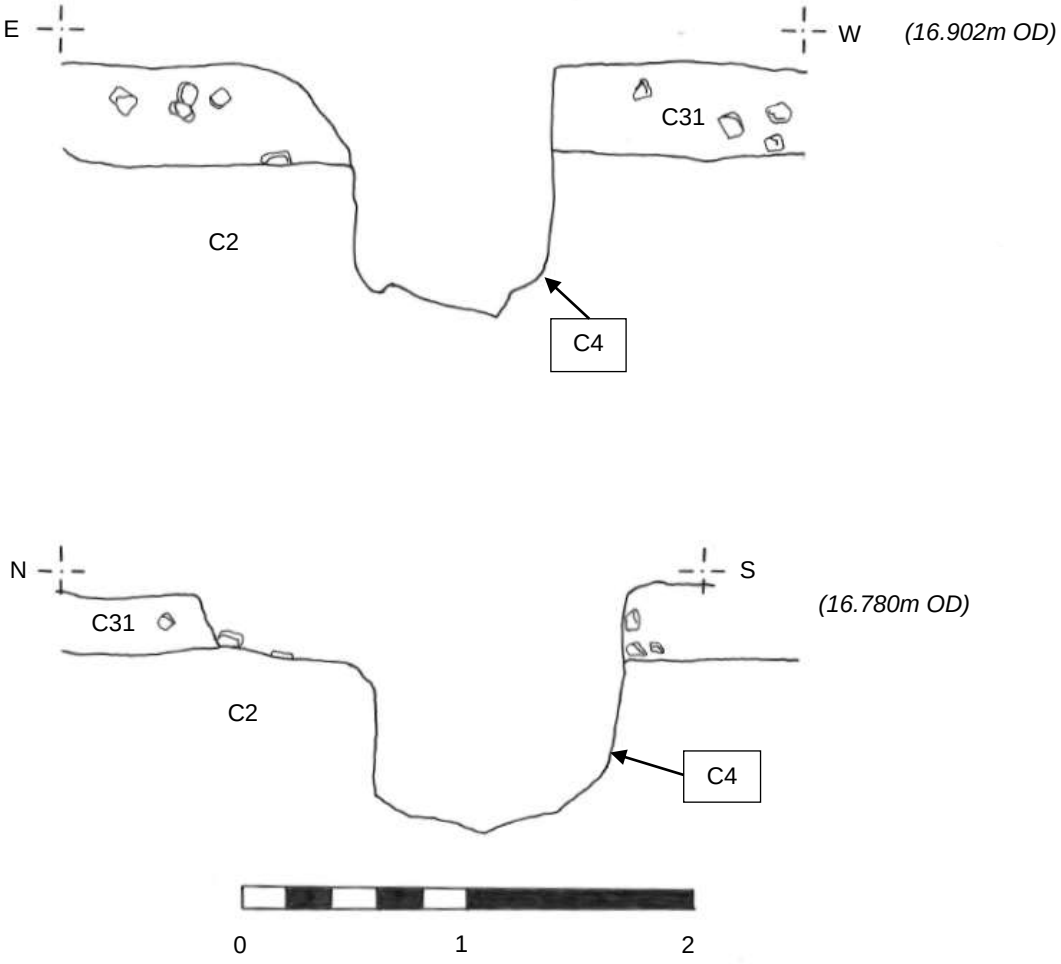


Fig. 10

Stone Cist – Portrane, Co Dublin

C4 / C31 / C2. Post excavation profiles

Scale 1:20

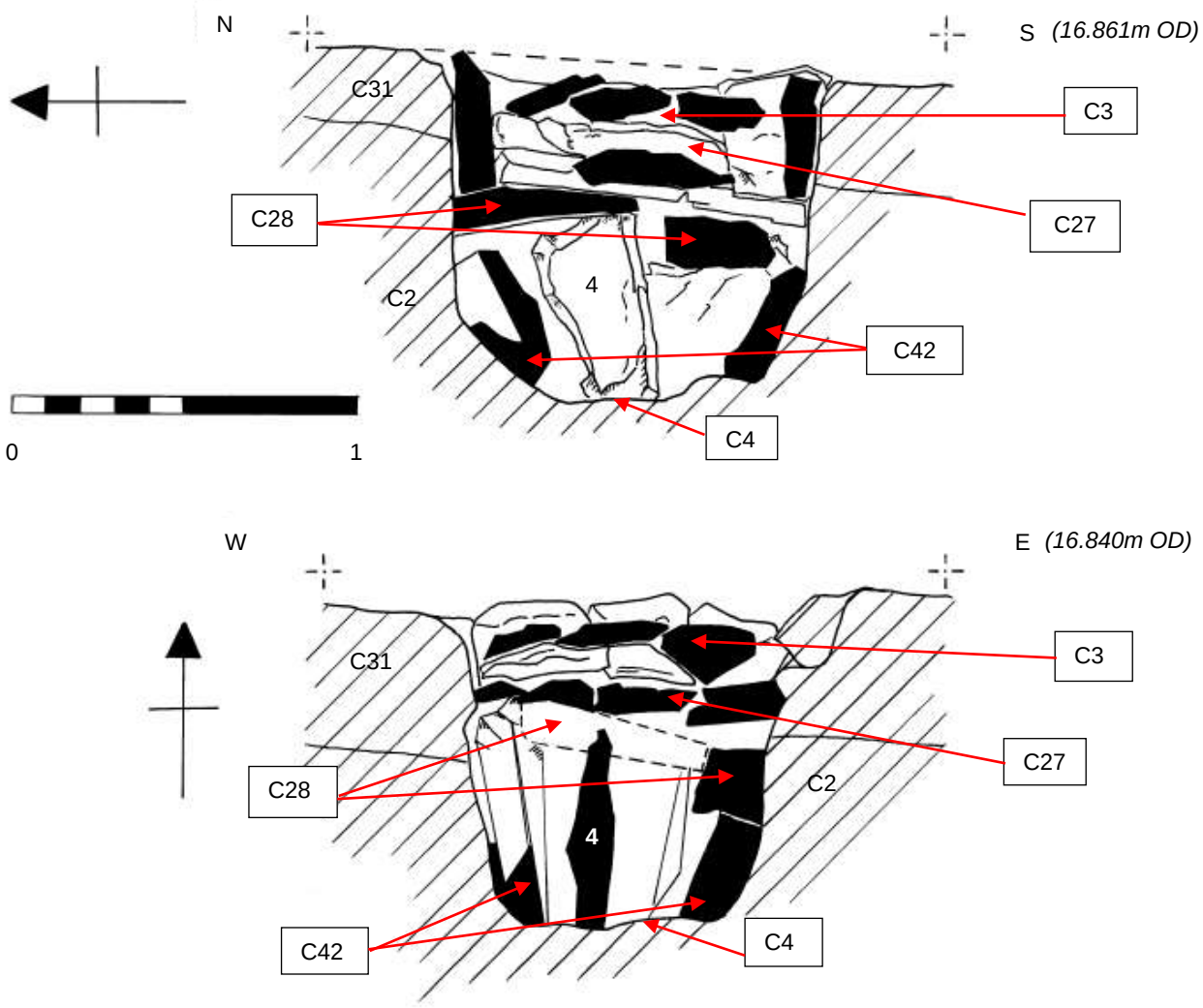
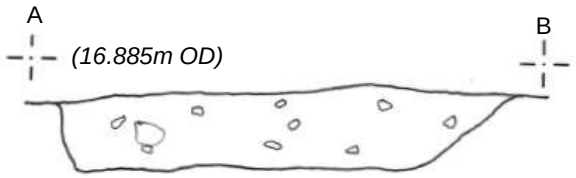


Fig.11

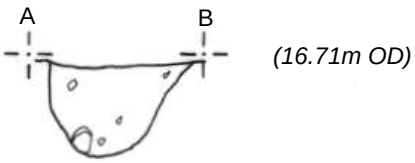
Stone Cist – Portrane, Co Dublin

Composite profiles of Stone Cist structure

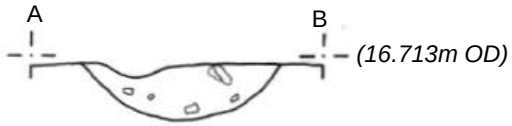
Scale 1:10



C5/C6 East facing section

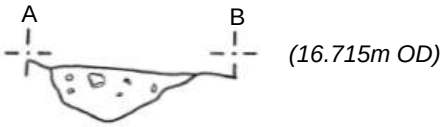


C13/C14 South facing section



C7/C8 South east facing section

C11/C12 North west facing section



C9/C10 North facing section

Fig. 12

Stone Cist – Portrane, Co Dublin

Sections of post holes at eastern end of site

Scale 1:10

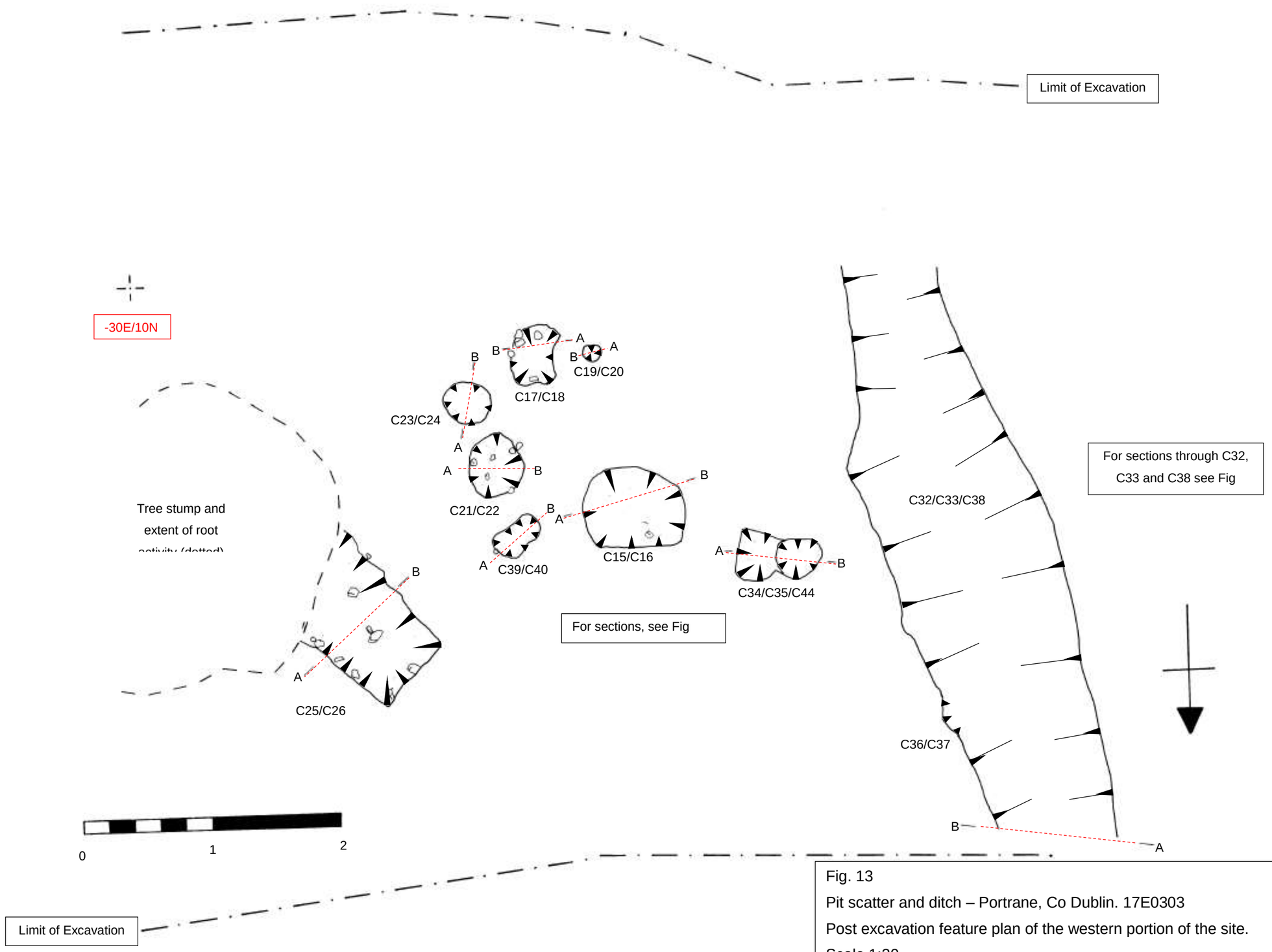


Fig. 13
Pit scatter and ditch – Portrane, Co Dublin. 17E0303
Post excavation feature plan of the western portion of the site.
Scale 1:20

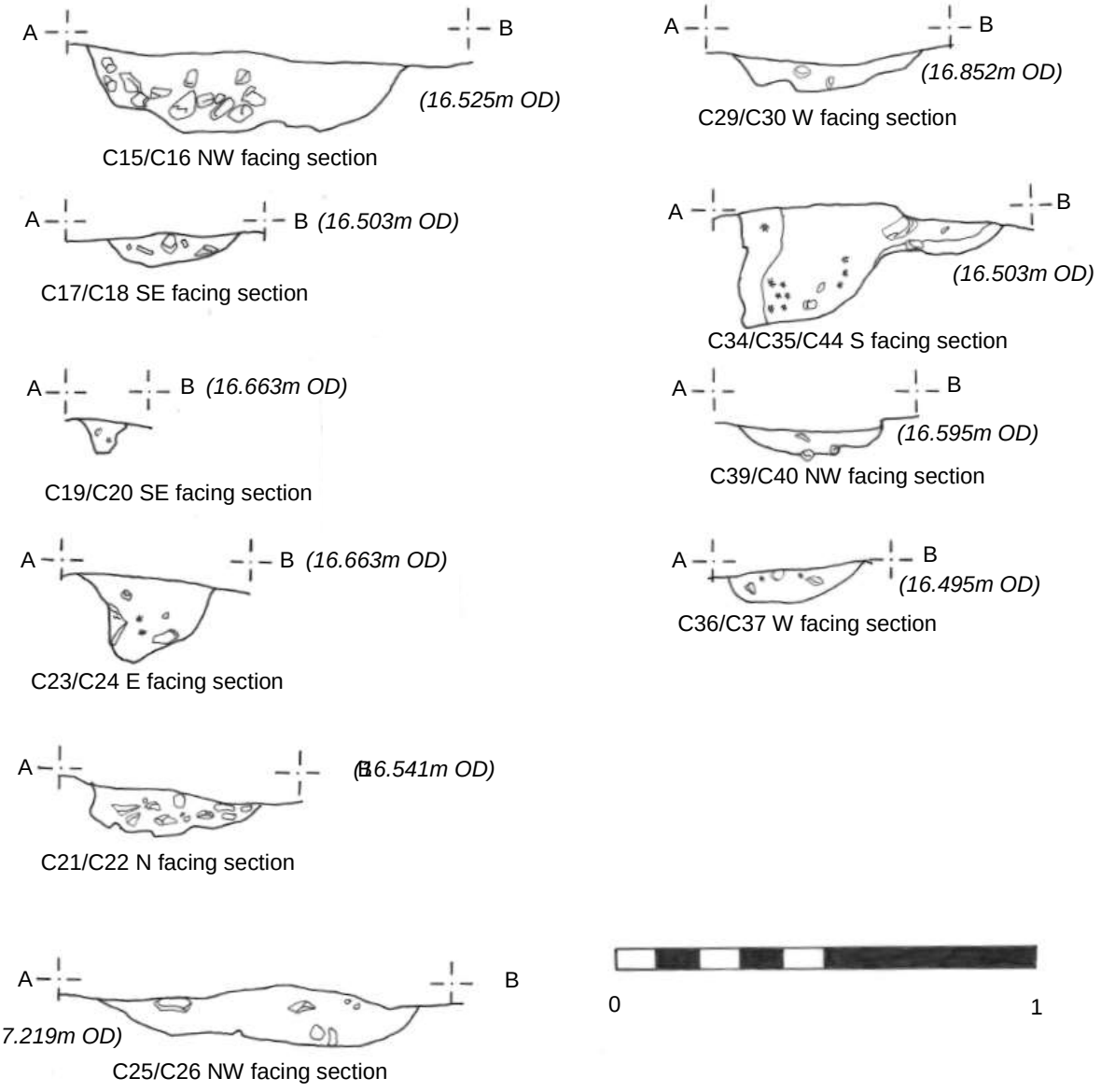


Fig. 14
Pit Scatter – Portrane, Co Dublin
Sections through pits / postholes.
Scale 1:10

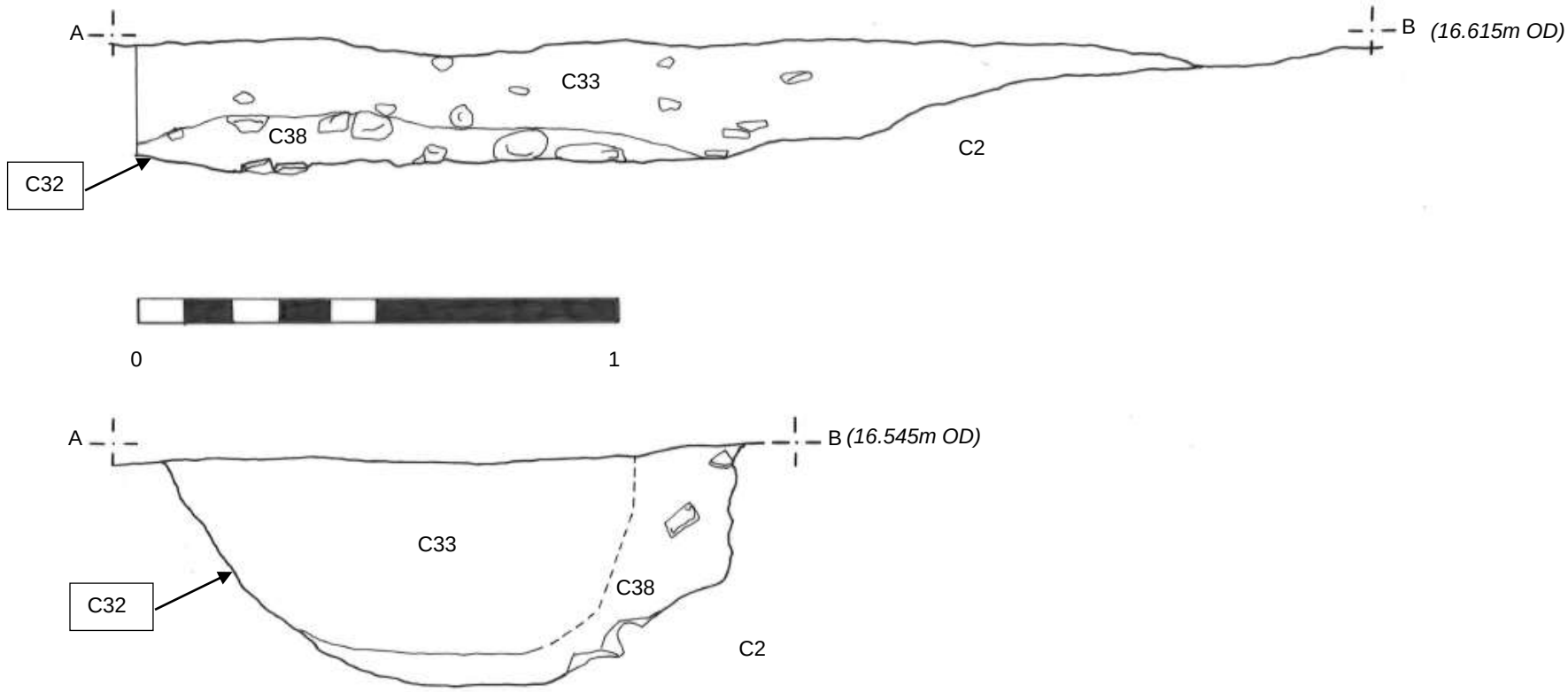


Fig. 15
Ditch C32 and fills C33 and C38
Sections
Scale 1:10

Plate 1. General view of the excavation site looking west, cist visible to the left.

Plate 2. The stone cist as found looking north. Upper chamber and C3 corbelling visible.

Plate 3. The stone cist as found looking west. Upper chamber and C3 corbelling visible.

Plate 4. The stone cist as found looking south. Upper chamber and C3 corbelling visible.

Plate 5. The stone cist as found looking east. Upper chamber and C3 corbelling visible.

Plate 6. The stone cist as found looking north east. Upper chamber and C3 corbelling visible.

Plate 7. Stone cist, C3 corbelling removed. Looking south

Plate 8. Stone cist, C3 corbelling removed. Looking east

Plate 9. Stone cist, C3 corbelling removed. Looking north

Plate 10. Stone cist, C3 corbelling removed. Detail of side slabs. Looking north

Plate 11. Stone cist, C3 corbelling removed. Detail of side slabs. Looking south

Plate 12. Stone cist, upper chamber. Looking south

Plate 13. Stone cist, upper chamber. Looking north

Plate 14. Stone cist, upper chamber. Looking west

Plate 15. Stone cist, upper chamber. Looking south

Plate 16. Stone cist, upper chamber. Looking west

Plate 17. Stone cist, upper chamber and upper layer of capstones removed. Looking west

Plate 18. Stone cist, upper chamber and upper layer of capstones removed. Looking south

Plate 19. Stone cist, upper chamber and upper layer of capstones removed. Looking east

Plate 20. Stone cist, upper chamber and upper layer of capstones removed. Looking north

Plate 21. Lower capstones removed to show propping orthostat. Looking north

Plate 22. Lower capstones removed to show propping orthostat. Looking east

Plate 23. Lower capstones removed to show propping orthostat. Looking north

Plate 24. Lower capstones removed to show propping orthostat. Detail. Looking north

Plate 25. Capstones removed, lower chamber orthostats exposed. Looking north

Plate 26. Capstones removed, lower chamber orthostats exposed. Looking south

Plate 27. Lower chamber fully excavated. Looking south

Plate 28. Lower chamber fully excavated. Looking west

Plate 29. Lower chamber fully excavated. Looking north

Plate 30. Lower chamber fully excavated. Looking south. Orthostats numbered.

Plate 31. Lower chamber fully excavated. Looking west. Orthostats numbered.

Plate 32. Lower chamber fully excavated. Looking east. Orthostats numbered.

Plate 33. Receiving pit, C4. Post excavation

Plate 34. Receiving pit, C4. Post excavation

Plate 35. Test cut through the C31 deposit. Looking west

Plate 36. Test cut through the C31 deposit. Looking east

Plate 37. C5/C6 mid excavation. From the east

Plate 38. C7/C8 mid excavation. From the south east

Plate 39. C9/C10 mid excavation. From the south

Plate 40. C11/C12 mid excavation. From the south

Plate 41. C13/C14 mid excavation. From the west

Plate 42. C14 post excavation. From the south

Plate 43. C15/C16 mid excavation. From the north

Plate 44. C16 post excavation. From the north

Plate 45. C17/C18 & C19/C20 pre excavation. From the north west

Plate 46. C18 & C20 post excavation. From the south

Plate 47. C21/C22 mid excavation. From the north

Plate 48. C21/C22 detail. From the north (trowel for scale)

Plate 49. C24 post excavation. From the south

Plate 50. C25/C26 mid excavation. From the north

Plate 51. C25/C26 mid excavation from the south

Plate 52. C32, east facing section (S). Looking west

Plate 53. C32, east facing section (N). Looking west

Plate 54. C32, west to east profile. Looking north

Plate 55. C32 ditch post excavation and west to east profile. From the south

Plate 56. C32 post excavation from the south

Plate 57. General view of pit scatter and ditch from the east

Plate 58. General view of pit scatter and ditch from the east

Plate 59. General view of pit scatter from the east

Plate 60. Post excavation view of C34/C35/C44 – from south west

Plate 61. Mid excavation, C39/C40.

Plate 62. Single platform core (17E0303:1:1 – Flint)

Plate 63. Retouched flake (17E0303:1:11 – Flint)

Plate 64. Convex scraper (17E0303:1:5 – Flint)

Plate 65. Bipolar core (17E0303:15:11 – Flint)

Plate 66. Retouched flake (17E0303:15:13 – Flint)

Plate 67. Bipolar core (17E0303:22:1 – Flint)

Plate 68. Bipolar core (17E0303:22:15 – Flint)

Plate 69. Bipolar core (17E0303:22:15 – Flint)

Plate 70. Single platform core (17E0303:22:26 – Flint)

Plate 71. Single platform core (17E0303:22:26 – Flint)

Plate 72. Convex scraper (17E0303:23:1 – Flint)

Plate 73. Convex scraper (17E0303:35:6 – Flint)

Plate 74. Retouched flake (17E0303:35:27 – Flint)

Plate 75. Pottery sherd from C35 (exterior)

Plate 76. Pottery sherd from C35 (interior)

Plate 77. Pottery fragments from C35 (exterior)

Plate 78. Pottery fragments from C35 (interior)

Appendix 1

Report on the Cist Burial Lining & Roof Stones

Ivor Kenny

REPORT ON THE LINING AND ROOF STONES FROM A POSSIBLE CIST BURIAL AT THE NATIONAL FORENSIC MENTAL HOSPITAL SITE, PORTRANE, COUNTY DUBLIN. LICENSED EXCAVATION NUMBER 17 E 0303

IVOR KENNY BA, HDIP ARCHAEOLOGY
SEPTEMBER 2017

Introduction

This report is the result of a specialist technical examination of a select number of stones uncovered during archaeological excavations at the National Forensic Mental Hospital site, Portrane, Co. Dublin. The archaeological works were carried out in 2017 by RedArc Consulting Ltd. under license number 17E0303.

The stones lined a possible cist burial cut to a depth of approximately one metre below current ground level and were identified during topsoil clearance (Tobin 2017 *pers. comm.*).

A limited number of stones were retained from the feature for *ex situ* analysis. This report is based on those examples. Any conclusions or inferences drawn are necessarily limited by the sample size. None of the stones from above the covering slabs were retained for technical analysis.

A total of 12 stones were collected from the excavation site at Portrane and brought to a facility in County Wicklow for detailed examination.

All of the examples were washed with a high volume/low pressure electric power washer prior to examination.

The stones were allocated numbers (1 - 12) while *in situ.* This numerical order is retained throughout.

Two of the stones from the group exhibited anomalous markings and the report includes a discussion on how they may have been formed together with the implications of their presence.

Terminology

The term stone will be interchanged with slab or orthostat as and where appropriate.

Viz. A slab is a '…flat, broad, and comparatively thick piece or mass of anything solid.' (Onions 1978).

An orthostat is 'an upright stone or slab forming part of a structure or set in the ground (Oxford online 2017).

Most of the stones from the sample fit well with either description.

Apart from the terms above, the lexicon of archaeology includes terms for small stone tools (lithics), intermediate stone tools (coarse stone tools; hammer stones etc.) and large stones (megaliths) but there is an absence of terminology for intermediate types and sizes of stones, especially when such stones are identified as an element of a larger feature.

Cooney (2010) for example, employs the phrase '*mundane stone*' to underscore the limited attention given to stone when it is used as a construction material: *'Where stone has not been clearly worked it is regarded as non-artefactual and indeed may not be retained as part of excavation archives. This can be contrasted with the recognition of the significance of the debitage from the working of lithic raw materials to make tools*'.

While the pit has many of the characteristics of a cist burial (Plate 1), no obvious cultural material was recovered during excavation. Cultural material may be recovered during post-excavation sampling. Until this is undertaken, and the presence or absence of cultural material is established, it may be prudent to use the term stone lined pit rather than cist burial.

Lithology of the Portrane site and sourcing the stones.

Three geological zones are present on the Portrane site: the Portrane Volcanic Formation, the Portrane Limestone Formation, and the St. Ita's Formation (*Figure 1*).

This bedrock geology is overlain with Irish sea till sediments derived from palaeozoic sandstones and shales to an approximate depth of one metre. The Portrane Volcanic Formation is to the west and north of the site. It is composed of andesite, tuff, pebbly mudstone, and shale. At the southern end of the site is the Silurian 'St. Ita's Formation' composed of greywacke sandstone and siltstone. This formation unconformably overlies the third zone: the Portrane Limestone Formation (GSI 2017). See also appendix 1.

All of the stones from the pit are of the same lithology and are understood to be greywacke sandstone (Tobin 2017 pers. comm.).[4] There is a strong likelihood that the stones were transported from some point within the St. Ita's formation. A quarry (*Plate 10*) is depicted some 900 metres from the pit on the 25" historic map (now filled in). It is possible that this was once an exposed outcrop and given that it is closer to the pit than the coastal formations, it is probable that this was the source of the stone. This is supported by the fact that the coastal formations exhibit weathering and colours that are not duplicated on the pit stones. The bedding formations on the coast lend themselves to comparatively easy slab extraction and there is evidence for absent sections of rock in an area that would be suitable for supply. There is however, no surviving evidence of tool marks or primary stone reduction technique, but this is unsurprising given the erosive nature of coastal environments (*Plate 13*).

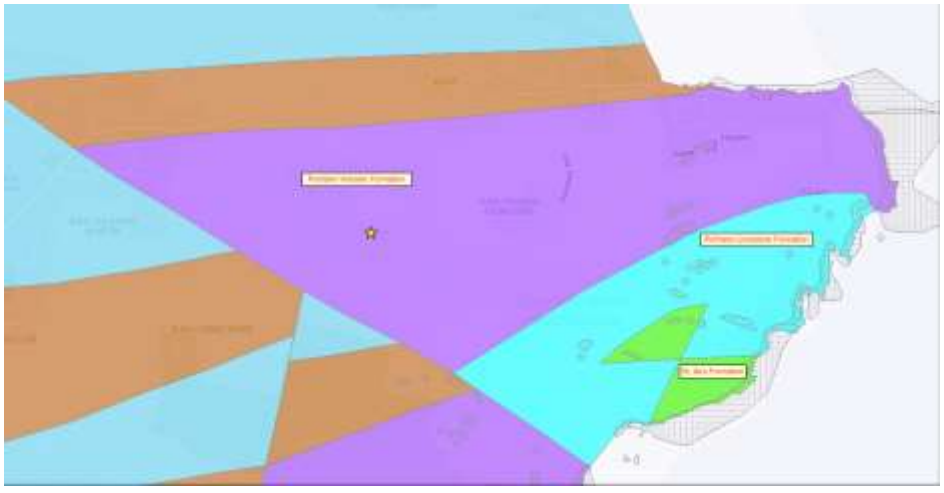


Figure 1. Lithology of Portrane. The star symbol shows the location of the stone lined pit (GSI 2017).

[4] Absolute identification of the lithology by microscopic thin section analysis was not available at the time of writing.

Outline description of the pit stones

While an interpretation of the layout of the pit stones and the intent of the builders is beyond the scope of this report, their positions within the pit have had a bearing on their morphology and the choice of stone and are thus useful for an understanding of the individual stones.

The stones were arranged in two groups that had two different purposes: the first group (stones #5 to #12) acted as both lining for the sides of the pit and to provide support for the 'roof stones'. The second group effectively sealed the pit from above (*Figures 2 & 3*).

Stones #1 to #3 (context #28) inclusive acted as roof or capping stones and as a platform for the covering stones. Stone #3 is comparatively thin and it may have been considered vulnerable to fracture if left to span the entire width of the pit.

One stone from the first group (stone #4) was placed upright close to the centre of the pit; presumably in order to provide additional support for stone #3, in addition to the random stones above.

The overall layout of the slabs and orthostats is somewhat similar in both lithology (greywacke sandstone/turbedite) and morphology to a cist burial excavated at Carn More, County Louth (Bayley 2010). However, the arrangement of stones in the Portrane pit differs from the Carn More 5 example (and most other cist burials) in that multiple stones are used to line the pit walls rather than well-chosen single slabs placed on their sides. See Plate 1 and figures 2 & 3 below.

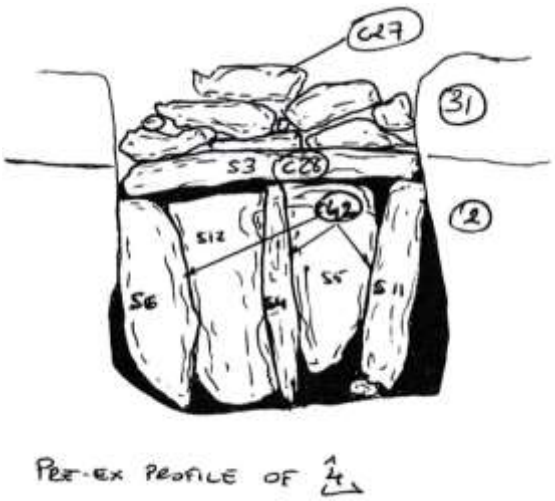


Figure 2. Pre-ex profile drawing (Siles 2017)

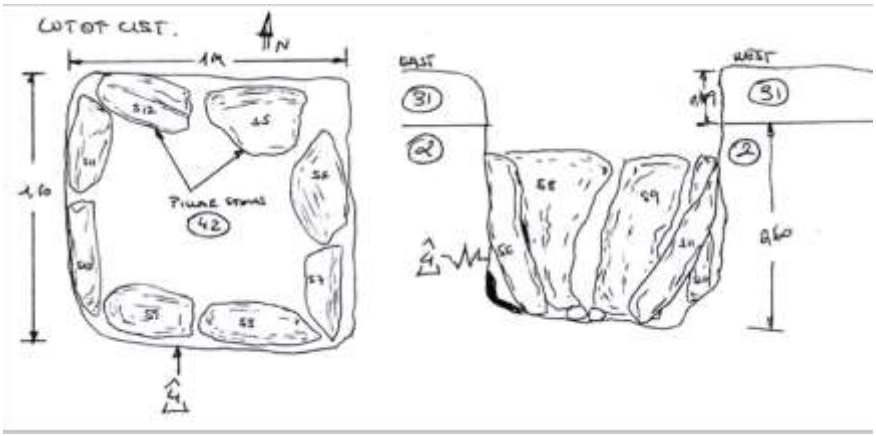


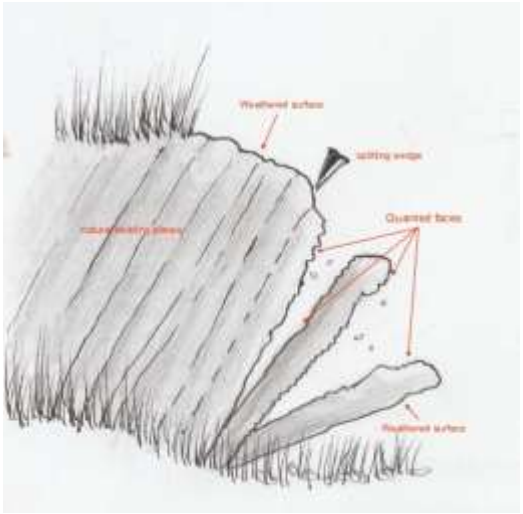
Figure 3. Mid-ex plan & section (Siles 2017)

Manipulation of the pit stones

Mundane stones (Cooney 2010) - those that are used to construct a feature without decoration or being made distinctive in other ways generally undergo two forms of cultural activity that distinguishes them from natural stones. These are evidence of quarrying, and evidence of shaping or changing the dimensions of the stone to fit available spaces (trimming).
All of the stones in the sample exhibit signs of either quarrying or trimming to shape, or both.

Quarrying or cleaving stone from bedrock normally leaves clear evidence of the manner in which the stone was separated from the parent rock (Kenny 2016). Evidence for separation from exposed bedrock is usually clear because the newly exposed or 'fresh' face does not exhibit signs of erosive wear, organic deposits or oxidisation. If the separated stone was removed from a bedrock source where rock had previously been extracted, then there may not be a visibly weathered face, and identification of a fresh quarried face may become more difficult (*figure 4*). This has implications for the interpretation of how the stone was extracted, and such an understanding may in turn yield significant information about the rock source as well as an indication of the technology employed.
All of the stones exhibit some degree of cultural impact as evidenced by faces that differ significantly from natural surfaces. Impacted surfaces typically incorporate direct exposure of the
rock fabric without the associated elements of exposure to the atmosphere, and they may also exhibit signs of repeated percussive impacts associated with trimming operations.
Although all of the stones can be crudely manipulated by one person, two or more people would have been necessary to position some stones with any degree of precision. The placement of stone 2 in particular is unlikely to have been made by one person without causing undue physical stress, damage to the slab, the stones beneath, or all three.

Figure 4. Simplified illustration of primary stone reduction (Kenny 2017)



Stones #2, #11, and #12

Stones #2 and #11 require separate consideration: both exhibit anomalous markings that are difficult to attribute to any specific cultural process. However, it is highly probable that none of these marks were made by natural processes such as dissolution, glacial striation, or other natural processes.

On the understanding that the marks were made by cultural processes, it may be worthwhile to consider them in terms of deliberate or accidental formation. If these marks were deliberately applied to the surface of the stones, then it would expected that the pattern would fit with previously identified examples and that similarities of style could be recognised.

Symbolic marking of stone in prehistoric Ireland falls into two broad though overlapping phases: Neolithic passage tomb and associated rock art, and Bronze Age cup marks or cup and ring rock art. Linear motifs do occur but not in isolation and these generally follow the form of chevrons, zig-zags, and other recognisable patterns and are nearly always accompanied by curvilinear motifs such as cup marks, spirals, sun designs, or floral motifs.

There are no unambiguously curvilinear markings on any of the stones in the sample.

Stone #2

The marks on the dorsal surface of stone #2 (*Plate 2*) are problematic. There are two distinct morphologies to the surface marks: regular, slender grooves, and irregular, comparatively broad depressions. While the grooves have the characteristic pattern of plough marks, close examination of the broader, irregular marks does not reveal the typical scarring associated with a metal ploughshare. Such marks tend to be straight, with a sharp break of slope at the top, and have a graduated entry and exit through the stone surface (*Plate 11*). There are some distinct grooves on the surface of stone #2 that were almost certainly made by a narrow ploughshare made from a material that was harder than the greywacke stone (*pale blue in plate 3*). The broad marks were probably also made by a ploughshare, but with a blunter point (*green in plate 3*). There is a strong possibility that these marks were made with an ard or plough fitted with plough pebbles. Plough pebbles are reasonably common in the archaeological record and are well represented in the north Dublin and Meath areas and have been securely dated to the 13th and 14th centuries (Brady 2009).

It is also likely that the 'dashed' effect (or chatter)[5] represents the impact from a comparatively light plough drawn by an animal rather than one drawn mechanically. The broader marks may also be a product of post impact wear and erosion that has widened the cut.

[5] Chatter is a term used by woodworker to describe the bouncing effect of a blunt blade on wood. Sharp tools cut cleanly and evenly through hard and softer areas, blunt tools tend to bounce over the harder areas of wood leaving a characteristic dashed cut.

As mentioned previously, all of the stones in the group exhibit evidence of both quarrying and trimming.

Two marks on the ventral surface are, however, also problematic (*Plate 5*). These are two 'v' shaped notches approximately 3cm apart.

There is clear evidence that a pointed implement was used to trim stones #8, #10, and #12 (*Plates 6, 7, & 12*). It is not unreasonable to suggest that the notches on the ventral surface of stone #2 were made with the same pointed tool, although the purpose of this action is unclear.

Stone #11

Stone #11 is deeply marked at the distal end (*Plate 8*). While the markings have all the characteristics of plough marks on stone, the fact that they occur on more than one side of the stone presents something of a thought challenge. It is possible that the stone was situated at an earlier level that was subject to impact during ploughing. It may then have been struck by a plough and moved, and then struck again from another angle. It also appears that the stone was quarried after the grooves were made. The grooves traversing the quarried face exhibit no indication of a conchoidal exit fracture, and the grooves themselves appear to be more weathered than the quarried face. Macroscopic examination of the marks indicates that they are predominantly u-shaped.

Stone #12

Stone #12 exhibits the clearest evidence for the type of tool used to trim the stones (*Plate 12*). Based on the impact marks, the tool was pointed with a diameter of less than 8mm at the point. The direction of the trimming on stone #12 is somewhat unusual: the expected direction of percussion would be perpendicular to the bedding plane. Such percussion is more easily controlled and predictable. Percussion in line with the bedding plane can open weaknesses between the strata and is often unpredictable. There is no obvious explanation for the choice of a less predictable angle of percussion, other than to suggest that the trimming was carried out in a confined space and after the stone had been positioned.

Discussion

This stone lined pit contained a number of slab-like stones that both lined the pit walls and formed the upright support stones for a stone roof.

All of the stones exhibited evidence of exposed quarry faces, and most exhibited evidence of trimming with a pointed implement. Most of the stones exhibited evidence of long-term exposure to the atmosphere on at least one face, and this implies that the rock source was an exposed outcrop, and that the extracted stone came from the exterior of the outcrop.

While greywacke stone is not known for the clarity of its conchoidal fractures, it has a reasonably consistent texture and hardness and it may be expected to behave in this manner to some degree.

Where stones did not have multiple fissures or imperfections, there were clear signs of conchoidal fractures consistent with primary stone reduction or cleaving. There is very clear evidence for stone-cleaving on stone #6 (*Plate 9*). This type of cleaving may be early, based on the spacing of the wedge sockets, their irregularity, their shallow depth, together with the fact that primary reduction exploited weaknesses in the bedding plane of the lithology. However, this apparently haphazard form of layout is by no means sufficient evidence to indicate a period.

Evidence for primary reduction of this type is less clear on other stones, but it can be stated with confidence that the stones were extracted from bedrock using this technique (Kenny 2016).

Most of the other stones exhibited evidence of multiple, random percussive strikes and these are believed to be intended to trim the stones to shape and were perpendicular to the bedding plane in all cases.

The marks evident on stones #2 and #11 presented some problems: while they exhibited characteristics that are somewhat similar to the ‘pecking’ of prehistoric rock art, there was no discernible pattern consistent with symbolic markings. The patterns are however, consistent with those commonly recognised as the result of ploughing. A definitive statement on the type of plough involved is beyond the scope of this report, but it is unlikely that the marks were made by a modern, mechanical plough. Modern mechanical ploughs deliver greater force and leave deeper, more consistent grooves than those drawn by animals (*Plate 11*).

Appendix 1 Abbreviated descriptions of lithological zones (adapted from GSI 2017).

Unit Name	St. Itas Formation
Description	Greywacke sandstone & siltstone
Formation	St. Ita's Formation
System	Silurian
Series	Wenlock
Contacts	The Formation unconformably overlies, with some tectonic modification, the Portrane Limestone Formation.

Unit Name	Portrane Limestone Formation
Description	Predominantly composed of thinly bedded fossiliferous bioclastic limestone with shale partings. The formation is Cautleyan (Ashgill) in age, and has a rich silicified fauna.
Rock Type	Bioclastic Limestone
System	Ordovician
Series	Ashgill
Stage	Cautleyan

Unit Name	Portrane Volcanic Formation
Description	Andesite, tuff, pebbly mudstone, shale
Formation	Portrane Volcanic Formation
Definition	McConnell give this name for the sequence of basalt to andesite sheets and sedimentary rocks below the Portrane Limestone Formation in the Portrane Inlier (Gardiner and Reynolds, 1897)
	Lithology Description The lower half of the exposed sequence is dominated by intrusive or extrusive sheets, while the upper half includes tuffaceous sedimentary rocks, pebbly mudstone with clasts typical of the underlying igneous lithologies, limestone breccias and black shale.

Appendix 2: Table of individual stone dimensions

Stone number	Length cm (max/min)	Width cm (max/min	Thickness cm (x=average)	Morphology
1	60 - 43	43 - 28	17 - 2	Trapezoidal
2	98 - 88	18 - 6	x 16	Subrectilinear / columnar
3	65 - 50	52 - 47	x 13	Subrectilinear
4	70 - 56	30 - 14	x 8	Subtriangular
5	48 - 44	39 - 30	16 - 0.5	Trapezoidal
6	50 - 33	33 - 28	20 - 13	Trapezoidal
7	50 - 47	30 - 25	x 6	Trapezoidal
8	62 - 50	36 - 27	x 17	Trapezoidal
9	55 - 40	33 - 26	x 7	Trapezoidal
10	53 - 34	30 -15	x 6	Trapezoidal
11	63 - 45	32 - 7	x 15	Subtriangular
12	64 - 44	30 - 26	16 - 13	Trapezoidal

Appendix 3. Photographic archive

Plate 1. Mid-ex photo of a cist burial at Carn More 5 (Bayley 2010)

Plate 2. Possiple plough marks on stone #2 (Kenny 2017)

Plate 3. Differentiation of plough marks from two possible phases or made by different ploughshares (Kenny 2017).

Plate 4. Detail of stone #2 showing plough mark exiting into the quarried face (Kenny 2017)

Plate 5. Anomalous marks on the ventral surface of stone #2 (Kenny 2017).

Plate 6. Evidence of pointed implement trimming on stone #8 (Kenny 2017).

Plate 7. Cleaving marks on stone #10 (Kenny 2017).

Plate 8. Plough marks at the distal end of stone #11 (Kenny 2017).

Plate 9. Stone-cleaving sockets along the uppermost edge of stone #6 (Kenny 2017).

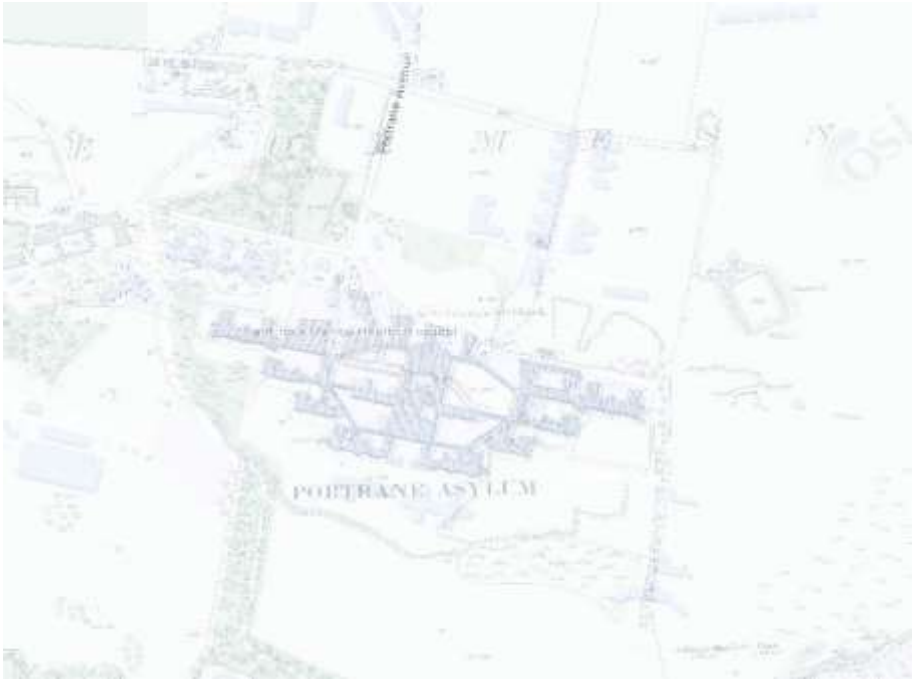


Plate 10. Overlay of 25” Historic map showing a quarry east of the asylum on the St. Ita’s formation (Geohive 2017)

Plate 11. Comparable marks made by a mechanically drawn plough on schist from county Wicklow. Note the presence of multi-directional grooves relative to the axis of the stone surface (Kenny 2017)

Plate 12. Percussion marks on stone #12 (Kenny 2017)

Plate 13. Possible coastal extraction site in Portrane (Kenny 2017)

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Appendix 2

Lithics Report

Killian Driscoll

LITHICS IRELAND CONSULTANCY, GALWAY

Lithics Report for Portrane Demesne Cist Burial (17E0303), County Dublin

Killian Driscoll
18/10/2018

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Introduction

This report presents the analysis of the lithic assemblage from the excavations at the site of the new National Forensic Mental Health Services Hospital at St Ita's Hospital, Portrane Demesne, Donabate, Co Dublin. Monitoring of topsoil stripping led to the excavation of a Bronze Age cist burial, along with other prehistoric features and prehistoric and medieval material culture (Tobin 2017). The lithic assemblage totalled 168 artefacts, along with 42 finds deemed to be natural, and with a further 15 indeterminate pieces. The 168 artefacts include flaked stone tools – cores and flakes – formed on flint, and 1 ground stone tool, a sandstone hammerstone. The flaked stone tool component is dominated by bipolar cores along with small to medium flakes, with the retouched artefacts dominated by convex scrapers and edge retouched flakes. The majority of the lithics would appear to represent a Neolithic or Bronze Age assemblage.

Methods

The material was analysed macroscopically, using a standard technological descriptive system (Inizan *et al.* 1999), an Irish typological system (Woodman *et al.* 2006), and a quartz analytical system (Driscoll 2010, 2011). Debitage greater than 20mm GD (greatest dimension), and all cores and modified pieces were recorded fully. Debitage less than 20mm GD were recorded for material, burning, and fragmentation, and subdivided into <20≥10mm and <10mm flakes or debris. The flakes were distinguished as produced from platform or bipolar technique where possible – if not, they were described as 'non-defined'. Due to differences of terminology used in differing lithic reports, Appendix 1 provides a glossary of terms used. The artefacts were recorded in an Access database, with a summary provided in Appendix 2, and full records in the accompanying Excel file.

Raw Materials

The lithic assemblage totalled 225 finds, of which 42 were deemed to be natural, with a further 15 indeterminate pieces. The remaining 168 artefacts include flaked stone tools formed on flint (n = 167), and ground stone tools formed on sandstone (n = 1).

The majority of the flint appears to be derived from pebbles and small cobbles. Such flint is available in the glacial till and nearby beaches, while the sandstone may also be from the local geology or glacial drift (McConnell et al. 2001).

Condition

The material is in variable condition (Table 1), with the majority of the artefacts being patinated or weathered, and a very small number are burnt. Over half have some degree of edge damage. While some of this edge damage may represent pre-depositional use and/or damage, it may imply a degree of post-depositional disturbance. The artefacts, however, do not appear to have a high level of fragmentation, which suggests a relative lack of post-depositional breakage.

Technology

The flaked stone tool component of the assemblage is dominated by small to medium-sized cores and flakes, with a significant proportion of bipolar artefacts. The relatively infrequent occurrence of retouched lithics – along with the probable use of some of the unretouched flakes and blades as tools (Driscoll et al. 2014) – suggests that alongside stone tool production, some of the prehistoric communities' lithic-focused activity in the area was stone tool use for a variety of tasks, with scrapers and retouched cores and flakes dominating.

Cores

Cores comprise 43% of the flaked stone tools, dominated by bipolar cores (Table 2); many of the bipolar cores are quite large cores, suggesting a lack of emphasis of raw material conservation (Figure 1). Some of the platform cores are small examples, and are in fact

smaller than many of the bipolar cores (Table 3). The platform cores are dominated by single platform cores.

Debitage

The debitage is dominated by small to medium-sized flake fragments (Table 4), with bipolar flakes accounting for 59% of the flakes. Platform preparation was not noted on any of the flakes.

Modified artefacts

Modified artefacts comprise only 6% (n = 10) of the flaked stone tools, dominated by retouched cores and flakes and convex end scrapers (Table 5).

The retouched core is a split pebble with lateral edge retouch, while two of the retouched flakes may be scraper roughouts. The 5 scrapers include 2 bipolar cores retouched as convex end scrapers.

Spatial distribution

C1 Topsoil

The topsoil contained 27 lithics including 2 convex end scrapers and 2 retouched flakes.

C15 - fill of pit C16

C15 contained 23 lithics including 1 retouched flake.

C22 - pit

Pit C22 contained 54 lithics

C23 - fill of C24 a circular-shaped feature

C23 contained 15 lithics including 1 convex end scraper.

C31 - redeposited natural upper fill of C4, the cist

C31 contained 2 lithics.

C33 – fill of possible ditch F32

C33 contained 14 lithics including the hammerstone and 1 retouched bipolar core.

C35 – fill of F34, a shallow feature

C35 contained 33 lithics including 1 retouched flake and 2 convex end scrapers formed on bipolar cores.

Chronology

As with most lithic assemblages, the majority of the lithics from the excavation cannot be assigned to a particular time period. The direct percussion and bipolar knapping techniques were used throughout the later prehistoric period (Woodman *et al*. 2006), with bipolar becoming more prevalent during the Bronze Age (O'Hare 2005) but seen from the Early Neolithic (Driscoll 2016). None of the retouched artefacts are particularly diagnostic to a time period. The lack of blades, however, and the significant proportion of bipolar artefacts, does suggest a Bronze Age date for some of the assemblage.

Conclusion

The Portrane Demesne cist burial assemblage comprises 65 flaked stone and ground stone tools, of which none are particularly diagnostic in terms of chronology, beyond a probable Neolithic and Bronze Age date range. The raw material used for the flaked stone tools was

flint pebbles and small cobbles that was probably sourced locally or relatively close-by. The relatively infrequent occurrence of retouched lithics – along with the probable use of some of the unretouched flakes and blades as tools – suggests that alongside stone tool production, some of the prehistoric communities' lithic-focused activity in the area was stone tool use for a variety of tasks, with scrapers and retouched cores and flakes dominating.

Recommendations for illustration

- 17E0303:1:1 Flint Single platform core
- 17E0303:1:11 Flint Retouched flake
- 17E0303:1:5 Flint Convex scraper
- 17E0303:15:11 Flint Bipolar core
- 17E0303:15:13 Flint Retouched flake
- 17E0303:22:1 Flint Bipolar core
- 17E0303:22:15 Flint Bipolar core
- 17E0303:22:26 Flint Single platform core
- 17E0303:23:1 Flint Convex scraper
- 17E0303:35:6 Flint Convex scraper
- 17E0303:35:27 Flint Retouched flake

Conservation

None of the artefacts require specific conservation measures. The lithics should be bagged individually to avoid edge damage, and stored in a dry, stable environment.

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Tables

Condition	Count	Total %
Burnt	2	1.2%
Patinated	125	74.4%
Weathered	41	24.4%
Grand Total	**168**	**100.0%**

Table 1 Artefact condition

Artefact	Flint	Sandstone	Total
Single platform core	5	-	**5**
Multiplatform core	1	-	**1**
Bipolar core	65	-	**65**
Radially split piece	6	-	**6**
Platform flake	34	-	**34**

Bipolar flake	49	-	**49**
Debris	7	-	**7**
Hammerstone	-	1	**1**
Total	**167**	**1**	**168**

Table 2 Flaked stone and ground stone tool artefacts by type and material

Core Type	Mean Weight	Mean Length	Mean Width	Mean Thickness
Bipolar (n = 55)	15.6	35.9	25.2	14.5
Platform (n = 6)	34.9	41.9	32.9	22.4
Total	**17.5**	**36.5**	**25.9**	**15.2**

Table 3 Means (grams and mm). Complete cores

Debitage type	Fragment	10-20 mm GD	> 20 mm GD	Total
Platform flake	Complete	7	7	**14**
	Fragment	7	13	**20**
Bipolar flake	Complete	4	14	**18**
	Fragment	6	25	**31**
Debris		7	-	**7**
Total		**31**	**59**	**90**

Table 4 Debitage by fragmentation and size range

Debitage type	Flint
Retouched	5
Convex end scraper	5

Table 5 Retouched tools by type and material

Figures

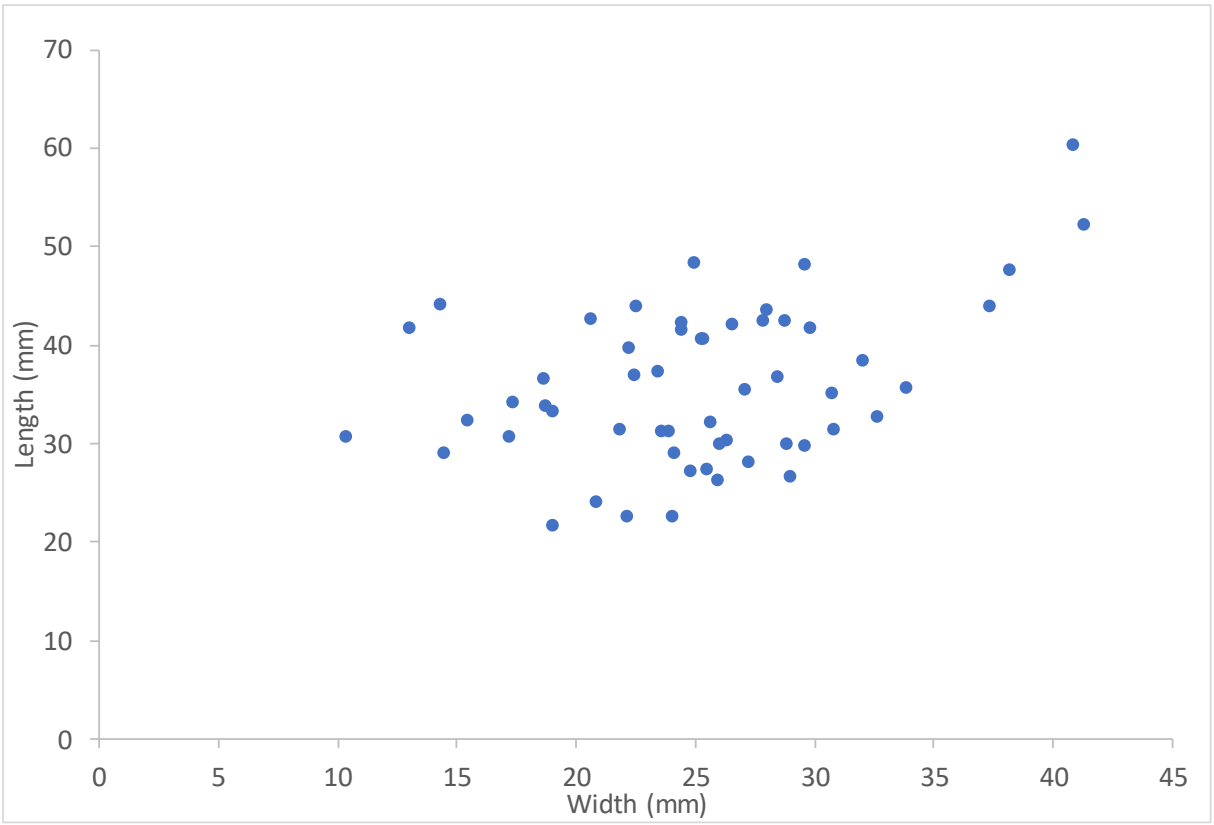

Figure 1 Length / width scatterplot. Complete bipolar cores.

Appendices

Appendix 1 Glossary of terms

Term	Definition
Bipolar core	A bipolar core is a core derived from knapping with a bipolar technique, which involves an impactor striking the top of core which rests on an anvil, with flakes being initiated from both ends of the core. The force is therefore considered as compressive and the flake is initiated by wedging (Cotterell and Kamminga 1987, 685). A bipolar core generally contains evidence of impact marks from the impactor and the anvil
Bipolar flake	A bipolar flake is the result of a bipolar knapping technique. During the experimental knapping the quartz bipolar flakes were generally characterised by a rounded platform with the steep side on the ventral face of the flake, with the platform angle reversed compared with direct percussion platforms. The bipolar platforms can also fracture in a triangular fashion, leading to triangular-shaped platform fragments. The majority of the experimental bipolar flakes had feather terminations
Blade	A blade is often defined as a flake with a length/width ratio of 2:1 or greater (e.g. Inizan *et al.* 1999, 130; for an argument against this metrical definition see Sørensen 2006)
Core	A core is a piece of lithic raw material which is struck in order to remove flakes
Cortex	While chert and quartz do not form cortex in the same manner as flint, the term is used here as a shorthand for the exterior surface which become altered due to weathering, natural abrading, and so forth, with a distinction between this and bedding
Debitage	Debitage refers to all "removals resulting from the knapping of a core, *i.e.* to all flakes in the broader sense of the term: those resulting from preparation, potential tool blanks, and all waste products" (Inizan *et al.* 1999, 138). Therefore debitage also includes tool types formed on flakes or debris.
Debris	"[S]hapeless fragments whose mode of fracture cannot be identified, and which cannot be assigned to any category of objects" (Inizan *et al.* 1999, 138).
Direct percussion	Direct percussion is a technique whereby a core is struck at an angle of less than 90º, which removes debitage from the core. This distinguishes itself from bipolar percussion where the striking angle is around 90º. The cores and debitage resulting from direct percussion core are also called a platform cores and debitage
Flake	A flake is a removal from a core through knapping with characteristic attributes, which can be used as a tool in the form it was knapped or may be retouched or modified before use
Irregular flake	Flakes are divided into regular and irregular flakes. A regular flake has at least 10mm of an acute straight edge while irregular flakes do not
Modified type	The term modified type is used her to distinguish between retouched and non-retouched artefacts, and includes 'types' such as scrapers, projectiles and so forth which are generally seen as 'tool types' and forming a typology, as well as retouched flakes/blades/cores
Multiplatform core	A direct percussion/platform core with more than two striking platforms
Non-defined flake	A flake which cannot be assigned to a particular knapping technique, i.e. bipolar, platform, pressure flaking, retouching
Platform	Shorthand for striking platform: the area on a flake which received the strike during knapping
Platform core/debitage	Platform core/debitage is a shorthand phrase for direct percussion core/debitage

Radially split piece	These are pieces that are often shaped like a segment of an orange, and in quartz knapping can result from both bipolar and direct percussion (e.g. Knutsson 1988). However, in this analysis they are interpreted as evidence of bipolar knapping (see Driscoll 2011), and are predominantly related with pebble/cobble reduction
Regular flake	See Irregular flake
Retouch/pressure flake	This category is used to define flakes produced by either retouching of pressure flaking, without a further subdivision of the two techniques
Retouch/wear mark	The term retouch/wear mark is used in order to include both possible types of modification in the identification without differentiating them.
Single platform core	A direct percussion/platform core with one striking platform
Technique	"Physical actions – a deft flip of the hand, the use of a hard or soft hammer, the interposition of a punch – are all examples of techniques" (Inizan *et al.* 1999, 30). The techniques used in the experimental knapping were bipolar and soft and hard hammer direct percussion

Appendix 2 Summary attributes of artefacts

#	Material	Type	Debitage Sub Type	Modified Type	Weight	Max L	Max W	Max T	Fragment
1:1	Flint	Single platform core			18.84	29.3	28.4	18.7	Complete
1:2	Flint	Platform flake		Convex end scraper	14.15	28.2	30.6	13.4	Complete
1:3	Flint	Platform flake			4.72	29.8	21.2	8.8	Mesial
1:4	Flint	Bipolar core			25.74	41.7	29.8	15	Complete
1:5	Flint	Platform flake		Convex end scraper	11.24	30.5	27.7	10.2	Distal
1:6	Flint	Bipolar core			27.77	42.2	26.5	20.4	Complete
1:7	Flint	Bipolar core			10.35	27.4	25.5	14.4	Complete
1:8	Flint	Platform flake			9.76	29.7	21.5	12.7	Complete
1:9	Flint	Bipolar core			26.08	38.4	32	21.4	Complete
1:10	Flint	Indeterminate							
1:11	Flint	Platform flake			16.12	36.2	29.9	14.4	Complete
1:12	Flint	Bipolar core			18.8	43.6	28	13.4	Complete
1:13	Flint	Single platform core			33.43	38.1	29	26.8	Complete
1:14	Flint	Bipolar core			17.79	46.8	26.7	13	Distal
1:15	Flint	Bipolar core			16.89	31.9	32.3	13.4	Fragment
1:17	Flint	Indeterminate							
1:18	Flint	Indeterminate							
1:19	Flint	Indeterminate							
1:20	Flint	Bipolar core			19.12	37	22.4	19.9	Complete
1:21	Flint	Bipolar core			11.96	30	26	13.6	Complete
1:22	Flint	Bipolar core			13.02	35.1	30.7	15.2	Complete
1:23	Flint	Indeterminate							
1:24	Flint	Indeterminate							
1:25	Flint	Bipolar core			12.66	41.7	13	12.7	Complete
1:26a	Flint	Natural							
1:26b	Flint	Natural							
1:26c	Flint	Natural							
1:26d	Flint	Natural							
1:26e	Flint	Natural							
1:26f	Flint	Natural							
1:26g	Flint	Natural							
1:26h	Flint	Platform flake			5.64	26.3	18.7	12.3	Complete
1:26i	Flint	Bipolar core			4.58	29	14.4	8.3	Complete
1:26j	Flint	Bipolar core			5.18	32.4	15.4	12	Complete
1:26k	Flint	Bipolar flake	<20mm						Complete
1:26l	Flint	Platform flake	<20mm						Fragment
1:26m	Flint	Platform flake	<20mm						Fragment
1:26n	Flint	Platform flake	<20mm						Fragment
1:26o	Flint	Platform flake	<20mm						Fragment
1:26p	Flint	Platform flake	<20mm						Fragment
15:1	Flint	Bipolar core			19.69	36.8	28.4	19.3	Complete
15:2	Flint	Platform flake			5.47	22.4	32	8.9	Mesial
15:3	Flint	Bipolar core			6.78	32.3	25.6	10	Complete
15:4	Flint	Natural							
15:5	Flint	Bipolar core			12.38	29.8	29.6	16.8	Complete
15:6	Flint	Bipolar core			24.48	31.5	21.8	21.8	Complete
15:7	Flint	Natural							
15:8	Flint	Platform flake			5.39	25.2	21.2	9.9	Proximal
15:9	Flint	Bipolar core			10.03	32	26.8	11.8	Fragment
15:10	Flint	Bipolar flake			16.25	35.7	37.8	11.4	Complete
15:11	Flint	Bipolar core			4.44	33.3	19	6.5	Complete
15:12	Flint	Bipolar core			12.86	31.3	23.6	14.6	Complete

15:13	Flint	Platform flake		36.33	41	37.6	16.5	Complete
15:14	Flint	Bipolar core		9.94	42.7	20.6	10.1	Complete
15:15	Flint	Platform flake		3.67	26.6	20	9.2	Proximal
15:16	Flint	Bipolar flake		1.75	27.6	10	7.2	Proximal
15:17	Flint	Bipolar flake		2.52	24.7	20.3	6.1	Proximal
15:18	Flint	Platform flake		2.97	23.8	20	6.2	Complete
15:19	Flint	Bipolar flake		2.05	25.2	21.8	5.3	Complete
15:20	Flint	Bipolar flake		3.5	25.4	18.3	6.8	Proximal
15:21	Flint	Bipolar flake		1.14	24.8	12.7	4.2	Complete
15:22	Flint	Bipolar flake	<20mm					Fragment
15:23	Flint	Debris	<20mm					
15:24	Flint	Bipolar flake	<20mm					Fragment
15:25	Flint	Debris	<20mm					
22:1	Flint	Bipolar core		19.13	44	22.5	17.1	Complete
22:2	Flint	Bipolar core		29.48	48.3	29.6	15.8	Complete
22:3	Flint	Bipolar core		8.08	44.2	14.3	11.6	Complete
22:4	Flint	Bipolar core		11.84	40.6	25.3	13	Complete
22:5	Flint	Natural						
22:6	Flint	Bipolar core		38.18	42.6	28.7	27.2	Complete
22:7	Flint	Bipolar flake		3.94	37.2	22.7	5.7	Complete
22:8	Flint	Bipolar core		24.19	40.6	25.2	28.7	Complete
22:9	Flint	Bipolar core		8.8	36.7	18.6	14.7	Complete
22:10	Flint	Bipolar core		36.82	47.7	38.2	18.2	Complete
22:11	Flint	Bipolar flake		6.13	36.4	21.6	8.8	Complete
22:12	Flint	Bipolar core		21.49	32.8	32.6	21.4	Complete
22:13	Flint	Indeterminate						
22:14	Flint	Bipolar core		22.59	42.5	27.8	16.1	Complete
22:15	Flint	Bipolar core		18.46	35.7	33.8	18.2	Complete
22:16	Flint	Natural						
22:17	Flint	Multiplatform core		54.67	61.8	45.6	21.9	Complete
22:18	Flint	Bipolar core		44.11	60.3	40.8	24.5	Complete
22:19	Flint	Radially split piece		16.92	62.7	24.8	13.6	Complete
22:20	Flint	Natural						
22:21	Flint	Bipolar flake		8.04	29.8	27.5	10.2	Complete
22:22	Flint	Radially split piece		12.91	49.6	23.2	16.8	Complete
22:23	Flint	Bipolar flake		1.91	37.3	13	4.4	Complete
22:24	Flint	Bipolar flake		8.81	30.2	27.8	11.8	Distal
22:25	Flint	Bipolar core		9.2	35.5	27.1	9.8	Complete
22:26	Flint	Single platform core		20.24	32.7	24.4	22.9	Complete
22:27	Flint	Bipolar core		11.61	30.4	26.3	12.3	Complete
22:28	Flint	Platform flake		23.33	61.4	23.3	18.6	Distal
22:29	Flint	Platform flake		4.3	33.6	16.4	9	Distal
22:30	Flint	Bipolar core		5.63	33.8	18.7	9.4	Complete
22:31	Flint	Bipolar flake		6.9	39.9	21.6	8	Complete
22:32	Flint	Bipolar core		4.97	30.8	17.2	10.2	Complete
22:33	Flint	Bipolar core		8.37	31.2	23.9	10	Complete
22:34a	Flint	Bipolar flake		1.16	22.2	11.5	6.5	Distal
22:34b	Flint	Bipolar flake		1.06	28.7	11.4	3.8	Proximal
22:34c	Flint	Bipolar flake		0.59	25.7	8	3.2	Proximal
22:34d	Flint	Bipolar flake		2.24	24.8	21.8	4.8	Proximal
22:34e	Flint	Bipolar flake		1.39	23.2	21.4	3.8	Proximal
22:34f	Flint	Bipolar flake		1.33	23.3	9	6.3	Proximal
22:34g	Flint	Platform flake		0.96	21.2	12.3	3.3	Distal
22:34h	Flint	Platform flake		3.85	18.6	29.8	8.6	Complete
22:34i	Flint	Platform flake		3.17	20.2	16.5	9	Distal

22:34j	Flint	Bipolar flake			0.9	36.3	13.2	3.2	Proximal
22:34k	Flint	Bipolar flake			2.04	30.6	17.2	6	Mesial
22:34l	Flint	Platform flake			2.23	20.2	20.3	5.7	Mesial
22:34m	Flint	Platform flake	<20mm						Complete
22:34n	Flint	Platform flake	<20mm						Complete
22:34o	Flint	Platform flake	<20mm						Complete
22:34p	Flint	Platform flake	<20mm						Complete
22:34q	Flint	Platform flake	<20mm						Complete
22:34r	Flint	Bipolar flake	<20mm						Complete
22:34s	Flint	Bipolar flake	<20mm						Fragment
22:34t	Flint	Bipolar flake	<20mm						Fragment
22:34u	Flint	Debris	<20mm						
22:34v	Flint	Debris	<20mm						
22:34w	Flint	Debris	<20mm						
22:34x	Flint	Debris	<20mm						
22:34y	Flint	Debris	<20mm						
23:1	Flint	Bipolar flake		Convex end scraper	18.34	35.8	31.4	15.6	Complete
23:2	Flint	Bipolar core			31.52	44	37.3	16.1	Complete
23:3	Flint	Single platform core			54.01	45.1	40.2	26.2	Complete
23:4	Flint	Platform flake			15.46	48.7	30.2	11.8	Proximal
23:5	Flint	Bipolar flake			5.19	29.1	22.4	7	Complete
23:6	Flint	Radially split piece			8.39	37.9	22.8	9.1	Complete
23:7	Flint	Bipolar flake			2.53	32.6	13.9	6.4	Distal
23:8	Flint	Bipolar core			10.18	26.7	29	14.2	Complete
23:9	Flint	Bipolar flake			1.4	21.8	19	4	Complete
23:10	Flint	Bipolar core			1.94	28	14.2	7.3	Fragment
23:11	Flint	Bipolar flake			1.39	21.3	23.5	3.5	Distal
23:12	Flint	Platform flake	<20mm						Fragment
23:13	Flint	Bipolar flake	<20mm						Complete
23:14	Flint	Bipolar flake			0.9	25.3	12.7	3.6	Proximal
23:15	Flint	Bipolar flake			0.87	25	15	2.7	Mesial
23:16	Flint	Natural							
31:1	Flint	Bipolar flake			6.61	38.3	24.8	6.8	Distal
31:2	Flint	Natural							
31:3	Flint	Natural							
31:4	Flint	Natural							
31:5	Flint	Natural							

Appendix 3

Report on Pottery

Rose Cleary

Pottery from Portrane, Co Dublin 17E0303

Rose Cleary

Introduction

The assemblage was recovered from fill layer C35 within a pit/posthole (C34). The sherds are in good condition although fragmentary. Eight small sherds (12.3g) and six minute fragments (1.2g) from C35. The fabric in both groups suggests that they may be from the same vessel.

Description

The sherds are from the body of a thin-walled vessel with an average thickness of 7.5mm. One larger sherd has a globular profile, thinning towards one end which may indicate a necked vessel but there are insufficient sherds to categorically establish this. There is no clear indication of how the vessel was formed as there are no characteristic fracture patterns to indicate coil construction or pinching the pot into shape (Cleary 2000). Internal soot accretions are visible on most sherds suggesting these are charred residues from cooking albeit there are no external sooty accretions which indicate use over an open fire. The external surfaces are however, weathered and this process may have obliterated evidence of use over a fire. The weathering is differential as the internal surfaces are well-preserved. The depositional history of the assemblage suggests that the sherds may have been lying on exposed surfaces prior to their inclusion in the C35 fill of C34 during which time the external surfaces became abraded.

The vessel was fired red (Munsell 2.5YR5/8) with a dusky red core (Munsell 2.5YR3/2). Colour is a useful criterion for examining firing conditions as an indicator of the duration and temperatures in the firing process. The red external surface and core and the blackish interior suggests the rapid firing, relatively low temperatures and poor draft (Shepard 1968, 104). The blackish internal colour is due to the lack of oxidisation and to the presence of carbonaceous matter, as well as contact with smoky or sooty fuel (Tite 1995, 39).

The pottery is medium tempered with crushed stone generally ≥3mm in length and macroscopically identified as of volcanic origin, probably basalt. Large amounts of temper fragments made the vessel walls porous which allowed some resistance to thermal shock

when a vessel was used over an open fire (Shepard 1963, 126). The fabric of the vessel and the internal soot suggest the vessel was used for cooking.

The clay has visible quartz and mica and is sandy textured. Minerals in the clay suggest a clay source within an area of volcanic bedrock. The sedimentary limestone rocks around Portrane are interbedded with Ordovician volcanic rocks which include basalts, andesites, breccias and the porphyry exposed on Lambay Island (Holland 1981). Clays formed on exposed volcanic lavas include mica and this is the likely source of the potter's clay for this assemblage. The clay was tempered with crushed rock identified in hand-specimen as basalt and again a local source is probable.

Conclusions

The assemblage is too small to indicate a vessel profile. The thinness and fabric of the sherds may indicate an early Bronze Age date, albeit in the absence of decoration or diagnostic sherds this identification is tentative. Clay minerals and added crushed stone temper indicate a local source in the Portrane area for the raw materials. The fabric was suitable for use as a cooking vessel and internal soot residues appear to confirm the vessel use as a cooking pot. Weathered or abraded outer surfaces suggest that the pottery was exposed to the elements prior to inclusion as part of a structured deposit in the fill of the pit/posthole.

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Appendix 4

Sample Assessment

Penny Johnston

Assessment of samples from Portrane, Co.Dublin (17E0303)

This document outlines the processing and assessment methodology for samples taken during excavation at Portrane, Co. Dublin (17E0303). Details of the assessment results are collated in Table 1.

Methodology

Three samples were taken as bulk soil on site and were processed by flotation in order to extract charred plant remains. Floating material was retained in geological sieves (smallest mesh size 250µm). Retents were collected in sieve meshes measuring 1mm (to ensure the retrieval of burnt bone). The "flot" was then dried before assessment, which was carried out using a low-powered binocular microscope (magnification x4.8 to x56). Each flot was scanned for 15 mins to assess the contents of the flot and a record of each sample was made. The results are recorded in Table 1, below. The retents were sorted using the naked eye. All items resembling cultural material were extracted. The contents of the retents are also described in Table 1, bleow.

Recommendations for storage and retention

This assessment has shown that there is very limited environmental material in these samples, and that the only likely area of future environmental archaeological research for these samples is in the identification of the charcoal from the samples. However, much of the charcoal is too small to identify. It is therefore recommended that a small sub-sample is retained from each sample for potential future research. The remaining flots and retents can be discarded, but a licence to alter or destroy should be sought from the National Museum of Ireland.

Penny Johnston
9 February 2018

Table 1: Sieving and sorting record for Portrane, Co. Dublin (17E0303)

Context	Sample	Volume (litres)	Charcoal (in flot)	Seeds (in flot)	Observations on flot contents	Observations on retent contents
34/35	17	34	Rare to Occasional	Absent	Charcoal present only as small fragments. Rooty material present.	Contains some quartz, some possible burnt bone (very small pieces) and some possible debitage. Possible burnt bone and debitage have been extracted.
32/30 or 38	20	16	Rare	Absent	Rooty material present.	Contains some quartz, some very small fragments of possible burnt bone and some possible debitage. Possible burnt bone and debitage have been extracted.
4/41	22	42	Rare to Occasional	Absent	Charcoal present only as small fragments. Rooty material present. Fungal sclerotia and modern Chenopodiaceae seeds also present in small quantities.	Contains some quartz and snail shells. One tiny fleck of possible burnt bone, and many fragments of baked clay. A sample of the baked clay has been extracted, along with the possible fleck of burnt bone. There was also a fragment of glass found in this sample. It is unclear whether this was in the deposit when excavated, or whether it was introduced later, during excavation.

Appendix 5

Site Registers

FEATURE INDEX	
NUMBER	**DESCRIPTION**
1	Top Soil
2	Subsoil
3	Rubble/Collapsed Cist
4	Cut of Receiving pit
5	Fill of C6
6	Cut of a circular pit NE of C4
7	Fill of C8 (Posthole)
8	Cut of Posthole SW of C6
9	Fill of C10
10	Cut of Posthole W of C8
11	Fill of C12 (Posthole)
12	Cut of Posthole SW of C10
13	Fill of C14 Posthole
14	Cut of Posthole SW of C12
15	Fill of C16
16	Cut of Sub-circular pit
17	Fill of C18
18	Cut of circular shallow pit
19	Fill of C20 stakehole
20	Cut of stakehole
21	Fill of token cremation pit
22	Cut of token cremation pit
23	Fill of C24 Posthole
24	Cut of Posthole
25	Fill of C26
26	Cut of pit truncated by tree stump
27	Roof layer of Cist
28	Roof Slabs (top of the lower chamber)
29	Cut of shallow pit W of C4
30	Fill of C29
31	Different natural deposit in the vicinity of C4
32	Cut of linear feature running N-S at the west end
33	Fill of C32
34	Cut of posthole between C32 and C16
35	Fill of C34 with flint and charcoal
36	Cut of posthole truncated by C32
37	Fill of C36
38	Basal deposit in C32
39	Cut of small pit W of C16 N of C22
40	Fill of C39
41	Basal fill of C4
42	Orthostats within C4
43	Fill of C4, Fill located in between C42
44	Redeposited natural upper deposit of C34

Drawing Register

No	Feature	Scale	Drawn	Date	Comment
1a	All		Js	10/07/2017	Pre-ex of site
1b	All	1:50	Js	10/07/2017	Pre-ex of site
2	C4	1:50	JK	12/07/2017	Plan of Cist at C3 level
3.1	C4 & C2	1:10	JS&SR	13/07/2017	N-S Profile of C3 & C4
3.2	C4 & C3	1:10	JS&SR	14/07/2017	E-W Profile of C3 & C4
3.3	C4 & C27	1:10	JS&SR	18/07/2017	N-S Profile of C27 & C4
3.4	C4 & C27	1:10	JS&SR	18/07/2017	W-E Profile of C27 & C4
3.5	C4 & C27	1:10	JS&SR	18/07/2017	Interior elevation N C27 & C4
3.6	C4 & C27	1:10	JS&SR	18/07/2017	Interior elevation S C27 & C4
3.7	C4	1.10	JS&SR	19/07/2017	W-E Profile of C4 Chamber
4.1	C5 & C6	1:10	AS	14/07/2017	E Facing Sec
4.2	C7 & C8	1:10	SR	14/07/2017	SE Facing Sec
4.3	C9 & C10	1:10	JS	14/07/2017	N Facing Sec
4.4	C11 & C12	1:10	JS	14/07/2017	NW Facing Sec
4.5	C13 & C14	1:10	AS	14/07/2017	S Facing Sec
4.6	C15 & C16	1:10	As	17/07/2017	N Facing Sec
4.7	C17 & C18	1:10	JS	17/07/2017	SE Facing Sec
4.8	C19 & C20	1:10	JS	17/07/2017	SE Facing Sec
4.9	C23 & C24	1:10	JS	17/07/2017	E Facing Sec
4.10	C21 & C22	1:10	SR	17/07/2017	N Facing Sec
4.11	C25 & C26	1:10	JS&SR	20/07/2017	N Facing Sec
5.1	C4 & C27	1:10	JS&SR	17/07/2017	Roof Stones C4
6.1	C4 & C28	1:10	JS&SR	19/07/2017	Lintel Stones
7.1	C4	1:10`	JS&SR	20/07/2017	Plan of pillar and chamber
8.1	C4	1:10	JS&SR	20/07/2017	N-S Profile of C4
8.2	C4	1:10	JS&SR	20/07/2017	E-W Profile of C4
9	C4	1.5	JS&SR	21/07/2017	Detail of chamber
10.1	C29 & C30	1:10	SR	24/07/2017	W Facing Sec
10.2	C31	1:10	JS	26/07/2017	W Facing Sec North of C4
10.3	C31	1:10	JS	26/07/2017	E Section of C31 with N-S Profile of C4
10.4	C34 & C35	1:10	SR	27/07/2017	S Facing Sec
10.5	C36 & C37	1:10	AS	27/07/2017	NE Facing Section
10.6	C32 C33 C38	1:10	AS	27/07/2017	W Facing Sec of Ditch C32
10.7	C32	1:10	SR	28/07/2017	W-E Running profile of Ditch C32
10.8	C39 & C40	1:10	SR	28/07/2017	NW Facing Section
10.9	C32 C33 C38	1:10	AS	28/07/2017	S Facing Sec of Ditch C32
11		1:20	AS&J	24/07/2017	Post Ex plan of west end of site
12		1:20	SR&JS	25/07/2017	Post Mid ex of East end of site
13.1	C4 & C41	1:20	JS	31/07/2017	N Facing Sec of C4 and basal fill C41
13.2	C4	1:20	JS	01/08/2017	E-W Post Ex Profile of C4
13.3	C4	1:20	JS	01/08/2017	N-S Post Ex Profile of C4

Sample Register

No	Description	Type	Bags	Initials	Date
1	Cremation pit cut C22 Fill 21	Soil Sample	3	SR	17/07/2017
2	Cut C16 Fill 15	Soil Sample	4	AS	17/07/2017
3	Stakehole C20 Fill C19	Soil Sample	1	JK	17/07/2007
4	Burnt Bone Cut C22 Fill C22	Burnt Bone Sample	1	SR	17/07/2017
5	Posthole C18 Fill C17	Soil Sample	1	JK	17/07/2017
6	Posthole C24 Fill C23	Soil Sample	1	AS	17/07/2017
7	PostholeC14 Fill C13	Soil Sample	1	AS	17/07/2017
8	Posthole C12 Fill C11	Soil Sample	1	As	18/07/2017
9	Pit C26 Fill C25	Soil Sample	1	AS	19/07/2017
10	Pit C6 Fill C5	Soil Sample	1	AS	21/07/2017
11	Posthole C8 Fill C7	Soil Sample	1	AS	21/07/2017
12	Posthole C10 Fill C9	Soil Sample	1	AS	21/07/2017
13	Cremated bone C18 Fill C17	Burnt Bone Sample	1	SR	14/07/2017
14	Slag Cut C26 Fill C25	Slag Sample	1	AS	24/07/2017
15	Shallow Pit C29 Fill C30	Soil Sample	1	SR	24/07/2017
16	Slag from C30	Slag Sample	1	SR	24/07/2017
17	Posthole C34 Fill C35	Soil with Charcoal	3	SR	27/07/2017
18	Burnt Bone C34 Fill C35	Burnt Bone Sample	1	SR	27/07/2017
19	Posthole C36 Fill C37	Soil Sample	1	AS	20/07/2017
20	Basal Fill of C32 Fill C38	Soil Sample	3	JS	28/07/2017
21	Small pit C39 Fill C40	Soil Sample	1	SR	28/07/2017
22	Fill of Cist C4 Fill C41	Soil Sample	5	JS	31/07/2017
23	Fill between upright stones in C4	Soil Sample	4	JS	31/07/2017
24	Burnt Bone Frag from C32 Fill C33	Burnt Bone Sample	1	JH	28/07/2017
25	Bone Frag from C32 Fill C33	Bone Sample	1	AS	27/07/2017
26	Burnt Bone	Burnt Bone Sample	1	JS	01/08/2017
27	Sample of Subsoil from C4	Soil Sample	1	JS	04/08/2017
28	Sample from C4/C42	Structural Stones	12	JS	04/08/2017

Finds Register					
No	**Contex No**	**Material**	**Quantity/Pieces**	**Comments**	**Date**
1	Top soil	Flint	18	Flint from cleanup	09/07/2017
2	Top soil	Flint	26	Flint from cleanup	10/07/2017
3	C4	Stone	1	Stuck to back of structural stone	19/07/2017
4	Cut C22 Fill C21	Flint	59	Struck flint	17/07/2017
5	Fill C31	Seashell Frag	1		26/07/2017
6	C1	Pottery	2	Medieval	10/07/2017
7	C1	Flint	8	Struck flint	10/07/2017
8	C1	Pottery	1	Medieval	10/07/2017
9	Cut C29 Fill C30	Pottery	1	Post Medieval White ware	24/07/2017
10	"	Flint	2	Struck flint	24/07/2017
11	C5	Flint	2	Struck flint	10/07/2017
12	C9	Ceramic	4	Clay pipe & pottery	12/07/2017
13	C31	Stone	2	unidentified within C4	26/07/2017
14	Cut C34 Fill C35	Stone	1	Pretty Stone	28/07/2017
15	Surface	Flint	32	Struck flint	10/07/2017
16	C35	Flint	47	Struck flint	27/07/2017
17	Cut 32 Fill C33	Stone	4	2 pieces of burnt stone & 2 unidentified	28/07/2017
18	C15	Flint	25	Struck flint	14/07/2017
19	Cut 32 Fill C33	Flint	24	Struck flint	28/07/2017
20	Top soil	Flint	24	Struck flint	10/05/2017
21	C23	Flint	16	Struck flint	17/07/2017
22	Cut C32 Fill C35	Pottery	7	Pottery Fragments	27/07/2017
23	Cut C22 Fill C21	Pottery	8	Pottery Fragments	17/07/2017
24	Surface	Flint	42	Flint found on the surface	
25	C31	Flint	13	Struck flint	25/07/2017