

## Appendix 1 Context Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Context	Type	Fill of	Filled by	Length (m)	Width (m)	Depth (m)	Interpretation	Description	Context above	Context below	Area
1	Deposit						Topsoil				
2	Fill	C9	N/A	0.75	0.75	0.08	Pit	Light brown plastic silty clay with grey mottling. Plastic compaction. Ashen upper fill located in the northwest of the pit.	C10	C1	1
3	Cut	N/A	C4	0.88	0.74	0.05	Pit	Sub-circular in plan. Orientated east-west. Gradual break of slope at top with concave sides and a flat base.	Natural	C4	1
4	Fill	C3	N/A	0.88	0.74	0.05	Pit	Mid brown silty clay of firm compaction. Occasional to moderate charcoal.	C3	C1	1
5	Cut	N/A	C6	1.11	1.11	0.16	Pit	Circular in plan. Gradual break of slope at top with concave sides. Gradual break of slope at base. Straight base. Truncated C14.	C14	C6	1
6	Fill	C5	N/A	1.11	1.11	0.16	Pit	Greyish brown silty clay with occasional burnt stone and moderate sea shell inclusions.	C5	C1	1
7	Cut	N/A	C8	47.2	0.34-1.1	0.08-0.35	Resource processing ditch	Linear in plan. Orientated north northeast-south southwest. Gradual break of slope at top and base. Sides were concave to straight. Base was concave to straight.	C70, C100	C8, C59	1
8	Fill	C7	N/A	47.2	0.34-1.1	0.08-0.35	Resource processing ditch	Tan brown silty clay of firm to friable compaction. Moderate stone. Occasional charcoal and sea shell	C70	C45	1
9	Cut	N/A	C2, C10	1.5	1	0.16	Pit	Oval in plan. Orientated northeast-southwest. Gradual break of slope at top and base with concave sides. The base was straight.	Natural	C10	1
10	Fill	C9	N/A	1.5	1	0.16	Pit	Dark brown charcoal rich clay silt with frequent orange mottling. Plastic in compaction. Basal fill	C9	C2	1
11	Cut	N/A	C12, C19, C24	12m (external d.), 10m (internal d.)	1.2 – 2	0.7-0.85	Barrow	Semi-circular in plan. Truncated by field boundaries to the north and east northeast.	C29	C20	1

Context	Type	Fill of	Filled by	Length (m)	Width (m)	Depth (m)	Interpretation	Description	Context above	Context below	Area
12	Fill	C11	N/A		1.2-1.88	0.3-0.42	Barrow	Mid brownish grey silty clay. Plastic compaction. Moderate small stone.	C19	C1	1
13	Cut	N/A	C14	1.9	0.15-0.2	0.1	Early medieval structure	Sub-rectangular in plan. Orientated northwest-southeast. 'V' shaped cut to northwest with the southwestern side more gentle to the southeast of the feature.	Natural	C14	1
14	Fill	C13	N/A	1.9	0.15-0.2	0.1	Early medieval structure	Dark grey sand. Occasional charcoal. Stones c. 400mm d. on base, becoming more frequent on the southwestern side at the southeast of the cut. Truncated by pit C5.	C13	C5	1
15	Cut	N/A	C16, C17	2.1	2	0.6	Well & drainage	Circular in plan. Sharp break of slope at top. Steep sides. Base was unclear due to water table.	Natural	C17	1
16	Fill	C15	N/A	2.1	2	0.56	Well & drainage	Mid brown loose clay.	C17	C1	1
17	Fill	C15, C18	N/A	31.2	0.3-2.1	0.2-0.6	Well & drainage	Frequent sub-angular stones, 70mm d.	C15, C18	C16	1
18	Cut	N/A	C17	29.2	0.3	0.2	Well & drainage	Linear in plan. Orientated east-west. Sharp break of slope at top and base with steep sides. Flat base.	Natural	C17	1
19	Fill	C11	N/A	4.6	0.6-1	0.23-0.4	Barrow	Light brownish grey silty clay. Plastic compaction. Moderate charcoal. Moderate animal bone. Occasional sea shell and stone.	C12	C30	1
20	Fill	C121	N/A		0.22-0.72	0.07-0.3	Barrow	Light yellow grey clay with orange mottling. Large unsorted stone. Occasional sea shell. Bank collapse.	C11	C30	1
21	Cut	N/A	C22	1.2	0.63	0.19	Pit	Oval on plan. Orientated northwest-southeast. Gradually cut with steep sides. Break of slope at base was sharp. Base was flat. Northern side cut by modern field boundary.	Natural	C23	1
22	Fill	C21	N/A	0.45	0.4	0.11	Pit	Blackish grey silty clay. Firm compaction. Moderate stone. Moderate charcoal.	C23	C123	
23	Fill	C21	N/A	1.2	0.63	0.19	Pit	Light brown silty clay. Firm compaction. Moderate small stones	C21	C22	1
24	Deposit	C11	N/A	0.2	0.2	0.1	Barrow	Concentration of burnt bone within barrow. Within C19.	C30	C12	1
25	Cut	N/A	C26	2.2	1.15-1.8	0.19-0.25	Post-medieval feature	Orientated east-west. Shallow sharply cut with steep sides and a rounded base.	Natural	C26	1
26	Fill	C25	N/A	2.2	1.15-1.8	0.19-0.25	Post-medieval feature	Brown sandy clay of loose compaction. Frequent small stones. Cut by field boundary.	C25	C27	1
27	Cut	N/A	C28		3.8-3.94	1.1	Field boundary	Orientated north-south. Sharp break of slope at top and base. Steep sides. Gradual break of slope at base. Base was flat to concave	C26	C28	1
28	Fill	C27	N/A		3.8-3.94	1.1	Field boundary	Mid brown to light grey silty clay. Plastic compaction. Occasional to moderate small stone. Occasional sea shell.	C27	C36	1
29	Fill	C121	N/A		0.15-0.5	0.04-0.2	Barrow	Gritty mid grey silt with yellow mottling. Friable compaction. Occasional shell	C121	C11	1

Context	Type	Fill of	Filled by	Length (m)	Width (m)	Depth (m)	Interpretation	Description	Context above	Context below	Area
30	Fill	C121	N/A		0.14-2	0.07-0.28	Barrow	Yellow brown clay silt of firm to friable compaction. Occasional shell	C20	C19	1
31	Cut	N/A	C31	9.9	0.4-0.87	0.16-0.18	Agricultural	Curvi-linear in plan. Orientated north-south. Gradual break of slope at top and base. Concave sides and base.	Natural	C32	1
32	Fill	C31	N/A	9.9	0.4-0.87	0.16-0.18	Agricultural	Light brown firm to friable clay.	C31	C1	1
33	Cut	N/A	C34	17	0.63-0.72	0.19-0.25	Ditch	Linear in plan. Orientated east-west. Sharp break of slope at top with steep sides. Gradual break of slope at base. Concave base. Truncated both C84 and C102	C84	C34, C86	2
34	Fill	C33	N/A	17	0.63-0.72	0.19-0.25	Ditch	Brown sandy clay. Friable compaction. Frequent small stones.	C33	C27	2
35	Fill	C60	N/A	7m nw-se, 9.5 ne-sw	0.55-1.2	0.13-0.29	Resource processing ditch	Mid brown firm to friable silty clay. Frequent sea shell with a concentration in the nw-se section. Truncated by C93.	C60	C93	2
36	Cut	N/A	C37	11	3.65-7.2	N/A	Well & drainage	Cut of 19 <sup>th</sup> century pump. Orientated north-south.	C28	C37	1
37	Fill	C36	N/A	11	3.65-7.2	N/A	Well & drainage	Rubble blackish grey clay with frequent broken red brick fragments.	C36	C1	1
38	Cut	N/A	C39, C40	1.2	0.91	0.18	Pit	Sub-oval in plan. Orientated east-west. Gradual break of slope at top and base with concave sides. Straight base.	Natural	C39	2
39	Fill	C38	N/A	1.2	0.91	0.1-0.11	Pit	Firm to friable light to mid brown clay with dark grey charcoal mottling. Frequent charcoal.	C38	C40	2
40	Fill	C38	N/A	1.2	0.62	0.07	Pit	Friable light greyish brown clay. Frequent burnt clay with pockets of ash lenses.	C39	C1	2
41	Cut	N/A	C42	14.5	0.56-0.6	0.4-0.8	Agricultural	Linear in plan. Oreintated north-south. Sharp break of slope at top and base with steep sides. Flat base.	Natural	C42	3
42	Fill	C41	N/A	14.5	0.56-0.6	0.4-0.8	Agricultural	Light brown sandy silt. Occasional pebbles.	C41	C1	3
43	Cut	N/A	C44	19	0.4-0.6	0.1-0.22	Agricultural	Linear in plan. Orientated north northwest-south southeast. Gradual break of slope at top and base with steep sides and a straight base.	Natural	C44	3
44	Fill	C43	N/A	19	0.4-0.6	0.1-0.22	Agricultural	Light brown clayey silt. Occasional pebbles and fine gravel	C43	C1	3
45	Cut	N/A	C46	6.2	0.56	0.23	Slot trench	Linear in plan. Orientated east-west. Sharp break of slope at tope with steep to concave sides. Gradual break of slope at top. Base was concave.	C8	C46	2
46	Fill	C45	N/A	6.2	0.56	0.23	Slot trench	Light brown silty clay. Firm compaction. Moderate medium stones. Moderate shell.	C45	C1	2

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47	Cut	N/A	C48	0.3	0.3	0.15	Posthole	Circular in plan. Sharp break of slope at top and base. Steep sides and flat base.	Natural	C48	2
48	Fill	C47	N/A	0.3	0.3	0.15	Posthole	Greyish brown clayey silt. Firm compaction. Occasional pebbles.	C47	C1	2
49	Cut	N/A	C50	1.35	1.04	0.27	Pit	Oval in plan. Gradual break of slope at top and base with gently sloped sides. Uneven base.	Natural	C50	3
50	Fill	C49	N/A	1.35	1.04	0.27	Pit	Greyish brown clayey silt. Firm compaction. Occasional charcoal and pebbles. Moderate burnt clay and shell.	C49	C1	3
51	Cut	N/A	C52	17.1	0.25-0.3	0.05-0.08	Furrow	Linear in plan. North northeast-south southwest orientated. Gradually cut at top and base. Concave sides and base.	Natural	C52	2
52	Fill	C51	N/A	17.1	0.25-0.3	0.05-0.08	Furrow	Brownish grey silty clay. Firm compaction.	C51	C1	2
53	Cut	N/A	C54	0.7	0.7	0.13	Pit	Circular in plan. Gradual break of slope at top and base. Concave base.	Natural	C54	2
54	Fill	C53	N/A	0.7	0.7	0.13	Pit	Mid brown clay. Compact.	C53	C1	2
55	Cut	N/A	C56	0.8	0.6	0.12	Pit	Sub-circular in plan. Roughly orientated north-south. Gradual break of slope at top and base. Concave sides and flat base.	Natural	C56	2
56	Fill	C55	N/A	0.8	0.6	0.12	Pit	Mid brown silty clay. Firm compaction. Occasional charcoal flecks. Occasional sea shell	C55	C1	2
57	Cut	N/A	C58	23	0.78-1.05	0.23-0.35	Ditch	Linear in plan. East-west orientated. Sharply cut at top, gradual break of slope at base. Concave sides. Straight base.	Natural	C58	2
58	Fill	C57	N/A	23	0.78-1.05	0.23-0.35	Ditch	Mid-brown sandy silt. Very compact. Frequent small to large stones. Thin lens of sea shell.	C57	C1	2
59	Structure	C60	N/A	1.25	0.15-0.45	0.4	Resource processing ditch	Stone partition. Frequent sub-rounded and sub-angular stones (65 to 250mm d.). Without coursing.	C7/C60	C8/C35	2
60	Cut	N/A	C35	7m nw-se, 9.5 ne-sw	0.55-1.2	0.11-0.29	Resource processing ditch	C'-shaped in plan. Sharp break of slope at top and base with concave sides. Base straight to concave.	C62, C92	C35, C59	
61	Cut	N/A	C62	1.1	0.95	0.3	Pit	Sub-circular in plan. Sharp break of slope at top. Steep sides with a gradual break of slope at base.	Natural	C62	2
62	Fill	C61	N/A	1.1	0.95	0.3	Pit	Mid grey silty clay. Contained occasional small flecks of burnt clay, occasional charcoal and sea shell.	C61	C60	2
63	Cut	N/A	C64, C65, C66, C71	0.93	0.6	0.55	Pit	Sub-oval in plan. Orientated east-west. Sharp break of slope at top and base with steep sides. Concave base.	C35	C71	2









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109	Canceled										
110	Canceled										
111	Cut	N/A	C112	0.6	0.25	0.28	Pit	Wedge-shaped in plan. Orientated east-west. Sharp break of slope at top and base. Flat base.	Natural	C112	2
112	Fill	C111	N/A	0.6	0.25	0.28	Pit	Orange brown silty clay. Firm compaction. Truncated by C69.	C111	C69	2
113	Cut	N/A	C114	29	0.48-0.81	0.25-0.27	Agricultural	Curvi-linear in plan, arcing north-south to north northwest-south south east. Break of slope at top was sharp with steep sides. Break of slope at base was gradual. Base was concave.	Natural	C114	3
114	Fill	C113	N/A	29	0.48-0.81	0.25-0.27	Agricultural	Mid orange brown silty clay. Friable compaction.	C113	C114	3
115	Cut	N/A	C116	9	0.22-0.28	0.05-0.09	Agricultural	Linear in plan. Orientated northeast-southwest. Shallow with a gradual break of slope at top and base. Concave sides and base.	Natural	C116	3
116	Fill	C115	N/A	9	0.22-0.28	0.05-0.09	Agricultural	Mid-brown sandy silt. Occasional pebbles and charcoal flecks.	C115	C1	3
117	Cut	N/A	C118	16	0.85-1.2	0.28	Agricultural	Linear in plan. East-west orientated. Gradual break of slope at top and base. Concave sides and base. Truncated C28..	C28	C118	3
118	Fill	C117	N/A	16	0.85-1.2	0.28	Agricultural	Light greyish brown silty clay. Firm compaction. Occasional pebbles.	C117	C1	3
119	Cut	N/A	C120	10	0.43	0.2	Agricultural	Linear in plan. Northeast-southwest orientated. Sharp break of slope at top, gradual break of slope at base. Concave sides and flat base	Natural	C120	3
120	Fill	C119	N/A	10	0.43	0.2	Agricultural	Greyish brown silty clay. Plastic compaction. Moderate stones.	C119	N/A	3
121	Cut	N/A	C20,C29, C30		2	0.87-1.13	Barrow	C'-shaped in plan. Sharp break of slope at top with concave sides. Gradual break of slope at base. Base was generally concave.	Natural	C29	1
122	Wall	C123	N/A	25.5	0.5-0.10	1.1	Wall	East-west boundary wall. Randomly coursed 19 <sup>th</sup> century. Sub-rounded and sub-angular roughly hewn 100x100mm d.-300mm d. Bonded with lime mortar. Occasional red brick.	C123	C1	1
123	Cut	N/A	N/A		1.7 – 3	N/A	Parish boundary ditch	Ditch identified on Down Survey of 1654. Orientated east-southeast-west northwest	C22	C122	1
124	Wall	N/A	N/A	28			Wall	Orientated north northeast-south southwest. 19 <sup>th</sup> century date.			1
200	Cut	N/A	C201, C202, C203	1.75	0.35-1	0.16-0.27	Kiln	Key-hole shaped in plan. Orientated north-south. Gradually curt at top and base. Steep sides in both flue and chamber. Chamber and flue had a flat base. Chamber: 1m x 1m x 0.27(d). Flue: 0.75m(l) x 0.35(w) x 0.16m(d)	Natural	C202	4



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201	Fill	C200	N/A	1.75	1	0.5-0.2	Kiln	Dark greyish brown sandy silt. Very compact. Frequent charcoal fleck. Rare small stone.	C202	C1	4
202	Fill	C200	N/A	0.9	0.78	0.1	Kiln	Dark grey clayish silt. Very compact. Lenses of ash and scorched clay throughout. Frequent charcoal with a concentration in the north and east of the kiln bowl.	C203	C201	4
203	Fill	C200	N/A	0.72	0.7	0.03	Kiln	Reddened natural at base of chamber in northern area of C200	C200	C202	4
204	Cut	N/A	C208, C209, C210, C211, C223, C224	1.6	0.63	0.04	Charcoal pit	Sub-rectangular in plan. Northeast-southwest orientated. Sharp break of slope at top, quite gradual at base. Straight base.	Natural	C229	4
205	Cut	N/A	C206, C207, C225, C227, C228	24 internal diameter	0.54-1.6	0.25-0.5	Circular Ditch	Circular in plan. Generally sharp break of slope at top with steep sides. Break of slope at base was gradual with a flat base. In the southern area it was more gradually cut at top and base. Sides and base were concave. Southeastern quadrant has been heavily truncated.	Natural	C206	4
206	Fill	C205	N/A		0.73-1.6	0.08-0.15	Circular Ditch	Light brownish grey clay silt. Plastic compaction. Frequent decayed stone.	C205	C207	4
207	Fill	C205	N/A		0.54-1.33	0.21-0.35	Circular Ditch	Mid to dark brown firm silty clay. Friable compaction. Occasional charcoal. Present throughout C205 except for the southeast quadrant.	C206	C225	4
208	Fill	C204	N/A	1.1	0.58	0.11	Charcoal pit	Greyish brown silty clay. Friable compaction. Frequent charcoal. Contained occasional burnt bone and small stones. Upper fill.	C209	C1	4
209	Fill	C204	N/A	1	0.63	0.06-0.1	Charcoal pit	Orange silty clay mottled with black flecks.	C224	C208, C210	4
210	Fill	C204	N/A	0.6 (ne-sw)	0.38	0.1	Charcoal pit	Greyish to mid-brown silty clay. Frequent charcoal. Friable compaction. Moderate small stones. Upper fill.	C209	C1	4
211	Fill	C204	N/A	0.4 (ne-sw)	0.3	0.03-0.4	Charcoal pit	Burnt plank deposit	C229	C224	4
212	Cut	N/A	C214, C215, C216	2.94	0.52-1.06	0.2-0.49	Kiln	Key-hole shaped in plan. Orientated east-west. Sharp break of slope with steep sides. Gradual break of slope at base. Base was relatively flat with the base of the bowl concave.	Natural	C231	4

Context	Type	Fill of	Filled by	Length (m)	Width (m)	Depth (m)	Interpretation	Description	Context above	Context below	Area
213	Cut	N/A	C217, C218, C219, C220, C221, C222	3.78	1.22-1.7	0.22-0.57	Kiln	Sub-rectangular/irregular in plan. Sharp break of slope generally, slightly gradual at eastern end. The western chamber had a vertical cut at the western with steep sides otherwise. Gradual break of slope at base. Base was irregular to concave.	Natural	C232	4
214	Fill	C212	N/A	1.28	1.07	0.16-0.49	Kiln	Blackish grey silty clay. Plastic compaction. Frequent charcoal. Lenses of mid grey clay.	C231	C215	4
215	Fill	C212	N/A	2.5	0.5-0.7	0.07-0.2	Kiln	Greyish brown sandy clay of firm compaction. Occasional burnt clay and charcoal. Occasional angular stones.	C214	C216	4
216	Fill	C212	N/A	1.48	0.8	0.16-0.2	Kiln	Light brown silty clay. Friable compaction. Occasional small and large stones.	C215	C1	4
217	Fill	C213	N/A	3.4	0.7-0.72	0.04-0.22	Kiln	Dark greyish brown clay. Present in east and west chambers.	C232	C218	4
218	Fill	C213	N/A	3	0.59-1.54	0.02-0.11	Kiln	Black charcoal rich fill. Plastic compaction	C217	C219	4
219	Fill	C213	N/A	1.78	0.59-1	0.03-0.07	Kiln	Orange clay. Plastic compaction.	C218	C220	4
220	Fill	C213	N/A	2.5	1.5	0.05-0.03	Kiln	Dark brown silty clay. Friable compaction. Occasional small to medium sized stone.	C219	C222	4
221	Fill	C213	N/A	1.5	1.24	0.22	Kiln	Mottled orange brown silty clay. Very compact.	C222	C1	4
222	Fill	C213	N/A	1.85	0.45-0.6	0.05-0.2	Kiln	Greyish brown silty clay. Friable compaction.	C220	C221	4
223	Fill	C204	N/A	0.45 (nw-se)	0.4	0.03-0.4	Charcoal pit	Burnt plank deposit	C229	C224	4
224	Fill	C204	N/A	0.38	0.38	0.03	Charcoal pit	Burnt clay at base of cremation pit, in situ burning x8 BA burial, burnt plank	C211, C223, C226	C209	4
225	Fill	C207	N/A	N/A	0.34-0.57	0.05-0.35	Circular Ditch	Moderate to frequent small to large rounded stones within orangey brown friable sandy clay. Absent from se quadrant.	C207	C228	4
226	Fill	C204	N/A	0.3 (ne-sw)	0.1	0.03-0.4	Charcoal pit	Remains of carbonised timber. Soft black silt.	C229	C224	4
227	Fill	C200		1.1	0.65	0.1	Circular Ditch	Shell deposit of mussels.	C207	C225	4
228	Fill	C205	N/A	5.5	0.7-0.9	0.1-0.15	Circular Ditch	Mid to light brown silty clay. Firm to friable compaction. Moderate small stone inclusions.	C225	C1	4

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229	Burnt natural/ interface	C204	N/A	1.6	0.63	0.35	Charcoal pit	Silty sand. Moderate to frequent charcoal flecks. Interface between cut and lower fills.	C204	C211, C223, C226	4
230	Wall foundation	N/A	N/A	60 (east-west), 11m north-south	0.6	0.4	Post Medieval garden wall foundation	Orientated east-west and north south. Frequent small to large sub-rounded and sub-angular stone set within a brownish grey clayish silt matrix. Occasional sea shell and 19 <sup>th</sup> century red brick. 42M to corner of north-south return and continued east for a further 18m.	Natural	C1	4
231	Fill	C212	N/A	0.24	0.18	0.09	Kiln	Baffle stone located on northern side of flue.	C212	C214	4
232	Fill	C213	N/A				Kiln	Two sub-rectangular stones located on north and south side of the flue. Southern stone 320x320x5mm. Northern stone 430x300x280mm. Distance between stones 0.37m. Internal faces heat affected.	C213	C217	4

## Appendix 2 Finds Register 14E161

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Find No.	Site No.	Context	Item No.	Count	Full name	Material	Description
14E161:1:1	14E161	1	1	1	Medieval pottery	Ceramic	medieval pottery, Dublin type ware, possible strap handle (Siobhan Scully 27-1-15)
14E161:1:2	14E161	1	2	1	Post-med pottery	Ceramic	white english stoneware jam jar, 19-20 <sup>th</sup> century
14E161:1:3	14E161	1	3	1	Post-med pottery	Ceramic	white english porcelain saucer, 19-20 <sup>th</sup> century
14E161:1:4	14E161	1	4	1	Clay pipe	Ceramic	clay pipe stem fragment
14E161:1:5	14E161	1	5	1	Flint	Flint	possible flint tool
14E161:1:6	14E161	1	6	1	Flint	Flint	possible flint tool
14E161:12:1	14E161	12	1	1	Stone	Stone	possible rubbing stone
14E161:28:1	14E161	28	1	1	Post-med pottery	Ceramic	Creamware, mid-18 <sup>th</sup> century to 19 <sup>th</sup> century
14E161:28:2	14E161	28	2	1	Post-med pottery	Ceramic	Pearlware, hand painted blue, late-18 <sup>th</sup> century to 19 <sup>th</sup> century
14E161:35:1	14E161	35	1	1	Flint	Flint	possible flint tool, highly eroded – rolled?
14E161:35:2	14E161	35	2	1	Flint	Flint	possible flint tool
14E161:207:1	14E161	207	1	1	Flint	Flint	possible flint tool
14E161:210:1	14E161	210	1	1	Flint	Flint	possible flint tool
14E161:210:2	14E161	210	2	1	Prehistoric pottery	Ceramic	Prehistoric pottery
14E161:210:3	14E161	210	3	1	Prehistoric pottery	Ceramic	Prehistoric pottery
14E161:210:4	14E161	210	4	1	Prehistoric pottery	Ceramic	Prehistoric pottery
14E161:210:5	14E161	210	5	1	Prehistoric pottery	Ceramic	Prehistoric pottery
14E161:210:6	14E161	210	6	1	Prehistoric pottery	Ceramic	crumbs of prehistoric pottery, counted as one find
14E161:219:1	14E161	219	1	1	Flint	Flint	possible flint tool
14E161:225:1	14E161	225	1	1	Flint	Flint	possible flint tool

## Appendix 3 Sample Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Sample	Context	Area	Feature	Vol (l.)	Process	Result Notes	Seeds (g)	Charcoal (g)	Bone (g)	Future
1	19	1	charcoal matrix	0.75	Sieve 1.4mm & retain environmental	collected bone and charcoal, small amount of shell noted	0	7	1	ID only
2	22	1	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	collected charcoal which constituted 60% of sample	0	12	0	ID only
3	10	1	Fire pit charcoal matrix	1	Sieve 1.4mm & retain environmental	collected charcoal which constituted 70% of sample, small amount of shell noted	0	14	0	Report
4	4	1	charcoal matrix	0.25	Sieve 1.4mm & retain environmental	collected charcoal which constituted 90% of sample	0	3	0	ID only
5	12	1	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	collected charcoal, small amount of shell noted	0	5	0	ID only
6	96	1	charcoal matrix	0.25	Clean sample	cleaned two fragments of charcoal	0	1	0	ID only
7	24	1	burnt bone & Charcoal	0.75	Sieve 1.4mm & retain environmental and cremated bone	collected charcoal and cremated bone. Charcoal more abundant than bone. Shell absent	0	117	17	ID only
8	20	1	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	charcoal collected.	0	4	0	ID only
9	62	2	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	Minute amount of charcoal recovered	0	4	0	ID only
10	64	2	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	collected charcoal which constituted 90% of sample	0	50	0	ID only
11	39	2	Fire pit charcoal matrix	1	Sieve 1.4mm & retain environmental	collected charcoal which constituted 98% of sample	0	424	0	Report
12	6	1	charcoal matrix	0.75	Sieve 1.4mm & retain environmental	charcoal collected. Shell also present	0	70	0	ID only
13	35	2	charcoal matrix	0.5	Sieve 1.4mm & retain environmental	charcoal collected. Shell also present	0	2	0	ID only
14	66	2	charcoal matrix	0.1	Clean sample	Cleaned charcoal	0	7	0	ID only
15	75	2	charcoal matrix	3	Sieve 1.4mm & retain environmental	collected charcoal which constituted 10% of sample. 3 carbonised seeds also noted	1	69	0	ID only

Sample	Context	Area	Feature	Vol (l.)	Process	Result Notes	Seeds (g)	Charcoal (g)	Bone (g)	Future
16	208	4	charcoal pit? Burnt bone & other	6	Sieve 1.4mm & retain environmental, cremated bone & pottery	40% of sample was charcoal and chips of cremated bone	0	112	35	Report
17	209	4	charcoal pit? Burnt bone & other	1.5	Sieve 1.4mm & retain environmental, cremated bone & pottery	5% of sample was charcoal, no bone noted	0	12	0	Report
18	210	4	charcoal pit? Burnt bone & other	1	Sieve 1.4mm & retain environmental, cremated bone & pottery	10% of sample was charcoal, 5 cremated bone chips also found	0	32	1	Report
19	211	4	charcoal pit? Burnt plank	1.5	Sieve 1.4mm & retain environmental, cremated bone & pottery	95% of sample was charcoal	0	444	0	Report
20	223	4	charcoal pit? Burnt plank	2	Sieve 1.4mm & retain environmental, cremated bone & pottery	80% of sample was charcoal	0	610	0	Report
21	224	4	charcoal pit? Burnt clay (poss. pottery?)	1	**Dry sieve and check if this is pottery or just burnt clay	collected charcoal. No pottery	0	27	0	Report
22	202	4	kiln	2.5	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	seeds collected from float. Retent contained some charcoal and one fragment of bone	8	7	1	Report
23	214	4	kiln	6.5	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	lots of seeds found in float. Retent contained seeds, charcoal, and 1 fragment of cremated bone	68	2	2	Report
24	218	4	kiln east side	2	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	Small amount of carbonised plant remains	5	0	1	Report
25	219	4	kiln east side	4	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	Burnt bone noted	3	0	1	Report
26	219	4	kiln west side	2	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	Seeds noted	1	0	0	Report
27	218	4	kiln general	4	Float for charcoal and seeds, then sieve 1.4mm & retain environmental	Lots of seeds found in float. Some bone found in retent	16	1	2	Report
28	227	4	charcoal matrix	8	Sieve 1.4mm & retain environmental but NOT shell	98% of sample is shell. Charcoal, wood and animal bone collected	0	22	22	ID only
29	207	4	flint rich deposit	6	Sieve 1.4mm & retain flint debitage	98% of sample is stones. 2 fragments of flint, some chalk, roots, and charcoal.	0	1	0	ID only

## Appendix 4 Bone Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Context	Area	material	Notes	Animal Bone (g)	Cremated bone (g)
6	1	bone		189	
8	1	bone		120	
8	2	bone		81	
12	1	bone		3094	3
19	1	bone		3119	1
20	1	bone		616	
22	1	bone		18	
23	1	bone		37	
24	1	burnt bone		0	18
35	2	bone		1151	
58	2	bone		20	
62	2	bone		159	
64	2	bone		14	
65	2	bone		3	
66	2	bone		6	
68	2	bone		17	
70	2	bone		7	
72	2	bone		566	
75	2	burnt bone		0	1
78	2	bone		13	
94	2	bone		44	
96	2	bone		19	
98	2	bone		6	
100	2	bone		359	
201	4	bone		15	
202	4	burnt bone		0	1
206	4	bone	box section 1	11	
207	4	bone	box section 4	1	
207	4	bone	box section 3	18	
214	4	burnt bone		0	2
218	4	burnt bone		0	3
219	4	bone		2	1
220	4	bone		19	
225	4	bone		105	
227	4	bone		22	
208	4	burnt bone		0	36
210	4	burnt bone		0	1



## Appendix 5 Shell Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Context	Area	Material	Type	Count
4	1	shell	Clam (large?)	1
4	1	shell	cockle (common)	4
6	1	shell	cockle (common)	1
6	1	shell	Limpet (true)	2
6	1	shell	oyster	4
6	1	shell	Periwinkle (common)	65
12	1	shell	cockle (common)	3
12	1	shell	Cockle (Tuberculate)	7
12	1	shell	muscle	1
12	1	shell	oyster	5
12	1	shell	Periwinkle (common)	4
12	1	shell	Periwinkle (white/purple)	1
19	1	shell	cockle (common)	3
19	1	shell	Cockle (Tuberculate)	3
19	1	shell	oyster	10
19	1	shell	Periwinkle (white/purple)	2
19	1	shell	Scallop	3
19	1	shell	Whelk (Ancient Neptune)	2
20	1	shell	Clam (large?)	1
20	1	shell	Cockle (Tuberculate)	2
20	1	shell	Limpet (true)	3
20	1	shell	muscle	1
20	1	shell	oyster	22
20	1	shell	Periwinkle (common)	13
20	1	shell	Periwinkle (white/purple)	2
20	1	shell	Whelk (Ancient Neptune)	2
20	1	shell	Whelk (common)	1
22	1	shell	Limpet (true)	1
22	1	shell	muscle	2
22	1	shell	Periwinkle (common)	8
22	1	shell	razor clam	1
23	1	shell	cockle (common)	2
23	1	shell	muscle	3
23	1	shell	Periwinkle (common)	2
46	2	shell	Periwinkle (common)	2
58	2	shell	muscle	4
58	2	shell	Periwinkle (common)	8
62	2	shell	cockle (common)	2
62	2	shell	Limpet (true)	2
62	2	shell	Periwinkle (common)	13
62	2	shell	Whelk (common)	2
68	2	shell	Periwinkle (common)	2
72	2	shell	cockle (common)	6
72	2	shell	Cockle (Tuberculate)	1
72	2	shell	oyster	8
72	2	shell	Periwinkle (common)	39
72	2	shell	Whelk (common)	5
78	2	shell	Periwinkle (common)	37
88	2	shell	cockle (common)	1
88	2	shell	Periwinkle (common)	2

94	2	shell	cockle (common)	1
94	2	shell	Limpet (true)	1
94	2	shell	Periwinkle (common)	8
100	2	shell	Periwinkle (common)	6

## Appendix 6 Drawing Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Drawing No.	Plan/Section	Description	Scale	Area
S1	Section	North-facing section of pit C5	1:10	1
S2	Section	Southwest-facing section of pit C9	1:10	1
S3	Section	West facing-section of pit C21	1:10	1
S4	Section	South-facing section of barrow C11	1:10	1
S5	Section	East-facing section of pit C38	1:10	2
S6	Section	Southwest-facing section of ditch C60 and pit C61	1:10	2
S7	Section	North-facing section of ditch C7 and linear feature C99	1:10	2
S8	Section	Northwest-facing section of ditch C57	1:10	2
S9	Section	Southeast-facing section of ditch C57	1:10	2
S10	Section	East-facing section of pit C63	1:10	2
S11	Section	North-facing section of barrow C11, northern segment	1:10	2
S12	Section	Southeast-facing section of barrow C11, southeast segment	1:10	2
S13	Section	West northwest-facing section of barrow C11, southeast segment	1:10	2
S14	Section	West-facing section of agricultural feature C25	1:10	2
S15	Section	East-facing section of barrow C11, southern segment	1:10	2
S16	Section	Southeast-facing section of barrow C11, Middle segment	1:10	2
S17	Section	Northwest-facing section of barrow C11, Middle segment	1:10	2
S18	Section	South-facing section of pit C77	1:10	2
S19	Section	South-facing section of ditch C7 and linear C69	1:10	2
S20	Section	Southwest-facing section of ditch C60 and pit C91	1:10	2
S21	Section	Southeast facing section of pit C89	1:10	3
S22	Section	West facing section of kiln C200	1:10	4
S23	Section	Northeast-facing section of agricultural feature C119	1:10	3
S24	Cancelled			
S25	Section	South-facing section of kiln C213	1:10	4
S26	Section	South-facing section of kiln C212	1:10	4
S27	Section	West-facing section of ditch C205, drawing now obsolete.	1:10	4
S28	Cancelled			
S29	Section	West-facing section of ditch C205, northern segment	1:10	4
S30	Section	East-facing section of ditch C205, northern segment	1:10	4
S31	Section	East southeast-facing section of C205, southern segment	1:10	4
S32	Profile	North-south profile of kiln C213, western end	1:10	4
S33	Profile	North-south profile of kiln C212, eastern end	1:10	4

S34	Section	South-facing section of ditch C205, western segment	1:10	4
P1	Plan	Post-ex plan of Area 1, northwest portion	1:50	1
P2	Plan	Post-ex plan of Area 1, north-central portion	1:50	1
P3	Plan	Post-ex plan of Area 1, northeast portion	1:50	1
P4	Plan	Post-ex plan of Area 1, southwest portion	1:50	1
P5	Plan	Post-ex plan of area 1, South-central portion	1:50	1
P6	Plan	Post-ex plan of Area 1, southeast portion	1:50	1
P7	Plan	Post-ex plan of Area 1 and 2, northeast portion of Area 2 and southeast portion of Area 1	1:50	1, 2
P8	Plan	Post-ex plan of Area 3, northern portion	1:200	3
P9	Plan	Post-ex plan of Area 2, south-central portion	1:50	2
P10	Plan	Post-ex plan of Area 2, southeast portion	1:50	2
P11	Plan	Post-ex plan of Area 2, southwest portion	1:50	2
P12	Plan	Post-ex plan of Area 2, southeast portion	1:50	2
P13	Plan	Post-ex plan of Area 3, southern portion	1:100	3
P14	Plan	Post-ex plan of Area 4, northwest portion	1:50	4
P15	Plan	Post-ex plan of Area 4, north-central portion	1:50	4
P16	Plan	Post-ex plan of Area 4, northeastern portion	1:50	4
P17	Plan	Post-ex plan of Area 4, West-central portion	1:50	4
P18	Plan	Post-ex plan of Area 4, mid-west portion	1:50	4
P19	Plan	Post-ex plan of Area 4, northeast portion	1:50	4
P20	Plan	Post-ex plan of Area 4, mid-west portion	1:50	4
P21	Plan	Post-ex plan of Area 4, southeast portion	1:50	4
P22	Plan	Post-ex plan of kilns C212 and C213	1:20	4
P23	Plan	Mid-ex plan of ditch C205, western segment	1:20	4
P24	Plan	Post-ex plan of kiln C200	1:20	4
P25	Plan	Mid-ex plan of kiln C213	1:10	4
P26	Plan	Three plans of Kiln C204 (digital only)	1:20	4
S35	Section	Section of Kiln C204 (digital only)	1:20	4

## Appendix 7 Digital Photograph Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Area	Sub folder	Sub folder(s)	Count
1	C3	N/a	4
1	C5	Pre-ex	11
1	C7	Pre-ex, Section 19	37
1	C9	N/a	9
1	C11	Pre-ex, Mid-ex, Post-ex	68
1	C13	N/a	3
1	C15	Pre-ex	8
1	C21	Pre-ex, Mid-ex, Post-ex	15
1	C25	N/a	2
1	C27	Machine section, Pre-ex	7
1	Wall	N/a	3
1	Area 1 after handover	N/a	1
1	Field boundary with modern disturbance	N/a	1
2	C38	N/a	9
2	C43	N/a	4
2	C45	N/a	7
2	C47	N/a	2
2	C51	N/a	1
2	C53	N/a	1
2	C55	N/a	1
2	C57	N/a	8
2	C60	Eastern section of C60, C35 Shell examples	70
2	C61	N/a	3
2	C63	N/a	11
2	C67	N/a	10
2	C69, C111	N/a	4
2	C73	N/a	10
2	C77	N/a	6
2	C79	N/a	4
2	C93	N/a	1
2	C97	N/a	11
2	C99	N/a	6
3	C31	N/a	11
3	C41	N/a	2
3	C89	N/a	2
3	C113	N/a	6
3	C115	N/a	2
3	C117	N/a	8
4	C200	N/a	12
4	C205	East & southeast area, General photos, Northeast area, Northern area, Post-ex photos, Southern area, Western area	257
4	212	N/A	111
4	213	Post-ex	47
4	230	Pre-ex	28

4	Farm wall	N/a	6
4	Working shots	N/a	12
N/a	St. Patrick's well	N/a	65
N/a	Working shots	Working shots week 1	56
N/a	Charcoal Kiln	N/a	9

## Appendix 8 Archive Register 14E161

Site Name: Seamount, Malahide  
 Archaeological Licence No. 14E161  
 Site director: Antoine Giacometti  
 Date: March 2015

Field Records	Items (quantity)	Comments
Site drawings (plans)	26	22 Sheets, 3 plans on section drawing sheets Average sheet size 520mmx420mm. Plan 26 is digital only.
Site sections, profiles, elevations	33	5 Sheets Average sheet size 520mmx420mm. Section 33 is digital only.
Other plans, sketches, etc.	0	
Timber drawings	0	
Stone structural drawings	0	
Site diary/ notebooks	3	1 director, 2 supervisor
Site registers (folders)	Digital	
Survey/levels data (origin information)		
Context sheets (paper)	0	
Context sheets (digital)		
Wood sheets	0	
Skeleton sheets	0	
Worked stone sheets	0	
Digital photographs	1073	
Photographs (print)	0	
Photographs (slide)	0	

Finds and environmental archive		
Flint/chert	8	
Stone artefacts	1	Possible rubbing stone
Pottery - prehistoric	5	4 sherds plus 1 bag of small frags
- medieval	1	
- post-medieval	4	
Ceramic building materials	0	
Metal artefacts	0	
Glass	0	
Other find types or special finds	1	1 clay pipe stem fragment
Human bone	10	10 cremated bone samples
Animal bone	28	Disarticulated, unburnt
Metallurgical waste	0	
Environmental bulk soil (specify number of samples)	29	
Environmental monolith	0	
Timbers/ stakes	0	
Security of archive	Archaeology Plan	Digital and paper archive



**The prehistoric pottery from Seamount, Malahide, Co. Dublin (14E0161)**

Eoin Grogan and Helen Roche

*The site at Seamount produced a small prehistoric assemblage representing a single late Bronze Age domestic vessel. This adds to the scatter of late prehistoric settlement on the coastal lowlands of north county Dublin.*

**Late Bronze Age domestic vessel**

This is represented by three bodysherds from a large vessel (**210:2–3, 5**; one fragment: **210:4**; 14 crumbs: **210:6{14}**); total weight: 52g). The hard, dense fabric has a red-buff exterior and dark grey inner surface with a medium content of dolerite or granite inclusions (generally  $\leq 3\text{mm}$ ,  $6.10 \times 5.34\text{mm}$ ). The body is 14.20–15.76mm thick.

Small contemporary assemblages have been identified in the area at Beaverstown (Grogan 2004), Skidoo and Lusk (Roche 2004a; 2004b).

**Bibliography**

- Grogan, E. 2004 The prehistoric pottery assemblage from Beaverstown, Co. Dublin (02E1708 and 03E1634). Unpublished Report for Margaret Gowen and Co. Ltd.
- Roche, H. 2004a The Prehistoric Pottery Assemblage from Skidoo, Co. Dublin. Unpublished Report for Arch-Tech Ltd.
- Roche, H. 2004b The Prehistoric Pottery Assemblage from Lusk, Co. Dublin. Unpublished Report for Arch-Tech Ltd.

# **Lithic Report**

**Site:** Seamount, Malahide, Co. Dublin

**Company:** Archaeology Plan

**Excavation Number:** 14E161

**By**

**Seán Sharpe BA MPhil**

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## **1 – Introduction**

The lithic assemblage from Malahide, Co. Dublin is comprised of eight pieces of worked stone. These are all flint pieces, with one example of a naturally rolled cobble of limestone. These finds derive from fills of a circular ditch and a resource processing ditch, two kilns, and topsoil deposits.

## **2 – Methodology**

All lithic finds were examined visually, bagged in grip-seal polyethylene bags and were numbered accordingly. These finds were also individually entered into a Microsoft Excel spreadsheet and were recorded in the following manner. Firstly, measurement of the maximum length, width and thickness of each piece were recorded. Where pieces that are <10mm in size and occur in a large quantity in a single per finds bag, these were catalogued as one find number. These smaller pieces may be generally comprised of chips or thermal spalls. Secondly, the attributes of each piece was recorded by examining type, sub-type, condition and survival, quantity, platform-type, raw material type, context information and description. The majority of all pieces were classified after Woodman (*et al.* 2006) and Wickham-Jones' (1990) criteria of lithic classification. However, some pieces were classified after Ballin (2000) and Inizan (*et al.* 1999) where applicable.

## **3 – Raw Material**

The Malahide lithic assemblage is comprised of eight pieces of flint. This raw material was likely sourced as small pebbles that occur in plentiful supply along the east coast or inland as glacial remanié (Sternke 2013). At Malahide, it is probable that these pebbles were sourced along the nearby coast and were subsequently transported to the site for reduction. The assemblage's flint is of good quality, and is sufficient for producing suitable flakes and blades. In addition, there is one piece of limestone in the assemblage (14E161:12:1), however this example appears to be natural in form.

The condition of the assemblage is mixed (see Table 1). A total of two flint flakes and one possible bipolar flint core are patinated, with a further four reasonably fresh flint flakes. In addition, there is one rolled dual-platform core example (14E161:35:1).

	<b>Flint</b>	<b>Limestone</b>
<b>Reasonably Fresh</b>	4	-
<b>Patinated</b>	3	-
<b>Rolled</b>	1	1

*Table 1: Condition of flaked stone, Malahide lithic assemblage.*

## **4 – Technology**

### **4.1 – Cores**

There are two cores in the lithic assemblage. One dual-platform core (14E161:35:1) derives from the fill of a cut feature interpreted as a resource processing ditch (C60). This example is large in size and exhibits large elongated flake removals (see Figure 1). Due the large size of the core, it is possible that piece may have been discarded before it was fully exhausted. This example is also coarser in composition than other flint in the assemblage. The coarse nature of this piece would have created a poor facility for reduction, further suggesting reason for its discard. Dual-platform cores generally date within the earlier half of the Neolithic period (Woodman *et al.* 2006). It is possible that this core may have been disturbed from its primary context, and was re-deposited in the fill (C35) of the feature at a later date.



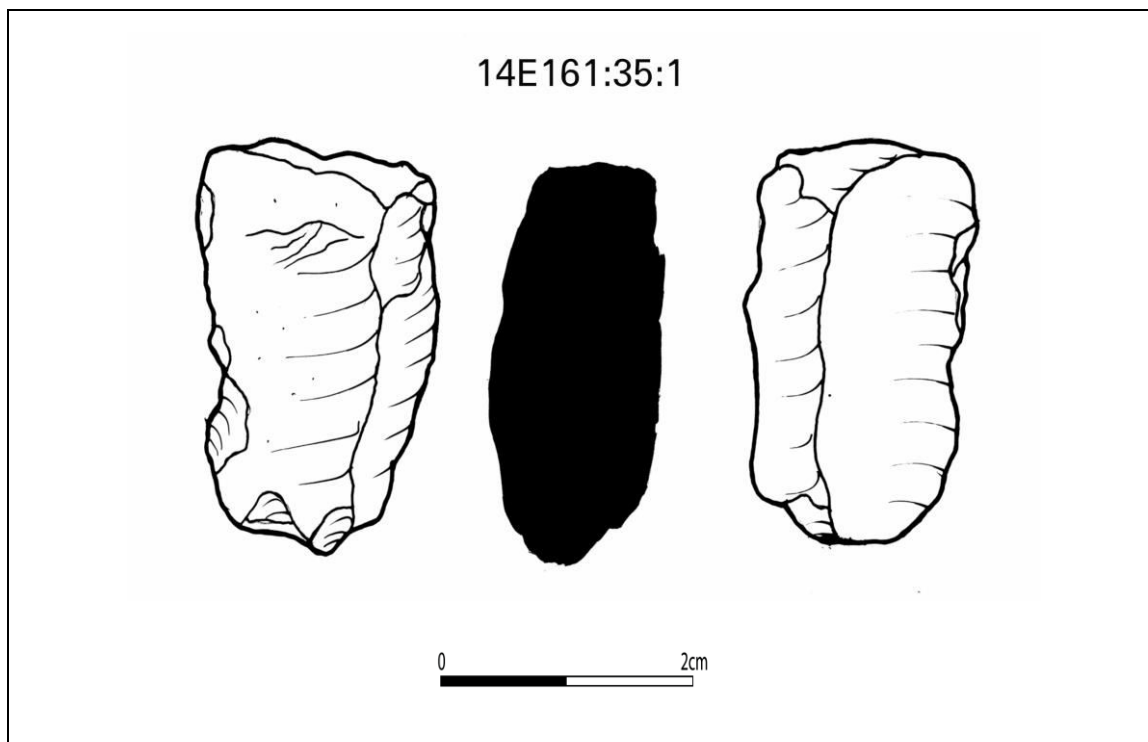


Figure 1: Dual-platform core (14E161:35:1), Malahide lithic assemblage.

There is one example of a large bipolar core fragment (14E161:219:1) in the assemblage and is heavily patinated. This example derives from the fill of a kiln (C213). The core is difficult to determine technologically, however it is evident that little care was taken in its reduction. This is represented by large amounts of cortex and irregular uncontrolled flake removals. Bipolar cores are noted to occur from the earlier half of the Neolithic to the Bronze Age. That said, it is likely that this example represents an Early–Middle Bronze Age technology in the Malahide assemblage, where an irregular and somewhat *ad hoc* reduction method replaced a controlled bipolar-on-anvil technology after the Late Neolithic (Woodman *et al.* 2006; O’Hare 2005; Sternke 2011).

## 4.2 – Debitage

There are six flakes that represent bipolar technology in the lithic assemblage. These are comprised of three regular and three irregular flakes of similar size (Figure 2). These examples were produced by an uncontrolled manner of bipolar reduction and were likely produced as incidental spall during the reduction of the core.

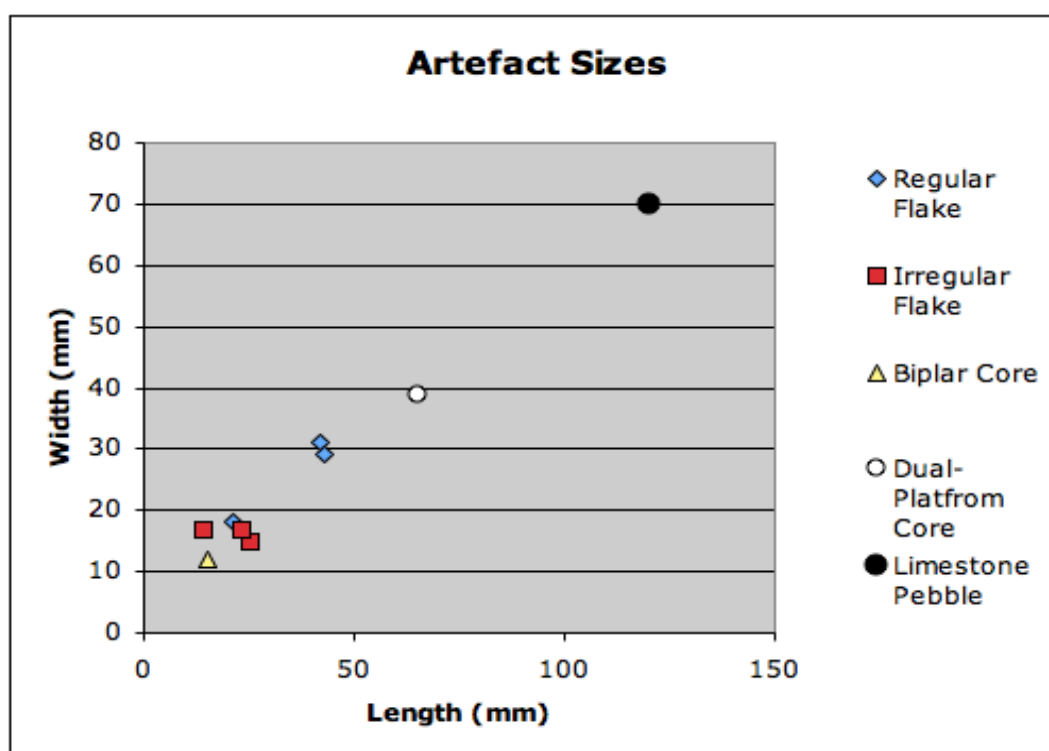


Figure 2: Artefact sizes, Malahide lithic assemblage.

## 5 – Other Artefacts

There is one example of a possible limestone pestle (14E161:12:1) in the assemblage. The piece exhibits possible abrasion approximately 1 cm<sup>2</sup> in size at its globular end. However, it is unclear if this piece was used as a pestle, as a greater level of abrasion would be expected when used during grinding. Therefore, it is suggested that this piece is natural in form, where the shape of the artefact was created by a rolling action over a prolonged period of time.

## **6 – Discussion**

The Malahide lithic assemblage suggests that reduction took place on site over a short period. This is represented by the presence of two cores with a small quantity of associated debitage. It is evident that a later form of bipolar technology was employed at the site, possibly in an expedient manner to quickly produce suitable flakes for use. However, the size of the assemblage suggests that no significant episode of lithic reduction took place at the site. The form and diagnostic technology of the assemblage suggests reduction took place sometime in the Early–Middle Bronze Age. This is primarily noted where less care in lithic reduction became more widespread in the Late Neolithic/Early Bronze Age (Woodman *et al.* 2006; Butler 2005; Sternke 2013). That said, the presence of one dual-platform core might represent some earlier Neolithic activity at the site.

## **7 – Comparative Material**

The lithic assemblage from Malahide resembles a later bipolar technology and is represented within numerous Irish contexts. The small quantity of six bipolar flakes and one bipolar core fragment parallel those dating to material dating to the later half of the Bronze Age at Slieve Breagh, Co. Meath (Sharpe 2014). The Slieve Breagh assemblage also included some residual earlier Neolithic dual-platform cores. In addition, similar Bronze Age material was also noted at Lough Gur, Co. Limerick (Woodman and Scannell 1993; Ó Ríordáin 1954), and to some extent at Tullahedy, Co. Tipperary (Sternke 2011).

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Find Number 14E161:	Quantity	Context	Context Description	Material	Type	Classification	Platform	Survival	Max Length (mm)	Max Width (mm)	Max Thickness (mm)	Condition	Comments
1	1	225		Flint	Regular Flake /s	No Classification	n/a	Complete	42	31	11	Reasonably Fresh	Probable bipolar flake. Partially subjected to heat.
1	1	35		Flint	Core /t	Dual-Platform Core	Plain	Complete	65	39	23	Rolled	Large rolled dual-platform core. Surface lustered. Possibly abandoned?
1	1	207		Flint	Regular Flake /s	No Classification	Cortical	Complete	43	29	12	Reasonably Fresh	Bipolar flake.
1	1	201		Flint	Irregular Flake /s	No Classification	n/a	Fragmented	25	15	6	Patinated	Indeterminate irregular flake. Partially subjected to heat. Most likely incidental spall.
1	1	219		Flint	Core /t	Core Fragment	n/a	Fragmented	15	12	7	Patinated	Possible bipolar core fragment. Heavily patinated and rolled.
6	1	1		Flint	Irregular Flake /t	No Classification	n/a	Fragmented	23	17	6	Patinated	Indeterminate irregular flake. Most likely incidental spall.
5	1	1		Flint	Regular Flake /s	No Classification	n/a	Complete	21	18	4	Reasonably Fresh	Bipolar flake.
2	1	35		Flint	Irregular Flake /s	No Classification	n/a	Fragmented	14	17	5	Reasonably Fresh	Indeterminate irregular flake. Most likely incidental spall.
1	1	12		Limestone	Pebble	Possible Pestle	n/a	Complete	120	70	46	Rolled	Listed as 'possible pestle'. However, this pebble seems natural in shape and exhibits no evidence for grinding.

## Report on animal bones

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May 2015

### 1 Introduction

Animal bones were recovered from 32 archaeological deposits excavated at Seamount, Malahide, Co. Dublin (Excavation licence 14E161) (Section 5). The archaeological site covers an area of 11.5ha, and included the remains of a prehistoric barrow (C121) (Area 1), an unenclosed resource processing area comprising ditches, pits and kiln features of an early medieval date (Area 1, 2 and 4), an early medieval circular enclosure (C205) (Area 4), and linear features/ditches of post-medieval date (Area 4). The majority of the animal bone is likely to be primary and secondary deposits dating to the early medieval period. These would then relate to a farmstead occupation phase on the site. No radiocarbon dating of the remains had been undertaken prior to the analysis of the remains. For the purpose of this report, the animal bone analysis is presented by the spatial distribution based on the areas described above.

#### 1.1 Material and method

The total bone assemblage comprised 910 fragments (9,318g), and was recovered from archaeological deposits in Area 1, Area 2 and Area 4. The vast majority of the fragments were well preserved, with the best general preservation observed in Area 1 and the poorest degree of preservation in Area 4 (Table 1). The main negative taphonomic agent affecting the assemblage was post-depositional fragmentation. The bones were hand-collected during the excavation, which inevitable results in a structural bias towards larger bone fragments; hence a likely underrepresentation of smaller animal species.

The bones were quantified by fragment count (NISP), weight (g) and minimum number of individuals (MNI) (Lyman, 1994). When possible, each fragment was identified to species, element, side, age and sex. Other than the general preservation of the remains, other taphonomic markers such as cut- and chop-marks deriving from the slaughter/butchery process were also described, as well as any potential pathological changes.

Table 1: General degree of preservation of the animal bone material from Seamount Malahide, Co. Dublin (14E161) by area. Revised stages after Behrensmeier (1978): Poor = Rough and eroded bone surface; Moderate = Patches of flaking and superficial eroded damage to bone surface; Good = Minimal cracking and flaking of bone surface.

	Poor (Stage 3)		Moderate (Stage 2)		Good (Stage 1)		Total	
	g	%	g	%	g	%	g	%
Area 1	0.00	0.00	140.51	2.06	6,675.90	97.94	6,816.41	100.00
Area 2	4.37	0.19	665.86	28.81	1,640.91	71.00	2,311.14	100.00
Area 4	77.29	40.58	13.09	6.87	100.07	52.54	190.45	100.00
TOTAL:	81.66	0.88	819.46	8.79	8,416.88	90.33	9,318.00	100.00

### 2 Result

A total of six mammal species were identified in the assemblage. The material was dominated by cattle (*Bos taurus*) bones, followed by caprovine (*Ovis aries/Capra hircus*) and pig (*Sus scrofa* sp.) remains. Six horse (*Equus caballus*) bones were identified, and nine fragments were identified as dog (*Canis familiaris*). In addition, there was one tine fragment from a red deer (*Cervus elaphus*) antler present in the assemblage. The unidentified material amounted to 322 fragments, of which the majority derived from large sized mammals such as cattle, horse or red deer (Table 2).

In the total assemblage, the cattle remains derived from a minimum of eight individuals: six adults and two juveniles. The caprovine remains derived from a minimum of two adult and one juvenile individual. The pig bones were remains of a minimum of two late juvenile/early adult individuals, and there were a minimum of one individual each identified in the horse, dog and red deer bone assemblages. Even though the assemblage is small in size, it indicates a dominance of the main domesticates, and a general distribution of species expected from faunal materials recovered an early medieval settlement context.

Table 2: Identified animal species. NISP = Number of Identified Specimens (fragment count); MNI = Minimum Number of Individuals.

Species	NISP	MNI	Weight (g)
Cattle ( <i>Bos taurus</i> )	289	8	7,339.69
Caprovine ( <i>Ovis aries</i> / <i>Capra hircus</i> )	61	3	300.95
Pig ( <i>Sus scrofa</i> sp.)	19	2	263.66
Horse ( <i>Equus caballus</i> )	6	1	443.19
Dog ( <i>Canis familiaris</i> )	9	1	77.30
Red deer ( <i>Cervus elaphus</i> )	1	1	31.14
Large sized mammal	250	-	727.73
Medium sized mammal	70	-	74.61
Small sized mammal	2	-	1.33
Indet.	203	-	58.40
TOTAL:	910	16	9,318.00

## 2.1 Barrow and associated features deposits

While the barrow and associated features are of prehistoric date, the majority of the animal bones recovered in the backfills of these contexts are likely to be related to the early medieval occupation phase of the site. This is more than likely the case relating to the animal bones recovered in fills of both the original (C121) and re-cut (C11) of the barrow/ring-ditch. A single pit (C21) located 1.1m west of the barrow/ring-ditch contained animal bones (C22) which however may be prehistoric in date.

### 2.1.1 Barrow C121/C11

A total of 574 fragments (6,526g) of animal bone were present in the barrow fill deposits. These were dominated by cattle remains, followed by caprovine and pig, horse and red deer. The cattle remains derived from a minimum of eight individuals: six adult and two juvenile animals. The majority of the bones were present in fill C12 and C19 of re-cut C11 of the barrow (4,975g), and a smaller proportion (482g) in C20 of primary cut C121. While bones from both meat-rich and meat-poor sections of cattle carcasses were present in the material, the overall majority derived from meat-rich elements. This was particularly the case of coxae fragments, which derived from a minimum of five animals, of which four could be sexed as cows (based rectus fovea morphology). The majority of the remains appear to constitute primary butchery waste. Five cattle long bone fragments (728g) from these deposits displayed clear oblique fracture patterns, which indicate that the bone marrow was retrieved and utilized. Clear cut and chop marks were also observed on two cattle vertebrae in C19: a cervical vertebra (76g) displayed transverse chop marks across the caudal portion of the bone, which relates to the process of separating the head from the rest of the carcass; and a thoracic vertebra (12g) displayed a transverse cut mark across the interior surface of the distal portion of the vertebral arch. This is likely to represent further segmentation of meat-cuts from the spine section which would have been undertaken with a knife.

Most caprovine bones were found in the fills (C12 and C19) of re-cut C11 (86g) of the barrow, with only three fragments (15g) in fill C20 of primary cut C121. One fragment, a right horncore, could be identified as sheep (*Ovis aries*). The remaining material comprised primarily meat-rich elements such as the fore limbs, vertebrae and ribs (see Table 3). The bones derived from a minimum of one adult and one juvenile animal. The majority of the pig bones were found in fill C19 (160g), and only two fragments (56.87g) in fill C121. They derive from a minimum of two animals which, based on the general size of the bones,

clearly had reached optimum slaughter size. No young juvenile or infant remains were present amongst these. The identified elements comprise fragments of cranial and forelimb bones (see Table 3).

Horse was only represented by two maxillary permanent molar teeth (47g) found in fill C19 of the barrow recut (C11). These are likely to derive from the same adult. A red deer antler tine fragment (31.14g) was present in C12, which represent the fill in the re-cut (C11) of the barrow/ring-ditch. The fragment was broken and displayed no cut-marks, but it is likely that it represent the antler industrial waste that would then suggest craft activities having been undertaken on the site (see MacGregor, 1985).

### 2.1.2 Burnt bone

A total of 45 fragments (106g) of burnt bone were present in fills C12 (30g), C19 (58g) and C20 (19g). Three fragments could be identified as cattle (53g), 28 fragments (49g) as deriving from a large sized mammal and the remainder were unidentified (14 fragments; 4g). The cattle bone fragments were portions of a mandible, a metacarpal and a metatarsal. All these remains are likely to represent general burnt domestic refuse.

### 2.1.3 Pit C22

The fill (C21) in pit C22 contained seven fragments (47g) of moderately and well preserved unburnt animal bones. These included a horn core fragment, a molar tooth and a rib fragment identified as cattle, and four rib fragments of which three derived from a caprovine and the fourth from a small sized mammal.

Table 3: Identified animal species and elements in barrow and associated feature deposits (C12, C19, C20, C22 and C23). BOS = cattle; O/C = caprovine; SUS = pig; EQU = horse; CER = red deer; LM = large sized mammal; MM = medium sized mammal; SM = small sized mammal.

Element	BOS	O/C	SUS	EQU	CER	LM	MM	SM	Indet.	Total
Horncore/Antler	1	1	-	-	1	-	-	-	-	3
Cranial	33	-	4	-	-	-	-	-	-	37
Mandible	22	-	2	-	-	-	-	-	-	24
Loose teeth	30	-	-	2	-	-	-	-	-	32
Atlas	1	1	1	-	-	-	-	-	-	3
Axis	1	-	-	-	-	-	-	-	-	1
Cerv.vert.	9	-	-	-	-	-	-	-	-	9
Thor.vert.	2	-	-	-	-	-	-	-	-	2
Lumb.vert.	7	1	-	-	-	-	-	-	-	8
Caud.vert.	-	-	-	-	-	-	1	-	-	1
Rib	65	17	1	-	-	-	3	1	-	87
Scapula	5	1	1	-	-	-	-	-	-	7
Humerus	8	-	2	-	-	-	-	-	-	10
Radius	5	3	1	-	-	-	-	-	-	9
Ulna	-	-	3	-	-	-	-	-	-	3
Metacarpal	9	-	1	-	-	-	-	-	-	10
Coxae	23	1	-	-	-	-	-	-	-	24
Femur	6	-	-	-	-	-	-	-	-	6
Patella	2	-	-	-	-	-	-	-	-	2
Tibia	2	1	-	-	-	-	-	-	-	3
Astragalus	1	-	-	-	-	-	-	-	-	1
Calcaneus	2	-	-	-	-	-	-	-	-	2
Metatarsal	5	1	-	-	-	-	-	-	-	6
Phalanx 1	3	-	-	-	-	-	-	-	-	3
Phalanx 2	5	-	-	-	-	-	-	-	-	5
Metapodial	1	-	-	-	-	-	-	-	-	1
Indet.	-	-	-	-	-	163	23	-	96	282
NISP:	248	27	16	2	1	163	27	1	96	581
MNI:	8	2	2	1	1	-	-	-	-	14
Weight (g):	5,498.60	106.00	217.31	47.36	31.14	583.70	50.98	1.01	36.95	6,573.05



## 2.2 Resource processing area deposits

Animal bones in deposits associated with features in the resource processing area were dominated by cattle and caprovine remains. The cattle bones (1,812g) included both meat-rich and meat-poor elements, and derived from a minimum of three adult and one juvenile animal. A shoulder height could be estimated from a single cow metacarpal: this gave a height of 105cm (method by Fock, 1966) which is within the smaller range of early medieval Irish cattle which tend to measure between about 87cm and 130cm in size (see McCormick and Murray, 2007: Figure 4.1; Geber, 2010). One cattle femur fragment (131g) was displayed an oblique fracture pattern on the mid-shaft portion, which relates to retrieval of the bone marrow. The caprovine remains (195g) derived from a minimum of three adult and one juvenile animal. A relatively high proportion comprised loose teeth fragments, which is likely to reflect post-depositional fragmentation of the remains.

Three fragments were identified as pig. Two left scapulae fragments (34g) were present in fill C8 of Ditch C7, and the distal half of a right tibia (13g) was present in the fill (C6) of pit C5. The horse remains (396g) comprised a maxillary molar (C94), a mandibular incisor (C35), a carpal bone (C78) and a complete left radius (C100). The radius derived from an adult animal, and generated an estimated shoulder height of 123cm (12.1hh) (method by May, 1985) which would correspond to the size of a pony. Horse shoulder heights of similar size have been observed in other early medieval assemblages (e.g. McCormick and Murray, 2007).

Nine fragments were identified as dog (77g). These were present in fills C8, C35 and C72 of ditch C7/C60, and may derive from the same animal. The identified elements were a left mandible, an axis, two lumbar vertebrae, a right rib, two left carpal bones, a right femur and a right tibia. The latter bone generated an estimated shoulder height of 56cm (method by Harcourt, 1974).

Two pathological specimens were identified in bones from deposits within the resource processing area. The first specimen was a right cattle metacarpal (C62) that displayed a healed traumatic lesion to the superior-medial portion of the diaphysis. This was represented by a defined and dense thickened callus formation (24×14mm), which is likely to be an inflammatory reaction to soft tissue trauma rather than a bone fracture. To determine this with certainty, it would be necessary to undertake a radiograph of this bone.

The second pathological specimen was a right dog rib found in C72, which displayed an unhealed transverse fracture across the mid-body portion of the bone. The injury had generated a pseudo-joint at the fracture, which suggests that the dog had sustained the injury for quite some time before death.

### 2.2.1 Burnt bone

Fifteen fragments (4g) of burnt bone were recovered in six deposits from features located within the resource processing area. Three kiln features included some burnt bone: a caprovine rib fragment (1g) was present in the fill (C202) of kiln C200; two burnt bone fragments (1g), of which one was a rib from a small sized mammal (0.5g), were present in the fill (C214) of kiln C212; and six burnt bone fragments, of which two (1g) were caprovine rib fragments, were present in the fills (C218 and C219) of kiln C213. Five small burnt bone fragments (0.5g) were also present in the fill (C210) of charcoal pit C204, and one single burnt bone fragment (0.5g) in the fill (C66) of pit C63. As with the burnt bone from the barrow deposits, these are likely to represent general burnt domestic refuse or possibly percolated inclusions.

Table 4: Identified animal species and elements in resource processing area associated deposits (C6, C8, C35, C58, C62, C64, C65, C66, C68, C70, C72, C78, C94, C98, C100, C201, C202, C210, C214, C218, C219, C220, and C225). BOS = cattle; O/C = caprovine; SUS = pig; EQU = horse; CAN = dog; LM = large sized mammal; MM = medium sized mammal; SM = small sized mammal.

Element	BOS	O/C	SUS	EQU	CAN	LM	MM	SM	Indet.	Total
Cranial	2	-	-	-	-	-	-	-	-	2
Mandible	8	6	-	-	1	-	-	-	-	15
Loose teeth	11	11	-	3	-	-	-	-	-	25

Element	BOS	O/C	SUS	EQU	CAN	LM	MM	SM	Indet.	Total
Axis	-	1	-	-	1	-	-	-	-	2
Cerv.vert.	1	-	-	-	-	-	-	-	-	1
Thor.vert.	1	-	-	-	-	-	-	-	-	1
Lumb.vert.	-	1	-	-	2	-	-	-	-	3
Rib	2	4	-	-	1	-	1	1	-	9
Scapula	-	-	2	-	-	-	-	-	-	2
Humerus	1	1	-	-	-	-	-	-	-	2
Radius	2	4	-	1	-	-	-	-	-	7
Ulna	-	2	-	-	-	-	-	-	-	2
Carpal	-	-	-	-	2	-	-	-	-	2
Metacarpal	2	-	-	-	-	-	-	-	-	2
Coxae	2	3	-	-	-	-	-	-	-	5
Femur	1	-	-	-	1	-	-	-	-	2
Tibia	-	-	1	-	1	-	-	-	-	2
Calcaneus	1	-	-	-	-	-	-	-	-	1
Metatarsal	2	1	-	-	-	-	-	-	-	3
Phalanx 1	2	-	-	-	-	-	-	-	-	2
Phalanx 3	1	-	-	-	-	-	-	-	-	1
Indet.	-	-	-	-	-	69	42	-	107	218
NISP:	39	34	3	4	9	69	43	1	107	309
MNI:	4	3	2	1	1	-	-	-	-	11
Weight (g):	1,811.57	194.95	46.35	395.83	77.30	109.88	23.63	0.32	21.45	2,681.28

### 2.3 Circular enclosure deposits

The circular enclosure (C205) located in the south area of the site has been interpreted as a possible animal enclosure. A small amount of animal bones (64g) were recovered from four fills (C206, C207, C227 and C228). Context C206 contained two fragments (18g), of which one comprised a cattle maxillary molar tooth (9g), and the other fragment an unidentified long bone fragment (9g) from a large sized mammal. Context C207 contained 16 poorly preserved bone fragments (15g) deriving from an unidentified large sized mammal. Context C227 contained a mid-shaft fragment of a left cattle tibia, and context C228 contained a single unidentified bone fragment (11g) from a large sized mammal.

### 2.4 Post-medieval landscape deposits

No animal bones were recovered from deposits relating to the post-medieval and later phase of activity on the site.

## 3 Conclusions and recommendations

The animal bone material from Seamount, Malahide, represents general domestic refuse typical of an early medieval settlement in Ireland ((McCormick and Murray, 2007)). The main domesticates dominates the assemblage; cattle, caprovine and pig. Other domestic mammals present were horse and dog. The only wild fauna represented in the material was a single antler tine fragment from a red deer. While no cut or saw marks were observed on this fragment, it seems likely that it represent craft waste which would then suggest that some antler artefact production took place on the site.

While the bone assemblage is of a relatively small size, it provides an insight into the economic circumstances relating to the occupation of the site, and how these relate to other early medieval settlement complexes in the vicinity and elsewhere in Ireland (see McCormick and Murray, 2007). It is therefore recommended that the material is saved and curated in the National Museum of Ireland or a higher educational institution for future research and analysis. Additional studies may, for instance, include stable isotope and aDNA analysis, histological and radiographic analysis of pathological specimens, and general reference material for future radiocarbon dating of the archaeological features on the site.

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## 5 Appendix 1. Identified animal species.

Table 5: Identified animal species by fragment count (NISP) and context. BOS = cattle; O/C = caprovine; SUS = pig; EQU = horse; CAN = dog; CER = red deer; LM = large sized mammal; MM = medium sized mammal; SM = small sized mammal.

Context no.	BOS	O/C	SUS	EQU	CAN	CER	LM	MM	SM	Indet.	Total	Weight (g)
C6	3	6	1	-	-	-	10	-	-	31	51	134.78
C8	4	1	2	-	1	-	13	7	-	-	28	180.41
C12	99	6	5	-	-	1	87	20	-	63	281	2,936.10
C19	132	15	9	2	-	-	69	2	-	32	261	3,003.37
C20	14	3	2	-	-	-	7	5	-	1	32	586.43
C22	1	1	-	-	-	-	-	-	1	-	3	14.92
C23	2	2	-	-	-	-	-	-	-	-	4	32.23
C35	18	16	-	1	6	-	30	27	-	-	98	1,104.91
C58	-	1	-	-	-	-	12	-	-	-	13	16.54
C62	1	1	-	-	-	-	-	-	-	-	2	148.28
C64	-	1	-	-	-	-	-	1	-	-	2	12.33
C65	-	-	-	-	-	-	-	1	-	3	4	1.32
C66	-	1	-	-	-	-	-	1	-	-	2	3.02
C68	1	1	-	-	-	-	3	5	-	-	10	13.18
C70	1	-	-	-	-	-	-	-	-	-	1	5.48
C72	4	2	-	-	2	-	-	1	-	13	22	542.49
C78	-	-	-	1	-	-	-	-	-	-	1	9.84
C94	1	-	-	1	-	-	-	-	-	-	2	38.33
C98	-	-	-	-	-	-	1	-	-	-	1	4.37
C100	-	-	-	1	-	-	-	-	-	-	1	335.26
C201	1	-	-	-	-	-	-	-	-	50	51	12.47
C202	-	1	-	-	-	-	-	-	-	-	1	1.02
C206	1	-	-	-	-	-	1	-	-	-	2	18.27
C207	-	-	-	-	-	-	16	-	-	-	16	14.74
C210	-	-	-	-	-	-	-	-	-	5	5	0.38
C214	-	-	-	-	-	-	-	-	1	1	2	1.08
C218	-	2	-	-	-	-	-	-	-	-	2	1.00
C219	-	1	-	-	-	-	-	-	-	4	5	1.63
C220	1	-	-	-	-	-	-	-	-	-	1	13.09
C225	4	-	-	-	-	-	-	-	-	-	4	100.07
C227	1	-	-	-	-	-	-	-	-	-	1	20.19
C228	-	-	-	-	-	-	1	-	-	-	1	10.47
TOTAL:	289	61	19	6	9	1	250	70	2	203	910	9,318.00

## 6 Appendix 2. Metrics

Table 6: Craniometrics. BOS = cattle; O/C = caprovine; Measurement abbreviations = von den Driesch (1976).

Context no.	Species	Element	Side	7	8	9	10:l	10:b	15a	15b	15c
C6	O/C	Mandible	R	69.10	47.25	21.67	20.88	7.70	-	-	-
C35	BOS	Mandible	L	129.33	-	-	37.00	15.56	63.94	-	37.89
C62	O/C	Mandible	R	65.34	44.37	20.78	19.94	7.57	-	17.84	13.21

Table 7: Post-cranial metrics: cattle, caprovine, and pig. BOS = cattle; O/C = caprovine; SUS = pig; Measurement abbreviations = von den Driesch (1976).

Context no.	Species	Element	Side	SLC	DC	BFp	Bp	GL	SD	Bd	BFd	BT	GB	SB	LA	MBS	DLS	GLm	GLl
C12	BOS	Coxae	L	-	-	-	-	-	-	-	-	-	-	20.12	-	-	-	-	-
C12	BOS	Coxae	L	-	-	-	-	57.42	-	-	-	-	-	-	-	-	-	-	-
C12	BOS	Humerus	R	-	-	-	-	-	-	89.54	-	80.00	-	-	-	-	-	-	-
C12	BOS	Patella	R	-	-	-	-	65.17	-	-	-	-	45.70	-	-	-	-	-	-
C12	BOS	Ph2Mp	?	-	-	-	27.18	35.56	23.01	-	-	-	-	-	-	-	-	-	-
C12	BOS	Radius	R	-	-	81.03	84.78	-	45.83	-	-	-	-	-	-	-	-	-	-
C12	BOS	Tibia	R	-	-	-	-	-	36.45	-	-	-	-	-	-	-	-	-	-
C19	BOS	Coxae	L	-	-	-	-	-	-	-	-	-	-	15.56	51.31	-	-	-	-
C19	BOS	Femur	R	-	38.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Mc	L	-	-	-	-	-	-	54.12	-	-	-	-	-	-	-	-	-
C19	BOS	Mc	L	-	-	-	52.43	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Mc	R	-	-	-	52.55	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Mt	L	-	-	-	44.25	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Mt	R	-	-	-	43.84	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Ph1Mp	?	-	-	-	25.02	57.41	22.15	24.81	-	-	-	-	-	-	-	-	-
C19	BOS	Ph1Mp	?	-	-	-	26.60	-	-	-	-	-	-	-	-	-	-	-	-
C19	BOS	Radius	R	-	-	-	-	-	-	85.41	71.91	-	-	-	-	-	-	-	-
C20	BOS	Patella	R	-	-	-	-	60.26	-	-	-	-	48.10	-	-	-	-	-	-
C35	BOS	Mc	?	-	-	-	-	-	25.90	-	-	-	-	-	-	-	-	-	-
C35	BOS	Ph1Mp	?	-	-	-	24.78	53.99	21.78	26.28	-	-	-	-	-	-	-	-	-
C35	BOS	Ph3Mp	?	-	-	-	-	-	-	-	-	-	-	-	-	19.09	61.64	-	-
C62	BOS	Mc	R	-	-	-	50.97	175.00	29.25	51.73	-	-	-	-	-	-	-	-	-
C72	BOS	Mt	R	-	-	-	42.26	-	-	-	-	-	-	-	-	-	-	-	-
C72	BOS	Mt	R	-	-	-	44.98	-	-	-	-	-	-	-	-	-	-	-	-

Context no.	Species	Element	Side	SLC	DC	BFp	Bp	GL	SD	Bd	BFd	BT	GB	SB	LA	MBS	DLS	GLm	GLl
C72	BOS	Radius	L	-	-	65.80	71.91	-	36.20	-	-	-	-	-	-	-	-	-	-
C94	BOS	Ph1Mp	?	-	-	-	25.70	-	24.26	25.22	-	-	-	-	-	-	-	-	-
C8	O/C	Coxae	R	-	-	-	-	-	-	-	-	-	-	8.75	-	-	-	-	-
C12	O/C	Radius	L	-	-	-	-	-	15.09	-	-	-	-	-	-	-	-	-	-
C12	O/C	Radius	L	-	-	23.74	26.23	-	15.30	-	-	-	-	-	-	-	-	-	-
C20	O/C	Radius	L	-	-	-	-	-	15.18	-	-	-	-	-	-	-	-	-	-
C20	O/C	Tibia	?	-	-	-	-	-	14.10	-	-	-	-	-	-	-	-	-	-
C35	O/C	Mt	L	-	-	-	-	-	9.10	-	-	-	-	-	-	-	-	-	-
C35	O/C	Radius	L	-	-	24.46	26.10	-	15.11	-	-	-	-	-	-	-	-	-	-
C96	O/C	Astragalus	L	-	-	-	-	-	-	16.19	-	-	-	-	-	-	-	23.96	24.82
C96	O/C	Tibia	L	-	-	-	-	-	-	23.68	-	-	-	-	-	-	-	-	-
C6	SUS	Tibia	R	-	-	-	-	-	-	26.00	-	-	-	-	-	-	-	-	-
C8	SUS	Scapula	L	21.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C8	SUS	Scapula	L	24.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C12	SUS	Radius	R	-	-	-	29.00	-	-	-	-	-	-	-	-	-	-	-	-
C19	SUS	Scapula	R	19.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C20	SUS	Atlas	Axial	-	-	-	-	44.58	-	-	-	-	60.00	-	-	-	-	-	-

Table 8: Post-cranial metrics: dog and horse. CAN = dog; EQU = horse; Measurement abbreviations = von den Driesch (1976).

Context no.	Species	Element	Side	Bp	BFp	GL	LCDe	SD	Bd	SBV
C35	CAN	Axis	Axial	-	-	-	48.68	-	-	21.31
C35	CAN	Femur	R	-	-	-	-	11.14	28.62	-
C72	CAN	Tibia	R	31.15	-	160.00	-	9.66	19.78	-
C100	EQU	Radius	L	74.57	68.35	300.00	-	36.69	-	-

## 7 Appendix 3. Mandibular dental wear

Table 9: Mandibular dental wear scores (Grant, 1975). BOS = cattle; O/C = caprovine; SUS = pig.

Context no.	Species	Side	TWS					MWS
			m <sub>4</sub>	P <sub>4</sub>	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	
C19	BOS	L	-	-	-	-	a	-
C12	BOS	L	j	-	-	-	-	-
C20	BOS	L	j	-	-	-	-	-
C12	BOS	L	-	-	-	f	-	-
C19	BOS	L	-	f	k	g	-	-
C35	BOS	L	-	-	-	-	l	-
C12	BOS	R	-	-	g	f	-	-
C20	BOS	R	-	E	-	-	-	-
C72	BOS	R	-	-	l	k	m	48
C8	BOS	R	-	g	-	k	j	-
C19	BOS	L	-	d	-	-	-	-
C58	O/C	L	-	g	g	-	-	-
C72	O/C	L	-	-	g	g	b	31
C6	O/C	R	-	h	j	g	h	39
C62	O/C	R	-	g	m	h	f	41
C72	O/C	R	-	-	g	f	b	30
C19	SUS	L	-	-	-	d	E	-

## 8 Appendix 4. Epiphyseal bone fusion data

Table 10: Epiphyseal bone fusion data of cattle remains. Age estimations by Silver (1970: Table A). UF = unfused; IF = in fusion; F = fused.

	UF	IF	F
<u>Early fusion (9–12 months)</u>			
Acetabulum	1	-	6
Scapula	-	-	-
Humerus dist.	-	-	4
Radius prox.	-	-	3
Phalanx 1 prox.	1	-	4
Phalanx 2 prox.	3	-	2
<i>Early fusion subtotal:</i>	5	0	19
<u>Intermediate fusion (24–36 months)</u>			
Metacarpal dist.	3	-	2
Tibia dist.	1	-	1
Metatarsal dist.	-	-	-
<i>Intermediate fusion subtotal:</i>	4	0	3
<u>Late fusion (36–48 months)</u>			
Humerus prox.	-	-	1
Radius dist.	-	-	1
Ulna prox.	-	-	-
Femur prox.	2	2	1
Femur dist.	-	-	1
Tibia prox.	-	-	-
Calcaneus tuber	-	-	1
<i>Late fusion subtotal:</i>	2	2	5

Table 11: Epiphyseal bone fusion data of caprovine remains. Age estimations by Silver (1970: Table A). UF = unfused; IF = in fusion; F = fused.

	UF	IF	F
<u>Early fusion (c. 10 months)</u>			
Humerus dist.	-	-	1
Radius prox.	-	-	2
Scapula	-	-	-
Acetabulum	1	-	1
<i>Early fusion subtotal:</i>	1	0	4
<u>Intermediate I fusion (12–24 months)</u>			
Metacarpal dist.	-	-	-
Phalanx 1 prox.	-	-	-
Phalanx 2 prox.	-	-	-
Tibia dist.	-	-	1
<i>Intermediate I fusion subtotal:</i>	0	0	1
<u>Intermediate II fusion (24–36 months)</u>			
Ulna prox.	2	-	-
Femur prox.	-	-	-
Metatarsal dist.	1	-	-
Calcaneus tuber	-	-	-
<i>Intermediate II fusion subtotal:</i>	3	0	0
<u>Late fusion (36–48 months)</u>			
Humerus prox.	-	-	-
Radius dist.	-	-	3
Femur dist.	-	-	-
Tibia prox.	-	-	-
<i>Late fusion subtotal:</i>	0	0	3



Table 12: Epiphyseal bone fusion data of pig remains. Age estimations by Silver (1970: Table A). UF = unfused; IF = in fusion; F = fused.

	UF	IF	F
<u>Early fusion (c. 12 months)</u>			
Scapula	-	-	2
Acetabulum	-	-	-
Humerus dist.	-	-	1
Radius prox.	-	-	1
Phalanx 2 prox.	-	-	-
<i>Early fusion subtotal:</i>	0	0	4
<u>Intermediate I fusion (12–24 months)</u>			
Metacarpal dist.	-	-	-
Tibia dist.	-	-	1
Phalanx 1 prox.	-	-	-
<i>Intermediate I fusion subtotal:</i>	0	0	1
<u>Intermediate II fusion (24–30 months)</u>			
Metatarsal dist.	-	-	-
Fibular dist.	-	-	-
Calcaneus tuber	-	-	-
<i>Intermediate II fusion subtotal:</i>	0	0	0
<u>Late fusion (30–42 months)</u>			
Humerus prox.	1	-	-
Ulna prox.	-	-	-
Ulna dist.	-	-	-
Radius dist.	-	-	-
Femur prox.	-	-	-
Femur dist.	-	-	-
Tibia prox.	-	-	-
Fibula prox.	-	-	-
<i>Late fusion subtotal:</i>	1	0	0

## Report on human remains

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May 2015

### 1 Introduction

Human remains were recovered from three deposits during the archaeological excavation at Seamount Malahide, Co. Dublin (Excavation license: 14E161). Two deposits (C6 and C12) contained inhumed disarticulated remains, and two deposits (C24 and C208) were cremation deposits. Only the latter two were identified as probable funerary deposits during the archaeological excavation. The bones were generally well preserved, although they had suffered from considerable post-depositional fragmentation.

#### 1.1 Methodology

The bones were analysed following recommended standard methodologies (Buikstra and Ubelaker, 1994; Brickley and McKinley, 2004). The fragments were identified to element, side, and age and sex when possible. The cremated remains quantified by both fragment count and weight, and the general degree of fragmentation was assessed by four size categories (>10mm, 5–10 mm, 2–5 mm, <2mm) (McKinley, 2004), and the general degree of incineration was assessed from bone colour (Herrmann, 1988). Measurements were taken in accordance with Gejvall (1947; 1948; 1970).

### 2 Result

The deposits containing human remains do not appear to represent formal burials. Instead, they are likely to represent secondary depositions following truncation or disturbances of burials originally located elsewhere on or in close proximity to the site. Evidently, both inhumation and cremation burials would have been present and it seems likely that two phases of burials are present; cremation burials dating to the prehistoric period, and inhumation burials likely to be of early medieval date.

#### 2.1 Cremation deposits

*C24*: A deposit (15g) of cremated human bones were present in the re-cut (C11) of barrow/ring-ditch C121. It has been interpreted as a possible re-deposition of a primary burial within the original barrow. The bones were grey/white in colour, which indicates that it achieved temperatures between 700°C and 800°C (Herrmann, 1988). Only one fragment (0.32g) was identified; this was a proximal epiphyseal fragment of a third hand phalanx. The bones are likely to derive from an adult (> 18 years) individuals. Sex could not be determined.

*C208*: A small deposit (24g) of cremated human remains was present in the upper fill (C208) of pit C204 which has been interpreted as a charcoal pit. Two fragments (9.21g) could be identified as femur shaft fragments from an adult (>18 years) individual, and the other fragments could not be identified. The bones were chalk-white in colour, which indicates a successful cremation reaching temperatures exceeding 700–800°C (Herrmann, 1988). Sex could not be determined. Small deposits like these have

traditionally been interpreted as token burial deposits, part of a *pars pro toto* tradition, where only a portion of the cremation was selected for burial. Becker has, however, critically assessed the evidence of these “token deposits” in the Irish archaeological evidence, and suggested that the majority of them represent pyre debris (Becker, 2014). In that case, the deposit in C208 – and possibly also in C24 – may be not be material from formal cremation burials, but rather the cremation event itself.

Table 1: Relative fragmentation of identified cremation deposits. NISP = Number of Identified Specimens (fragment count).

Cut no.	Fill no.	Sample no.	NISP	Weight (g)	>10mm		5–10mm		2–5mm		<2mm	
					g	%	g	%	g	%	g	%
C11	C24	S7	86	14.58	2.20	15.09	9.26	65.51	3.12	21.40	0.00	0.00
C204	C208	S16	86	24.44	9.21	37.68	12.04	49.26	3.19	13.05	0.00	0.00
TOTAL:			172	39.02	11.41	29.24	21.30	54.59	6.31	16.17	0.00	0.00

## 2.2 Inhumed disarticulated remains

*C6*: The fragmented squama portion of an occipital bone and the posterior-medial portion of a right parietal bone were present in the fill (C6) of pit C5. This feature measured 1.11m in diameter and 0.16m in depth, and was located amongst a cluster of other pits of similar size. The pit also included 51 fragments (135g) of unburnt animal bones (cattle, sheep and pig). Both the occipital and parietal bone comprise a portion of the same skull vault. The general appearance and the absence of evidence of any initiated obliteration of the lambdoid suture suggest that the skull belonged to a young adult individual. Although fragmented, the general slender and non-pronounced morphology of the nuchal crest area of the occipital bone suggests that this individual was female. No evidence of perimortem cut-marks, trauma or any pathological changes was observed on the remains. Considering the fact that these human remains were found amongst animal bones, the likely interpretation is that they represent re-deposited charnel from a truncated inhumation burial originally located elsewhere on or nearby the site.

*C12*: Distal portions of an adult left and right femur were found amongst animal bones (281 fragments; 2,936g) in the fill (C12) of re-cut C11 which represent a second phase of a ring-ditch C121 located at the northern perimeter of the site. The bones were quite abraded and fragmented, but generally of relatively good degree of preservation. The fragment of the left femur comprised the lateral condyle, and the right femur fragment was a section of the intercondylar fossa. Both fragments may derive from the same individual skeleton, although this is not possible to determine with absolute certainty. They derived from an adult individual of unknown sex. As with the remains found in C6, they are likely to represent re-deposited charnel from a disturbed burial. No evidence of cut-marks, trauma or pathological changes was observed on the remains.

## 3 Summary

Four archaeological deposits from Seamount Malahide (14E161) contained human remains. These included portions of a left and right adult femur (C12), a portion of an adult skull vault (C6) and two cremation deposits (C24 and C208). The bones are likely to derive from disturbed inhumation and cremation burials, and possibly pyre debris. The possibility that one cremation burial – represented as a token deposit (C208) – cannot be fully discarded either.

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## 5 Catalogue of cremation deposits

<i>Cut no:</i>	C11
<i>Fill no:</i>	C24
<i>Sample no:</i>	S7
<i>NISP:</i>	86 (1.16%)
<i>Weight (g):</i>	14.58 (2.19%)
<i>Colour:</i>	Grey/white
<i>Age:</i>	Adult (> 18 years)
<i>Sex:</i>	Indeterminable
<i>Cranial:</i>	Not identified
<i>Axial:</i>	Not identified
<i>Upper limb:</i>	Phalanx 3 (0.32g)
<i>Lower limb:</i>	Not identified
<i>Metrics (mm) (Gejvall, 1970):</i>	Not available

<i>Cut no:</i>	C204					
<i>Fill no:</i>	C208					
<i>Sample no:</i>	S16					
<i>NISP:</i>	86 (2.33% identified)					
<i>Weight (g):</i>	24.44 (37.68% identified)					
<i>Colour:</i>	White					
<i>Age:</i>	Adult (> 18 years)					
<i>Sex:</i>	Indeterminable					
<i>Cranial:</i>	Not identified					
<i>Axial:</i>	Not identified					
<i>Upper limb:</i>	Not identified					
<i>Lower limb:</i>	Femur (9.21g)					
<i>Metrics (mm) (Gejvall, 1970):</i>	N:	min.	mean	max	SD	
	2:	2	3.98	4.37	4.75	0.54

# **Plant Macrofossil & Charcoal** **Identification Report**

**Project – Seamount, Malahide, Co. Dublin**  
**Archaeological Licence – 14E161**

**Client – Archaeology Plan**

**Ref – ENV/170**

**Author – Susan Lyons MSc MIAI**

**Date –10/04/2015**

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## 1 Introduction

This report presents the results of archaeobotanical remains (plant macrofossil and charcoal) from soil samples associated with archaeological investigations carried out in advance of a development at Seamount, Malahide, Co. Dublin under licence reference 14E161. Archaeological excavations revealed the remains of a prehistoric barrow to the north of the site; a series of ditches, pits and kilns of possible medieval date to the west and the remains of a circular enclosure, also potentially of early medieval date to the southwest of the site (Giacometti, 2015).

## 2 Soil sampling strategy and scope of works

Twenty nine samples representing a variety of features and deposits were selected for identification of plant macrofossils and archaeological wood charcoal. Of these, fourteen were chosen for full analysis and the remaining fifteen for identification only for the purpose of radiocarbon dating. (**Table 1**).

Archaeobotanical analysis is an important component of archaeological excavation and post-excavation works. These remains provide valuable information about explicit activities carried out at a site, including the function and nature of certain features, arable agriculture practices, site economy, diet, food processing and how local natural resources were exploited (Murphy and Whitehouse 2007; McClatchie 2007). Cereal grains, nutshells, seeds and fruit-stones represent the most commonly preserved non-wood plant macro-remains. Delicate chaff from arable crops is also frequently recovered. Other plant components can sometimes be preserved, including cereal bran, leaves, bud-scales and thorns. Vegetative tissues (parenchyma) from roots and tubers, which can be used in a range of activities, may also be recovered.

Woodland resources, including wood and charcoal, were of enormous importance in the past. Communities during both the prehistoric and historic periods were dependant on woodland resources for everyday living, including construction materials for buildings, manufacture of most implements, firewood and fuel (Kelly 1988; O'Donnell 2007; Stuijts 2007; OCarroll 2011). Analysis of wood and charcoal remains can provide functional evidence for various activities at a site, as well as insights into cultural, ecological and economic variables. Certain wood species may have been selected for particular uses, such as structural posts, firewood, pyre material fuel and wattle.



Charred remains also provide suitable material for the purpose of obtaining radiocarbon dates (C14 dating). In this case, short-living plant species, such as cereal grain, nutshell and young roundwoods are selected for dating.

Sample No.	Context No.	Context Description	Scope of works
1	19	Fill of barrow C11	ID only
2	22	Fill of pit C21	ID only
3	10	Fill of pit C9	Analysis
4	4	Fill of pit C3	ID only
5	12	Barrow C11	ID only
6	96	-	ID only
7	24	Barrow C11	ID only
8	20	Barrow C11	ID only
9	62	Fill of pit C61	ID only
10	64	Fill of pit C63	ID only
11	39	Fill of pit C38	Analysis
12	6	Fill of pit C5	ID only
13	35	Ditch C60	ID only
14	66	Fill of pit C63	ID only
15	75	Kiln C73	ID only
16	208	Fill of charcoal pit C204	Analysis
17	209	Fill of charcoal pit C204	Analysis
18	210	Fill of charcoal pit C204	Analysis
19	211	Fill of charcoal pit C204	Analysis
20	223	Fill of charcoal pit C204	Analysis
21	224	Fill of charcoal pit C204	Analysis
22	202	Basal layer of kiln C200	Analysis
23	214	Kiln C212	Analysis
24	219	Kiln C213- east side deposit	Analysis
25	219	Kiln C213- east side	Analysis
26	219	Kiln C213-west side	Analysis
27	218	Kiln C213	Analysis
28	227	Charcoal fill of circular ditch C200	ID only
29	207	Charcoal fill of circular ditch C200	ID only

**Table 1**

### 3 Methodology

#### 3.1 Sample processing

Bulk dry soil samples were <sup>1</sup>processed by *Archaeology Plan*. A system of floatation was used, where each sample is soaked in water and agitated by hand to loosen any charred remains from the soil particles which allows for this material to be separated and float to the surface. This floating material (flot) is poured off and trapped in a

<sup>1</sup> Soil samples are processed according to the standards and guidelines outlined in the Institute of Archaeologists of Ireland (IAI) 'Environmental Sampling Guidelines for Archaeologists', (IAI, 2006) and Palaeoethnobotany: Handbook of Procedures. 2nd edition, San Diego: Academic Press (Pearsall, D 2000)

sieve (mesh size 250 µm) and, once dried, scanned for plant remains using a binocular microscope. The larger residual material left behind (retent) is washed through a 1mm, 2mm and 5mm mesh or sieve and air-dried. Once dry, each retent is sorted by eye and any material of archaeological significance removed.

### 3.2 *Plant macrofossil analysis*

All flot samples were viewed under a low powered binocular microscope (magnification x0.8 to x5). Where preservation allowed, the charred plant macro-remains were identified to species level and quantified. In the case of very large samples, a sub-sample of approximately 500 individual constituents were randomly identified and removed. Abraded grains were recorded using an abundance scale based on the universal <sup>2</sup>DAFOR system, which is a quantitative definition of frequency for counting plant communities - **Dominant (>250) = D**, **Abundant (51-250) = +++++**, **Frequent (21-50) = +++**, **Occasional (6-20) = ++** and **Rare (1-5) = +**

This scaling is necessary where abraded grains which are fragmented and where the embryo ends are absent can be more difficult to quantify as being from one or more component.

Plant species are made using reference to the author's seed collection and standard seed atlases and references; *Flora of the British Isles* (Clapham, A R, Tutin, T G, Warburg, E F, 1957), *Zadenatlas der Nederlandsche Flora* (Beijerinck, W.1976), *New Flora of the British Isles 2<sup>nd</sup> Edition* (Stace, C, 1997) and *Digital Seed Atlas of the Netherlands* (Cappers, R.T.J., R.M. Bekker and J.E.A. Jans, 2006).

### 3.3 *Charcoal analysis*

Due to the potential for a very high number of charcoal fragments from the samples, a representative sub-sample was randomly chosen from each sample for identification and assessment. For the purpose of this project, a sub-sample of 50 fragments were chosen from large samples, which is in line with the standard sub-sampling strategy for archaeological charcoal by the National Roads Authority *New Palaeo-Environmental Guidelines* (McClatchie, et al, 2014) and current practicing archaeological specialists (Keepax, 1988; O'Carroll, 2012).

Wood charcoal identifications were undertaken in accordance with Section 25 of the National Monuments Act, 1930, as amended by Section 20 of the National Monuments Amendment Act 1994, to alter an archaeological object. The wood species identifications were conducted under a binocular microscope using incident light and viewed at magnifications of 100x, 200x and 400x where applicable.

Wood species identifications are made using wood reference slides and wood keys devised by Franklin and Brazier (1961), Schweingruber (1978), Hather (2000)

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<sup>2</sup> The DAFOR scale is a useful tool to visually assess the abundance of any species on a semi-quantitative level (Sutherland, W J 1996)

and the International Association of Wood Anatomists (IAWA) wood identification manuals and ([www.lib.ncsu.edu/insidewood](http://www.lib.ncsu.edu/insidewood)) by Wheeler, Bass and Gasson (1989).

#### 4. Results

The results of the plant macrofossil remains and charcoal will be presented separately.

##### 4.1 Carbonised plant macrofossils

The plant macrofossil identifications from Seamount, Malahide are presented in **Table 2**.

A total of 763 individual constituents were removed from the samples. The majority of remains were identified as cereal grain and confined primarily to kilns C200 (C202), C212 (C214) and C213 (C218 and C219). Barley (*Hordeum* spp.) dominated the cache making up 42% of the assemblage. Based on the straight ventral groove of the barley grains, 2-row barley seem to be the main crop present. Oat (*Avena* spp.) accounted for 29% of remains identified, while wheat (*Triticum* spp.), predominantly bread/club wheat (*T. aestivum/compactum*) made up less than 10%. The oats and wheat were void of chaff fragments, which would have aided further species identification, however, based on the size of the oat caryopsis and the absence of a ‘suckermouth’ feature, the grains are most likely the cultivated variety of oat (*Avena sativa*). A high number of indeterminate cereal grains were also present (19%) predominantly from C214. These grains were badly abraded and appear in the table as Cerealia. The state of preservation was relatively poor, with surface abrasion noted, possibly caused by redeposition and other taphonomic factors, such as the carbonisation process itself.

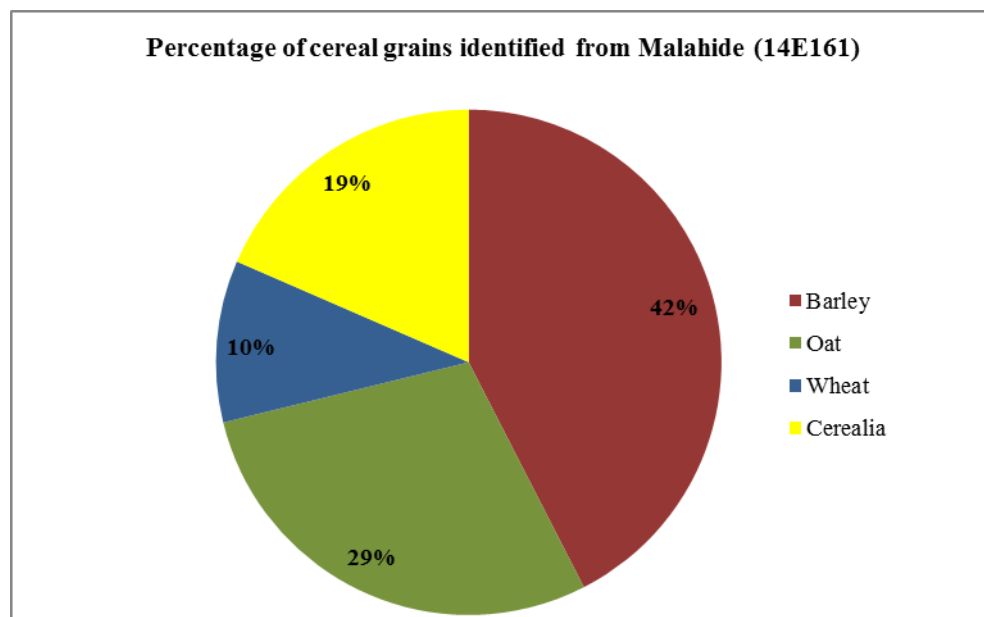
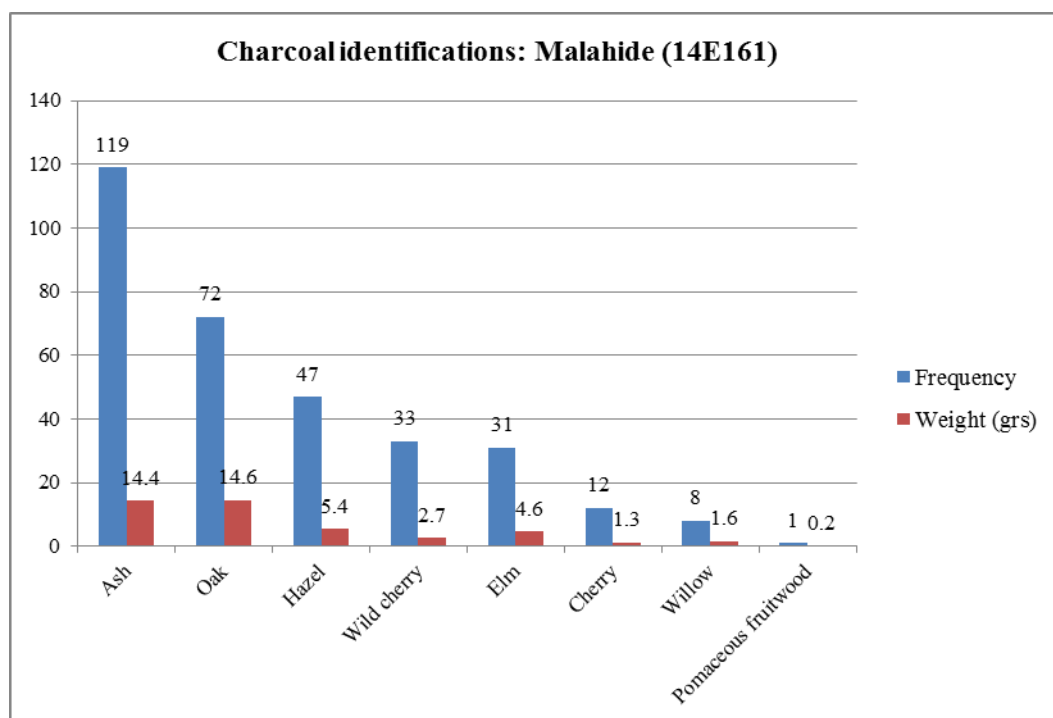


Fig. 1

#### 4.2 Wood charcoal identifications

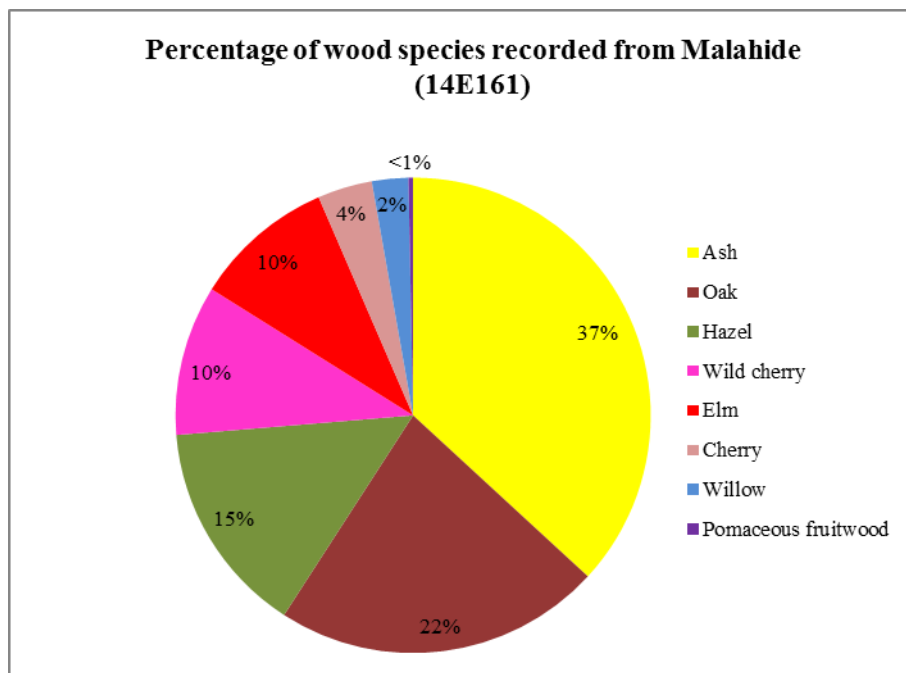
The charcoal identifications from Seamount, Malahide are presented in **Table 3**.

Eight wood species totalling 323 charcoal identifications were recorded from the site. (**Fig. 2**). Ash (*Fraxinus excelsior*) dominates the charcoal assemblage identified, accounting for 37% of the material, followed by oak (*Quercus* spp.) at 22%. Lower occurrences of hazel (*Corylus avellana*), wild cherry (*Prunus avium*) and elm (*Ulmus* spp.) were also recorded, making up 15%, 10% and 10% respectively. Values for cherry (*Prunus* spp.), willow (*Salix* spp.) and pomaceous fruitwoods (Maloideae spp.) account for <10% collectively of the charcoal identified from the site (**Fig. 3**). The growth ring curvature patterns of the hazel and cherry charcoal from kiln C200 (C202) and kiln C213 (C219) suggests that this material derived from small branchwood (<60mm).



**Fig. 2**

Two oak species are native to Ireland, pedunculate and sessile oak however, it is difficult to distinguish between each microscopically. The pomaceous fruitwood group, which are made up of apple (*Malus* sp.), hawthorn (*Crataegus* sp.), pear (*Pyrus* sp.) and whitebeam/rowan/mountain ash (*Sorbus* sp.), along with willow, elm and cherry species are also difficult to separate microscopically in the absence of bark, buds and leaves. It is worth noting that microscopic features in fossil wood can be altered, become absent or disintegrate as a result of carbonization or other taphonomic processes.



**Fig. 3**

#### **4.3 Radiocarbon dating**

Fifteen samples were selected for radiocarbon dating (**Table 4**). Sample 7, Context 24 contained no charred material suitable and so was omitted.

### **5. Discussion**

The samples analysed from the archaeological excavations at Seamount, Malahide, Co. Dublin represents features and deposits associated with activities related to the the prehistoric and medieval phases at the site. The botanical remains identified reflect domestic and industrial waste, fuel resources and potentially building materials being used at the site. These plant remains also help to provide information about the local arable economy and the diet of the people who resided there as well as offering an insight into what the local environment may have looked like.

#### ***Plant macrofossil remains***

The grain recorded at the site was confined to kilns C200 (C202), C212 (C214) and C213 (C218 and C219), where assemblages comprised of barley, oat and wheat. The presence of single grain remains from deposit C24 suggests redeposited material from another source. The crops found collectively represents a typical medieval cereal assemblage (Monk, 1986, 33; McClatchie et al, 2011). The crop assemblage indicates that arable agriculture, in the form of crop drying, was being practiced at the site, primarily centred on the kiln features recorded. The preponderance of barley could indicate it was the last crop being dried in this feature with oat and wheat representing

residual debris from earlier kilnings. The presence of oat, barley and wheat in this context may also be incidental rather than contamination. Growing a mixed crop, known as dredge or maslin, was well documented in medieval England (Hallam, 1981). Sowing mixed crops together had an economic incentive, since it ensured the probability of a decent yield as well as distributing seasonal labour requirements (Halstead and O'Shea, 1989). The distribution and composition of crops from kiln C212 and C213 was quite similar. Since both features were located close to each other in an location described as a resource processing area (Giacometti, 2015, 17), it seems plausible that they were contemporarily in use. In contrast, kiln C200, which was located to the southwest of the site, contained fewer oat and wheat grains. This could signal a separate drying event in this area of the site or that kiln C200 was not contemporary to C212 and C213 (**Fig. 4**).

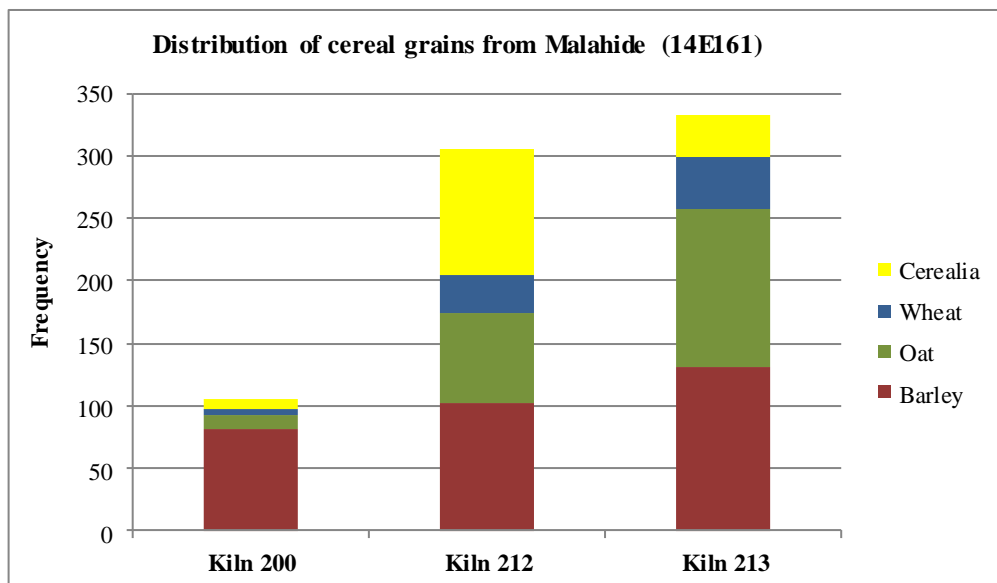
Crop drying would have been an integral part of crop processing practice during the medieval period and was undertaken for a number of reasons; drying prior to threshing; de-husking and removing awns and hulls; to harden the grain for grinding; kill germinating grain after malting and improve the storage quality of the grain (killing pests and driving off excess moisture) (Scott, 1951; Monk, 1983). Although periodic cleaning of the kilns would have produced high quantities of carbonised grain, it is also possible that kiln structures experienced a conflagration or burning event causing the grain being dried to collapsed down into the bowl and kiln chamber. With the exception of kiln C73, where just three grains were recovered from fill C75, the charred grain left *in situ* from C200, C212 and C213 implies that these kilns were not cleaned out properly. These higher grain values could reflect that a fire had occurred within these features. The charcoal recorded from these kilns however is somewhat lower than expected if such an event had happened, suggesting a small localised fire, which was quelled quickly. Since the grain preservation was very good, it is likely this charred material was not left exposed for very long and covered quickly, which supports a small scale internal fire.

During the early medieval period, wheat was seen as a luxury crop associated with potentially high status occupation (Kelly, 1997; Monk, 1991) and continued to be a crop favoured by the Anglo-Norman population in the later medieval period (Monk, 1986, 34; Murphy and Potterton, 2010, 306). Wheat cultivation was very labour intensive and not as economically viable as oat or barley (McClatchie, 2003, 398), which could account for its low occurrence, even absence from many medieval sites. Wheat flour was of superior quality and was used to produce luxury bread, which was lighter than the coarser darker breads of oat and barley (Sexton, 1998, 79). Oat and barley are both crops which can grow well in the humid, wet Irish climate and will tolerate poorer soils (Monk et al, 1998; Clarke, 1991, 173). This allows them to thrive in areas less suited to the cultivation of other crops, such as wheat.

Much of the evidence regarding the arable economy of early medieval Ireland comes from the literary sources of that time. One such source, the eighth century law tract, *Bretha Déin Chécht*, discusses the importance of tillage farming and the social significance attached to the various cereals. Wheat was seen as a luxury crop associated with supreme kings and bishops; rye was the crop of lower ranking kings and poets, while barley and oat were the cereals of the graded farmers (Kelly, 1997, 219). Cereals were therefore regarded not just as a source of sustenance, but also as cultural symbols that could distinguish social classes (Fredengren *et al.* 2004).

Despite the literary evidence ecological factors must also have proved significant in crop cultivation. Wheat favours dry conditions and mineral-rich soils and may have been rarely grown in damper climates. Barley and oat are more versatile crops and can be cultivated on most soils (Monk *et al.*, 1998). In addition, barley and oat were used as both human and animal food, which may account for their preponderance from many medieval sites (McClatchie, *et al.*, 2011, 50).

Interestingly, higher frequencies of barley and oat are recorded on sites dating predominantly to the earlier phase of the medieval period (4<sup>th</sup> – 7<sup>th</sup> century AD) in Ireland (McClatchie, *et al.*, 2011, 57). This is a loose observation for this site and in the context of the kilns at Malahide, radiocarbon dates would be better placed to confirm this.

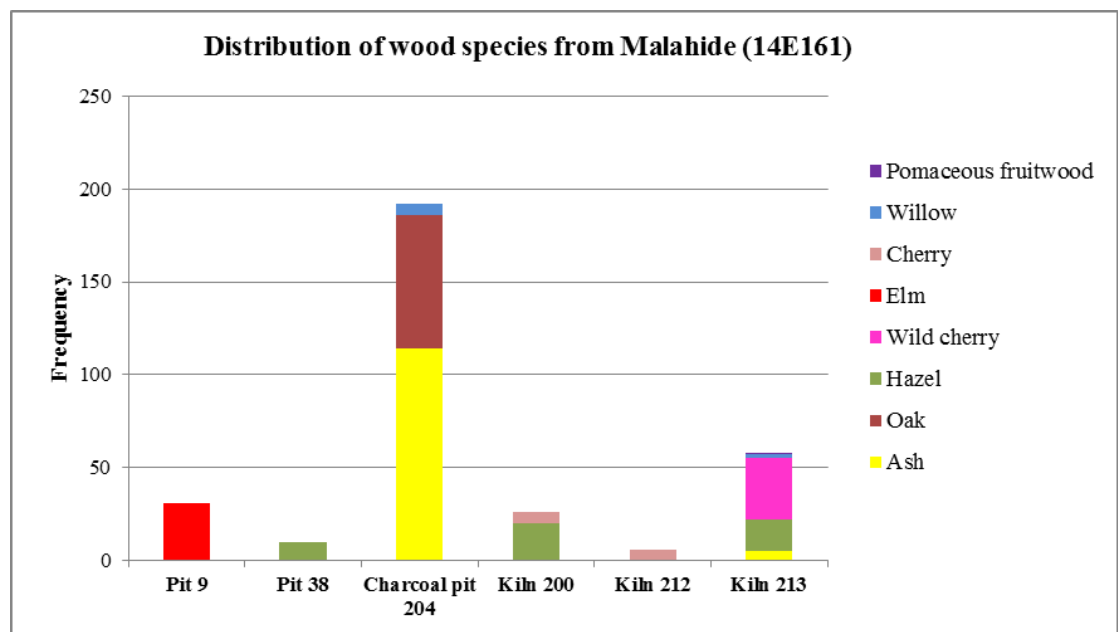


**Fig. 4**

### ***Wood charcoal***

Charcoal is a common occurrence from archaeological sites and generally represents the fuel debris and burning activities associated with domestic activities that were carried out at a site. The charcoal assemblage identified from Seamount, Malahide contained a variety of wood species which were distributed differently between the

various features excavated (**Fig. 5**). While pit C9, hearth C38 and kiln C212 and C213 were all located locally within a resource processing area, the wood species recorded are unlikely to be related to the same contemporary activities. Elm was the only wood present from pit C9, suggesting a single phase of use. Since this was a shallow feature and with no *in situ* burning recorded, it is most likely a dump deposit from an activity which was using exclusively elm wood. Hearth C38 contained only hazel charcoal, again signalling a single phase of use perhaps, while kiln C212 and C213 contained a mixed wood assemblage comprising hazel, wild cherry/cherry, ash, willow and pomaceous woods. In the case of the latter, this mixed assemblage would be in keeping with charcoal results from medieval kiln deposits (Lyons et al, 2011; OCarroll, 2012). Hazel and willow are common woods used in wattle and light structure and may have been part of the kiln construction. Ash too had a tradition in building works (Culter and Gale, 2000) and may have been used in the kiln fabric. Cherry and pomaceous fruitwoods are less likely to have been used in structural works, but are good firewoods (ibid), especially as kindling or as a starter fuel. Similarly, kiln C200 contained hazel and cherry charcoal, a mix perhaps of both structural and fuel debris. In the author's experience, kilns containing notable cherry and pomaceous wood values are more often associated with later medieval kiln activity. This however is a tentative statement based on one site and few samples and will require confirmation through radiocarbon dating.

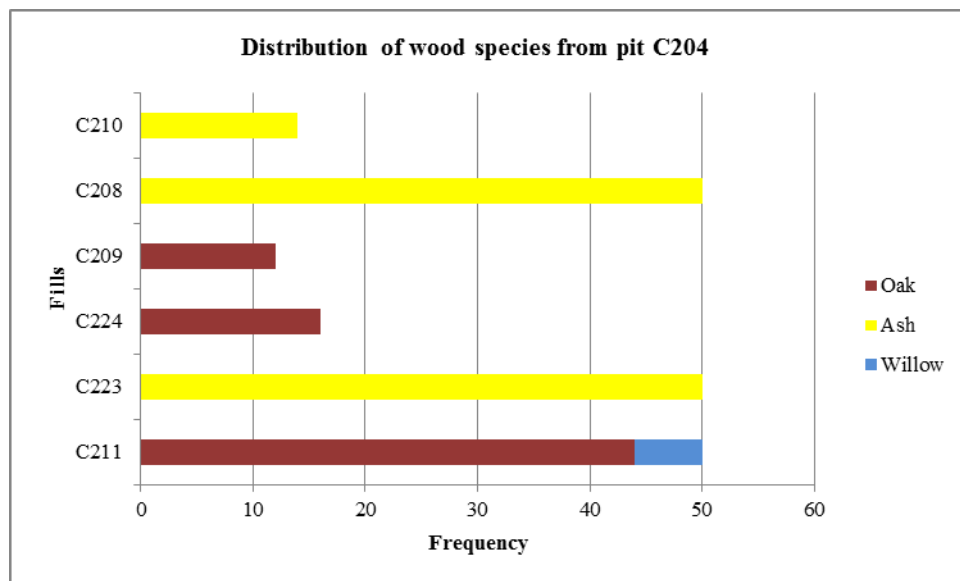


**Fig. 5**

In contrast, a possible charcoal manufacturing pit C204, contained a high ash and oak charcoal content, with trace willow also present. Oak charcoal is commonly identified from medieval charcoal production pits in Ireland and often the only wood present (Kenny, 2010; OCarroll, 2012). Ash then is an unusual use of wood in this context



and may represent a different element to this activity. On-site recording gave details of the charcoal prior to sampling, which noted that C211, C223 and C224 could potentially be the remains of charred wooden planks. This would help explain the preponderance of single wood species of oak (C211 and C224) and ash (C223) from this assemblage, suggesting that at least two separate planks were present. The presence of willow in C211 could therefore be incidental in this context, being part of a smaller stake or post, but redeposition cannot be ruled out. Oak from C209 could be part of the remains of underlying C224 which became mixed with later deposits. The high ash content from the uppermost deposits of C204 (C208 and C210) could also be burnt plank remains, however the presence of burnt bone and pottery suggests truncation or redeposition.



**Fig. 6**

The premise of charcoal analysis is that wood used as firewood was collected from as close to a site as possible (Shackleton and Prins, 1992) for ease of transport. The amount of charcoal taxon within a sample and the ubiquity throughout these samples are therefore used as indicators of relative abundance in the local vegetation (Smart and Hoffman, 1987, 190). Based on this paradigm, the amount of charcoal taxon within samples and ubiquity throughout these samples from a site are used as indicators of relative abundance in the local vegetation (Smart and Hoffman, 1987, 190). This therefore provides a basis to create a model for woodland reconstruction and patterns of woodland change. In the case of the site at Seamount, the local woodland is likely to have been mixed, where semi-natural woodland comprising oak-ash-hazel was dominant. The presence of willow suggests access to riverine environments, while elm, which is a tree common to montane sites, may have been growing in this elevated location. Cherry and pomaceous fruitwoods grow well in marginal woodland and scrub, indicating some clearance, however their presence

could also reflect managed orchards or gardens nearby. Taking into account the features recorded at Seamount, the charcoal assemblage seems to represent a deliberate wood selection for construction and fire-related activities at the site.

## **6. Recommendations**

1. There is no further identification work required on the charcoal or plant macrofossil assemblages
2. Some interpretations or phasing may need to be revised in line with any changes to the stratigraphical report once radiocarbon dates for the site become available
3. Please see the relevant environmental remains retention letter which accompanies this report. These recommendations are presented within current best practice standards for future palaeo-environmental analysis to take place. The National Museum of Ireland currently makes decisions relating to retention on a case-by-case basis.
4. A record of the methodology and results of this analysis should be included in any final report.

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**Table 2. Composition of plant macrofossil remains from Seamount, Malahide, Co. Dublin (14E161)**

		19	22	10	4	12	96	24	20	62	64	39	6	35	66	75	208	209	210	211	223	224	202	214	219	219	219	218	227	207
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
<i>Latin name</i>	<i>Common name</i>																													
<b>CEREALS: CARBONIZED</b>																														
Hordeum spp.	barley	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	82	102	8	13	7	111	-	-
Avena spp.	oat	-	-	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	11	72	6	98	5	24	-	-	
Triticum cf aetivum/compactum	bread/club wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	10	16	-	-
Triticum spp.	wheat	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	31	2	-	-	-	-	-	
Cerealia	indeterminate cereal grain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	100	-	33	-	-	-	-	
<b>Total cereal counts</b>		-	-	-	-	-	<b>2</b>	-	-	-	-	-	-	-	<b>3</b>	-	-	-	-	-	-	<b>105</b>	<b>305</b>	<b>16</b>	<b>159</b>	<b>22</b>	<b>151</b>	-	-	

**Table 3. Charcoal identifications from Seamount, Malahide, Co. Dublin (14E161)**

Sample No.	Context No.	Context Description	Sample weight (grams)	Wood Species Identification	Common Name	Frequency	Weight (grams)	Comments
3	10	Fill of pit C9	4.2	Ulmus spp.	Elm	31	4.6	
11	39	Fill of pit C38	55.3	Corylus avellana	Hazel	10	1.8	
16	208	Fill of charcoal pit C204	31.5	Fraxinus excelsior	Ash	50	6.1	
17	209	Fill of charcoal pit C204	3.6	Quercus spp.	Oak	12	1	
18	210	Fill of charcoal pit C204	7.6	Fraxinus excelsior	Ash	14	1.2	
19	211	Fill of charcoal pit C204	67.4	Quercus spp.	Oak	44	10.4	
				Salix spp.	Willow	6	1.5	
20	223	Fill of charcoal pit C204	237.4	Fraxinus excelsior	Ash	50	6.7	
21	224	Fill of charcoal pit C204	6.9	Quercus spp.	Oak	16	3.2	
22	202	Basal layer of kiln C200	4.6	Corylus avellana	Hazel	20	1.8	Small branchwood
				Prunus spp.	Cherry	6	0.5	
23	214	Kiln C212	9.4	Prunus spp.	Cherry	6	0.8	
24	219	Kiln C213- east side deposit	1.6	Prunus cf avium	Wild cherry	33	2.7	Small branchwood
				Corylus avellana	Hazel	10	1	
				Fraxinus excelsior	Ash	5	0.4	
				Salix spp.	Willow	2	0.1	
				Maloideae spp.	Pomaceous fruitwood	1	0.2	
25	219	Kiln C213- east side	2.5					No charcoal - charred grain only
26	219	Kiln C213-west side	0.6					No charcoal - charred grain only
27	218	Kiln C213	3.2	Corylus avellana	Hazel	7	0.8	



**Table 4. List of charcoal samples selected for radiocarbon dating**

Sample No.	Context No.	Material for C14	Wood Species Identification	Common Name	Weight (grams)	Comments
1	19	Charcoal	Prunus spp.	Cherry	0.3	
2	22	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.5	
4	4	Charcoal	Alnus glutinosa	Alder	<0.1	Sample may be minute for C14
5	12	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.8	
6	96	Charcoal	Prunus spp.	Cherry	0.5	
7	24	Charcoal	-	-	-	No charred remains present
8	20	Charcoal	Betula spp.	Birch	0.4	
9	62	Charcoal	Salix spp.	Willow	<0.1	Sample may be minute for C14
10	64	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.5	Small branchwood
12	6	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.7	Small branchwood
13	35	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.5	
14	66	Charcoal	Maloideae spp.	Pomaceous fruitwood	0.2	
15	75	Charcoal	Corylus avellana	Hazel	0.3	
28	227	Charcoal	Prunus cf avium	Wild cherry	0.2	
29	207	Charcoal	Prunus cf avium	Wild cherry	0.2	

## ***Report on C-14 dating in the Poznań Radiocarbon Laboratory***

*Customer:* Archaeology Plan  
Archaeological Consultancy  
32 Fitzwilliam Place  
Dublin 2  
Ireland

*Job no.:* 12465/17

<b><i>Sample name</i></b>	<b><i>Lab. no.</i></b>	<b><i>Age 14C</i></b>	<b><i>Remark</i></b>
Sample 1 C 19	Poz-93589	<b>2435 ± 30 BP</b>	
Sample 4 C 4	Poz-93346	<b>1165 ± 30 BP</b>	
Sample 8 C 20	Poz-93590	<b>2770 ± 30 BP</b>	
Sample 9 C 62	Poz-93692	<b>160 ± 30 BP</b>	
Sample 12 C 6	Poz-93367	<b>1215 ± 30 BP</b>	
Sample 13 C 35	Poz-93368	<b>1285 ± 35 BP</b>	
Sample 14 C 66	Poz-93369	<b>1295 ± 35 BP</b>	
Sample 15 C 75	Poz-93358	<b>1195 ± 30 BP</b>	
Sample 28 C 227	Poz-93370	<b>2800 ± 40 BP</b>	
Sample 29 C 229	Poz-93371	<b>2800 ± 40 BP</b>	
Sample 2 C 22 - reserve	Poz-0	<b>&gt;0 BP</b>	
Sample 5 C 12 - reserve	Poz-0	<b>&gt;0 BP</b>	
Sample 6 C 96 - reserve	Poz-0	<b>&gt;0 BP</b>	
Sample 10 C 64 - reserve	Poz-0	<b>&gt;0 BP</b>	

Comments: Results of calibration of 14C dates enclosed

***Head of the Laboratory***

***Prof. dr hab. Tomasz Goslar***

31-08-2017

*Job no.:* 12465/17

## Results of calibration of 14C dates – order 12465/17.

Given are intervals of calendar age, where the true ages of the samples encompass with the probability of ca. 68% and ca. 95%. The calibration was made with the OxCal software.

OxCal v4.2.3 Bronk Ramsey (2013); r:5

IntCal13 atmospheric curve (Reimer et al 2013)

### Sample 1 C 19 R\_Date(2435,30)

68.2% probability  
728BC ( 5.2%) 716BC  
709BC ( 6.5%) 694BC  
657BC ( 1.2%) 654BC  
542BC (55.2%) 416BC  
95.4% probability  
751BC (21.5%) 683BC  
669BC ( 7.7%) 637BC  
625BC ( 1.0%) 615BC  
592BC (65.1%) 406BC

### Sample 4 C 4 R\_Date(1165,30)

68.2% probability  
777AD (10.4%) 792AD  
803AD (24.2%) 844AD  
857AD (26.5%) 895AD  
928AD ( 7.1%) 940AD  
95.4% probability  
772AD (76.6%) 905AD  
917AD (18.8%) 967AD

### Sample 8 C 20 R\_Date(2770,30)

68.2% probability  
973BC (10.2%) 958BC  
940BC (40.8%) 892BC  
877BC (17.3%) 848BC  
95.4% probability  
997BC (95.4%) 839BC

### Sample 9 C 62 R\_Date(160,30)

Warning! Date may extend out of range - 160+/-30BP

Warning! Date probably out of range - 160+/-30BP

68.2% probability  
1669AD (13.1%) 1691AD  
1729AD (34.8%) 1781AD  
1798AD ( 7.6%) 1810AD  
1925AD (12.7%) 1945AD  
95.4% probability  
1664AD (16.7%) 1707AD  
1719AD (47.4%) 1826AD  
1832AD (12.6%) 1884AD  
1914AD (18.6%) ...

**Sample 12 C 6 R\_Date(1215,30)**

68.2% probability  
769AD ( 7.6%) 780AD  
788AD (60.6%) 874AD  
95.4% probability  
694AD (16.0%) 746AD  
763AD (79.4%) 889AD

**Sample 13 C 35 R\_Date(1285,35)**

68.2% probability  
676AD (42.5%) 721AD  
741AD (25.7%) 767AD  
95.4% probability  
656AD (94.1%) 777AD  
793AD ( 0.7%) 802AD  
845AD ( 0.6%) 853AD

**Sample 14 C 66 R\_Date(1295,35)**

68.2% probability  
670AD (45.1%) 715AD  
744AD (23.1%) 766AD  
95.4% probability  
659AD (95.4%) 772AD

**Sample 15 C 75 R\_Date(1195,30)**

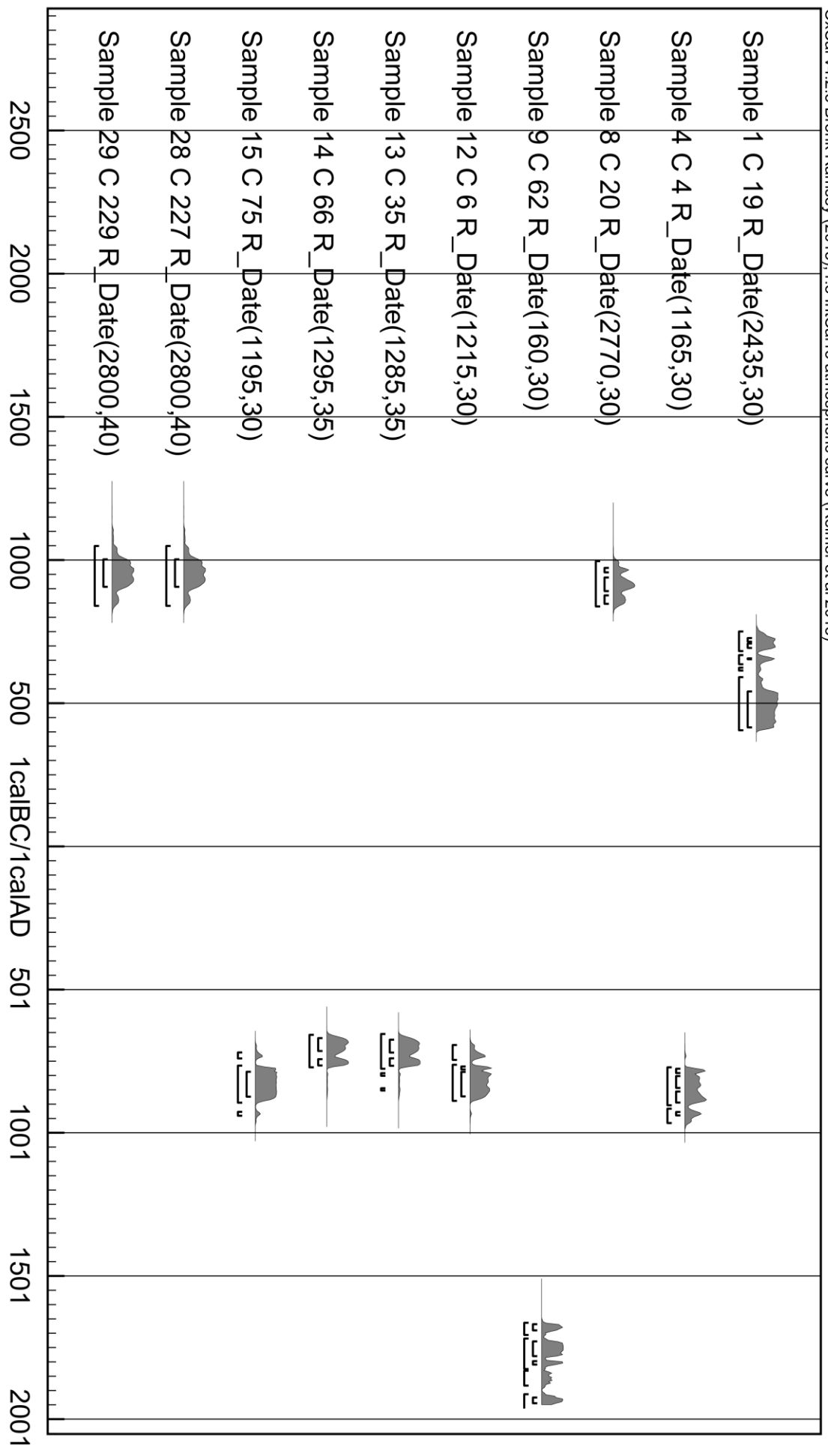
68.2% probability  
788AD (68.2%) 875AD  
95.4% probability  
720AD ( 4.1%) 741AD  
766AD (89.3%) 896AD  
928AD ( 2.1%) 941AD

**Sample 28 C 227 R\_Date(2800,40)**

68.2% probability  
1003BC (68.2%) 907BC  
95.4% probability  
1050BC (95.4%) 841BC

**Sample 29 C 229 R\_Date(2800,40)**

68.2% probability  
1003BC (68.2%) 907BC  
95.4% probability  
1050BC (95.4%) 841BC



Calibrated date (calBC/calAD)