

Preliminary Excavation Report Millbrae, Stranorlar, Co. Donegal



MCGLADE & RUDDY

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AP20-20

DONEGAL CO. CO. REF. 11/60175

SITE NAME

Millbrae, Stranorlar, Co. Donegal

CLIENT

Boyle Construction, Letterkenny Business Park, Ballyraine, Letterkenny, Co. Donegal

LICENCE

20E0400

PLANNING

Pre-planning assessment

ARCHAEOLOGY PLAN REF.

AP20-20

REPORT AUTHOR

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DATE

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ABBREVIATIONS USED

DAHG	Department of Arts, Heritage and the Gaeltacht
NMI	National Museum of Ireland
NMS	National Monuments Service
OS	Ordnance Survey
RMP	Record of Monuments and Places
NIAH	National Inventory of Architectural Heritage
LAP	Local Area Plan

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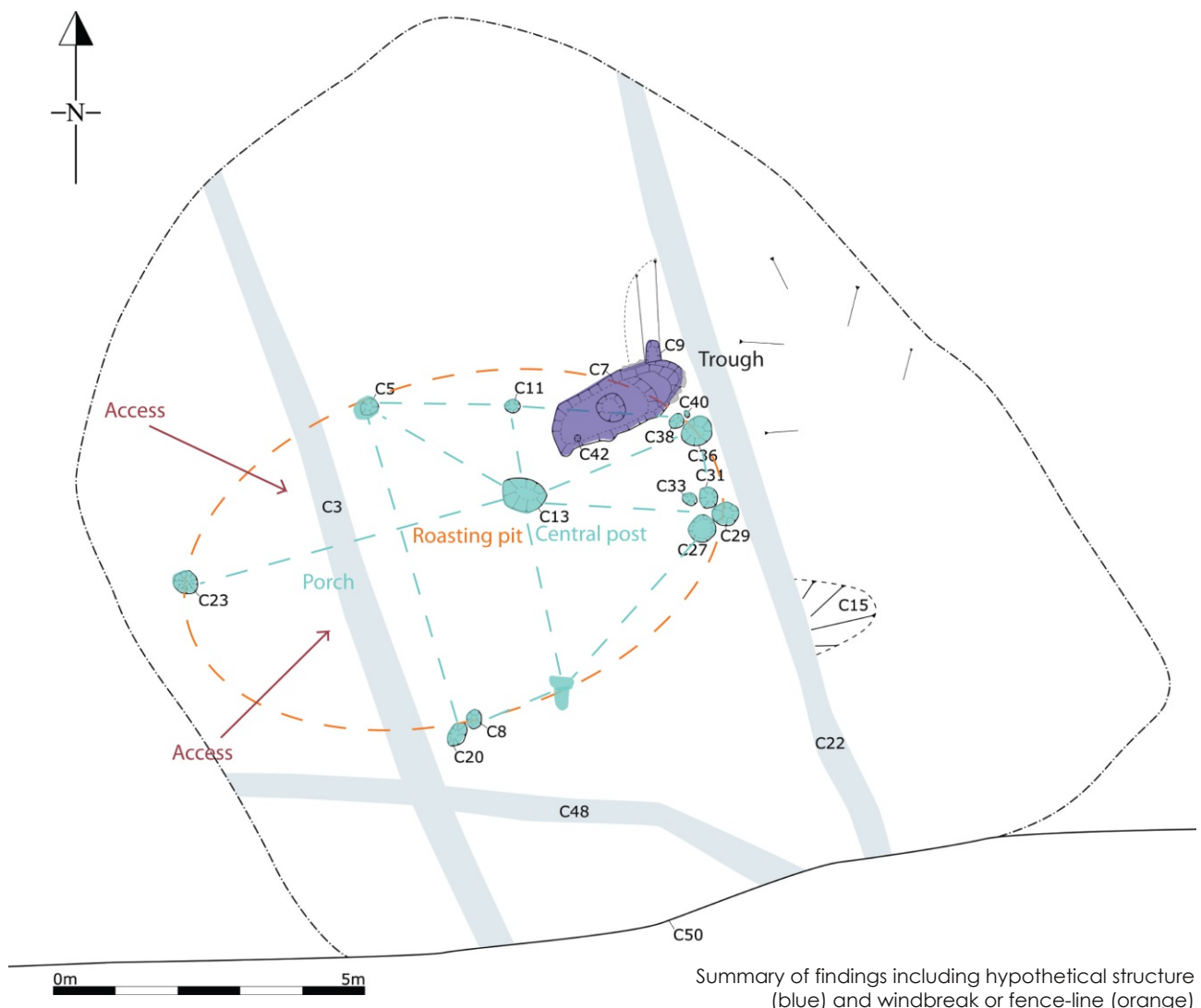
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Section 1 Introduction

Report summary

A burnt spread representing a fulacht fiadh was excavated on the northern side of the River Finn in advance of the construction of a school in August 2020. The spread sealed a number of features including a sub-rectangular trough. A partial stone lining was present in two locations along the side of the trough, possibly to protect the edge from collapse. A single stake-hole within the trough may indicate the use of a non-permanent or removable lining.

Postholes and pits were also uncovered in the vicinity of the trough. In four cases there were paired pits and posts, however these did not form a distinct pattern. It is possible the smaller postholes near the trough supported small structures such as a rack, while the larger postholes may have formed a fence-line or have been free-standing posts, defining access to the fulacht fiadh. Three of the larger pits may have been used in activities related to the fulacht fiadh, perhaps as roasting pits. The shallowness of the pits and post-holes reflect extensive



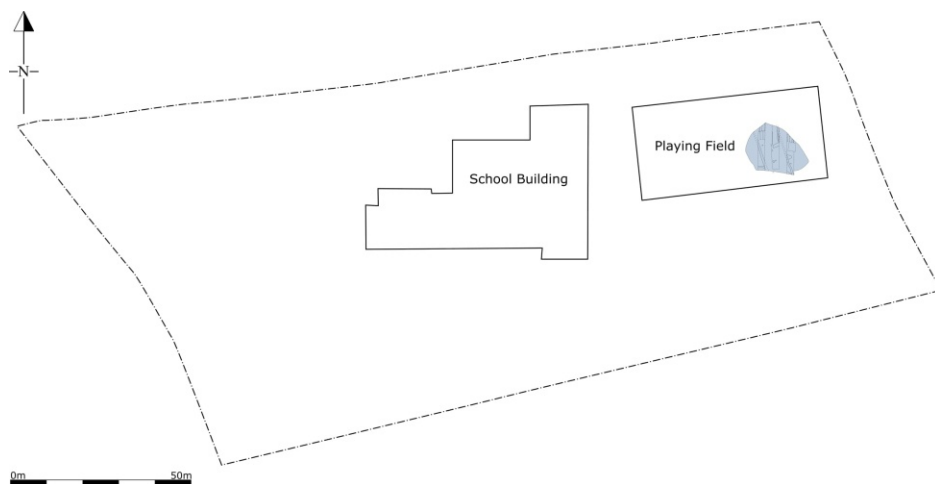
truncation of the site, and the identified features may therefore represent the bases of the deepest postholes from a more substantial structure. Two hypothetical layout for structures associated with the trough are suggested.

A small quantity of bone, both burnt and unburnt, retrieved during the excavation indicated that some consumption or processing of meat was taking place at the site. A large granite grinding stone was also retrieved. This may be the upper stone of a quern stone, suggesting grain processing was taking place nearby. Equally it may be a rubbing stone used in the preparation of textiles, hides or leather.

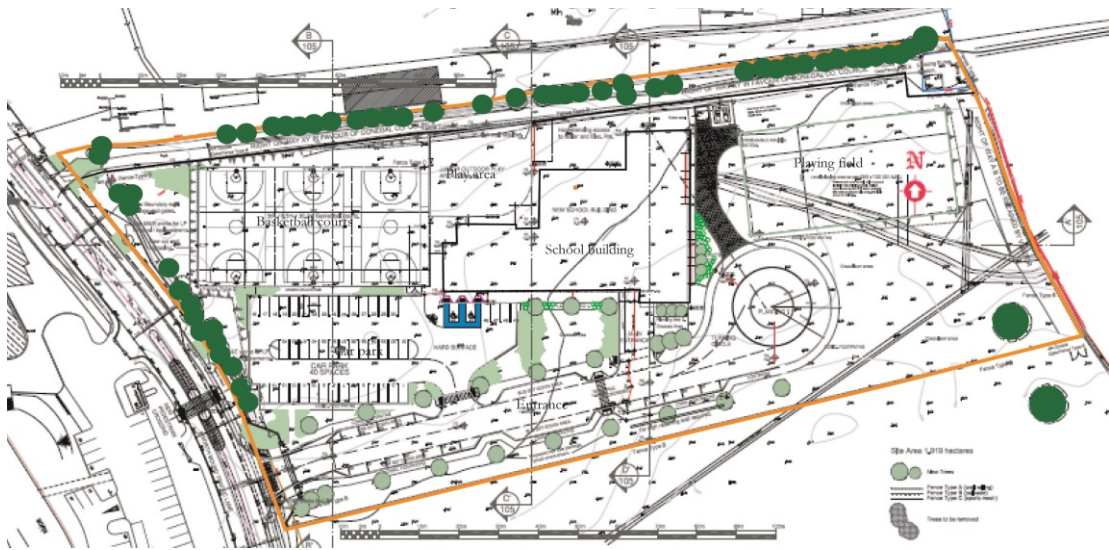
Site location

The development site is situated to the south of Stranorlar, Co. Donegal (NGR 215244/394917). It comprises a 1.9ha field bounded to the west by the Mill Brae Road and to the north by a disused railway line and existing properties. To the east it is bounded by a low limestone field wall in poor condition. There is no existing site boundary to the south and it is open to the rest of the field sloping down to the River Finn to the south. The site is in the townland of Stranorlar, Stranorlar parish and formerly Raphoe South Barony. The site is presently undeveloped rough pasture and is boggy underfoot.

The 2020 excavation area was defined in the 2015 testing programme and was located in the eastern portion of the development site. Playing fields are proposed in this location.



Site location shown on the Ordnance Survey streetview map (top) and simplified site plan showing the location of the excavated area (bottom)



Plan of the proposed development (top)

Development proposals

The proposed new development consists of a new three-storey school of 24 classrooms, a general purpose room, teacher's room, library/resource room and other ancillary accommodation and external site works including on-site car parking, turning circle, access roads, drop down areas, ball courts, hard play areas and site boundary treatments.

Closest RMPs to the site: DG078-017 ringfort, DG078-016 church, DG078-015 enclosure, DG078-017 ringfort, DG078-016 church, DG078-045 corn-drying kiln and DG078-018 ringfort. None are prehistoric (centre)

Extract from the First Edition Ordnance Survey map of the 1830s showing the ringfort to the southwest. No features relating to this monument were identified in the geophysical survey, testing or excavation (bottom)

Planning

The development has been granted planning permission (Donegal Co. Co. Ref. 11/60175). Condition 9 of the Grant of Planning Permission related to archaeology. The condition required that a programme of pre-development archaeological test-trenching be carried out on the site.



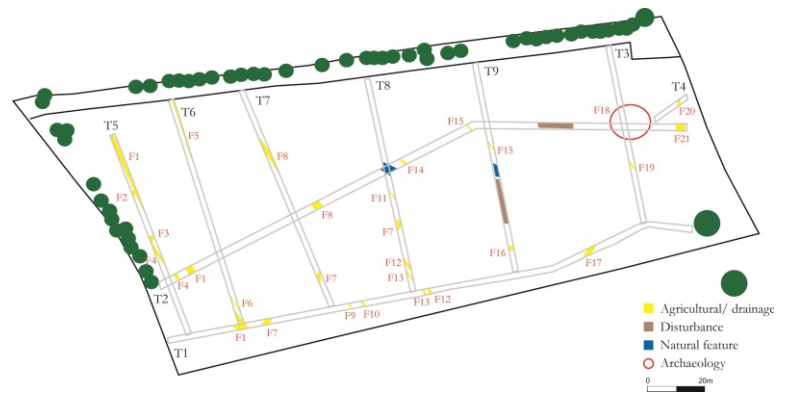
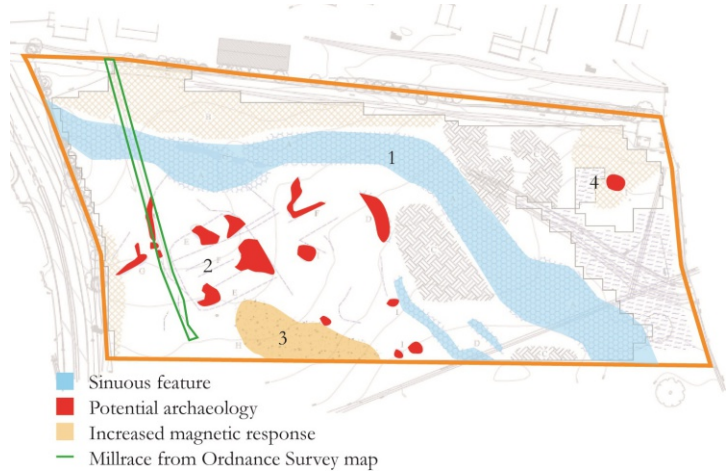
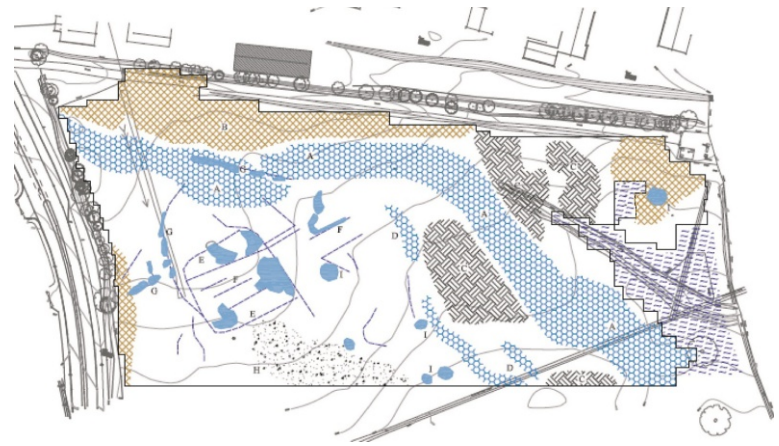
Previous archaeology on the site

An archaeological assessment was carried out on the site in 2011 (Giacometti 2011), which included a geophysical survey (Leigh 2011). The assessment and geophysical survey highlighted a number of features of archaeological potential across the site. This included the proximity to a now levelled ringfort, which previously stood on the opposite side of the road to the west, a post-medieval millrace that crossed the site, and



a number of geophysical anomalies.

The site was subsequently tested by the author (McGlade 2015), which confirmed that no archaeology relating to the early medieval settlement to the west extended into the site. The millrace was an unlined ditch and had been reused for waste disposal in the 20th century. Many additional drainage features were encountered due to the nature of the site. A former stream course was also indicated in the geophysical survey and identified in the testing. Along the northern side of the stream course an anomaly identified in the geophysical survey was tested and found to be a burnt spread. The burnt spread was tested and a trough was identified indicating the site was a fulacht fiadh. It was recommended that the fulacht fiadh be fully excavated in advance of the proposed development, and that no further works were required in the remainder of the development.

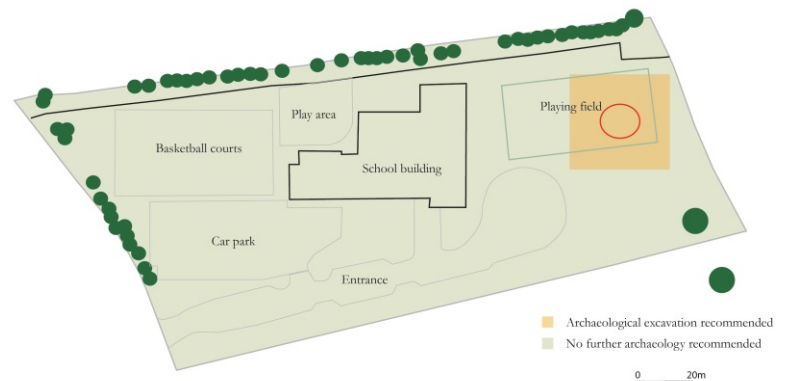


Interpretation of geophysical survey results (Leigh 2011; top)

Key anomalies investigated during the testing programme (upper centre)

Testing programme and features encountered (lower centre)

Recommendations based on the 2015 testing programme outlining the area requiring archaeological excavation (bottom)



Section 2 Excavation results

Introduction

The fulacht fiadh was excavated over four days from the 18th August 2020 in unseasonably wet conditions. The zone of archaeological potential was fenced off within the development. Topsoil was water-logged and boggy. It was removed by a 14-tonne mechanical excavator fitted with a 2m wide toothless bucket. The topsoil reduction was conducted in strips across the area, as per the archaeological licence method statement, however no additional artefacts or features were noted.

Constraints

The site was located on ground sloping gently from north to south. A number of post-medieval or modern drains crossed the site, some of which still carried water. These, combined with the high volume of rain and the low-lying position of the site, meant that flooding was a problematic issue during the excavation. On a number of occasions the mechanical excavator was used to create a ditch and bank surrounding the archaeology to aid with this, however it was impossible to keep the water out of some of the pits and the trough as the water table was so high.

Pre-ex view of the burnt spread C2, looking north with the 2015 test-trenches visible (top)

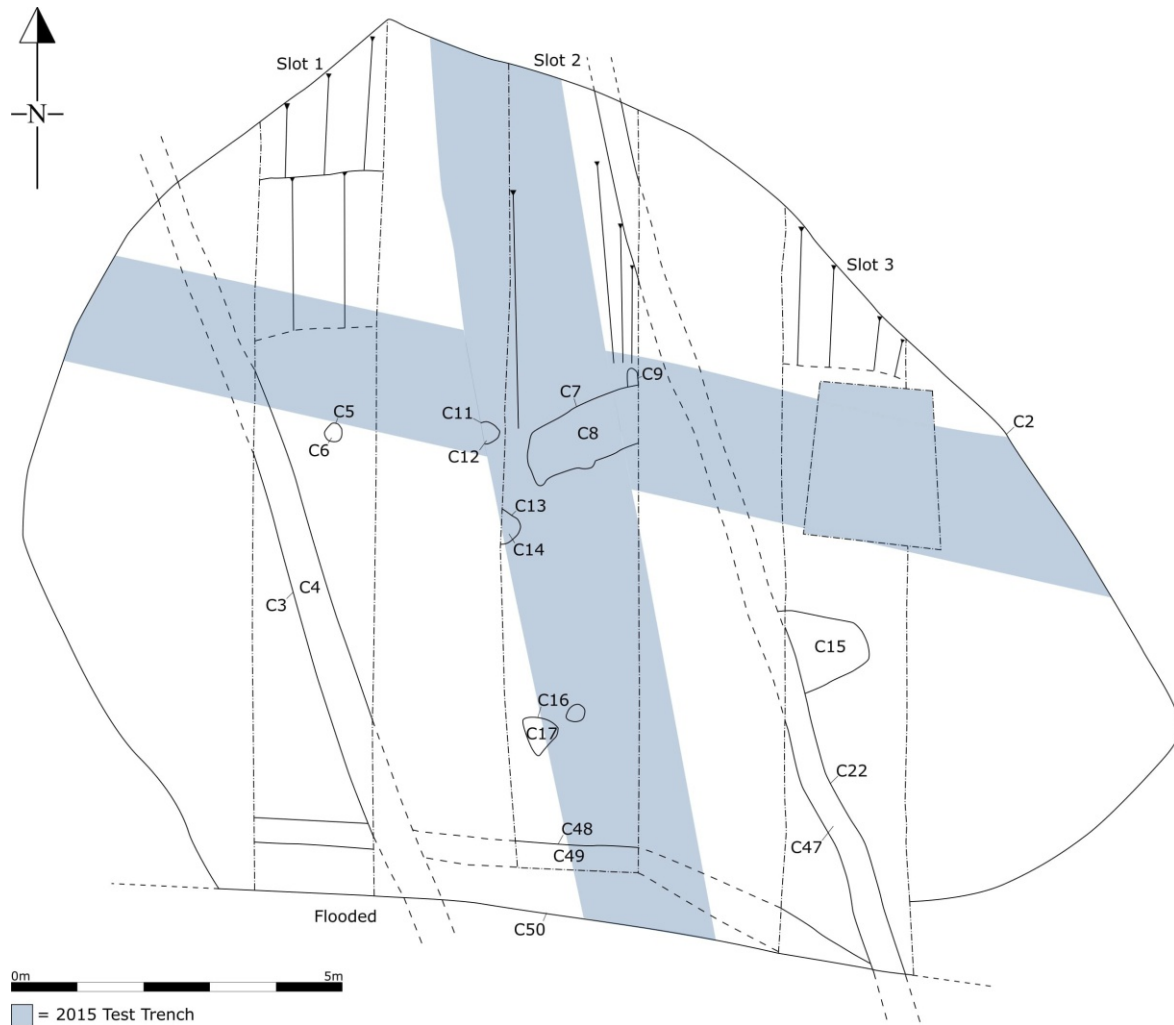
Mid-ex view of the the three slots excavated through the burnt spread C2 revealing a number of cut features below, looking north (centre)

Mid-ex view of the slots excavated through burnt spread C2, looking east (bottom)

Methodology

The burnt spread was identified at a depth of 200mm below the present ground level. It comprised a spread of burnt stone overlying a trough and several small pits and postholes. The burnt spread was excavated initially in three





Mid-ex plan of the site showing the location of the 2015 test-trenches and the three slots excavated through the burnt spread

The excavation

slots to record the depth and identify the underlying features. The slots were orientated north to south and were 2m in width, separated by 2m wide baulks. Slot 1 was located to the west, with Slot 2 centrally positioned and Slot 3 to the east. Following recording of the burnt spread, the baulks were removed, and the underlying features excavated and recorded.

A number of circular and sub-circular cut features were identified beneath the spread during the excavation. These were classified as postholes when they were more straight-sided, as pits when they were shallow and concave in profile, and as stake-holes when they were small and steep-sided. The truncation of the site means that the differentiation between pit and posthole may not be correct, and that many or all of the pits are the bases of truncated and eroded postholes.

The burnt spread

The spread (C2) was located on a gentle south-facing slope immediately north of a modern east-west running field drain (C50). A gentle hill rose to the north of the drain, which may originally have been a naturally occurring watercourse. The entire area of the spread was waterlogged at the time of excavation due to constantly rising groundwater and particularly wet weather. The natural subsoil was pale yellowy grey silty sand towards the north, becoming sandier in consistency downslope to the south. The subsoil contained only occasional stone inclusions.

The spread was irregular in shape and measured 17.8m by 15m. The maximum depth of the spread was 0.2m but the main body was a consistent 0.15 to 0.18m depth that shallowed



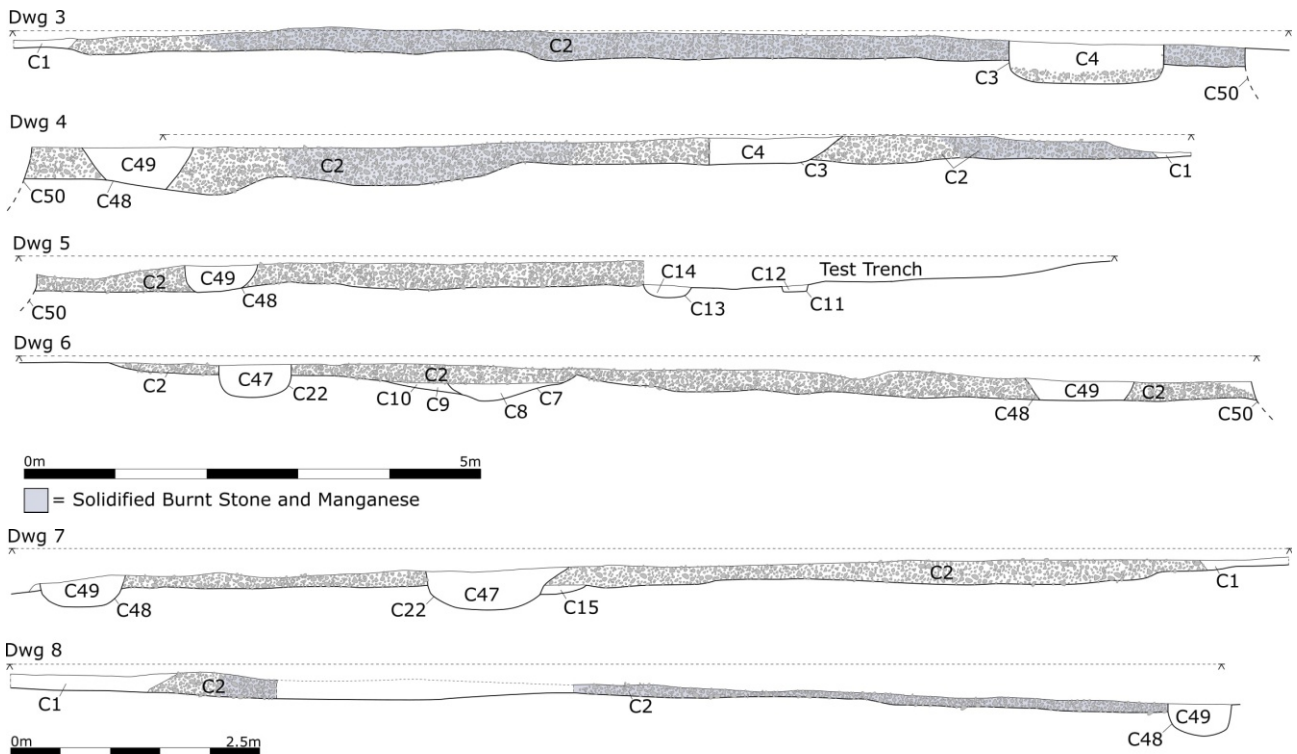
Mid-ex view of Slot 1 excavated through burnt spread C2, looking west. The solidified manganese can be seen in section being truncated by drain C3 (top left)



Grinding stone retrieved from the burnt spread (centre left)

Mid-ex view of slots 1-3 excavated through burnt spread C2, looking west (top right)

Sections through burnt spread C2 (bottom):
 Slot 1 west-facing (Dwg 3) & east-facing (Dwg 4)
 Slot 2 east-facing (Dwg 5) & west-facing (Dwg 6)
 Slot 3 east-facing (Dwg 7) & west-facing (Dwg 8)

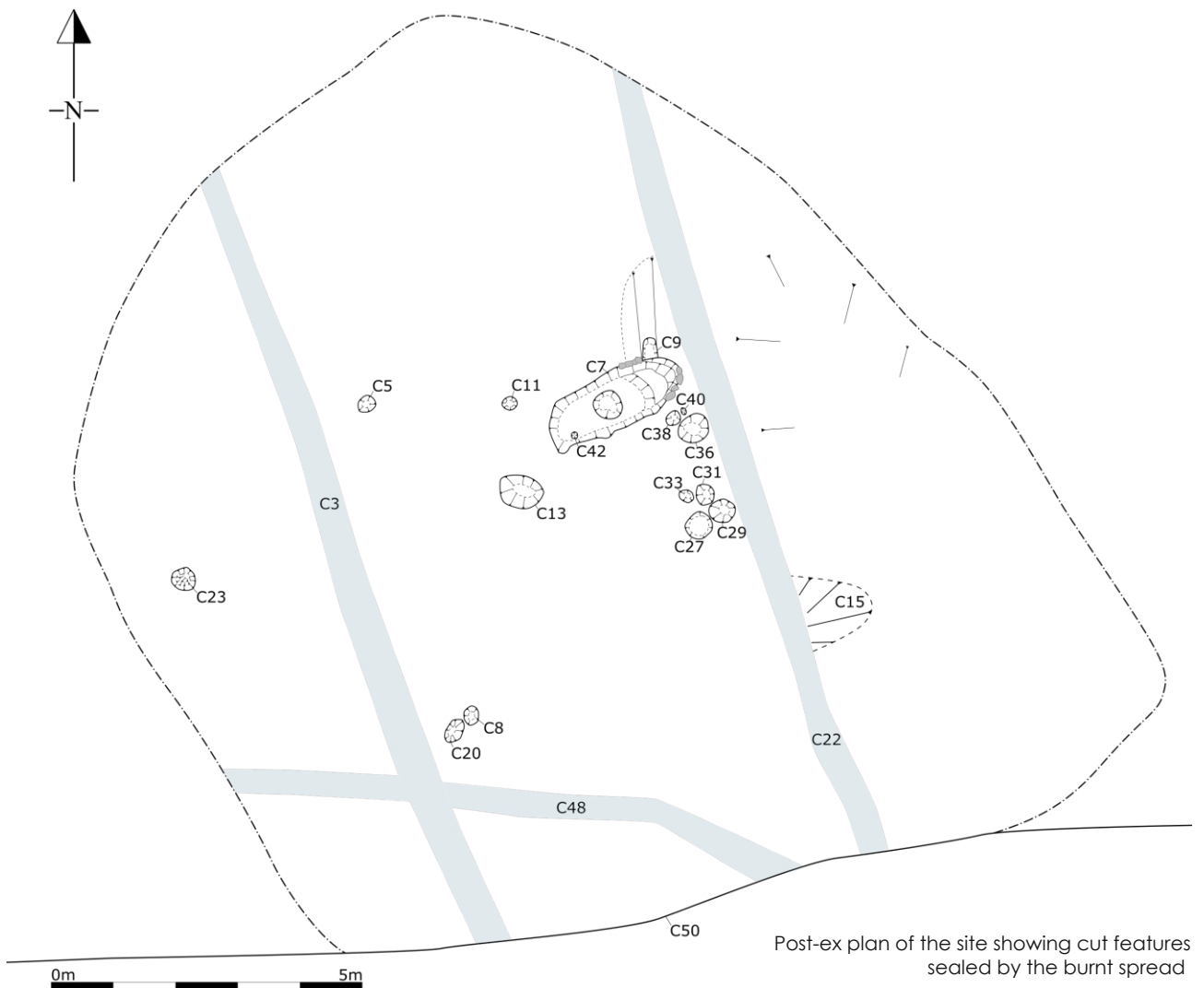


out at the edges.

The spread consisted of friable burnt sandstone and charcoal. The sandstone was fired to red, black, and white. The dimensions of the shattered stone ranged from 0.08m by 0.03m by 0.04m to 0.13m by 0.08m by 0.09m. A large proportion of the spread had been concreted with the presence of manganese and the western side was particularly affected.

A large pink granite rubbing stone was recovered from close to the southern extent of the spread between slots 1 and 2. This was the only artefact recovered from the entire excavation. The spread also produced two fragments of burnt bone and a bone fragment petrified by manganese.

The spread showed some significant disturbance in the recent past by field drains. The southern extent of the spread had been truncated by a re-cutting of the east-west running drain (C50 - mentioned above). The spread had also been truncated by two parallel NW-SE running stone-filled drains (C3 and C22) both of which were still active but were insufficient to drain the area of the spread. Another drain (C48) ran perpendicular to (C3) and (C22) at the south of the spread, but this had been cut by the modern east-west running drain (C50). A deeper section of the 2015 test-trenching also cut through the spread to the east.



The trough

A single trough (C7) was located centrally beneath the spread (C2). The trough was oblong in shape with roughly straight parallel sides and rounded ends. The trough was orientated northeast-southwest with relatively shallow steep sides along the straight edges and more gently sloping concave sides at either end, particularly to the northeast.

Pre-ex view of trough C7 within Slot 2, looking east (top left)

Mid-ex view of trough C7 within Slot 2 prior to the removal of remaining baulks of burnt spread, looking southeast (bottom left)

Mid-ex view of trough C7 after the removal of remaining baulks of burnt spread (top right)

Northwest-facing section through trough C7 (upper centre right)

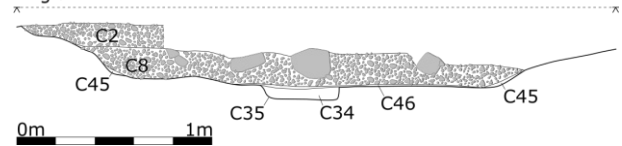
Post-ex view of trough C7 with shallow depression/pit C34 in centre of base and stake-hole C42 marked with tag to left, looking northwest (lower centre right)

Post-ex view of trough C7 with partial stone lining visible to right, looking northwest (bottom right)

A partial stone lining survived along both sides to the northeast just before the curve towards the rounded end. The lining consisted of four stones along the northwest side and three along the southeast side. The stones had been set into the sides so that they were flush with the straight sides of the trough. The underlying natural subsoil was soft and sandy and it is possible this partial stone lining was added to protect the sides of the trough.



Dwg 9



The base of the trough was mostly flat. A shallow circular depression or cut (C34) was located centrally in the base. This feature also had a flat base and was filled by a black silt (C35) with some manganese concretion, similar to the secondary fill (C46) of the trough itself. This may have been intentionally cut into the base of the trough, or have occurred accidentally through cleaning.

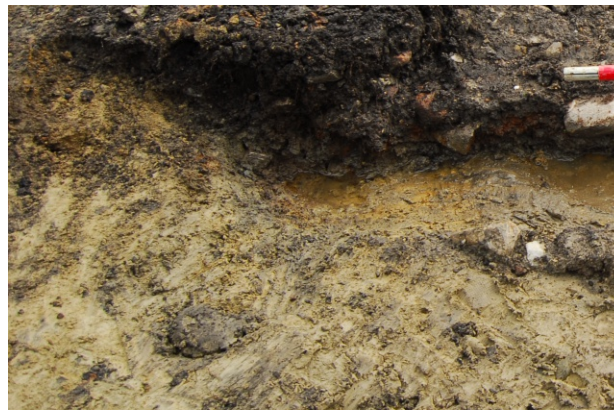
A single stake-hole (C42) was also uncovered in the base of the trough to the southwest. The stake-hole was filled by dark brown silt (C43) and was circular, but very shallow. This may suggest a wood or wicker lining was used in the trough, however no further stake-holes were noted. The underlying natural was soft and sandy and it is possible additional stake-holes have not survived, or that the lining was dug through residual fill from earlier uses of the trough and did not cut through the subsoil elsewhere.

The main fill of the trough was black friable grit, burnt stone and charcoal (C8). The burnt stones within the fill were noticeably larger than those that made up the burnt spread (C2). A shallow lens of dark grey silt (C46) covered the base and sides of the trough to the south. Lenses of red sand (C45) were also noted at the both ends of the trough.

It is probable that the basal fill (C46) of the trough, the fill (C35) of the shallow cut (C34) and the fill (C43) of the stake-hole, are the same or at least contemporary. Due to the waterlogged nature of the feature it was not possible to discern any differences.

Features surrounding the trough

Several small features lay in close proximity to the trough (C7). A small shallow linear cut (C9) orientated north-south was the only feature that had a direct physical relationship to the trough. The southern extent of the cut was truncated by the northeast end of the trough. This feature was filled by black friable gritty silt (C10). The base of this feature sloped down towards the trough and it is possible it related to the activities being carried out within it. It had been backfilled prior to the final use of the trough.



Close-up of pit C9 sloping in towards the edge of trough C7, looking southwest (top)

View of stake-hole C40, looking north-northeast (centre)

View of stakehole C40 in foreground with pit C36 in centreground and posthole C38 to right, looking south-southeast (bottom)

Several small cuts were identified south of the eastern end of the trough. A stake-hole (C40), lay 0.2m from the edge of the trough and contained a single fill (C41) that was notable for the absence of any burnt spread material.

A small, steep-sided posthole (C38) with a flat base lay adjacent to the stake-hole and 0.12m from the edge of the trough.

Immediately southeast of the stake-hole (C40) and posthole (C38) was a small pit (C36). The pit was sub-oval in plan with steep concave sides and slightly concave base. Both the fill of the pit (C37) and the fill of the posthole (C39) contained burnt spread material.

Three shallow cuts were located to the west of the trough. An oval pit (C13) was to the south and was filled with burnt mound material (C14). A shallow, circular pit of posthole (C11) lay to the north. It had straight sides and a flat base and the fill (C14) did not contain burnt spread material. Another shallow pit (C5) was located 2.8m west of the trough and 3.7m northeast of the posthole (C23). It was subcircular in plan with gently sloping concave sides and a flat base. The sides were concreted by manganese. It had a single fill (C6), which was similar to the overlying burnt spread.

Pit and post cluster

A cluster of four small cuts was situated to the south of the trough (C7). These cuts were all circular in plan and lay within an area of 1m². They varied in size from the largest (C27), followed by (C29), followed by (C31) to the smallest (C33). The two larger cuts to the south had a similar diameter, were straight sided and flat-bottomed and appear to have been postholes. The two northern cuts were shallower and more concave and appear to have been associated pits. All four of the cuts contained single fills of identical burnt spread material.

The identical fills and the proximity of the four cuts suggests that they were contemporary and had a related function. The gradation in the dimensions is notable. However, nothing was recovered from the fills to identify the purpose of the pits.



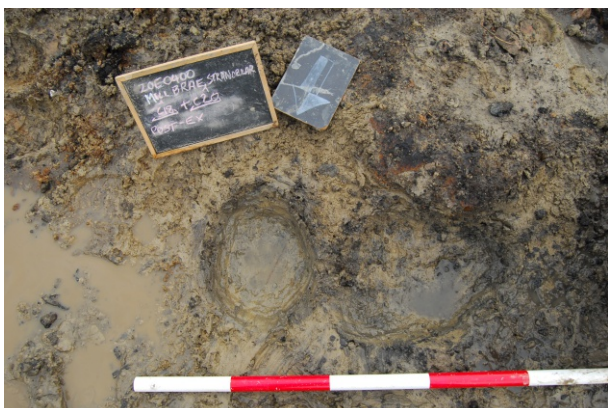
Pre-ex view of postholes C27 and C29 and possible pits S31 and C33, looking west (top)

Mid-ex view of postholes C27 and C29, looking northwest (centre)

Post-ex view of postholes C27 and C29 in background, with possible pits C31 and C33 in foreground, looking south (bottom)

Spread

An irregularly-shaped spread (C15) filled a shallow natural depression 1m southeast of the pit cluster. The spread measured 1.5m by 1.5m and the west side was truncated by the land drain (C22). The spread of burnt stone contained frequent charcoal and smaller sized burnt stone. There was some manganese concretion but otherwise the deposit was loosely compacted and waterlogged. At the centre of the spread, at its deepest point of 0.07m, a piece of petrified bone was uncovered sticking upright from the natural sandy subsoil. This bone had stone and sand concreted to it with manganese and was retained as a sample.



This spread is likely to be identical to the main burnt spread (C2) lying in a slight depression. This depression may have been caused by the weight of the original location of the burnt mound, suggesting it lay to the east of the trough and other features.

Associated pit and post

An associated pit and posthole feature lay 4.2m southwest of the trough (C7). The cuts were adjacent to each other and aligned northeast to southwest. The eastern posthole (C18) was circular in plan while the western pit (C20) was sub-oval. Both were shallow and contained the same consistency of burnt mound material.

Western Posthole

A single posthole (C23) was the westernmost feature beneath the burnt spread (C2). It lay 6.2m southwest of the trough and 4.1m northwest of the double pits (C18 and C20). The cut was oval in plan, orientated NE-SW and contained a silty fill (C24) with burnt stone inclusions. The sides were straight and steep except at the southwest which had a step. The base was flat and set in the northeast. Manganese affected both the fill and the natural subsoil on the east side of the pit.

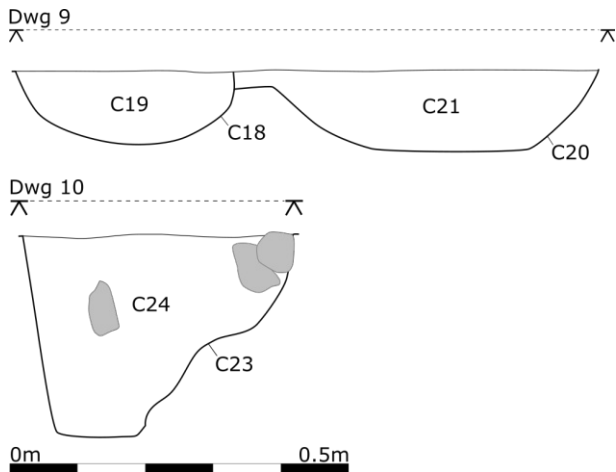
Pre-ex view of spread C15 being truncated by drain C22, looking south (top left)

Mid-ex view of posthole C18 to left and pit C20 to right, looking south-southeast (centre left)

Post-ex view of posthole C18 to left and pit C20 to right, looking south-southeast (bottom left)

Post-ex view of posthole C23, looking southeast (right)





Disturbed features

To the south of the trough a pair of features were identified towards the southern end of Slot 2. This portion of the trench was partially flooded making excavation of the features difficult. Feature C16 was half-sectioned and found to be a north-south orientated pit, similar to C20 to the west. It had a single fill (C17), a soft silt material. A sherd of modern glass was identified near the base of the fill, suggesting it was created through modern disturbance. A second cut (C25) truncated the northern end of the pit. This was circular and filled with burnt mound material (C26). These features were discounted during the excavation due to the presence of modern glass in the fill of the earlier feature, however it is possible that a pit, post or both was originally present here and disturbed through modern agricultural activity.

Northwest-facing section of post C18 and pit C20 (top left)

Northwest-facing section of posthole C23 (bottom left)

Pre-ex view of feature C16 and C25, looking north. The overnight flooding is visible to the right (top right)

Mid-ex view of section showing C25 cutting C16, looking east. Modern glass was retrieved from the fill of C16, however may be intrusive (bottom right)



Pits:

No.	L (m)	W (m)	D (m)	Description
C5	0.5	0.44	0.12	Sub-circular, concave profile
C9	0.3	0.23	0.07	Slopes to trough, concave profile
C13	0.5	0.23	0.11	Oval, concave profile
C16?	0.74	0.56	0.12	Oval, concave profile
C20	0.37	0.3	0.11	Oval, concave profile
C25?	0.36	0.3	0.14	Oval, concave profile
C31	0.34	0.34	0.1	Circular, steep-sided, concave base
C33	0.2	0.2	0.04	Circular, concave profile
C36	0.6	0.45	0.24	Oval, concave profile

Posts:

No.	L (m)	W (m)	D (m)	Description
C11	0.2	0.2	0.04	Straight sided, flat base
C18	0.28	0.28	0.09	Steep-sided, flat base
C23	0.41	0.37	0.3	Straight-sided, stepped base
C27	0.4	0.4	0.19	Straight-sided, flat base
C29	0.4	0.4	0.13	Straight sided, flat base
C38	0.33	0.3	0.23	Straight-sided, flat base

Table comparing the pits and postholes uncovered during the excavation

Section 3 Discussion

Fulachtaí fia

A by-product of the recent building boom has seen a large number of fulachtaí fia being excavated. This has not only increased knowledge of fulachtaí fia, but has also questioned the basic interpretation as to both their time-frame and function (Dennehy 2008, 5). The term fulacht fiadh has come to be used to refer to a monument type that was involved in pyrolithic technology – or the heating of stones.

The spelling varies in both the singular (Fulacht fiadh, fulacht fian) and the plural (fulachta fiadh, fulachtaí fia). "Fiadh" in Old Irish meant something like "wild", often relating to animals such as deer, while fian refers to the mythological band of hunters and warriors, the Fianna. There are historical references to the use of pits dug into the earth used for cooking and bathing, with one, For a Feasa ar Éirinn, noting that they are known among the peasantry as fulacht fian (O'Neill 2004, 80). Other historical references clearly use the term "fulacht" to describe a cooking spit. However, a close reading of these accounts suggests that the term actually derives from a word meaning support, and probably carries a deliberate reference to the Irish words for blood and meat (ibid., 84). As such the term itself is probably incorrect when discussing sites involved in pyrolithic technology, however this has become the understood name for the monument type.

Fulachtaí fia, or burnt mounds, are the most numerous type of archaeological site in Ireland, with recent indications suggesting that there are over 7000 known examples in the country (Hawkes 2018, 2). They comprise three elements - a mound or spread of heat-shattered stones, a minimum of one trough, and a minimum of one hearth. They are always found close to a water source or where one is not located nearby, wells, cisterns, or man-made

watercourses are usually present. The stones were heated in the hearth and then transferred to a trough of water in order to heat that water. The troughs are then cleared out for subsequent use and the unusable shattered stones strewn away.

There are several theories as to the function of these sites including cooking (O'Kelly 1954; Hawkes 2018), brewing (Quinn & Moore 2009), bathing (Lucas 1965; Ó Drisceoil 1988), and processing of materials (Denvir 1999; Brown et al 2016). Radiocarbon and other dating systems have shown that fulachtaí fia were used from the Neolithic period, with Cherryville 7, Co. Kildare, dating to 4219-3714 BC, being one of the earliest reliably dated fulacht fiadh sites in the country (Hawkes 2018, 122). It has been suggested that fulachtaí fia were used into the medieval period (post-400 AD). This is suggested in early literary accounts of burnt mounds and pyrolithic processes, which was taken as an indication that use of these sites continued into the early medieval period (ibid., 135). However an analysis of radiocarbon dates of the corpus of excavated fulachtaí fia revealed that examples dating to this period were not securely dated (ibid.). It is now believed that these sites were not used after the Iron Age and that the references to them in the early texts may relate to preserved folk memories of a site type that had long gone out of use (Danaher 2007, 37). The majority of excavated sites have been dated to the Bronze Age (2200 – 700 BC). Some sites were used over hundreds of years, for example at Ballyglass West, Co. Galway, which was used from 1740-1618 BC to 1125-978 BC (Hawkes 2018, 145). Others are suggested to have been returned to or re-used after an interval, such as at Knockaphunta, Co. Mayo (McGlade 2020, 15), where a fulacht fiadh site was returned to and new a new trough created 300 years after the earlier trough had gone out of use.

The Stranorlar fulacht fiadh

The fulacht fiadh at Stranorlar is typical of its type. It was located in wet, marshy ground along the northern side of the floodplain of the River Finn. A channel truncated the southern side of the spread and it is possible that this formalises a watercourse that was present in the vicinity of the fulacht fiadh. The burnt spread (C2) covered a sub-rectangular trough (C7). A hearth was not uncovered but these often occur on top of the burnt stones and so are not easily visible. Several small pits of unknown function were present and related to the processes for which the fulacht fiadh was utilised. Hawkes, in his recent publication on prehistoric burnt mounds in Ireland has suggested a number of categories to help compare these site types (Hawkes 2018, 111-114). The fulacht fiadh site uncovered at Stranorlar can be categorised as a Type 1 mound with single trough (ibid.). These sites are suggested to have had a single function and were not complex sites. They can be found in clusters, so it is possible additional sites may be present in the vicinity of the site in Stranorlar. If the interpretation of the additional cut feature on the side representing a structure (see below) the site can be categorised as Type 6-7: burnt mounds with structural evidence.



View of the initial slots excavated through the burnt spread at Stranorlar. The site remains waterlogged and flooded repeatedly during the excavation (top)

Location of the site of the fulacht fiadh (red) at Stranorlar shown in relation to the floodplain of the River Finn to the south. The modern floodplain is highlighted in blue, however it can be assumed that it would have continued along the northern line in the vicinity of the fulacht site in the past (bottom)



The spread

The burnt and shattered stones that composed the spread (C2) were predominantly sandstone. Sandstone is a favoured type of stone for fulachtaí fia, accounting for over 50% of the sites where the rock type has been recorded (Hawkes 2018, 60). Large stones of sandstone can be heated three to five times before shattering into unusable fragments (Buckley, 1990, 171). The spread at Stranorlar measured 17.8m by 15m and was an average of 0.18m in depth, giving it a capacity of c. 48m³. This is greater than the average dimensions nationally (9.4m by 7.06m, Hawkes 2018, 55), however the shallowness of the spread suggests the burnt mound that would originally have been present has been dispersed over time. The capacity of the burnt spread at Stranorlar is also above average for the recorded pyrolithic sites in Donegal, though the largest are over double the size. The spread was somewhat D-shaped, however the true form of the original mound has been lost. Given the presence of pits and posts to the southwest of the trough, it is possible this section was originally kept clear with the burnt mound originally lying to the east, north and southwest of the trough.

The trough

The trough (C7) at Stranorlar was an earth-cut pit located centrally beneath the burnt spread. It was sub-rectangular in plan, with rounded ends. It measured 2.3m by 0.8m by 0.2m in depth, giving it a capacity of 0.37m³. The average dimensions for rectangular troughs is 2.23m by 1.4m by 0.4m, with an average capacity of 1.52m³ (Hawkes 2018, 67), so the Stranorlar trough is below average. A shallow and ill-

View of burnt spread C2, looking north (top)

Mid-ex view of trough C7, looking southeast (centre)

Post-ex view of trough with partial stone lining to right, looking northwest (bottom)



defined pit (C34) was present in the base of the trough. This is unlikely to be a separate feature and may have been created in the cleaning out of the trough over time. A pit (C9) along the northern side of the trough sloped down towards the trough. The purpose of the pit was unclear, however given its shape and location, it may have been used to funnel water into the trough. It had gone out of use and been backfilled prior to the final use of the trough.

A partial stone lining was present along the northern and southern sides to the east. The stones were recessed into the sides of the trough so their internal faces were flush with the internal sides. There was no indication that the lining had originally completely surrounded the trough as the recess was not evident elsewhere. Fifty-seven stone-lined troughs were recorded at fulacht fiadh sites in Ireland from 1950-2010 (Hawkes 2018, 70). Usually these have evidence of the stones being selected or shaped to fit tightly together, which was not the case at Stranorlar. This would suggest that the stone-lining was not intended to form a complete water-tight container and served another purpose. Given the mobility of the subsoil at Stranorlar, particularly when wet, it is possible the partial stone lining was intended to add support to the sides of the trough. Partially stone-lined troughs have been identified elsewhere, such as examples at Knockaphunta, Co. Mayo, where the subsoil was also sandy and loose, requiring additional support (McGlade 2020, 16). A partially stone-lined fulacht trough excavated in Brackbaun, Co. Limerick had rounded stones recorded along the short side of the trough (McQuade et al 2009, 102). A fragment of timber on the base of the trough suggested it also had a wood lining (*ibid.*). Another trough partially lined with stone was recorded at Clonmore North, Co. Tipperary (*ibid.*, 107).

A single possible stake-hole was identified on the base of the trough along the southern side. It was shallow and did not contain preserved wood. The fill of the stake-hole was similar to the lower silt fill of the trough, suggesting the stake had been removed prior to the trough's abandonment. The shape of the trough would suggest a formal wood lining was not used, however a lightweight wicker structure may

have been present, or a lining using other organic matter, which may only have required minimal pinning down. If the lining was driven into a partially cleaned out trough it is possible additional stake-holes were present but not driven into the base of the trough.

The stones within the trough were noticeably larger than those within the burnt spread. The stones within the burnt spread represent waste from the water-heating process. The fact that the stones within the trough were not fully shattered suggests they were still viable for use in the trough. This implies the trough was abandoned during or after a firing event, or that the more complete stones were stored in close proximity to the trough and were deposited in the trough over time.

Intensity of use

Enough fire-cracked stones were excavated in the spread (c. 48m³) to fill the trough approximately 130 times. A water-filled trough would have required at most to be half-filled with stones in order to boil water (Fahy 1960; Sheehan 1990, 35; Dennehy 2008, 14), but almost certainly far less hot stones were used per trough heating (Hawkes 2015). Experiments carried out by M.J. O'Kelly in 1952 relating to a site at Ballyvourney I, Co. Cork demonstrated that cooking, both with the trough filled and empty of water, could be carried out in fulacht troughs and in his experiments produced c. 0.5m³ of waste broken stone in the process (Waddell 1998, 175). Numerous other experiments relating the use of fulachtaí fia have been carried out since then, for example Denvir's experiments in 1999, which demonstrated that fulachtaí fia could be used in textile processing for washing, dyeing and fulling (Denvir 1999). She found that only twelve heated stones were required to bring the trough to boil and one stone every ten minutes added to keep a constant temperature (*ibid.*). As Dennehy has pointed out, (Dennehy 2008, 14) there are problems with using the size of the burnt mound material to calculate the number of uses of the site, however it can be used to infer the intensity of use. Based on the volume of waste produced as suggested in O'Kelly's experiments there could have been up to 96

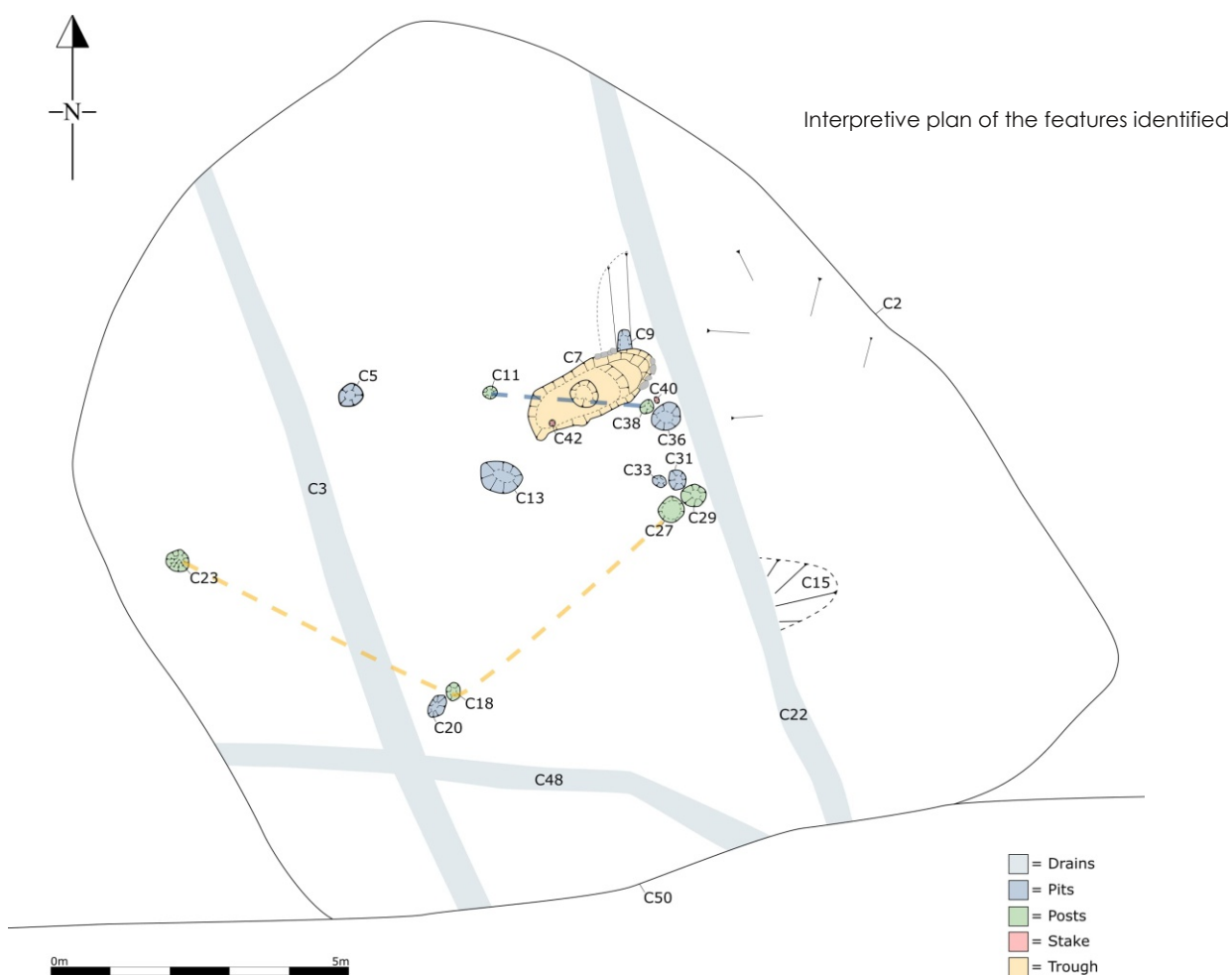
separate heating episodes on the site at Knockaphunta, assuming the stones were heated only once. Using Fahy's figure of a half-filled trough this would suggest about 260 heating events. Buckley has demonstrated that sandstone, which formed the bulk of the burnt stone spread from the site, could be heated and cooled around five times before breaking into unusable fragments (Buckley 1990, 171). This may suggest that the site could have been used between 480 and 1,300 times, however even taking the lowest possible projection of 96 events, this implies a site that was used intensively or over an extended period of time.

Additional features

A number of additional features were identified beneath the burnt spread. Six postholes were uncovered. These did not form a clear pattern suggesting a buildings, however they may represent fence-lines or features associated with the activities being carried out at the fulacht.

The larger postholes were to the south and west of the trough, possibly forming a V-shape in plan. The easternmost postholes were a pair of straight-sided cuts with flat bases. Immediately to the north of these two slightly smaller and more concave cuts may represent additional posts or shallow associated pits. It is possible these posts were paired to provide additional support, or that one is a replacement of the other. Paired postsholes at fulacht fiadh sites have been recorded elsewhere, such as at Ballynamona, Co. Cork, where the posts associated with the fulacht fiadh did not appear to relate to an associated structure (Hegarty 2011, 40-6).

A steep-sided posthole to the south had a concave base and was also associated with a nearby shallow pit. To the west a deeper posthole with a stepped base was uncovered. The distance between the posthole was just under 5m. The pairing of a post with a nearby pit is interesting, however nothing in particular was noted within the fills to suggest a reason for



this. It is possible the posts relate to a fence-line on the site, perhaps defining an access to the trough. This would suggest that the fulacht was not accessed from the south. Equally, the postholes may have held uprights that were intended to mark the location of the fulacht site, or perhaps the associated pits.

A further two smaller posts were identified closer to the trough. It is possible these relate to a feature associated with the trough, perhaps part of a superstructure, or a rack. A stake-hole was excavated beside the eastern posthole and may be related. A pit was also present beside the eastern posthole, mirroring the association of a posthole with a nearby pit, which is seen on four occasions on the site.

In addition to the trough, seven additional pits were recorded. As mentioned above one of these (C9) was directly connected to the trough and may have served to funnel water into it. Four of the other pits (C20, C31, C33 and C36) were associated with adjacent postholes. Two additional pits were uncovered to the west of the trough and were not associated with posts. The pits were generally sub-circular or oval in plan with shallowly sloping concave sides. Pits are frequently uncovered on fulacht fiadh sites, with approximately 70% being circular or oval in shape (Hawkes 2018, 86). Their small size suggests they are unlikely to have been used for storage and they are too small to have functioned as water receptacles. Hawkes (2018, 88) has suggested that pits such as these may have served as roasting or steaming pits. This may account for the function of the three larger pits (C5, C13 and C36).

Possible structure

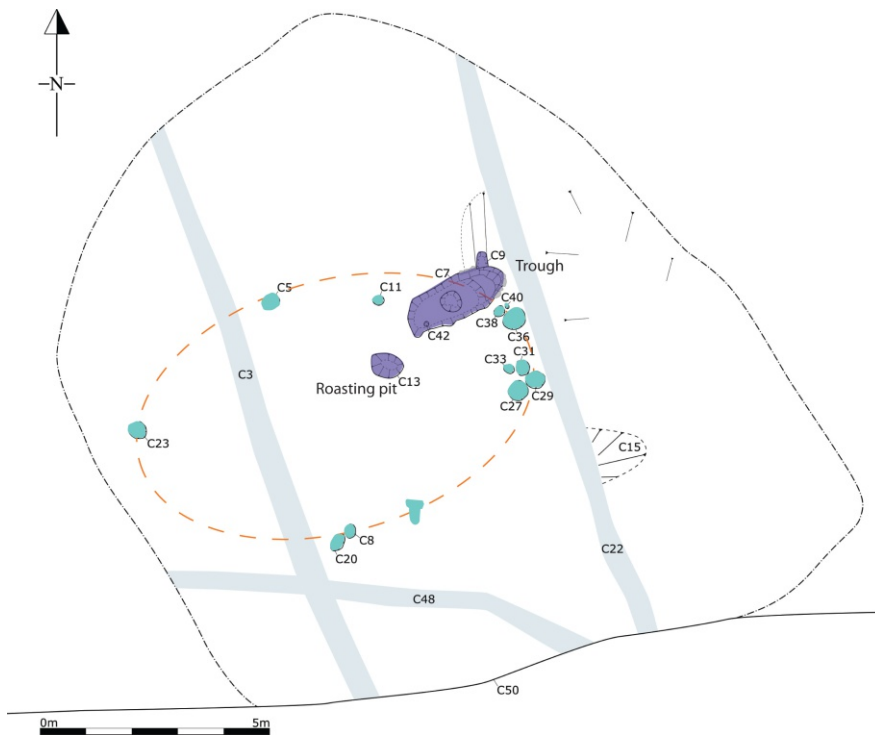
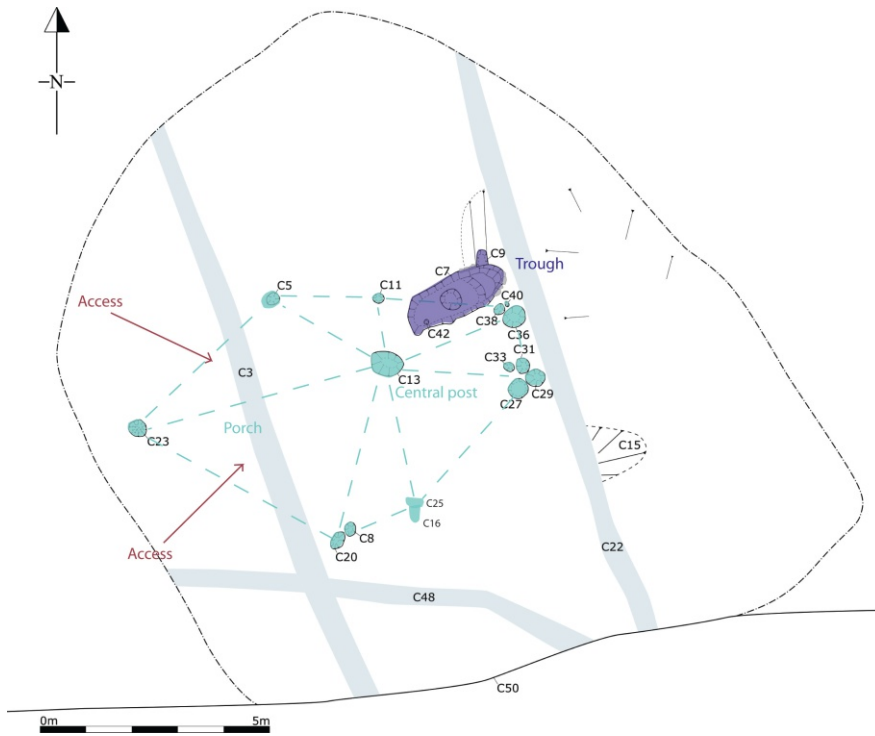
The nature of the wetland soils combined with the weight of the overlying spread meant that the upper portions of underlying features did not survive. These were eroded and compressed as the burnt mound spread out, and are likely to have been originally deeper with only the basal portion of

Post-ex view of postholes C27 & C29 in background, with possible pits C31 & C33 in foreground, looking south (top)

Post-ex view of pit C46, looking northwest (centre)

Post-ex view of pit C13, looking west (bottom)





Hypothetical structure 1 with central posthole and projecting porch to the west (top)

Hypothetical structure 2 with roasting pit C13 in centre. In both cases the trough protruded beyond the line of the possible structure, perhaps indicating the hot stones were added to the trough from the exterior (bottom)

deeper postholes surviving. If this were the case the pairing of posts and pits may represent double postholes or post maintenance and rebuilding.

Two hypothetical lay-outs have been suggested. The first is a sub-rectangular structure with projecting porch to the west and the trough located in the northeast corner. The size of the structure suggests it could easily have been roofed. The inferred structure measures c. 3-5m in width and c. 4.8m in length, approximately 19.2m² internally, with the projecting porch giving a total length of c. 8m. This is broadly comparable in scale with other excavated examples (Hawkes 2018, 99).

The second hypothetical layout is more generalised with an approximately oval structure measuring c. 8m by 5m, defining an area of c. 31.4m². Again, this is broadly comparable in scale with examples excavated elsewhere in the country (Hawkes 2018, 99). In this hypothesis the structure may have been unroofed, perhaps a windbreak defining a workspace associated with the trough. The trough again extends beyond the line of the structure. In this instance the central pit may have functioned as a roasting pit.

Structures associated with fulachtaí fia have been identified elsewhere in Ireland, defined by stone, slot trenches, sunken areas, posts or stakes. These have been interpreted as defining

associated huts, stores, sweathouses, light tented structures shelters, windbreaks, and so on (Hawkes 2018, 98-108). In the case of a possible structure at Stranorlar, the centrally-located cut is of particular interest, as it may represent the base of a truncated central post or an important feature of the fulacht complex such as a roasting oven. As pointed out by Hawkes (2018, 104), the wet and unstable ground conditions of fulacht fiadh sites would have required structures to be frequently replaced, perhaps explaining the double pit and post features at Stranorlar. An interesting aspect of both hypothetical layouts is the projection of the trough beyond the projected walls of the structure. Such a location may have been intentional, in order to allow the trough to be filled from outside of the structure.

Finds

A small quantity of bone, both unburnt and burnt, was retrieved from the burnt mound during the excavation. Bone, either burnt or unburnt has been retrieved from 263 other fulacht fiadh sites, 23% of the excavated examples (Hawkes 2018, 156). In most cases, as at Stranorlar, less than ten fragments survive, which may be due to the acidic soil conditions. The two unburnt bones retrieved from Stranorlar are encrusted with manganese, which is likely to have aided their preservation. Two small burnt bone fragments were also retrieved during the excavation. The presence of bone within the burnt stone and charcoal waste associated with the fulacht fiadh suggests that at least some consumption of meat was taking place at the site. The small quantity of bone retrieved is not indicative of substantial animal carcass processing and deposition on the site, perhaps being more representative of waste from a meal. However, the acidic soil conditions should be taken into consideration and it is possible additional bone was deposited elsewhere or that meat processed at the site was removed and consumed elsewhere.

Grinding stones and saddle querns have been retrieved from 21 other fulacht fiadh sites, with the majority being recovered from the burnt mound or trough fills (Hawkes 2018, 199-200). This suggests an association of the fulacht site



Bone concreted in manganese retrieved from the burnt spread (top)

Pink granite grinding stone retrieved from the burnt spread (centre)

Side profile of grinding stone retrieved from the burnt spread (bottom)

with a nearby agricultural settlement, with five of the fulacht sites where this type of find has been uncovered previously being located within 1km of known settlements (ibid.). There are no known settlement sites in the vicinity of Stranorlar, however limited archaeological investigation has taken place in the area with only six taking place within Ballybofey and Stranorlar and an additional five within 3km of the site.

If the stone is a grinding stone, this type of find is traditionally associated with the grinding of grain and may imply that this activity was being carried out on the site in Stanorlar. This may also indicate that baking was being carried out on the site. It is also possible that the stone may be a large rubbing stone as there is bevelling along one of the edges of the stone. This may suggest the stone relates to a different processing activity being carried out at the site, perhaps being used in leather or textile production.

Possible dating

At present the dating of the fulacht fiadh at Stranorlar is tentative, however saddle querns and grinding stones have been retrieved elsewhere from fulachtaí fia dating to the

Middle to Late Bronze Age (Hawkes 2018, 200). It is hoped that the environmental samples taken during the excavation will be suitable for radiocarbon dating to indicate the true date of the site.

Fulachtaí fia in Donegal

Although these are the most common archaeological site type in the country, there have been few examples excavated or identified in Co. Donegal. In the Record of Monuments and Places for the county there are nine burnt mounds, three burnt spreads and eleven fulachtaí fia identified. This compares with Sligo to the south, which has 188 pyrolithic sites. This is presumably due to a lack of recognition of this site type within the county previously (only three were recorded in the Donegal Archaeological Survey (Lacy 1983) combined with less infrastructural investment in the county in recent years, as many of these sites have been uncovered during the road jobs elsewhere in the country.

RMP No.	Location	Description	Excavation Licence	Dimensions
DG004-084--	Drumcarbit	Fulacht fiadh	08E0226	c. 6x3m
DG015-008--	Claggan (Dunfanaghy)	Fulacht fiadh	n/a	12x7x1m
DG016-009--	Cionn na Leargaí	Fulacht fiadh	n/a	11x10x1m
DG025-007--	Oirear Dhumáí Mór	Fulacht fiadh	16E0573	14x10x1m
DG055-031--	Altahaderry	Fulacht fiadh	07E1008	13x12x0.15m
DG086-022007	Croaghonagh	Fulacht fiadh	10E0309	15x13x0.45m
DG093-023--	Doonan	Fulacht fiadh	07E0002	n/a
DG093-024	Revlin	Fulacht fiadh	07E0381	n/a
DG097-040--	Glebe (Killybegs)	Fulacht fiadh	01E0243 & 01E0895	20x20x0.2m
DG100-017	Drumgowan	Fulacht fiadh	n/a	n/a
DG107-120	Ballymacaward	Fulacht fiadh	08E0679	n/a
DG012-048--	Clonca	Burnt mound	n/a	12x12x0.35m
DG025-052--	An Dún Mór (Na Croisbhealaí)	Burnt mound	n/a	16x8x0.4m
DG038-058--	Baile na Creige Thoir	Burnt mound	n/a	16x15m
DG053-054--	Ballyboe Glencar	Burnt mound	04E1473	5x3x0.12m
DG068-032--	Kiltyfergal	Burnt mound	98E0232	10x10m
DG093-021--	Revlin	Burnt mound	n/a	n/a
DG0971-015009	Glebe (Killybegs)	Burnt mound	01E0065	16x16x0.52m
DG103-077	Ballymagrorty Scotch	Burnt mound	n/a	4x0.1m min.
DG107-057001	Sminver (Carrickboy)	Burnt mound	03E1012 & 04E0017	8.4x4x0.1m
DG038-056—	Monreagh or Barr of Kilmackilvenny	Burnt spread	08E0468	9.1x6m and c. 7.6x2.3m min.
DG086-002005	Croaghonagh	Burnt spread	10E0309	3.8x2.2x0.2m
DG109-008--	Magheracar	Burnt spread	03E1017	5x0.4m min.

Table showing the pyrolithic sites that have been added to the RMP in Donegal

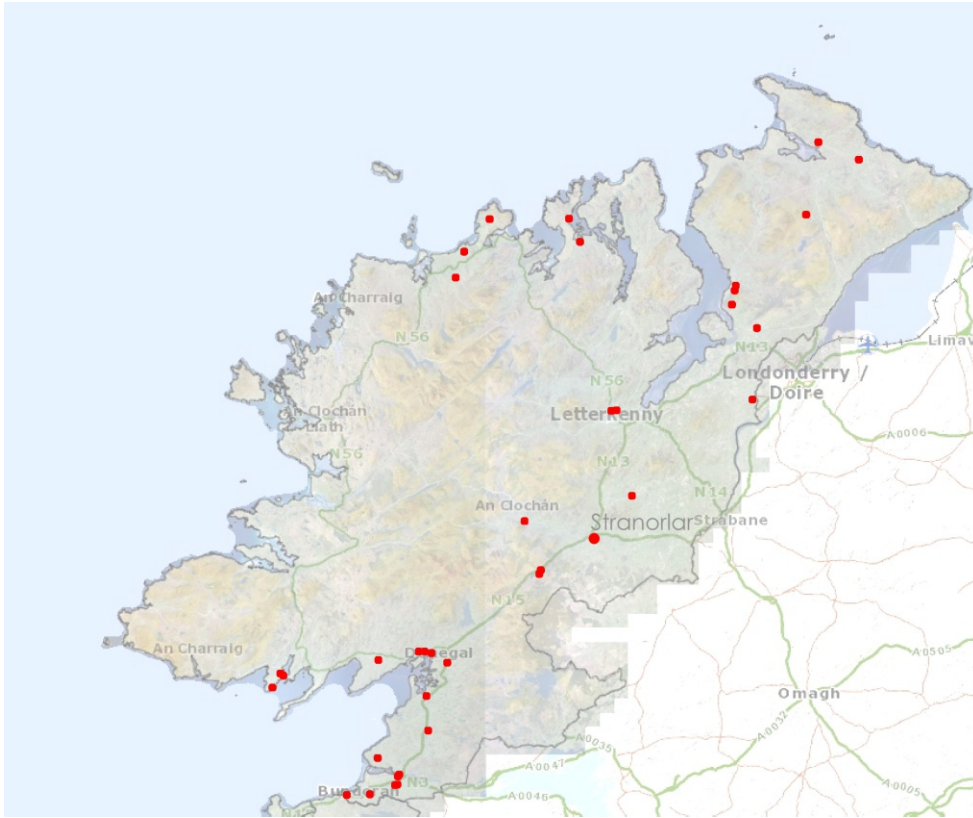
Licence No.	Excav. Ref.	Location	Site Type	RMP No.	Director
98E0232	1998:108	Kiltyfergal	Burnt mound, pit	DG068-032	E. Halpin
01E0065	2001:281	Glebe, Killybegs	Fulacht fiadh	n/a	M. Fitzpatrick
01E0243	2001:282	Glebe, Killybegs	Possible fulacht fiadh	DG097-040--	M. Fitzpatrick
01E0895	2001:284	Glebe, Killybegs	Fulacht fiadh	DG097-040--	M. Connelly
03E1015	2003:427	Area 8, Rathmore	Farmstead & burnt spread	n/a	B. Quinn
03E1017	2003:432	Magheracar	Burnt spread	DG109-008--	B. Quinn
03E1019	2003:433	Sminver 13	Disturbed burnt mound	n/a	B. Quinn
04E0017	2004:0415	Sminver 1	Holy well & burnt spread	DG107-057001	F. Walsh
04E1473	2004:0390	Ballyboe Glencar	Burnt mound (5x3x0.12m)	DG053-054--	M. McQuade
04E0064	2004:0399	Glebe, Killybegs	Burnt mound	DG097-040--	M. Fitzpatrick
07E0002	2007:354	Doonan	Possible fulacht fiadh	DG093-023--	D. Moore
07E0944	2007:350	Churchtown 10	Fulacht fiadh (3.5x5x0.15m) & med. burials	n/a	B. Quinn
07E0381	2007:373	Revlín	Fulacht fiadh	DG093-024	E. Kieran
07E1008	2007:363	Kildrum Upper	Burnt spread (13x12x0.15m)	DG055-031--	D. Nelis
08E0468	08E0468	Kilmackilvenny	Burnt spreads (9.1x6m and 2.3x2.3m min)	DG038-056--	D. Nelis
08E0679	2007:301	Ballymacaward	Burnt spread/ fulacht fiadh	DG107-120	A. Wallace
08E0679 (ext.)	2009:202	Ballymacaward	Burnt spread	DG107-120	A. Wallace
08E0226	2008:226	Drumcarbit	Burnts spread/ fulacht fiadh	DG004-084--	A. Wallace
08E0987	2008:299	Ballymacarry Lower	Burnt spread (1.8x1.2x0.05m)	n/a	M. McGonigle
10E0197	2010:179	Broadpath	Burnt spreads (5 from 1.8x0.8m to 4.7x2.7m)	n/a	R. Crumlish
10E0398	2010:192	Roshin	Neolithic pits & fulacht fiadh	n/a	E. O'Donovan
10E0428	2010:184	Mountcharles 1	Burnt mound (3x1.8x0.5m) & 2 burnt spreads	n/a	P. Walsh
10E0309	2011:143	Croaghonagh	Megalithic cairn & burnt spreads	DG086-002005	S. Delaney
11E0008	2011:149	Mountcharles 1	Burnt spread (4.4x2.9x0.05m)	n/a	F. Matyasowszky
11E0243 ext.	2012:154	Glebe (Killybegs)	Burnt stone deposit	n/a	M. Fitzpatrick
11E0243 ext.	2015:049	Glebe (Killybegs)	Burnt stone deposit	n/a	M. Fitzpatrick
12E080	2012:140	Achadachor	Possible burnt mound (5x1m)	n/a	M. McGonigle
13E0031	2013:031	Knocknamona	Burnt mound	n/a	P. Long
15E0134	2015:213	Millbrae, Stranorlar	Fulacht fiadh (current site - 17.8x15x0.18m)	n/a	S. McGlade
16E0573	2016:154	Errarooy More	Fulacht fiadh	DG025-007	A. Hawkes
E005040	2019:591	Letterilly 1	Late Bronze Age fulacht fiadh	n/a	G. Hull

Table showing the archaeological investigations that have identified pyrolithic activity in Donegal

Site	Dimensions	Capacity
Oirear Dhumaí Mór	14x10x1m	140m ³
Glebe (Killybegs)	16x16x0.52m	133m ³
Cionn na Leargáí	11x10x1m	110m ³
Croaghonagh	15x13x0.45m	88m ³
Claggan (Dunfanaghy)	12x7x1m	84m ³
Glebe (Killybegs)	20x20x0.2m	80m ³
An Dún Mór (Na Croisbhealaí)	16x8x0.4m	51m ³
Clonca	12x12x0.35m	50.4m ³
Stranorlar	17.8x15x0.18m	48m ³
Altghaderry	13x12x0.15m	23m ³
Sminver (Carrickboy)	8.4x4x0.1m	3.36m ³
Mountcharles	3x1.8x0.5m	2.7m ³
Churchtown	5x3.5x0.15m	2.6m ³
Ballyboe Glencar	5x3x0.12m	1.8m ³
Croaghonagh	3.8x2.2x0.2m	1.7m ³
Mountcharles	4.4x2.9x0.05m	0.64m ³
Ballymacarry Lower	1.8x1.2x0.05m	0.12m ³

Table of recorded capacity of pyrolithic sites in Donegal

In the past twenty-two years thirty-one archaeological investigations have encountered fulachtaí fia, burnt mounds or burnt spreads. Some of these are of sites investigated over a number of years or at various stages of development projects. Sixteen are of sites already listed in the RMP. Fourteen, including the initial investigations on the site at Stranorlar, are additional sites. This gives 37 identified pyrolithic sites within the county. The low number of pyrolithic sites encountered in Donegal may partially reflect the lower volume of excavation that has taken place in the county, however it may also indicate that there was a lower density of population here during the prehistoric period, or that population centres within the county were more nucleated.



Distribution of pyrolithic sites in Donegal. The higher frequency seen to the south are a result of road improvements in this part of the county. The lower density in the central and northern parts of the county may be due to fewer archaeological investigations here, with less recent infrastructural projects having taken place. The total absence of pyrolithic sites in west Donegal may reflect the existing landscape and settlement patterns and the lower density of development in this part of the county. It is also possible the distribution may reflect lower or more nucleated populations in these areas during the Bronze and Iron Ages.

Prehistoric activity in the vicinity

The immediate area surrounding the site of the proposed development is relatively low in known prehistoric sites. The site lies in what is known as the Lagan district, an area of good drift soils that provide some of the best agricultural soils in Ireland. Its location in a low-lying relatively flat area beside the river Finn suggests it would have been prime agricultural land. There is a reference from Lieutenant I. Wilkinson, who was working on behalf of the Ordnance Survey in the 1830s, to the regular flooding of the River Finn leading to the lands in the valley being well fertilised (Lacey 2006, 52). Field monuments, many now destroyed by rural development, and artefact finds, show that the wider area has been settled and cultivated since the Neolithic period. For example, polished stone axe-heads retrieved from both Stranorlar and Ballybofey townlands indicate a Neolithic presence in the vicinity, while a flat copper axe found in Ballybofey is indicative of a presence in the vicinity in the Early Bronze Age (McGlade 2015, 5). A number of Neolithic megalithic tombs are present in the vicinity of

the town demonstrating earlier occupation. Undated enclosures and standing stones are also present in the area, which may be contemporary with the activity being carried out at the fulach fiadh site. To the east a number of Bronze Age burials, both cremations in urns and inhumations, have been uncovered in the Finn Valley (Chapple 2019a & b), and the pyrolithic activity to the south at Lough Mourne near the Barnesmore Gap also dates to this period (ibid). Finds such as the Tullydonnell hoard, a hoard of four gold rings dating to the Late Bronze Age, have also been uncovered in the wider area. These are amongst the heaviest prehistoric gold artefacts discovered in Ireland, and are a further indication of the importance and wealth of the community living in the vicinity of the site at Stranorlar (Seaver 2018, 6).

Stranorlar lies on the edge of the important prehistoric political centre of eastern Donegal, centred around Raphoe and Croghan Hill to the north, where important Bronze Age sites such as the hillfort on Croghan Hill and Beltany Stone Circle are located. However, it is located on the main route from Donegal town to Convoys and Raphoe, via the Barnesmore Gap,



at the crossing point of the Finn River. This is one of the most important routeways through Donegal, now marked by the N15, linking the west of Ireland to the north (Lacey 2006, 43). The fording point of this route, where Stranorlar now stands, would have been a significant location.

The River Finn runs through the ancient territory of Mag nItha, The Plain of Itha, a mythological character. From their emergence in the 6th century, this territory was in the possession of the Cenel Connail, one of the most powerful groups in Donegal's early history, and this is believed to be their original homeland (Lacey 2006, 188). This plain is surrounded by significant prehistoric monuments, including the passage tomb cemetery at Kilmonaster to the east, suggesting it was a significant resource for a long time.

The fulacht fiadh at Stranorlar is set within this prehistoric landscape. While few settlement sites currently known in the immediate locale, it is likely that other settlements were present here during prehistoric times. The protection and control of the important fording place of the River Finn, upon which Stranorlar stands, would have been of significant importance during the Bronze Age. The presence of a grinding stone at the site may indicate grain processing was

Extract from Chapple's geolocated radiocarbon dates (2019b). Excavations that date to the prehistoric period have been highlighted (solid circles) and a number of additional prehistoric sites of significance in the vicinity of Stranorlar have been added (outlined circles). The image shows that there are relatively few sites radiocarbon dated to the prehistoric period in Donegal, a reflection on the low quantity of archaeological investigations carried out within the county in recent years. The dating of the fulacht fiadh at Stranorlar will add to this data, however additional radiocarbon dates from other excavations will be required to fully understand the prehistoric settlement pattern in the county

taking place here, or nearby. This is a further indication that a settlement existed in the immediate vicinity, possibly on the higher ground to the north of the valley where the modern town is located. Post-excavation analysis of the artefacts, faunal and environmental remains will further reveal the prehistoric landscape and settlement surrounding the Stranorlar fulacht fiadh.

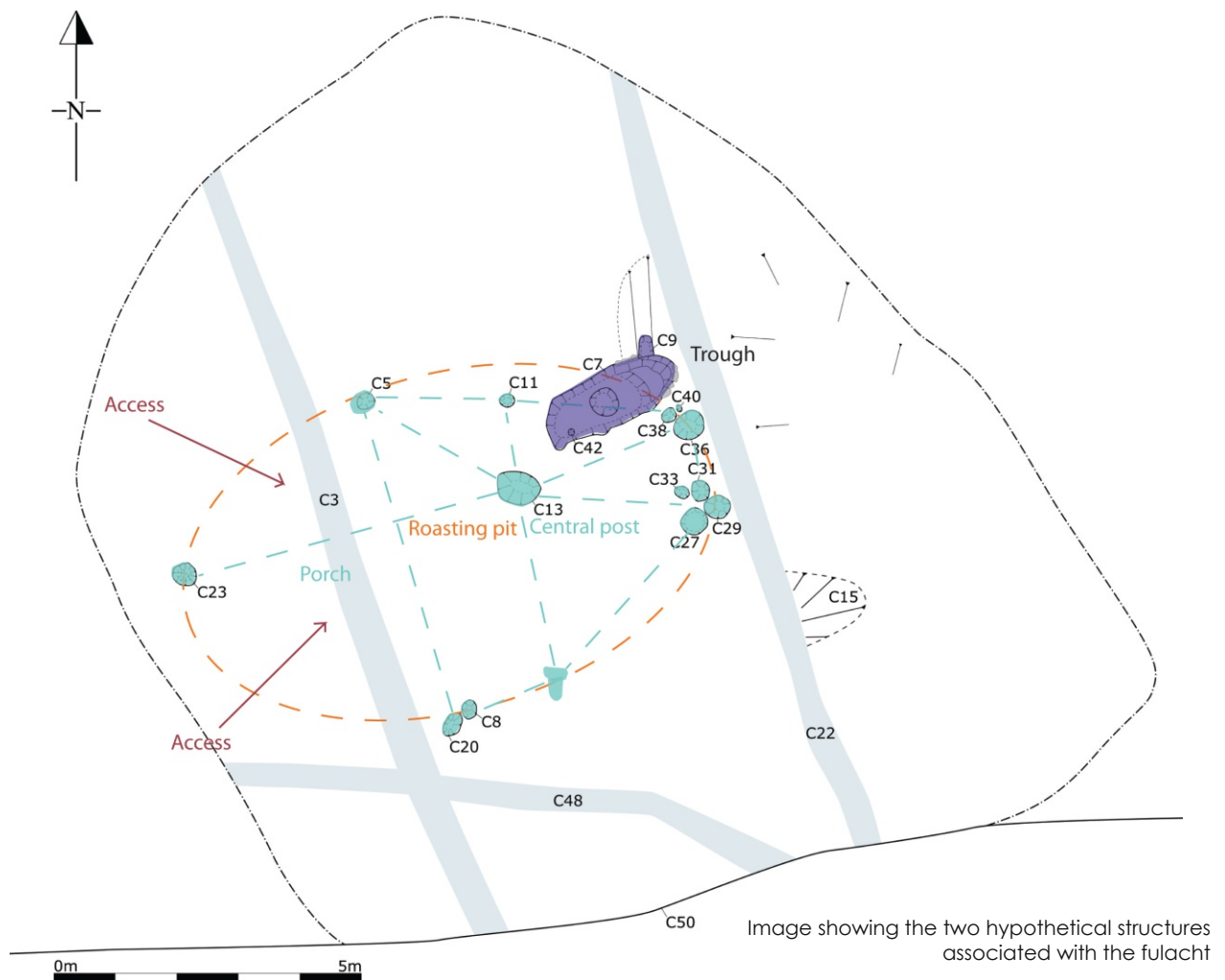
Section 4 Conclusion

Post-excavation

Post-excavation analysis of the finds and samples from the excavation is underway. The environmental analysis of the samples from the site is being undertaken by Lorna O'Donnell. It is hoped this analysis will indicate the wood selected for use in the fulacht and may indicate the local environment during the use of the site. It may also help suggest what the site was used for. Once she has finished the analysis a sample of the charcoal will be sent to Queen's University, Belfast for radiocarbon dating. This will allow us to correctly date the site and allow for comparison with other sites of similar age.

The bone will be analysed by Ruth Cardon. Bone is relatively uncommon on fulacht fiadh sites and the identification of the bone will provide a fuller picture of the animals being eaten at the site. Two of the bones are heavily encrusted and it may be necessary to send them to conservator Ellen O'Carroll to remove this prior to identification.

The grinding stone will be analysed by Niamh Kelly. The identification of the use of this stone may also help us understand how the site was used.



Conclusion

The site consisted of a single trough with a number of pits and posts nearby. The arrangement of the pits and postholes is suggestive of a truncated structure. This may have been a roofed structure partially incorporating the fulacht trough, an enclosure surrounding the fulacht marked by a fence, or a series of pillar-posts marking the approach to the fulacht fiadh. Some of the larger pits may have served as roasting pits while two smaller posts may relate to a lightweight stricker such as a rack. The associated burnt mound was levelled and spread across all the other features. Manganese build-up, particularly to the west appears to relate to the charcoal within the mound solidifying over time in the waterlogged conditions.

The fulacht fiadh site excavated at Stranorlar adds to the corpus of these pyrolithic sites within the county. Radiocarbon dating of the site will allow us to identify when the site was in use and analysis of the finds from the excavation will further add to the picture.

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APPENDIX A Context Register

Context	Type	Fill of	Filled by	L. (m)	W. (m)	D. (m)	Interpretation	Description	Finds/ Ecofacts	Context Above	Context Below
1	Topsoil	n/a	n/a				Topsoil	Orangish brown sandy silt, waterlogged within the site extent			C2
2	Deposit	n/a	n/a	18	15	0.15-0.2	Burnt Spread	Large burnt spread consisting of friable burnt sandstone and charcoal. Sandstone fired to red, black and white and often degraded. The spread was heavily concreted with manganese, particularly to the west. Stone dimensions ranged from 0.08x0.03x0.04m to 0.13x0.08x0.09m. Very occasional quartz and limestone inclusions. Concreted manganese extends into the natural below the spread, particularly towards the west.	Pink granite quern or rubbing stone; burnt and unburnt bone; charcoal.	C3, C22	C6, C8, C12, C14, C15, C19, C21, C24, C28, C30, C32, C44, C37, C39, C41

3	Cut	n/a	C4	>14.0	0.38	0.39	Drain	Land drain with straight sides and flat base. Runs NW-SE across western extent of spread. Cuts solid manganese concretion of C2 to north.		C4	C2
4	Fill	C3	n/a	>14.0	0.38	0.39	Fill of drain	2 fills - loose stones on base, 0.15m depth, covered by mixed sandy silt and disturbed burnt spread material, 0.24m depth.		C50	C3
5	Cut	n/a	C6	0.5	0.44	0.12	Small pit	Shallow subcircular pit with gently sloping concave sides and a flat base. Solid iron panning on sides of cut.		C6	NAT
6	Fill	C5	n/a	0.5	0.44	0.12	Fill of pit	Burnt stone, loosely compacted with charcoal inclusions. Waterlogged.	Charcoal	C2	C5

7	Cut	n/a	C8, C45, C46	2.3	0.8	0.2	Trough	<p>Suboval trough with a sharp b.o.s at the top, concave sides and a concave base. Long axis NE-SW. The SW end is slightly deeper at the E. A shallow lip was present along the upper edge of the trough to the E. Four stones (largest 0.16x0.13x0.06m) on the N and three (largest 0.18x0.25x0.06m) on the S side have been recessed into the sides of the trough at the NE end representing a partial lining or the remains of a full stone lining. A shallow cut or depression, C34, was centrally located in the base of the trough and a stakehole, C42, was located in the base close the the SE side.</p>	C34, C42	C10
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8	Fill	C7	n/a	2.3	0.8	0.2	Fill of trough	Black friable grit with burnt stone and charcoal. Waterlogged. The dimensions of the stones range from 0.05x0.05x0.02m to 0.21x0.17x0.13m. Includes a lens of dark grey silt along the base and side to the south, 0.02m thick. Lenses of red sand were present at both ends of the trough.	Charcoal		
9	Cut	n/a	C10	0.3	0.23	0.07	Shallow pit	Shallow linear pit. S end truncated by NE end of trough C7. Perpendicular alignment to the trough.		C10	NAT
10	Fill	C9	n/a	0.3	0.23	0.07	Fill of pit	Black, friable gritty silt with occasional manganese concretion.		C7	C9
11	Cut	n/a	C12	0.2	0.2	0.04	Shallow pit/ posthole	Small shallow circular pit or base of posthole. Straight vertical sides and flat base. 0.42m W of trough C7.		C12	NAT
12	Fill	C11	n/a	0.2	0.2	0.04	Fill of pit/ posthole	Soft brownish grey silt with occasional burnt stone.		C2	C11

13	Cut	n/a	C14	0.5	0.3	0.11	Oval pit	Small oval pit with sharp b.o.s. at top, concave sides and gradual b.o.s. to a concave base. 0.55m SW of trough C7 and 1m S of C11.		C14	NAT
14	Fill	C13	n/a	0.5	0.3	0.11	Fill of pit	Black, friable gritty silt with frequent black burnt stone inclusions.		C2	C13
15	Deposit	n/a	n/a	1.5	1.5	0.05	Spread	Black loose burnt mound material filling a shallow depression SE of trough C7. Frequent charcoal inclusions. Some of the deposit was also affected by manganese forming solid lumps up to 0.1x0.1x0.2m dimensions. W side of spread truncated by land drain C22	Charcoal; petrified bone	C2	NAT
16	Cut	n/a	C17	0.74	0.56	0.12	Pit	Sub-oval pit with concave sides and base. Truncated by C25 pit to north. Possibly modern disturbance		C17	NAT
17	Fill	C16	n/a	0.74	0.56	0.12	Fill of pit	Soft greyish brown silt with occasional burnt stone. Contained modern glass, though possibly intrusive	MODERN GLASS FRAG	C25	C17

18	Cut	n/a	C19	0.28	0.28	0.09	Posthole	Situated 0.05m ENE of C20. Circular shape in plan, sharp b.o.s. at the top with concave sides and base.		C19	NAT
19	Fill	C18	n/a	0.28	0.28	0.09	Fill of posthole	Black friable burnt stone and charcoal in soft silt.	Charcoal	C2	C18
20	Cut	n/a	C21	0.37	0.3	0.1	Pit	Situated 0.05m WSW of C18. Suboval pit, steep sided to N and W with sharp b.o.s at top and base, more gentle to E.		C21	NAT
21	Fill	C20	n/a	0.37	0.3	0.1	Fill of pit	Identical fill to C19 - black friable burnt stone and charcoal in soft silt.		C2	C20
22	Cut	n/a	C47	>15	0.4	>0.4	Land drain	NW-SE running active land drain. Truncates burnt spread C2, E of and parallel to C3. Filled by loose stones under mixed silt with burnt spread material.		C1	C2
23	Cut	n/a	C24	0.41	0.37	0.3	Posthole	Oval shape in plan with a step at the W. Sharp b.o.s at top and base and gradual at the step. Steep sides.		C24	NAT

24	Fill	C23	n/a	0.41	0.37	0.3	Fill of Posthole	Dark grey sandy silt with burnt stone and manganese. Loosely compacted where not affected by manganese. The natural at the E and S sides were also concreted by manganese.		C2	C23
25	NA	n/a	C26	0.36	0.3	0.14	Pit	Sub-oval pit with concave sides and base. Truncates pit C16 to S. Inundated to east. Possible modern disturbance as pit C16 contained modern glass frag		C26	C17
26	NA	C25	n/a	0.36	0.3	0.14	Fill of pit	Black friable burnt stone and charcoal in black silt. Some larger stones to north.		C2	C25
27	Cut	n/a	C28	0.4	0.4	0.19	Pit	Circular shape in plan, almost vertical sides. Sharp b.o.s. at top and base, flat base.		C28	NAT
28	Fill	C27	n/a	0.4	0.4	0.19	Fill of pit	Black friable burnt stone and charcoal in black silt well concreted with manganese.	Charcoal	C2	C27

29	Cut	n/a	C30	0.4	0.4	0.13	Pit	Circular shape in plan, almost vertical sides. Sharp b.o.s. at top and base, flat base.		C30	NAT
30	Fill	C29	n/a	0.4	0.4	0.13	Fill of pit	Black friable burnt stone and charcoal in black silt well concreted with manganese.	Charcoal	C2	C29
31	Cut	n/a	C32	0.34	0.34	0.1	Pit	Circular shape in plan with near vertical sides at E and S, more concave at NW. Flat base set to SE. Sharp b.o.s at top and base.		C32	NAT
32	Fill	C31	n/a	0.34	0.34	0.1	Fill of pit	Black friable burnt stone and charcoal in black silt well concreted with manganese.	Charcoal	C2	C31
33	Cut	n/a	C44	0.2	0.2	0.04	Pit	Circular shape in plan. Sharp b.o.s at top, steep sides to N, E and S, more concave to W.		C44	NAT
34	Cut	n/a	C35	0.46	0.43	0.065	Pit	Subcircular cut or depression in the base of the trough C7, roughly central. The base was flat but the sides were ill-defined due to being submerged.		C7	C35

35	Fill	C34	n/a	0.46	0.43	0.065	Fill of pit	Black waterlogged silt with some manganese concretion.		C8	C34
36	Cut	n/a	C37	0.6	0.45	0.24	Pit	Suboval shape in plan, sharp b.o.s at top and base. Steep concave sides and concave base.		C37	NAT
37	Fill	C36	n/a	0.6	0.45	0.24	Fill of pit	Mid to dark grey sandy silt and burnt stone loosely compacted. Some manganese concretion and occasional charcoal inclusions.	Charcoal	C2	C36
38	Cut	n/a	C39	0.33	0.3	0.23	Posthole	Subcircular shape in plan. Sharp b.o.s at top and base and steep straight sides. Flat base.		C39	NAT
39	Fill	C38	n/a	0.33	0.3	0.23	Fill of posthole	Dark grey sand with burnt stone inclusions. Loose compaction. Occasional charcoal flecking.	Charcoal	C2	C38
40	Cut	n/a	C41	0.09	0.08	0.18	Stake-hole	Subcircular shape in plan, steep straight sides and tapered base.		C41	NAT
41	Fill	C40	n/a	0.09	0.08	0.18	Fill of Stake-hole	Pale grey sandy silt.		C2	C40
42	Cut	n/a	C43	0.06	0.06	0.03	Stake-hole	Stakehole in base of trough at SW corner.		C7	C43

43	Fill	C42	n/a	0.06	0.06	0.03	Fill of Stake-hole	Dark brown silt		C8	C42
44	Fill	C33	n/a	0.2	0.2	0.04	Fill of pit	Black friable burnt stone and charcoal in black silt well concreted with manganese.		C2	C33
45	Fill	C7		0.4(E)	0.1(E)	0.02	Deposits in trough	Discrete pockets of red sand present at both ends of the trough. Primary deposit within the trough		C46	C7
46	Fill	C7		1.8	0.7	0.02	Fill of trough	Dark grey silt along the base and side of the trough to the south.		C8	C45
47	Fill	C22		>15	0.4	>0.4	Fill of land drain	Loose stones under silt mixed with burnt spread material.		C50	C22
48	Cut	n/a	C49	>11m	0.8	0.32	Cut of drain	E-W running drain at south of spread C2. Cut by C50.		C49	C2
49	Fill	C48	n/a	>11m	0.8	0.32	Fill of drain	Mixed greyish brown silt and burnt stones.	modern glass frag.	C50	C48
50	Cut	n/a	active watercourse				Cut of drain	Large drainage ditch truncating southern extent of site. Machine cuts visible when scraped back indicating recent maintenance.		open	C1

APPENDIX B Finds Register

Find No.	Site No.	Context No.	Item No.	Count	Full name	Material	Description
19E0287:2:1	19E0279	2	1	1	Granite grinding stone	Stone	Granite grinding stone, possibly upper stone of a saddle quern, bevelling present on one edge, flat surface polished in places

APPENDIX C Sample Register

Sample No.	Context No.	Cut no.	Feature type	Volume (l.)
1	8	7	Trough	4l
2	35	34	Pit in trough	4l
3	6	5	Pit in trough	4l
4	28	27	Post/ pit	4l
5	14	13	Pit	4l
6	2	n/a	Burnt spread	6l
7	42	n/a	Stake-hole	0.3l

APPENDIX D Bone Register

Sample No.	Context No.	Cut No.	Feature type	Quantity
1	2	n/a	burnt spread	2 fragments
2	2	n/a	Burnt spread	1 bone in manganese concretion
3	15	n/a	Burnt spread	1 bone in manganese concretion

APPENDIX E Drawing Register

Drawing no.	Sect./Plan	Scale	Description	Line level	Backsight	TBM	I.H.	R.L.	Co-ordinates
1 1	Plan	01:50	Mid-ex plan slots 1, 2 and 3	1.91	1.1	16.55	17.65	15.74	n/a
1 2				1.84	1.1	16.55	17.65	15.81	
1 3				1.71	1.1	16.55	17.65	15.94	
1 4				1.94	1.1	16.55	17.65	15.71	
1 5				1.82	1.1	16.55	17.65	15.83	
1 6				1.93	1.1	16.55	17.65	15.72	
1 7				1.94	1.1	16.55	17.65	15.71	
1 8				2	1.1	16.55	17.65	15.65	
1 9				2.04	1.1	16.55	17.65	15.61	
1 10				1.71	1.1	16.55	17.65	15.94	
1 11				1.88	1.1	16.55	17.65	15.77	
1 12				1.81	1.1	16.55	17.65	15.84	
1 13				2.03	1.1	16.55	17.65	15.62	
1 14				2.03	1.1	16.55	17.65	15.62	
1 15				2.05	1.1	16.55	17.65	15.6	
1 16				2.05	1.1	16.55	17.65	15.6	
1 17				2.1	1.1	16.55	17.65	15.55	
1 18				1.61	1.1	16.55	17.65	16.04	
1 19				1.68	1.1	16.55	17.65	15.97	
1 20				1.8	1.1	16.55	17.65	15.85	
1 21				1.86	1.1	16.55	17.65	15.79	
1 22				1.79	1.1	16.55	17.65	15.86	
1 23				1.92	1.1	16.55	17.65	15.73	
1 24				2.05	1.1	16.55	17.65	15.6	
1 25				1.95	1.1	16.55	17.65	15.7	
1 26				2.01	1.1	16.55	17.65	15.64	
1 27				2.03	1.1	16.55	17.65	15.62	
1 28				1.66	1.1	16.55	17.65	15.99	
1 29				1.8	1.1	16.55	17.65	15.85	
1 30				1.97	1.1	16.55	17.65	15.68	
1 31				1.67	1.1	16.55	17.65	15.98	

1			Base C5	2.12	1.1	16.55	17.65	15.53	
1			Base C7E	2.1	1.1	16.55	17.65	15.55	
1			Base C7W	2.13	1.1	16.55	17.65	15.52	
1			Base C9	2.01	1.1	16.55	17.65	15.64	
1			Base C11	2.07	1.1	16.55	17.65	15.58	
1			Base C13	2.13	1.1	16.55	17.65	15.52	
2 1	Plan	01:50	Post-ex plan of site	1.87	1.125	16.55	17.675	15.805	n/a
2 2				1.95	1.125	16.55	17.675	15.725	
2 3				2.03	1.125	16.55	17.675	15.645	
2 4				2.28	1.125	16.55	17.675	15.395	
2 5				2.08	1.125	16.55	17.675	15.595	
2 6				1.67	1.125	16.55	17.675	16.005	
2 7				1.94	1.125	16.55	17.675	15.735	
2 8				2.01	1.125	16.55	17.675	15.665	
2 9				1.97	1.125	16.55	17.675	15.705	
2 10				2.15	1.125	16.55	17.675	15.525	
2 11				2.13	1.125	16.55	17.675	15.545	
2 12				2.15	1.125	16.55	17.675	15.525	
2 13				1.63	1.125	16.55	17.675	16.045	
2 14				1.82	1.125	16.55	17.675	15.855	
2 15				1.94	1.125	16.55	17.675	15.735	
2 16				2.02	1.125	16.55	17.675	15.655	
2 17				2.04	1.125	16.55	17.675	15.635	
2 18				2.02	1.125	16.55	17.675	15.655	
2 19				2.14	1.125	16.55	17.675	15.535	
2 20				2.21	1.125	16.55	17.675	15.465	
2 21				2.13	1.125	16.55	17.675	15.545	
2 22				2.09	1.125	16.55	17.675	15.585	
2 23				1.91	1.125	16.55	17.675	15.765	
2 24				2.09	1.125	16.55	17.675	15.585	
2 25				2.07	1.125	16.55	17.675	15.605	
2 26				2.08	1.125	16.55	17.675	15.595	
2 27				1.97	1.125	16.55	17.675	15.705	

2 28				2.17	1.125	16.55	17.675	15.505	
2 29				2.11	1.125	16.55	17.675	15.565	
2 30				2.12	1.125	16.55	17.675	15.555	
2 31				2.05	1.125	16.55	17.675	15.625	
2 32				2.01	1.125	16.55	17.675	15.665	
2 33				1.68	1.125	16.55	17.675	15.995	
2 34				1.84	1.125	16.55	17.675	15.835	
2 35				1.99	1.125	16.55	17.675	15.685	
2 36				2.05	1.125	16.55	17.675	15.625	
2 37				1.7	1.125	16.55	17.675	15.975	
2 38				1.95	1.125	16.55	17.675	15.725	
3	Section	01:20	West facing section of C2, Slot 1	1.66	1.1	16.55	17.65	15.99	a. 7.12E, 7.95N b. 7.16E, -6.12N
4	Section	01:20	East facing section of C2, Slot 1	1.63	1.1	16.55	17.65	16.02	a. 5.25E, -4.97N b. 5.27E, 6.38N
5	Section	01:20	East facing section of C2, Slot 2	1.66	1.1	16.55	17.65	15.99	a. 9.22E, -7.0N b. 9.18E, 5.1N
6	Section	01:20	West facing section of C2, Slot 2	1.58	1.1	16.55	17.65	16.07	a. 11.12E, 6.93N b. 11.32E, -5.72N
7	Section	01:20	East facing section of C2, Slot 3	1.575	1.1	16.55	17.65	16.075	a. 13.19E, -6.87N b. 13.27E, 6.07N
8	Section	01:20	West facing section of C2, Slot 3	1.63	1.1	16.55	17.65	16.02	a. 15.24E, 5.06N b. 15.34E, -7.22N
9	Section	01:10	Northwest facing section of trough C7	1.74	1.125	16.55	17.675	15.935	a. 11.7E, 2.14N b. 8.9E, 0.85N
10	Section	01:10	Northwest facing section of pits C18 and C20	1.97	1.125	16.55	17.675	15.705	a. 8.19E, -3.43N b. 7.65E, -3.95N
11	Section	01:10	Northwest facing section of posthole C23	2.03	1.125	16.55	17.675	15.645	a. 3.72E, -1.35N b. 3.32E, -1.45N

APPENDIX F Photo Register

The photographic record from the site has been organised into folders by context ways. The archive consists of 137 photos organised into 19 folders.

The folders contain the following:

- C2 burnt spread (22 images)
- C5 small pit (5 images)
- C7 trough (8 images)
- C11 post (5 images)
- C13 pit (7 images)
- C15 spread (7 images)
- C16 & C25 possibly non-archaeological (4 images)
- C18 post & C20 pit (6 images)
- C22 land drain (4 images)
- C23 post (14 images)
- C27 & C29 posts and C31 & C33 pits (10 images)
- C34 pit in base of trough (6 images)
- C36 pit, C38 post & C40 stake (9 images)
- Mid-ex Slot 1 (4 images)
- Mid-ex Slot 2 (4 images)
- Mid-ex Slot 3 (5 images)
- Non-archaeological (12 images)
- Post-ex (3 images)
- Pre-ex (2 images)

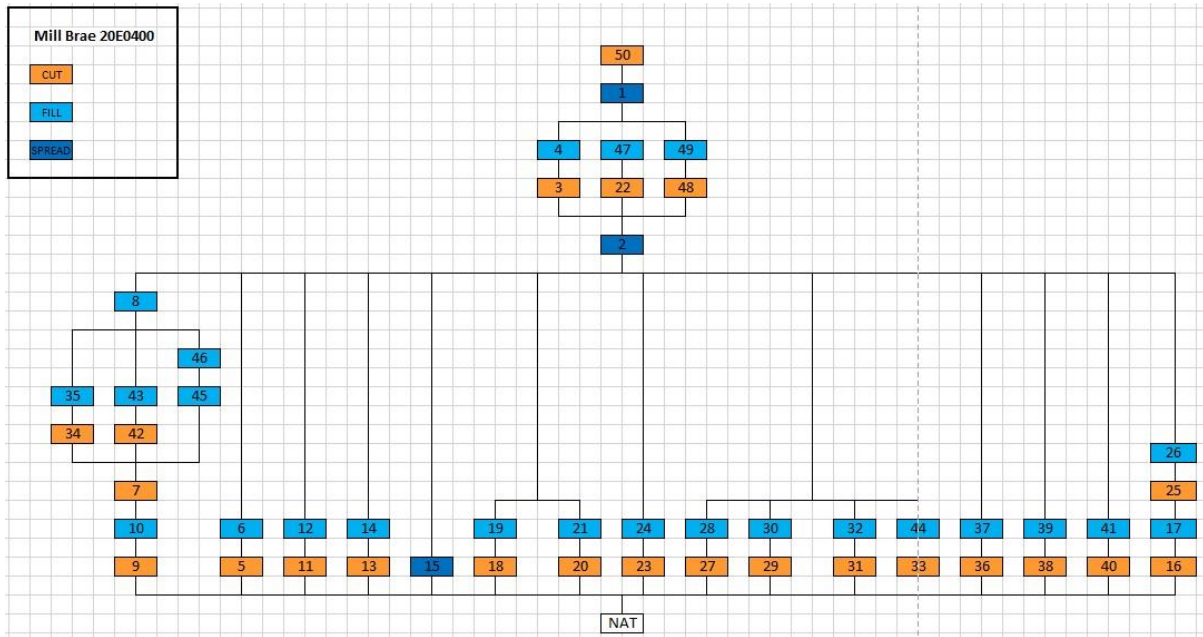
Photos were assigned to a folder based on the main feature within the folder. A photo board, ranging rod and north arrow were used in most instances.

APPENDIX G Archive Register

Site Name: Millbrae, Stranorlar
 Archaeological Licence No. 20E0400
 Site director: Steven McGlade
 Date: 16/09/2020

Field Records	Items (quantity)	Comments
Site drawings (plans)	2	
Site sections, profiles, elevations	7	
Other plans, sketches, etc.	2	
Timber drawings	0	
Stone structural drawings	0	
Site diary/ notebooks	2	
Site registers (folders)	1	
Survey/levels data (origin information)	Digital	Site survey
Context sheets (paper)	0	Recorded in notebooks
Context sheets (digital)	50	
Wood sheets	0	
Skeleton sheets	0	
Worked stone sheets	0	
Digital photographs	137	
Photographs (print)	0	
Photographs (slide)	0	
Finds and environmental archive		
Flint/chert	0	
Stone artefacts	1	Granite grinding stone
Pottery - prehistoric	0	
Medieval	0	
Post-medieval	0	
Ceramic building materials (specify types eg daub, tile)	0	
Metal artefacts (specify types - bronze, iron) - iron	0	
Glass	2	Modern
Other find types or special finds	0	
Human bone (specify type eg cremated, skeleton, disarticulated) - cremated bone	0	
Animal bone	3	
Metallurgical waste	0	
Environmental bulk soil (specify number of samples)	7	
Timbers/ stakes	0	
Security of archive	Good	Digital and paper archive

APPENDIX H Site matrix



DONEGAL COUNTY COUNCIL

PLANNING AND DEVELOPMENT ACTS, 2000 - 2011

Manager's Order No: 2012PH0366

Reference Number: 11/60175

Name of Applicant: THE MINISTER DEPARTMENT OF EDUCATION AND SKILLS
Address: JOHN P SMITH
DEPARTMENT OF EDUCATION AND SKILLS
PORTLAOISE ROAD
TULLAMORE
CO. OFFALY

Nature of Application: PERMISSION for CONSTRUCTION OF A NEW THREE STOREY SCHOOL OF 24 CLASSROOMS, A GENERAL PURPOSES ROOM, TEACHERS ROOM, LIBRARY/RESOURCE ROOM AND OTHER ANCILLARY ACCOMMODATION AND EXTERNAL SITE WORKS INCLUDING ON-SITE CARPARKING, TURNING CIRCLE, ACCESS ROADS, DROP DOWN AREAS, BALLCOURTS, HARDPLAY AREAS AND SITE BOUNDARY TREATMENTS

Location of Development: MILLBRAE STRANORLAR

SUBMITTED: Recommendation that PERMISSION **BE GRANTED** subject to the 16 conditions set out in the Schedule hereto.

ADMINISTRATIVE OFFICER

ORDER: That it is hereby decided to **GRANT PERMISSION** in the case of application 11/60175 under the Planning and Development Acts, 2000 - 2011 subject to the 16 conditions stipulated in the Schedule hereto.

I further order that PERMISSION **BE GRANTED** subject to the 16 conditions, unless an appeal which is not subsequently withdrawn is lodged with An Bord Pleanála within four weeks beginning on this date.

A/SENIOR PLANNER

DATED THIS DAY OF JULY 2012

DONEGAL COUNTY COUNCIL

PLANNING AND DEVELOPMENT ACTS, 2000 - 2011

NOTIFICATION OF DECISION TO GRANT

TO: THE MINISTER DEPARTMENT OF EDUCATION AND SKILLS
JOHN P SMITH
DEPARTMENT OF EDUCATION AND SKILLS
PORTLAOISE ROAD
TULLAMORE
CO. OFFALY

Planning Register Number: 11/60175

Valid Application Received: 25/07/2011

Further Information Received Date: 28/05/2012

In pursuance of the powers conferred upon them by the above-mentioned Acts, Donegal County Council has by Order dated 26/07/2012 decided to GRANT PERMISSION for development of land, namely:-

CONSTRUCTION OF A NEW THREE STOREY SCHOOL OF 24 CLASSROOMS, A GENERAL PURPOSES ROOM, TEACHERS ROOM, LIBRARY/RESOURCE ROOM AND OTHER ANCILLARY ACCOMMODATION AND EXTERNAL SITE WORKS INCLUDING ON-SITE CARPARKING, TURNING CIRCLE, ACCESS ROADS, DROP DOWN AREAS, BALLCOURTS, HARDPLAY AREAS AND SITE BOUNDARY TREATMENTS AT MILLBRAE STRANORLAR IN ACCORDANCE WITH THE PLANS SUBMITTED WITH THE APPLICATION.

Subject to the 16 conditions set out in the attached schedule.

Signed on behalf of Donegal County Council
County House
Lifford
Tel: 074 9172222

for STAFF OFFICER
Date: 26th July 2012

See final page for details of appeal procedures.

Ref. No. 11/60175-County Manager's Order No. 2012PH0366

SCHEDULE

1. The development shall be carried out strictly in accordance with the plans, particulars, details and specifications lodged in support of the application and as amended by the plans and details submitted to the Planning Authority on 28/05/12 except where altered or amended by conditions in this permission.

Reason: To ensure the satisfactory completion of the development.

2. a. All mitigation measures detailed in the Natura Impact Statement submitted to the planning authority on 25/07/11 shall be complied with in full.
b. Site preparation and construction shall adhere to best practice and shall conform to the Inland Fisheries Ireland 'Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites' (www.fisheriesireland.ie, see section relating to construction stage).
c. Any bulk fuel storage tank shall be properly bunded with a bund capacity of at least 110% of that of the fuel tank.

Reason: To prevent pollution and preserve the integrity of the River Finn Special Area of Conservation.

3. a. The applicants or persons entitled to take benefit of the permission shall widen the Mill Brae road in accordance with the plans and details submitted to the planning authority on 28/05/12.
b. The road markings for the right turning lane shall be agreed in writing with the Executive Engineer (Roads Dept.) for the area prior to installation.
c. The applicants or persons entitled to take benefit of the permission shall provide a pelican crossing facility and associated works on Mill Brae adjacent to the school entrance in accordance with the details contained on drawing No. 1135-CS-301.
d. All vision lines shall be unobstructed by parking, boundary walls / fences, signage, landscaping or other provisions.

Reason: In the interests of traffic safety.

4. a. All storm water emanating from the site shall be directed to a silt trap / petrol interceptor prior to discharge into the public stormwater system.
b. Prior to commencement of development, a detailed earthworks management plan shall be provided for the written agreement of the planning authority. The management plan shall include methods of

control of run-off from working areas and mitigating measures to prevent pollution of watercourses.

c. Development operations shall be undertaken so as to ensure that no deleterious materials are allowed to enter any watercourse in the vicinity of the site.

Reason: To prevent pollution.

5. a. The right of way / access road running along the northern site boundary shall be maintained.

b. The applicants or persons entitled to take benefit of the permission shall erect a fence between the access road running along the northern site boundary and the school premises. Prior to commencement of development, precise details in relation to the type of fencing to be erected shall be agreed in writing with the planning authority.

c. A secure area shall be provided around the existing pump station located in the northeastern corner of the site. Prior to commencement of development, precise details in relation to the extent of the secure area and the means of securing said area shall be agreed in writing with the planning authority, following consultation with the Executive Engineer (Water, Environment & Emergency Services Dept.) for the area.

d. The applicants or persons entitled to take benefit of the permission shall install a sewer vent pipe at the existing manhole to which sewage effluent from the school shall be discharged.

Reason: In the interests of health and safety and to ensure the satisfactory completion of the development.

6. a. The applicants or persons entitled to take benefit of the permission shall install a 100mm bulk meter on the water supply pipe.

b. All toilet facilities shall be plumbed so as to prevent automatic flushing outside of school opening / operation hours.

Reason: In the interests of orderly development.

7. Prior to commencement of development, precise details in relation to the connection to the public sewer shall be agreed in writing with the planning authority, following consultation with the Executive Engineer (Water, Environment & Emergency Services Dept.) for the area. All works shall be carried out to the specification and satisfaction of the Executive Engineer.

Reason: To ensure the satisfactory completion of the development.

8. Prior to commencement of development, precise details in relation to the connection to the public water mains (including the location of water meters and isolating valves) shall be agreed in writing with the planning authority, following consultation with the Executive Engineer (Water, Environment & Emergency Services Dept.) for the area. All works shall be carried out to the specification and satisfaction of the Executive Engineer.

Reason: To ensure the satisfactory completion of the development.

9.
 - a. The applicants or persons entitled to take benefit of the permission shall engage the services of a suitably qualified archaeologist (licensed under the National Monuments Acts 1930–2004) to carry out pre-development testing at the site. No sub-surface work shall be undertaken in the absence of the archaeologist without his/her express consent.
 - b. The archaeologist shall notify the Department of Arts, Heritage and the Gaeltacht in writing at least four weeks prior to the commencement of site preparations.
 - c. The archaeologist shall carry out any relevant documentary research and may excavate test trenches at locations chosen by the archaeologist, having consulted the proposed development plans.
 - d. Having completed the work, the archaeologist shall submit a written report to the Planning Authority and to the Department of Arts, Heritage and the Gaeltacht.
 - e. Where archaeological material is shown to be present, avoidance, preservation in situ, preservation by record (excavation) and/or monitoring may be required, the Department of Arts, Heritage and the Gaeltacht will advise the Applicant/Developer with regard to these matters.
 - f. No site preparation or construction work shall be carried out until after the archaeologist's report has been submitted and permission to proceed has been received in writing from the Planning Authority in consultation with the Department of Arts, Heritage and the Gaeltacht.

Reason: To ensure the continued preservation (either in situ or by record) of places, caves, sites, features or other objects of archaeological interest.

10. No surface water from site shall be permitted to discharge to public road and applicant shall take steps to ensure that no public road water discharges onto site.

Reason: To prevent flooding.

11. Prior to commencement of development, permanent visibility splays of 70 metres shall be provided in each direction at a point 3 metres back from road edge at location of vehicular entrance. Visibility in the vertical plane shall be measured from a driver's eye-height of 1.05 metres and 2 metres positioned at the setback distance in the direct access to an object height of between 0.26 metres and 1.05 metres. Vision Splays to be calculated and provided as per Figure 7 of Section 10.2.10 of Chapter 10 (Development and Technical Standards), County Donegal Development Plan 2012 – 2018.

Reason: In the interests of traffic safety

12. All overhead and underground poles and lines shall be set back to line of new fenceline at developers expense and no obstructing pole(s) shall be left on layby.

Reason: In the interests of traffic safety.

13. a. Electrical and telephone service shall be underground.
b. Any bulk fuel storage tank shall be screened from public view by means of timber picketting.

Reason: To preserve the amenities of the area.

14. All vehicles/machinery associated with construction works to development hereby permitted shall be contained within the site and adequate provision shall be made for same. In the event that vehicles/machinery associated with construction works park on the public road or grass verge thereto then the Planning Authority or Roads Authority shall be empowered to cease all works on site and works shall not recommence without prior written agreement of the Planning Authority.

Reason: To cater for orderly development and in the interests of traffic safety.

15. Vehicle wheels shall be cleaned prior to exiting onto public road so as to ensure no material deposits on public road.

Reason: To cater for orderly development and in the interests of traffic safety.

16. The applicant (or person at the relevant time entitled to the benefit of the permission) shall pay the sum of €40,000 (*forty thousand Euro*) (updated at the time of payment in accordance with changes in the Wholesale Price Index – Building and Construction (Capital Goods), published by the

Central Statistics Office), to the Planning Authority as a special contribution under Section 48 (2)(c) of the Planning and Development Act 2000 in respect of the provision of additional pedestrian footpaths / pedestrian facilities on the Mill Brae / Railway Roads which will improve pedestrian access to the school.

Continuation of County Manager's Order No. 2012PH0366

This contribution shall be paid prior to the commencement of the development or in such phased payments as the planning authority may facilitate. Indexation required by this condition shall be from 1st March each year following imposition of the levy.

Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs which are incurred by the Planning Authority which are not covered in the Development Contribution Scheme and which will benefit the proposed development.

ADVICE TO APPLICANT

Applicant is advised that it will be necessary to apply for a fire safety certificate.

Duration of Permission

The permission to be issued (hereinafter referred to as "the permission") will cease to have effect in five years from the date of issue as regards any part of the development **not completed** by that date.

No works can commence on foot of "A Notification of Decision" on an application.

The development is only authorised when a "Notification of Final Grant" is issued.

The planning legislation currently provides that where the development has either (i) not been completed but substantial works have been carried out pursuant to "the permission" or (ii) not commenced and there were considerations of a commercial, economic or technical nature beyond the control of the applicant which substantially militated against either the commencement of development or the carrying out of substantial works pursuant to "the permission" during the said five years, an application to "extend" "the permission" may be made. Such application shall not be made earlier than one year before the expiration of "the permission".

Connection to Council Services:

Where the development involves connections to the Council's Sanitary Services a separate application for permission for such connections and associated road openings is required. (Separate fees are payable in addition to any development charges levied). Such application for permission must be made and approved by the Council before commencement of any works on the opening of road, verge or footpath, as appropriate, for the purpose of making the connections.