

**MARINE CRANNOGS: THE ARCHAEOLOGICAL AND  
PALAEOENVIRONMENTAL POTENTIAL**

**with special reference to Redcastle marine crannog, Beaully Firth,  
Scotland.**

In two volumes

Volume 2

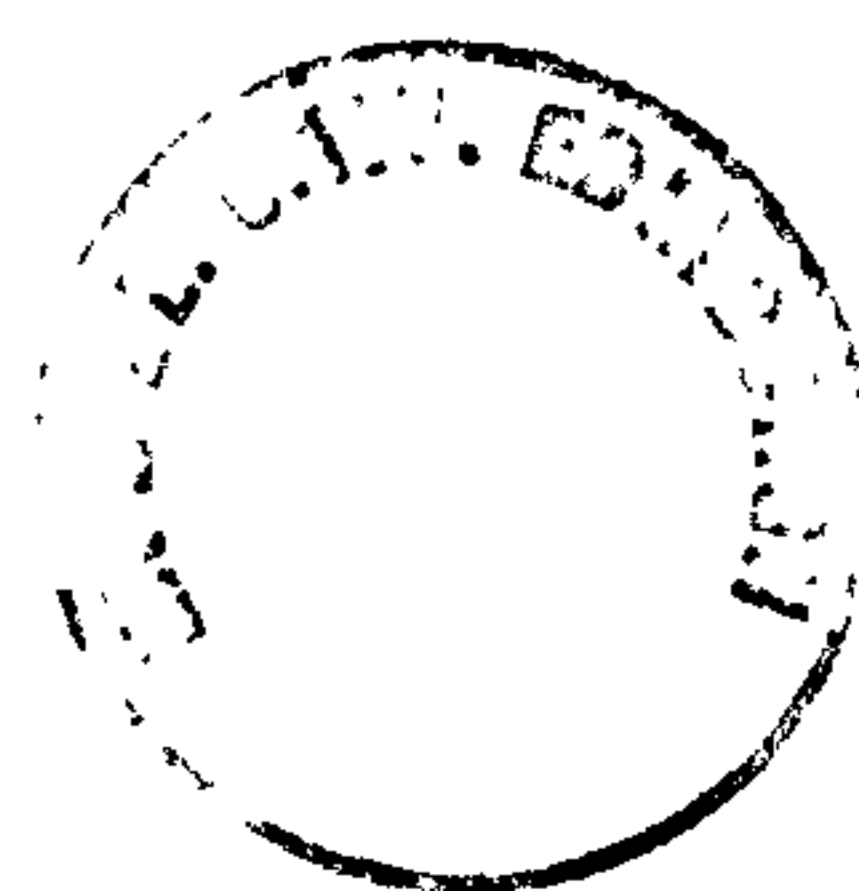
The Illustrations

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**1999**



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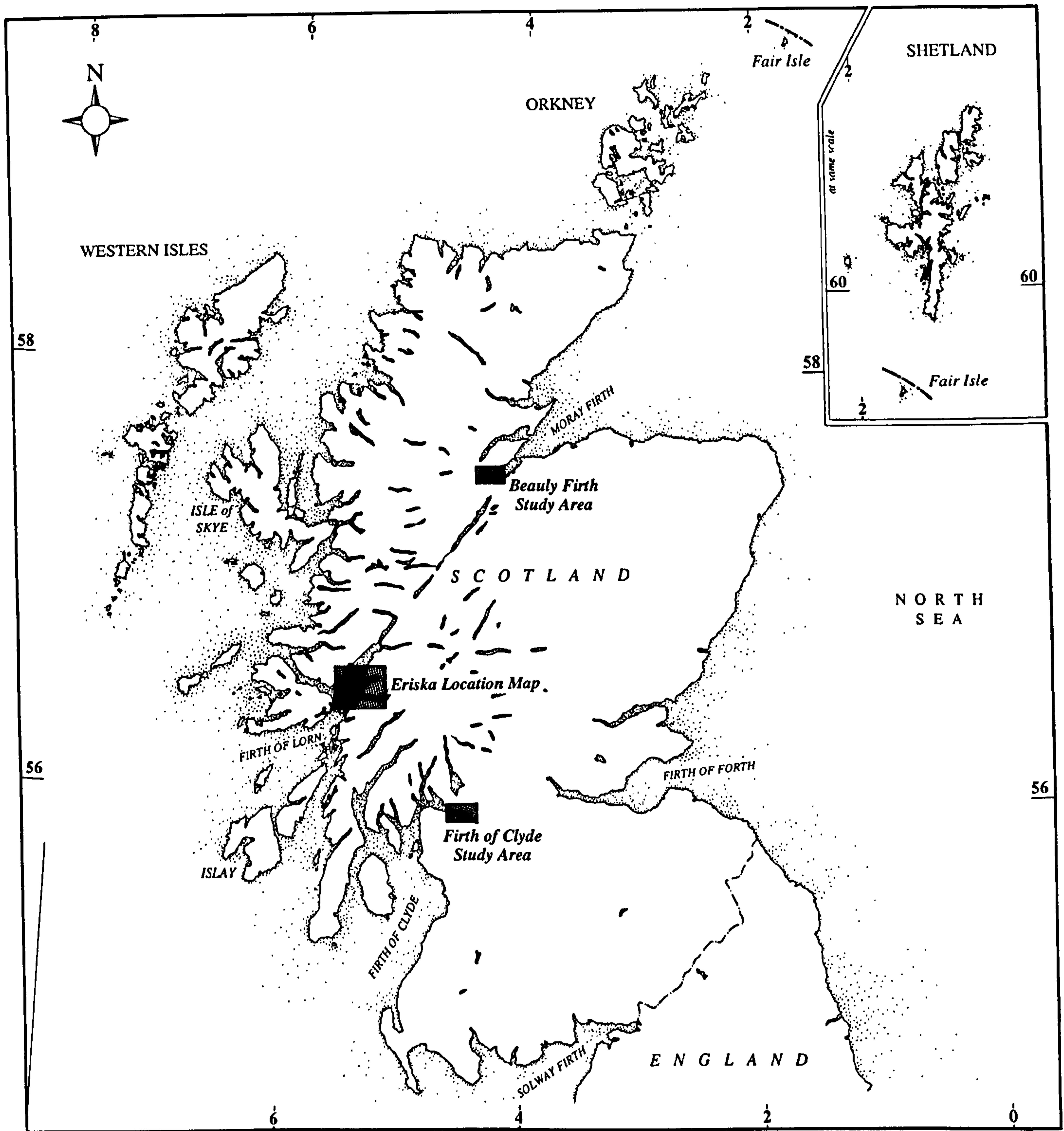
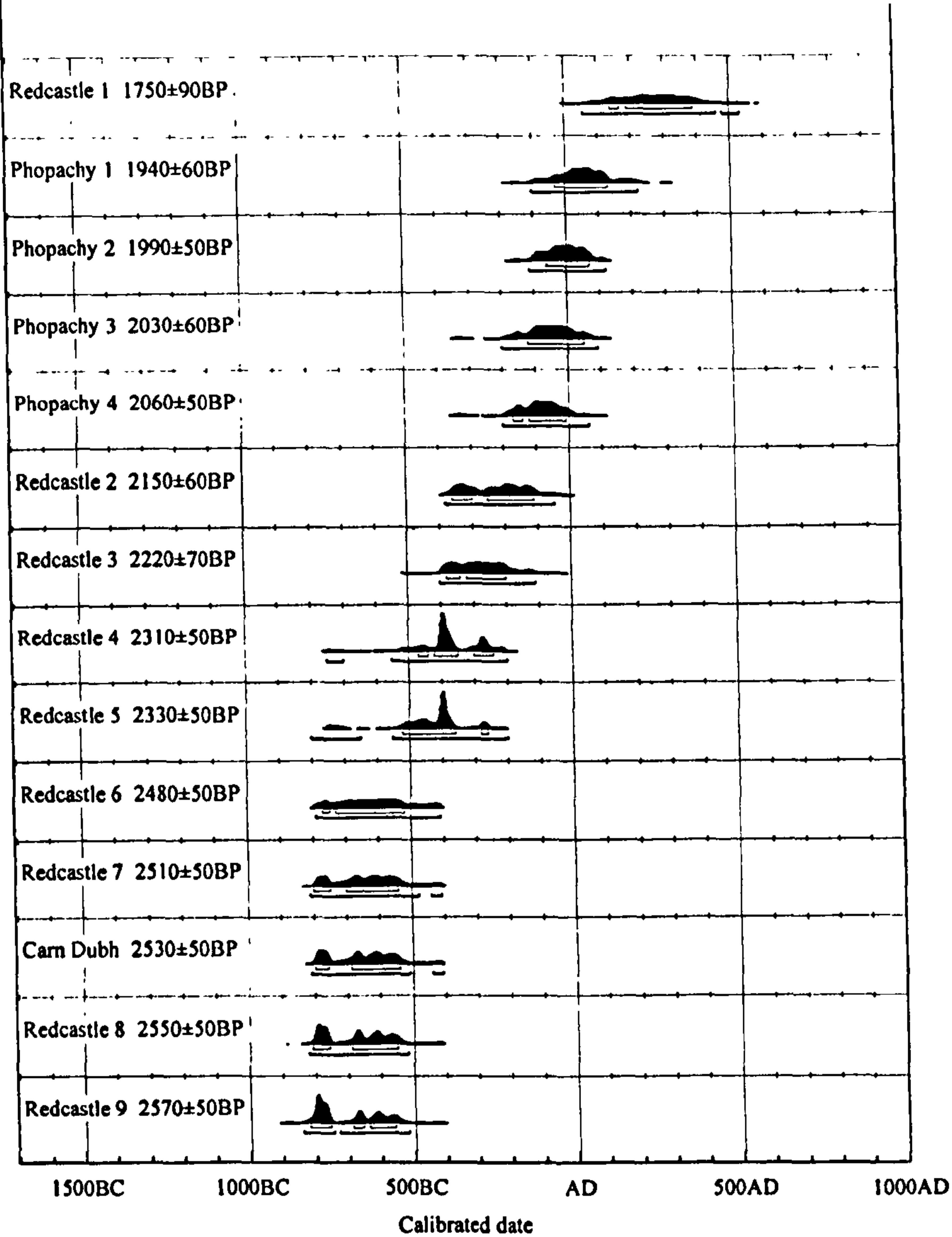


Figure 1.1. Map showing the location of the principal study areas.



M. Storer and R. B. Keir eds. 1986. *Radiocarbon* 28(25): 805-1030. OxCal v2.18 (with r4 and 13 probabilities)

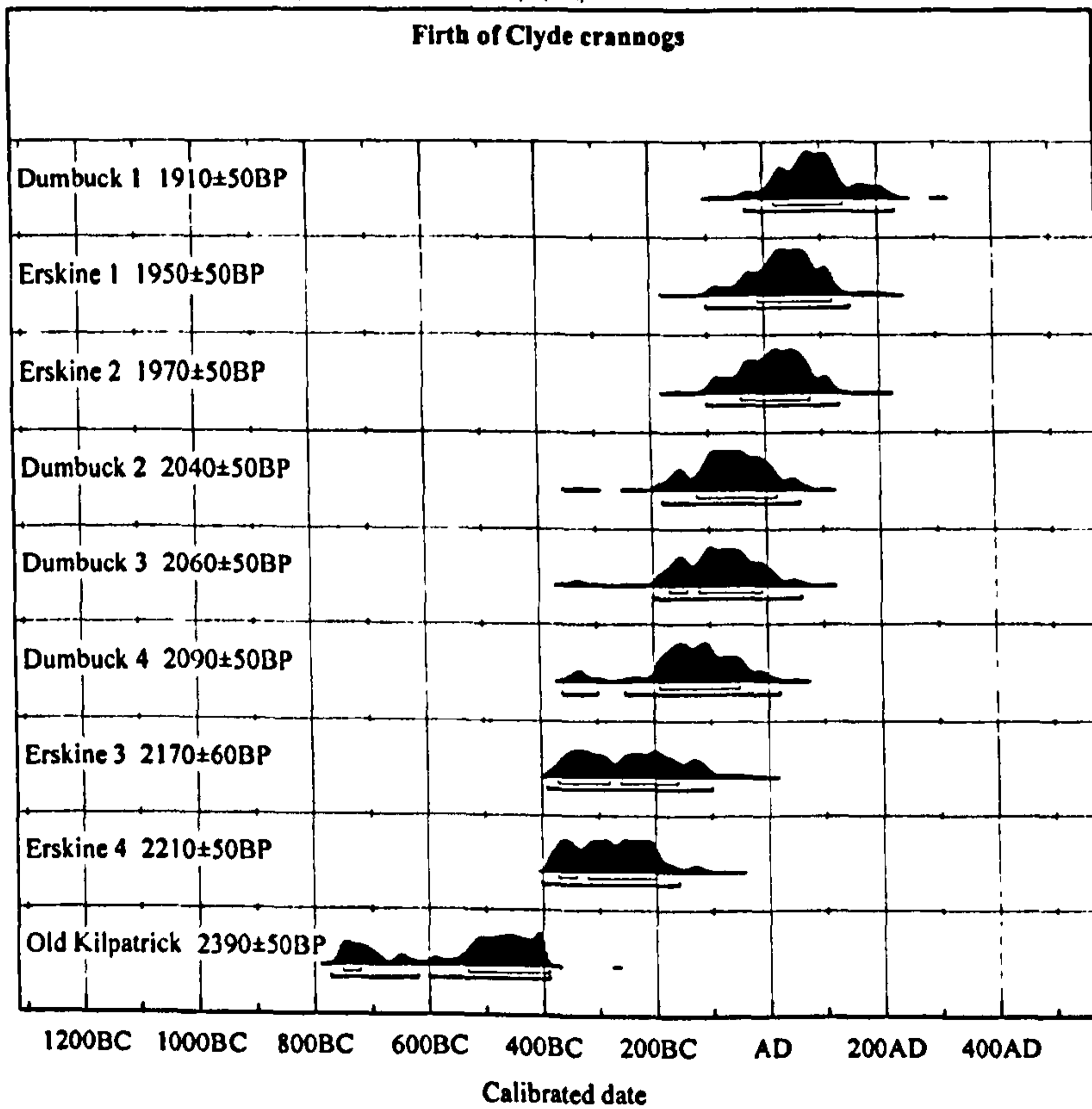


Figure 2.1. Calibration graphs of the radiocarbon dates from marine crannogs.



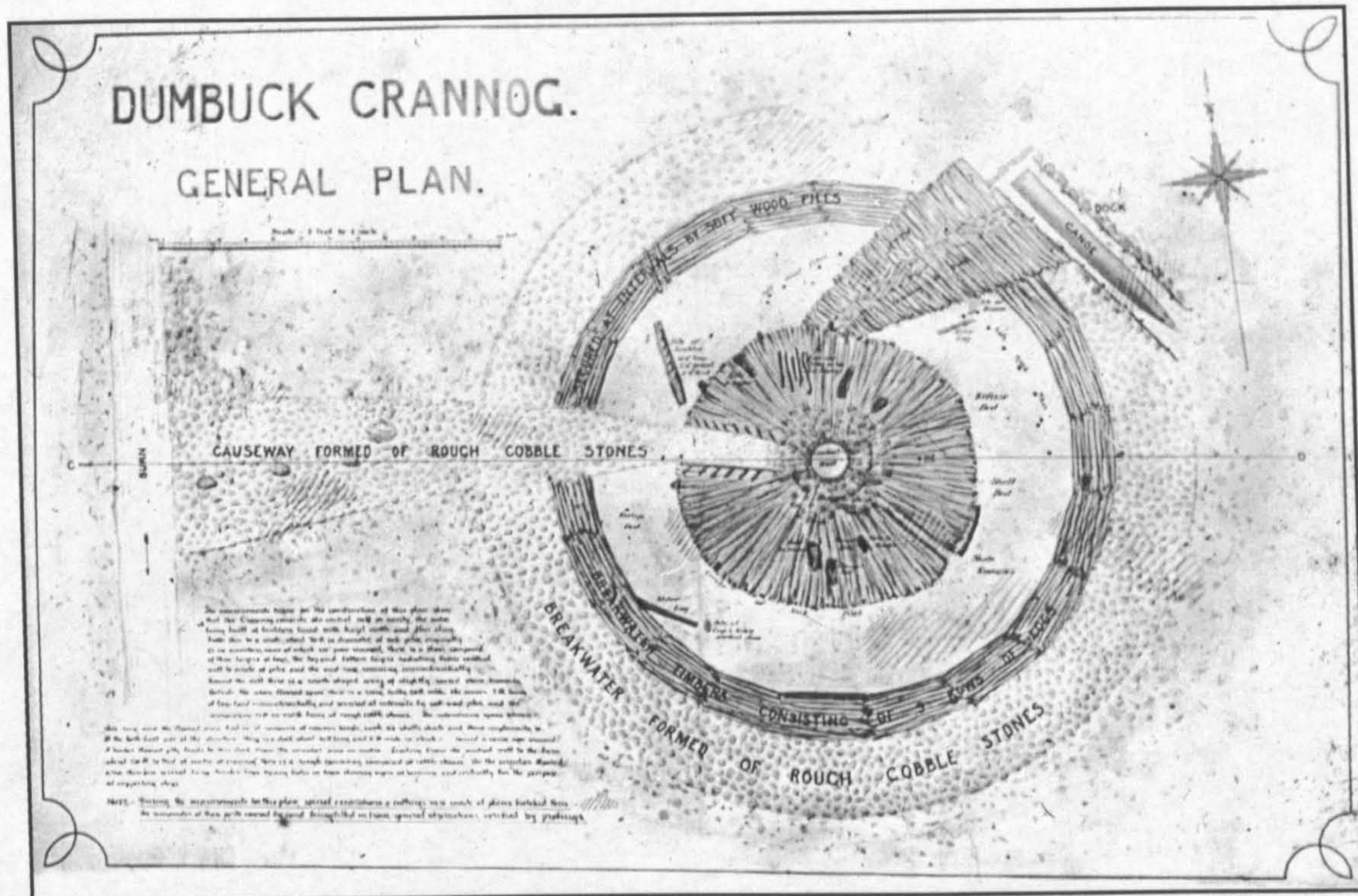


Figure 2.2. Plan of Dumbuck marine crannog by the Clyde Navigation Trust (reproduced by kind permission of the RCAHMS).

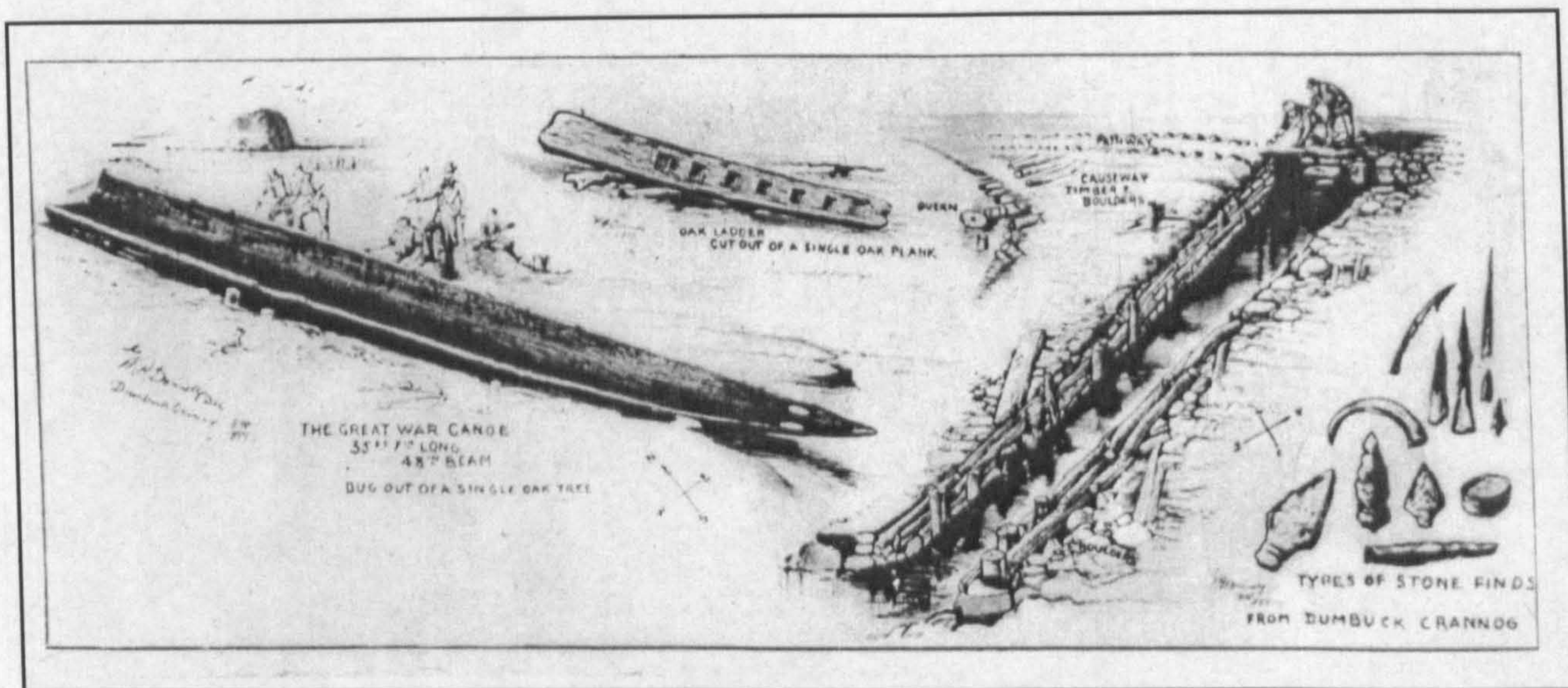


Figure 2.3. William Donnelly's sketches of the Dumbuck log boat, dock and morticed timber (reproduced by kind permission of the RCAHMS).



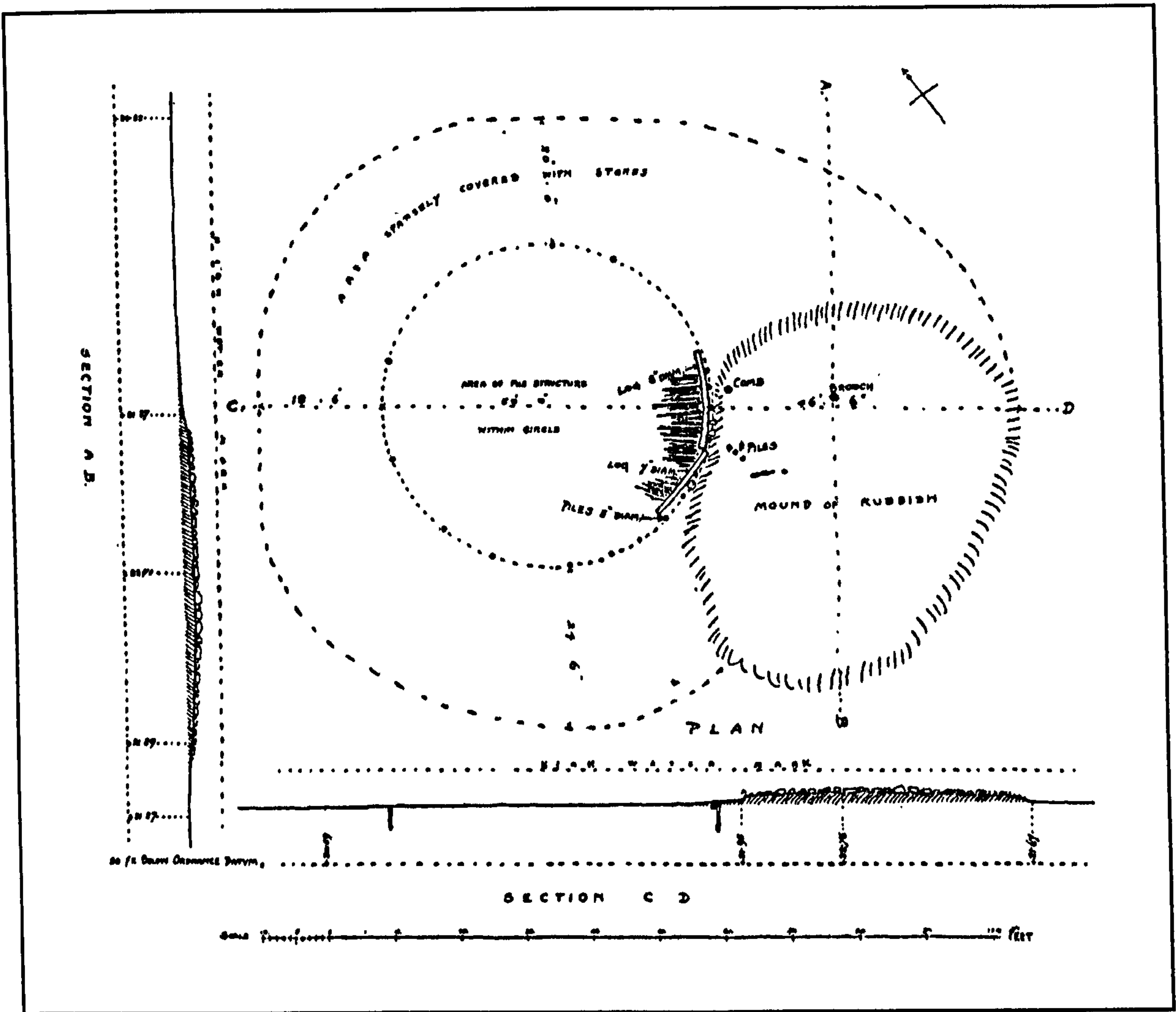


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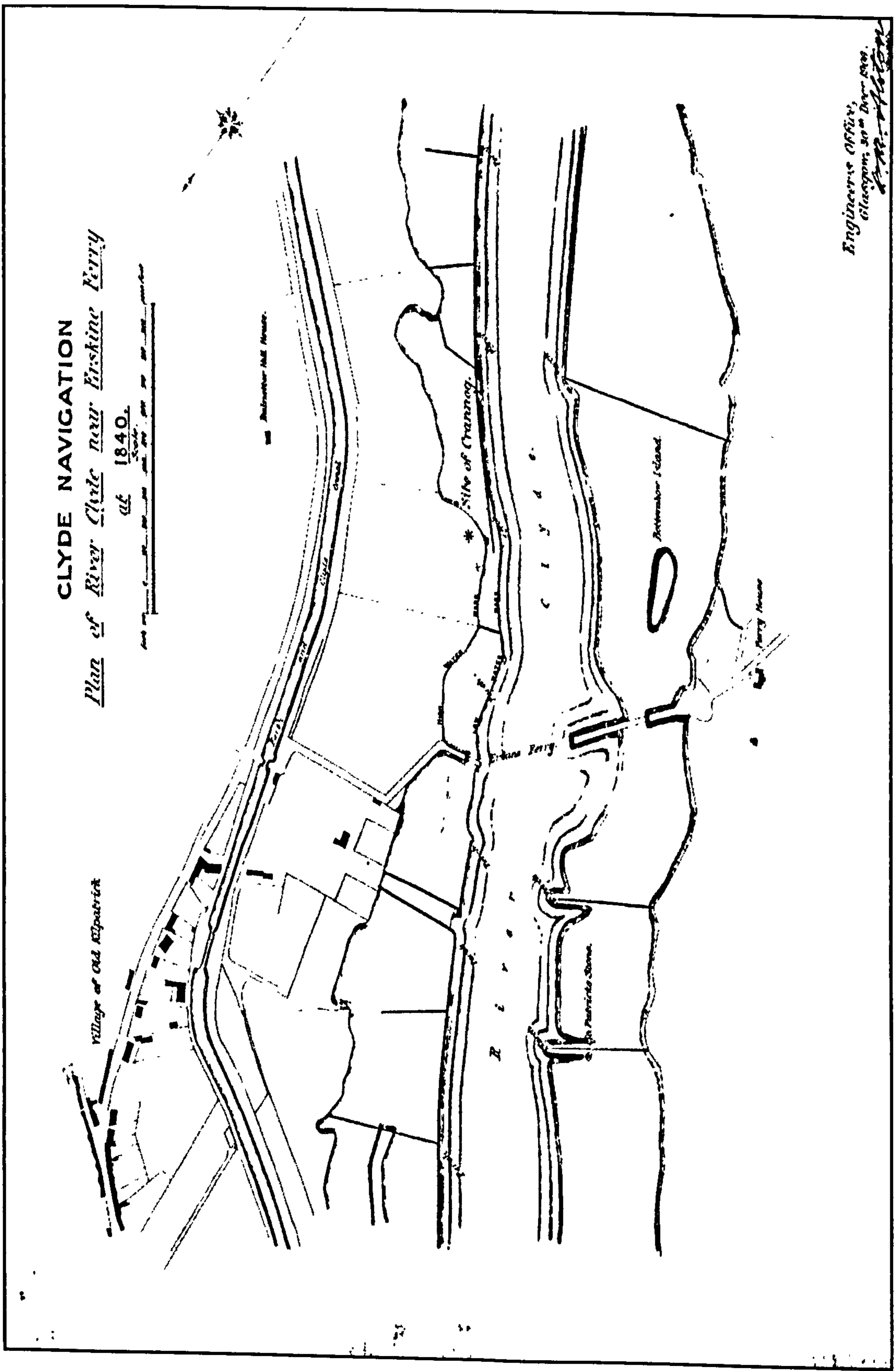


Figure 2.5. Location map of Old Kilpatrick marine crannog, 1906 (reproduced by kind permission of Glasgow City Council Archive).



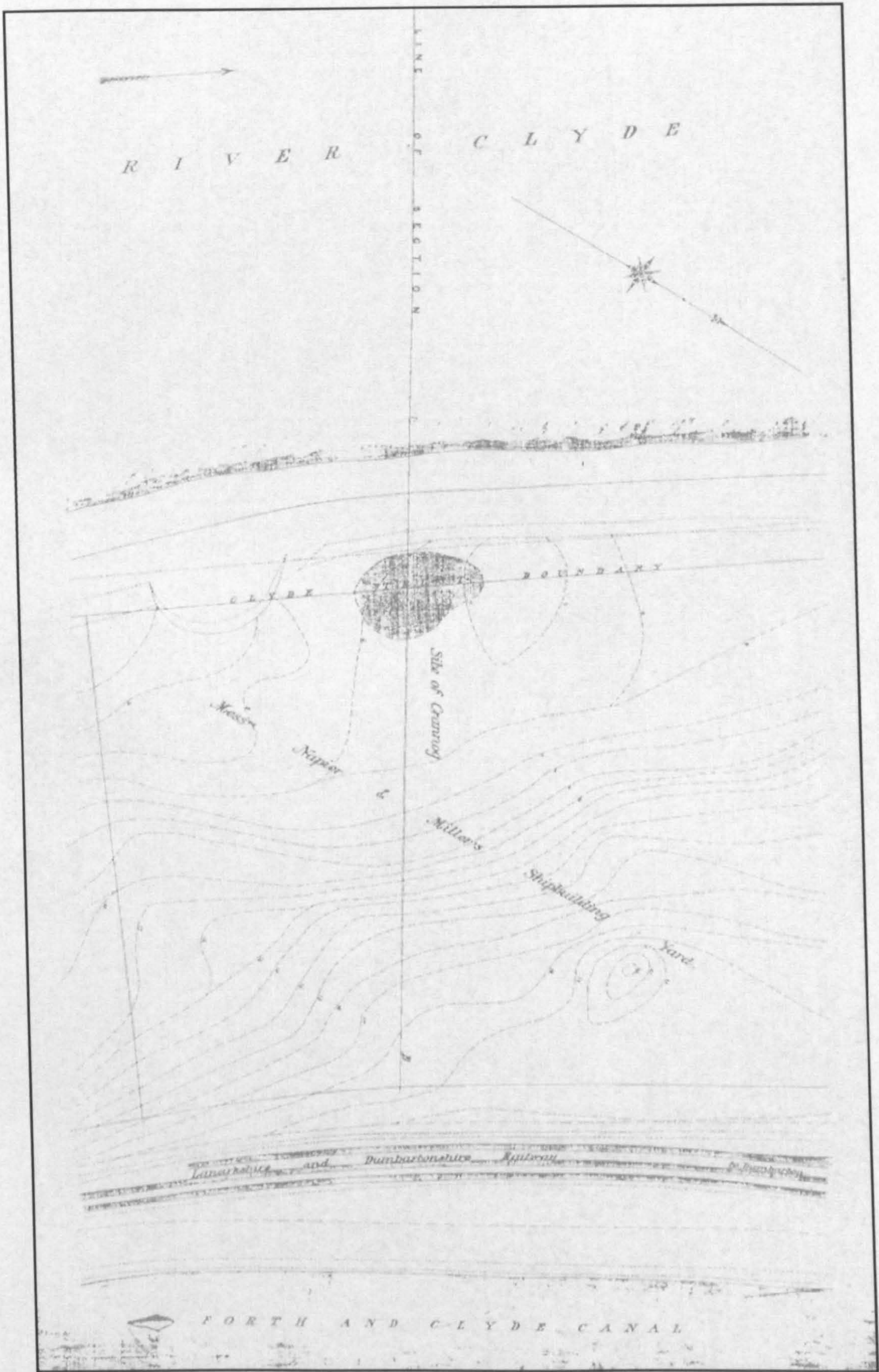


Figure 2.6. Large scale plan of Old Kilpatrick marine crannog (reproduced by kind permission of Glasgow City Council Archive).



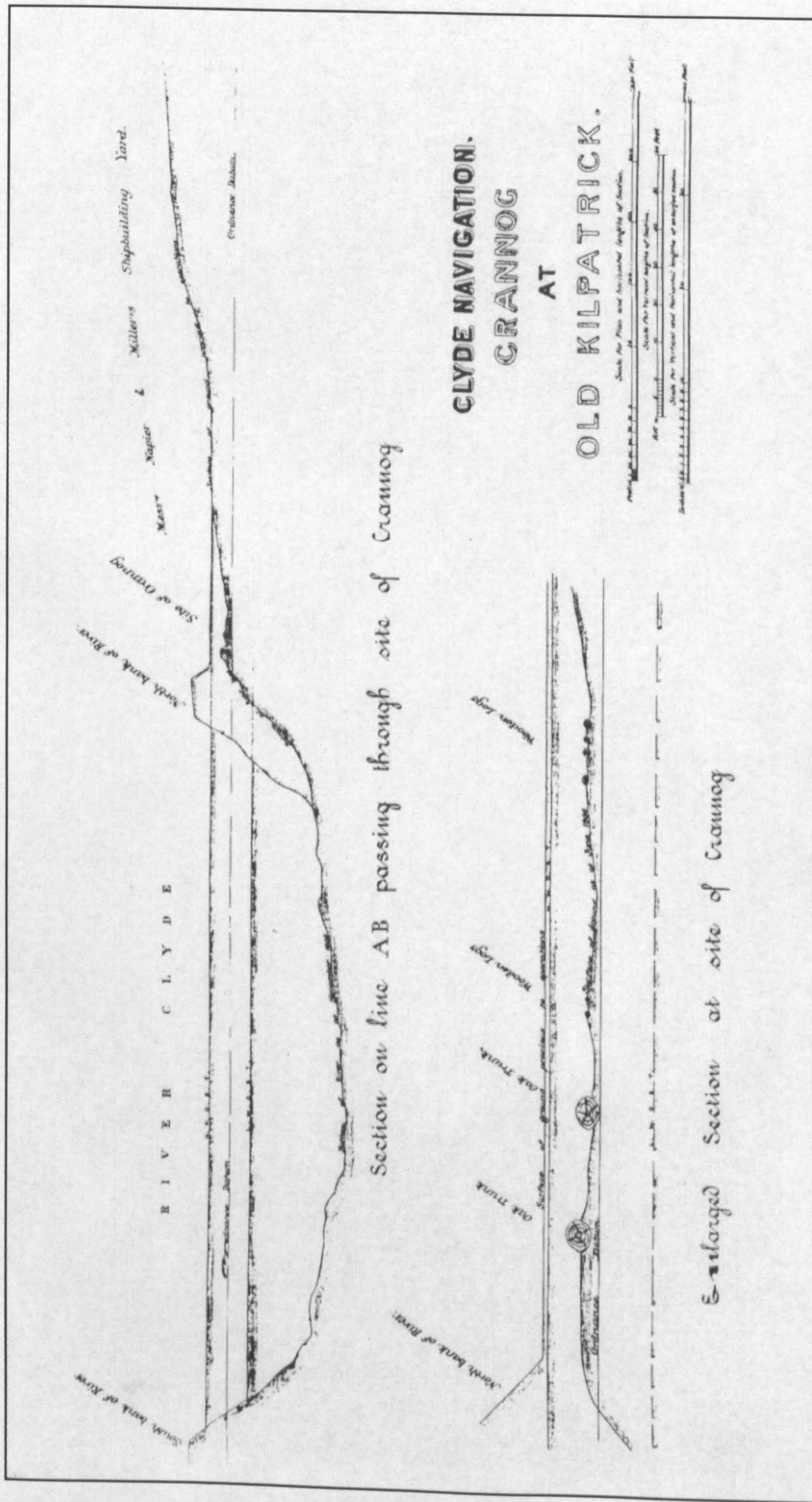


Figure 2.7. Sections through Old Kilpatrick marine crannog, drawn during the original excavation (reproduced by kind permission of the Glasgow City Council Archive).



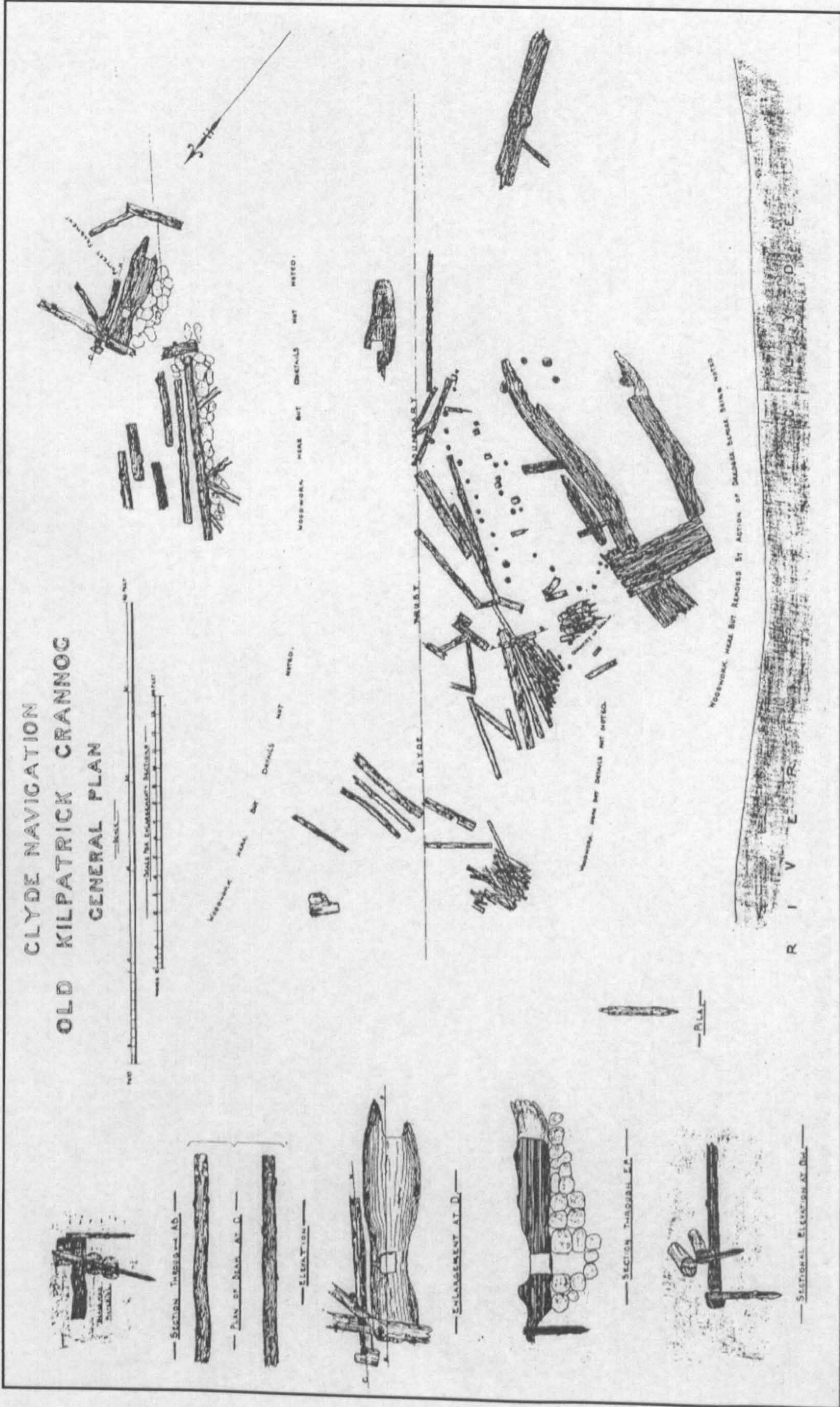


Figure 2.8. Plan of specific timber features excavated on Old Kilpatrick marine crannog (reproduced by kind permission of Glasgow City Council Archive).



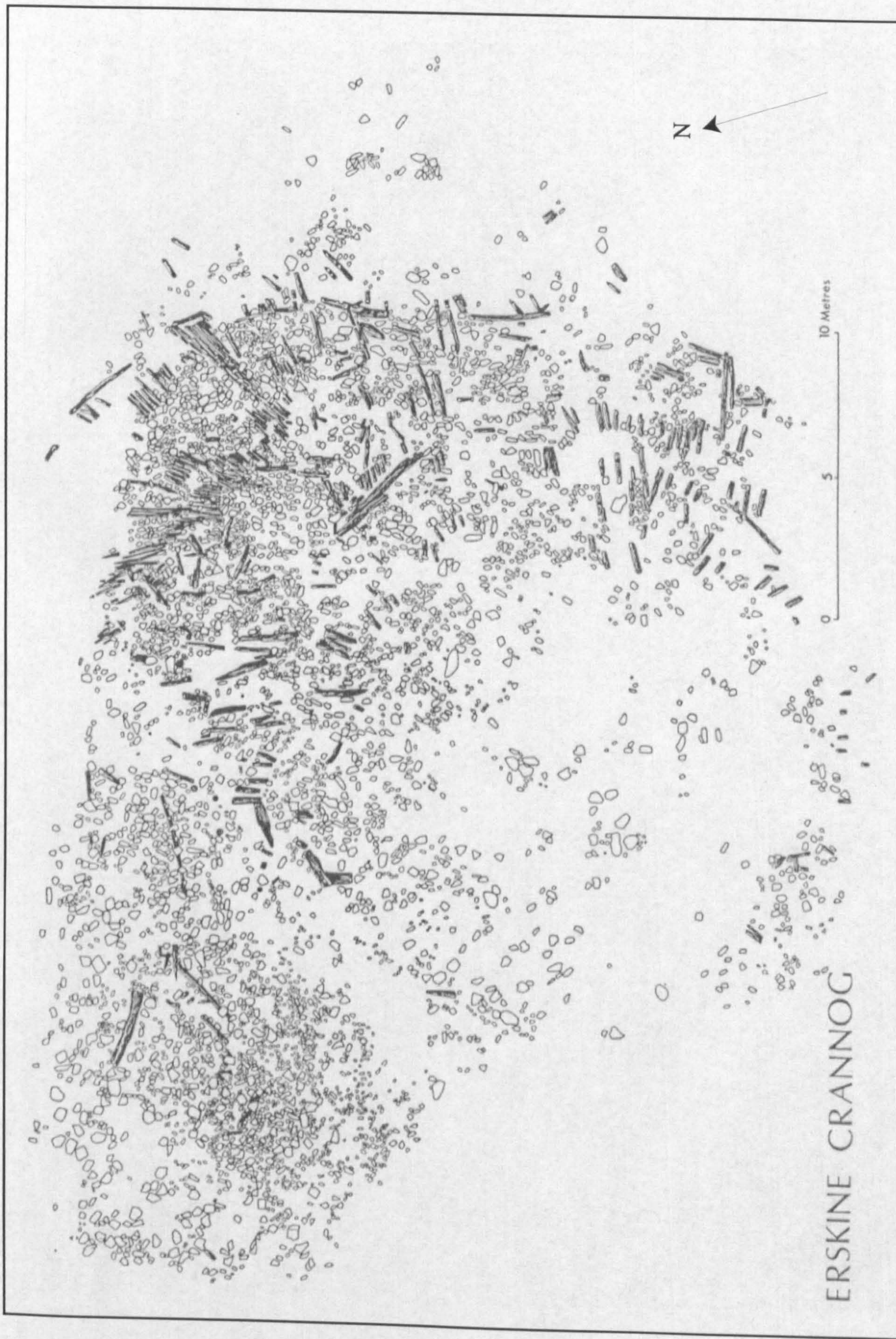


Figure 2.9. Plan of Erskine marine crannog drawn by Dr. W. Hanson using photogrammetry from Plate 2.9.



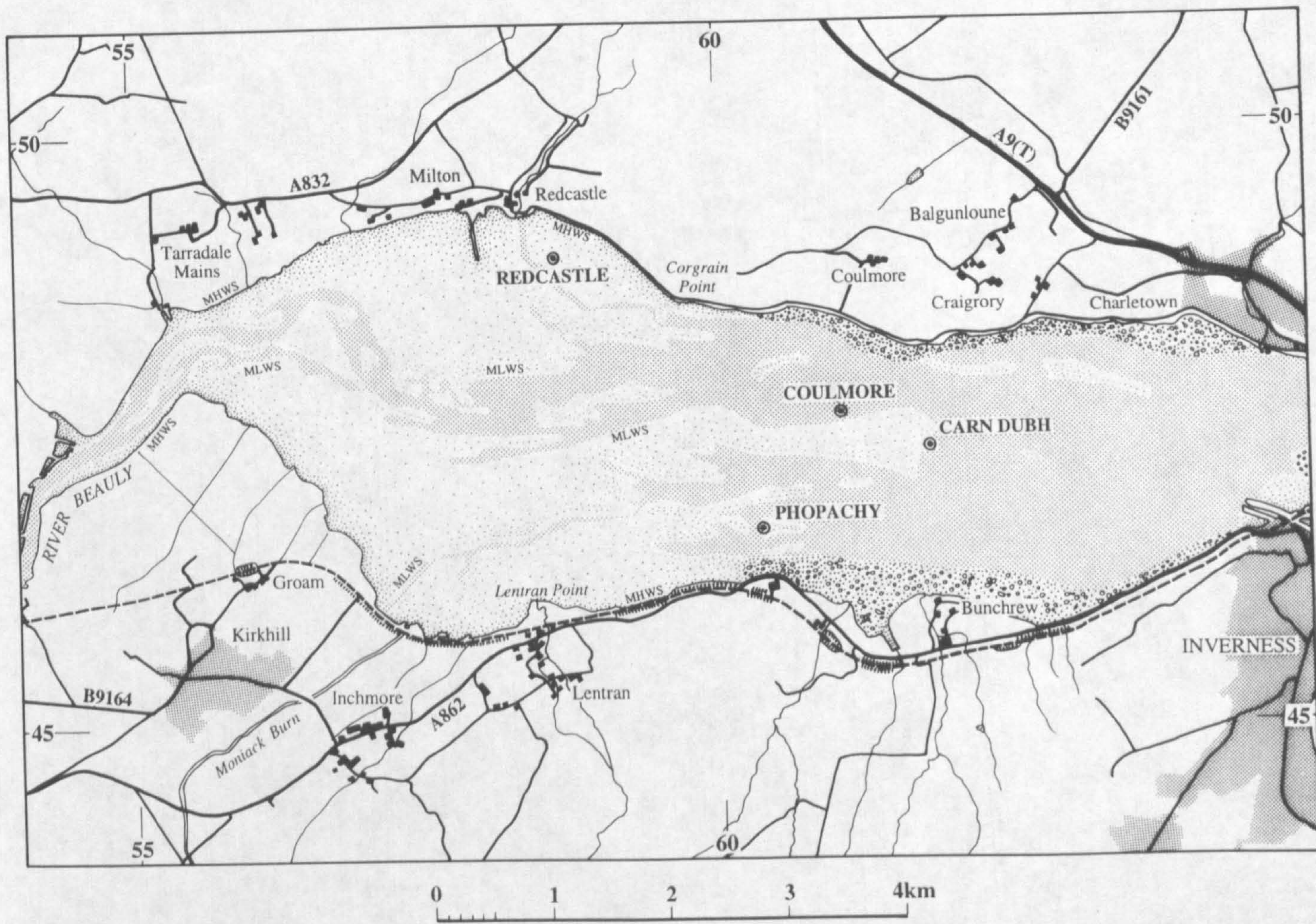
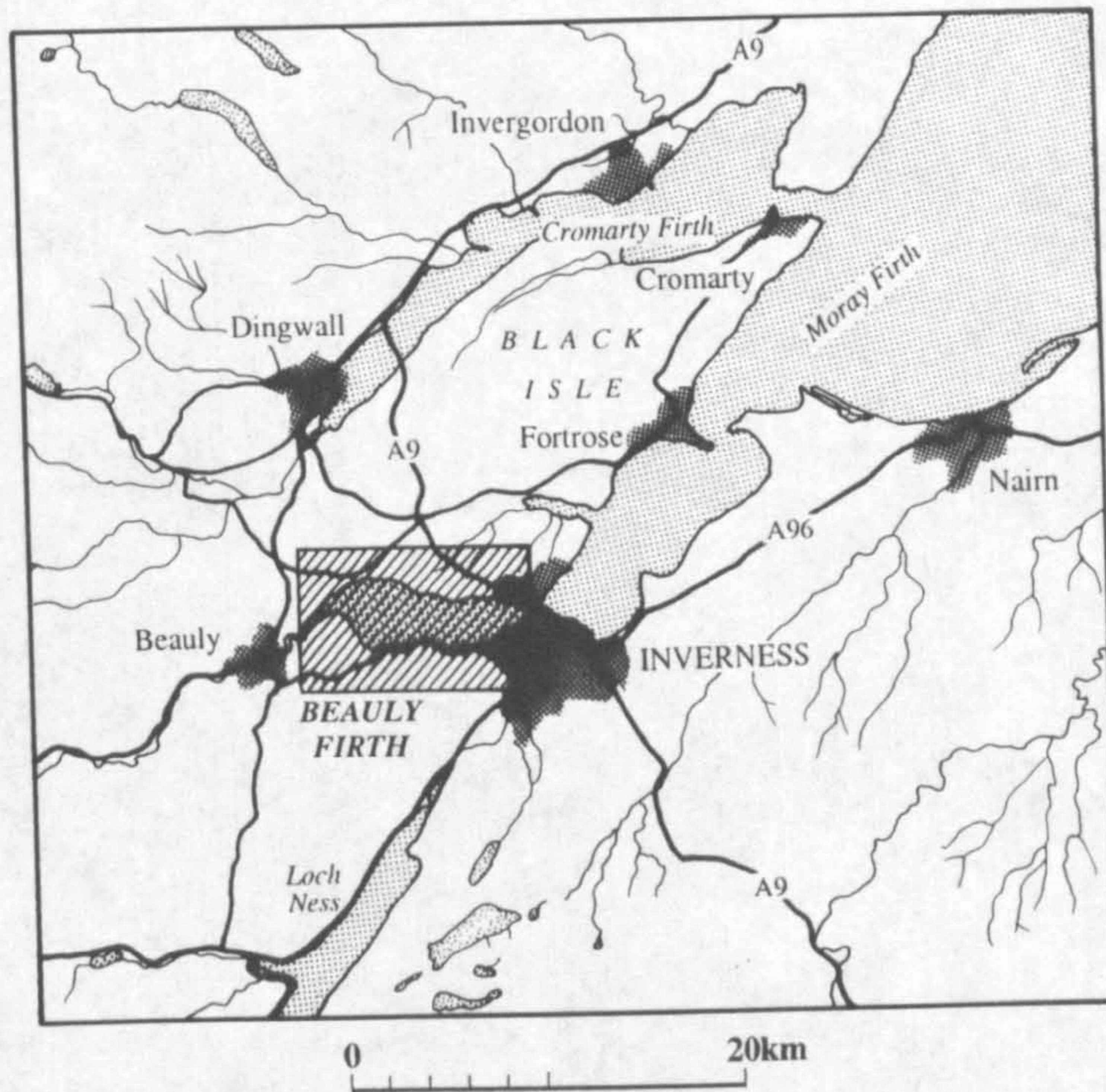


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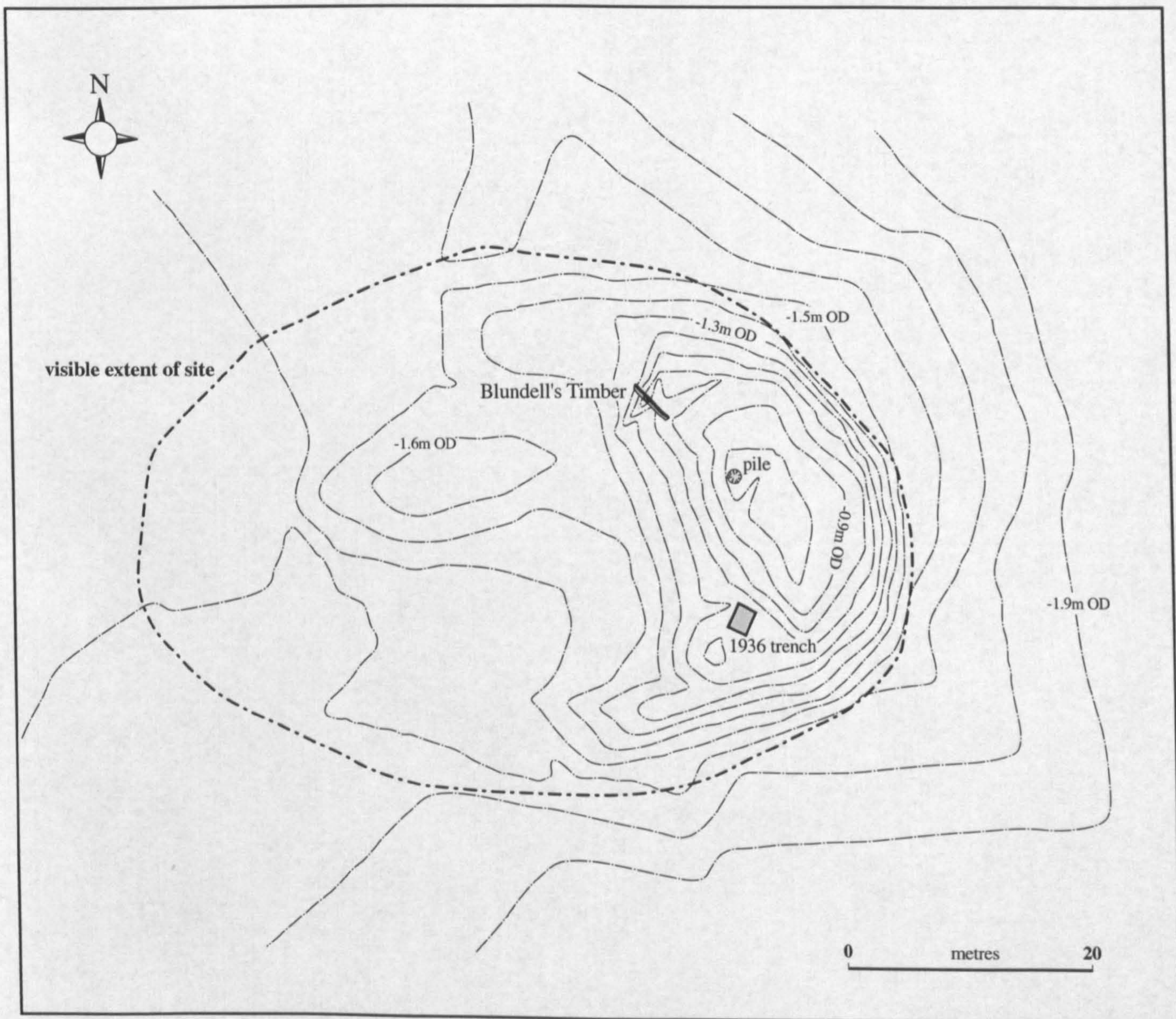
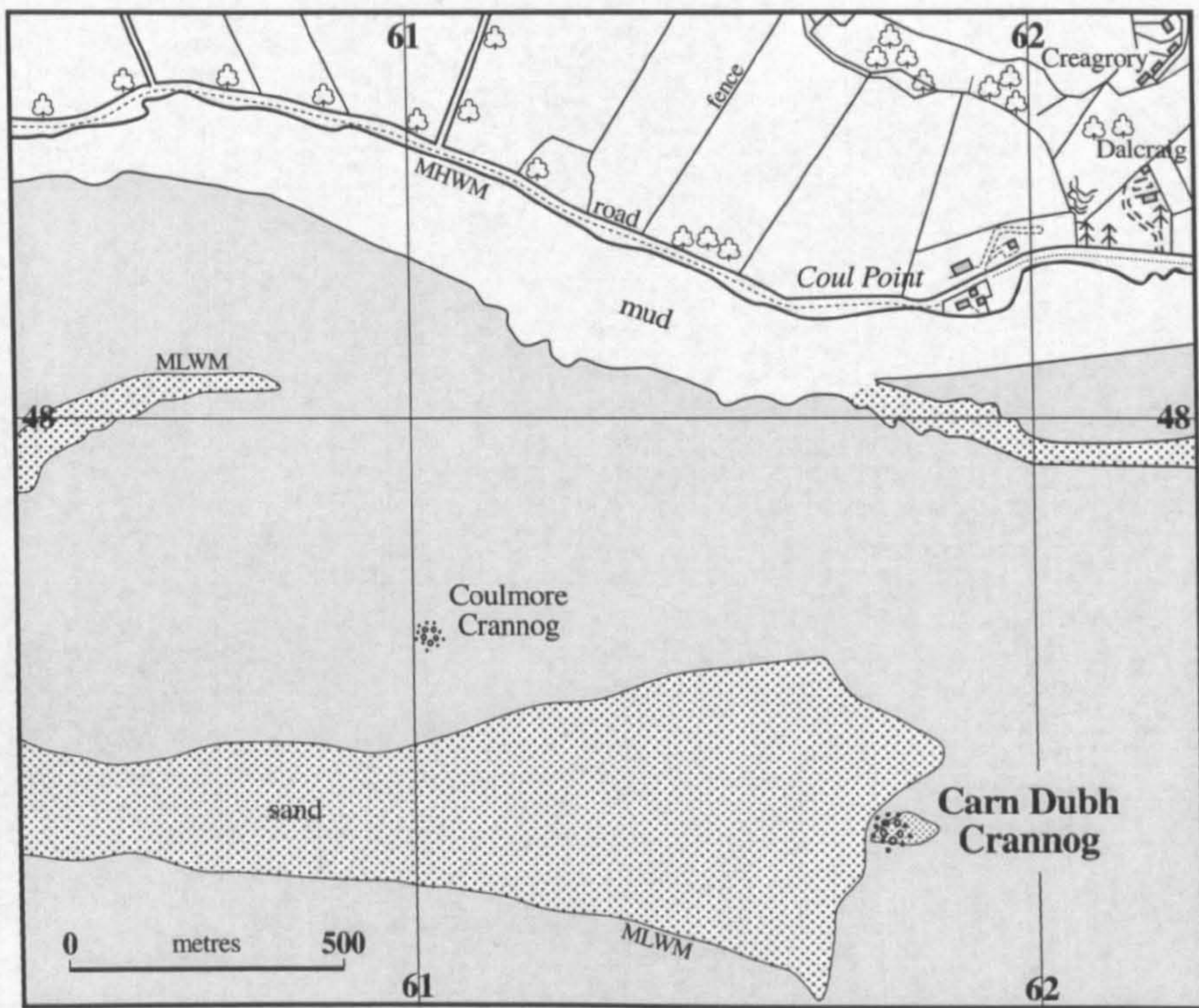


Figure 4.2. Location map and contour survey of Carn Dubh marine crannog.



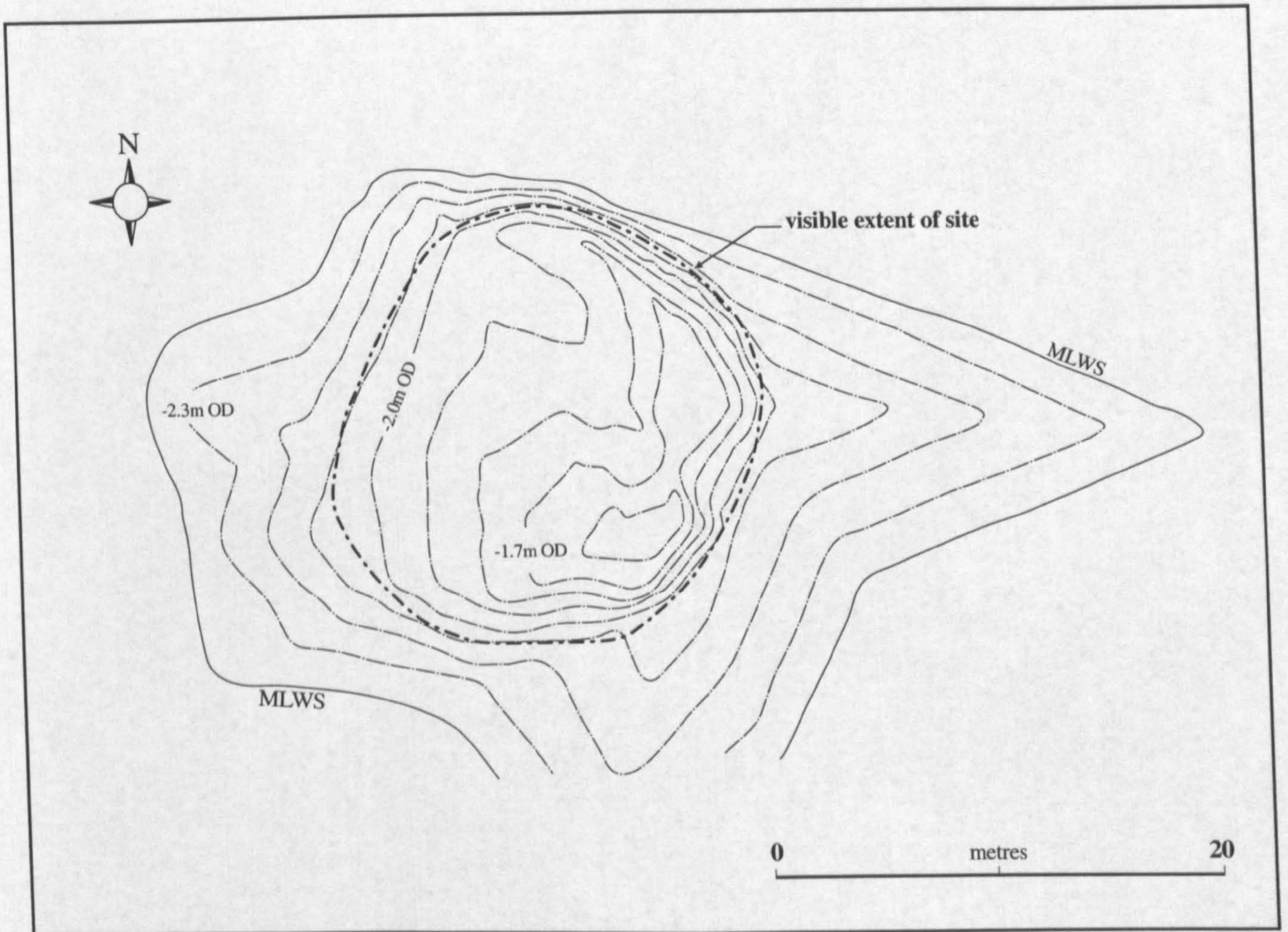
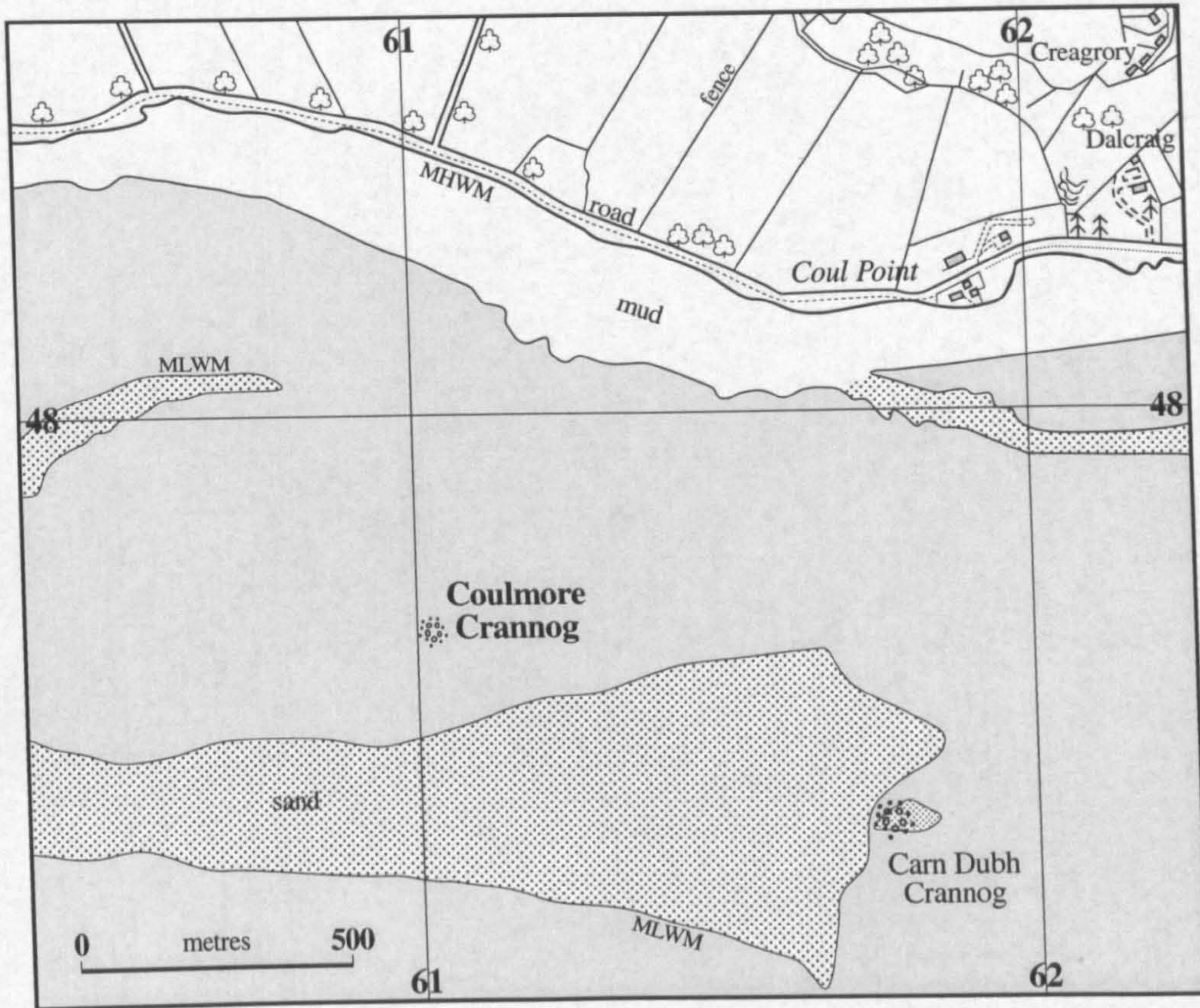


Figure 4.3. Location map and contour survey of Coulmore marine crannog.



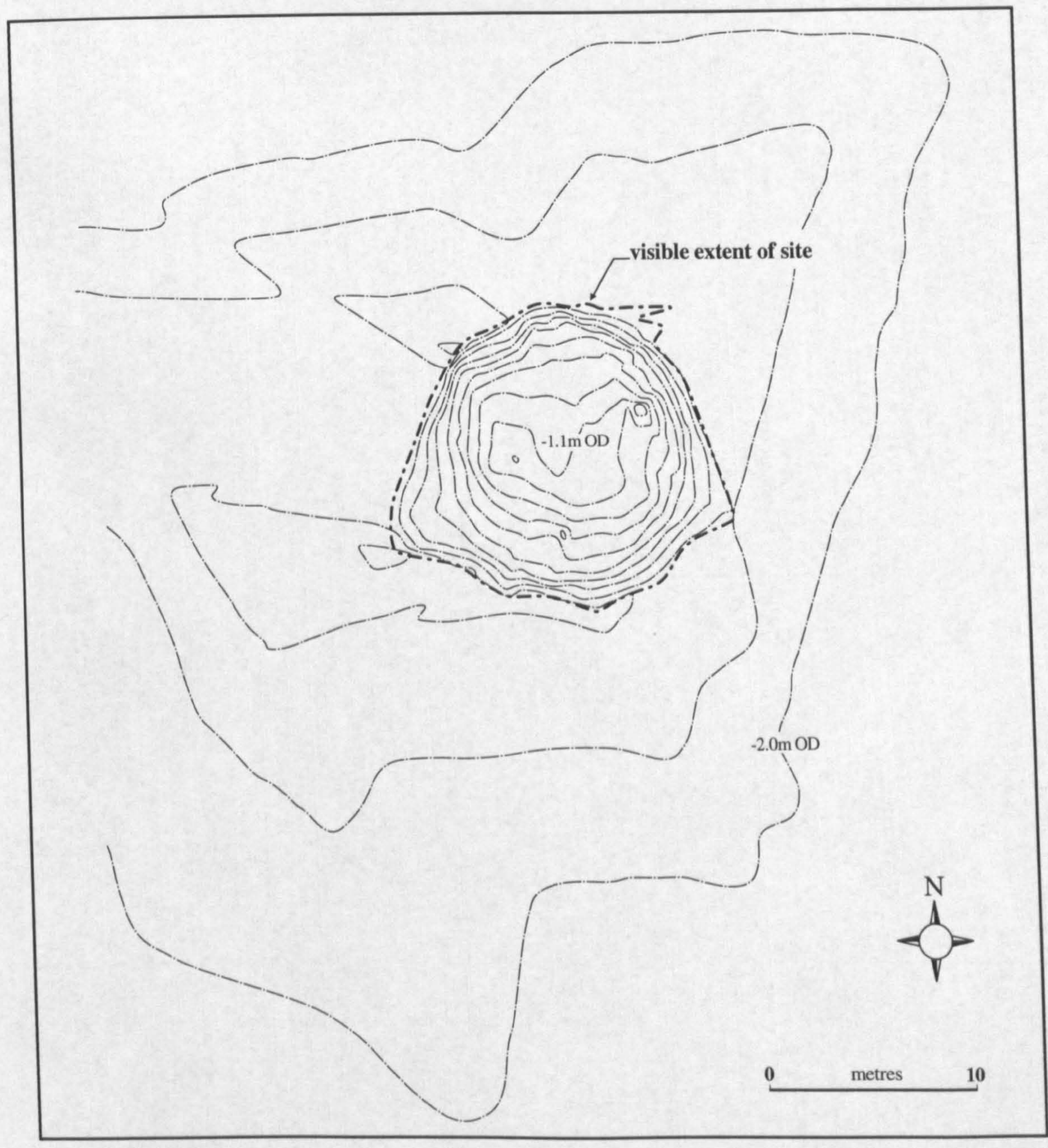
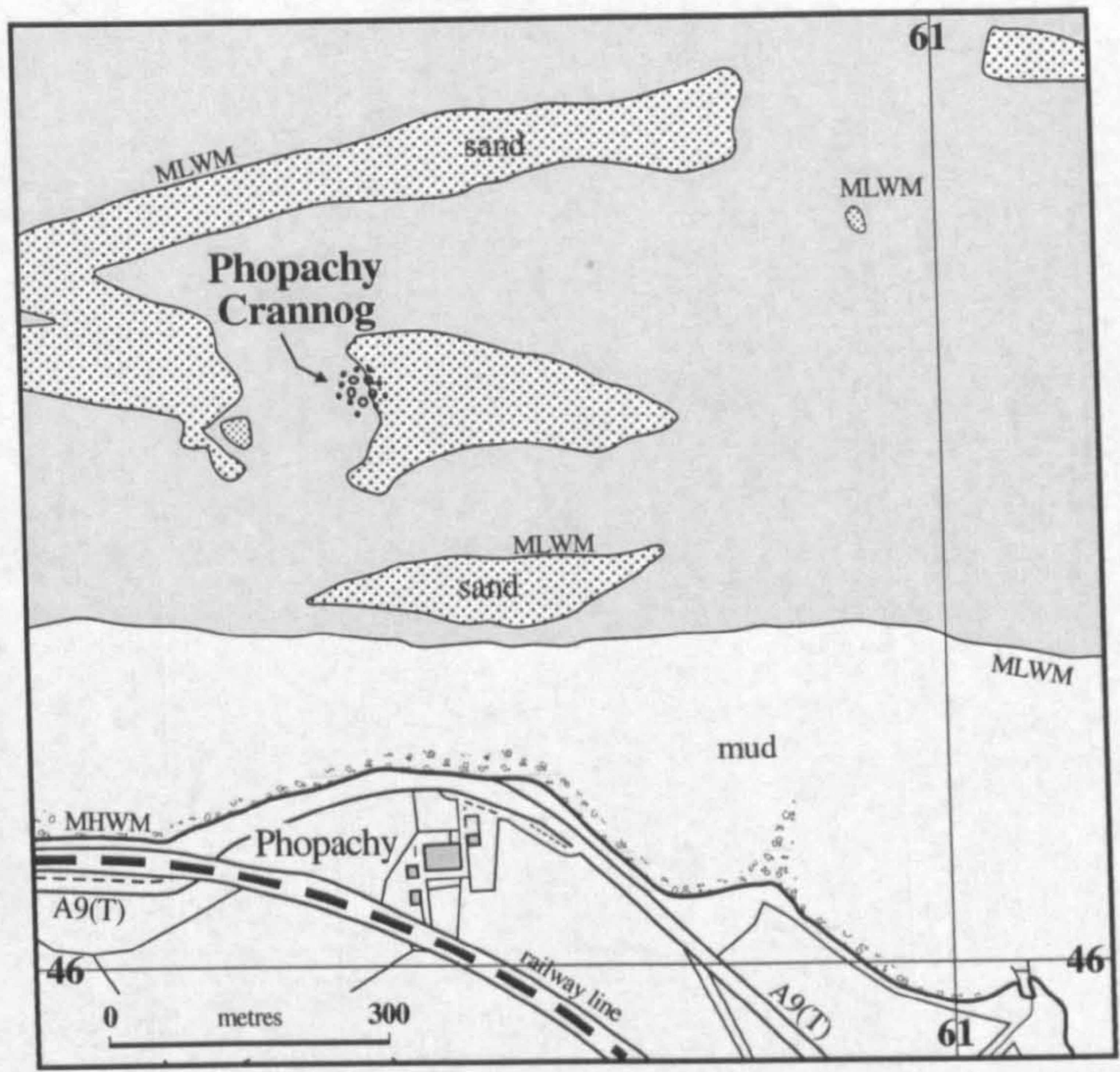


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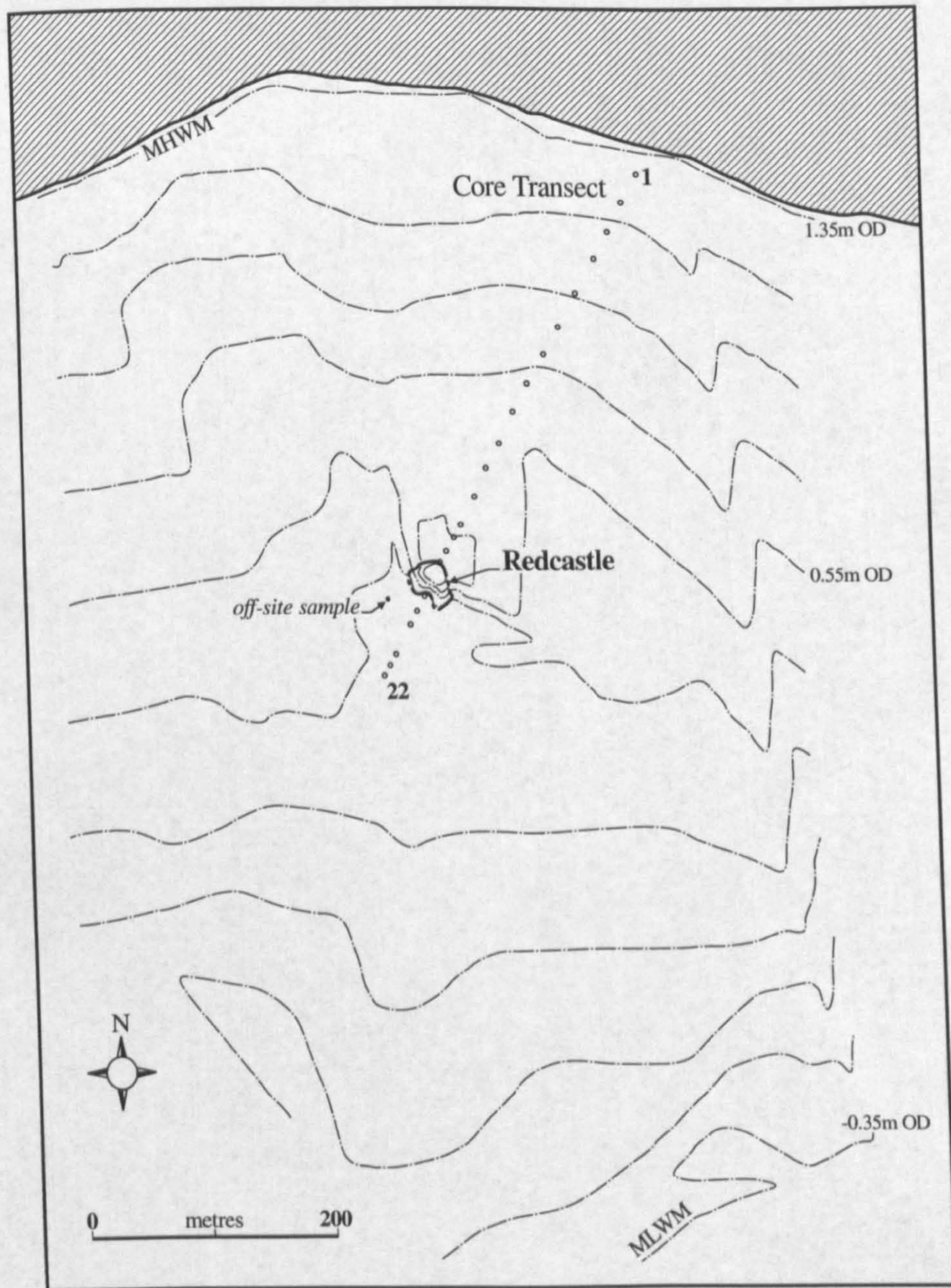
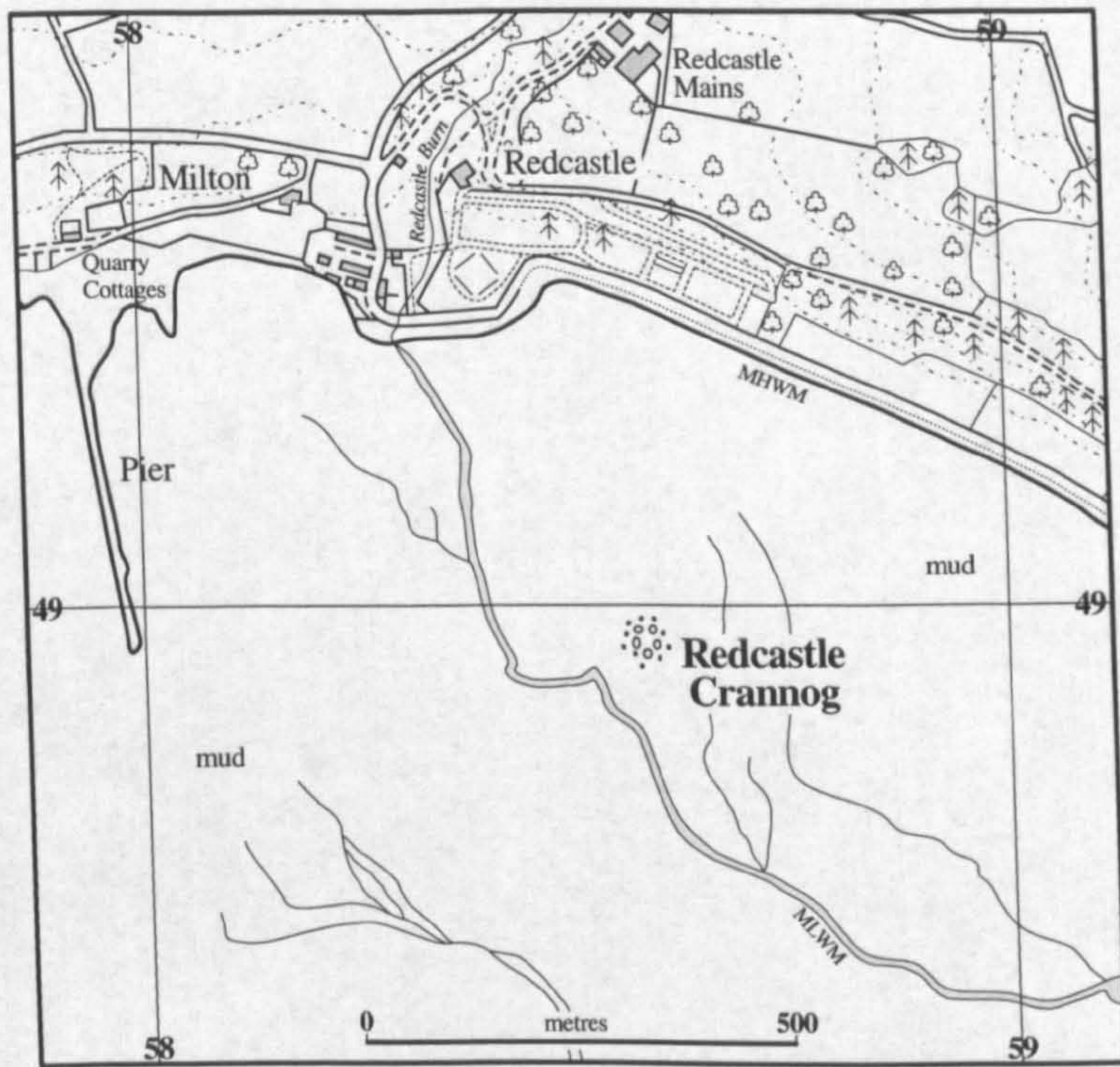


Figure 4.5. Contour survey showing position of core transect associated with Redcastle marine crannog.



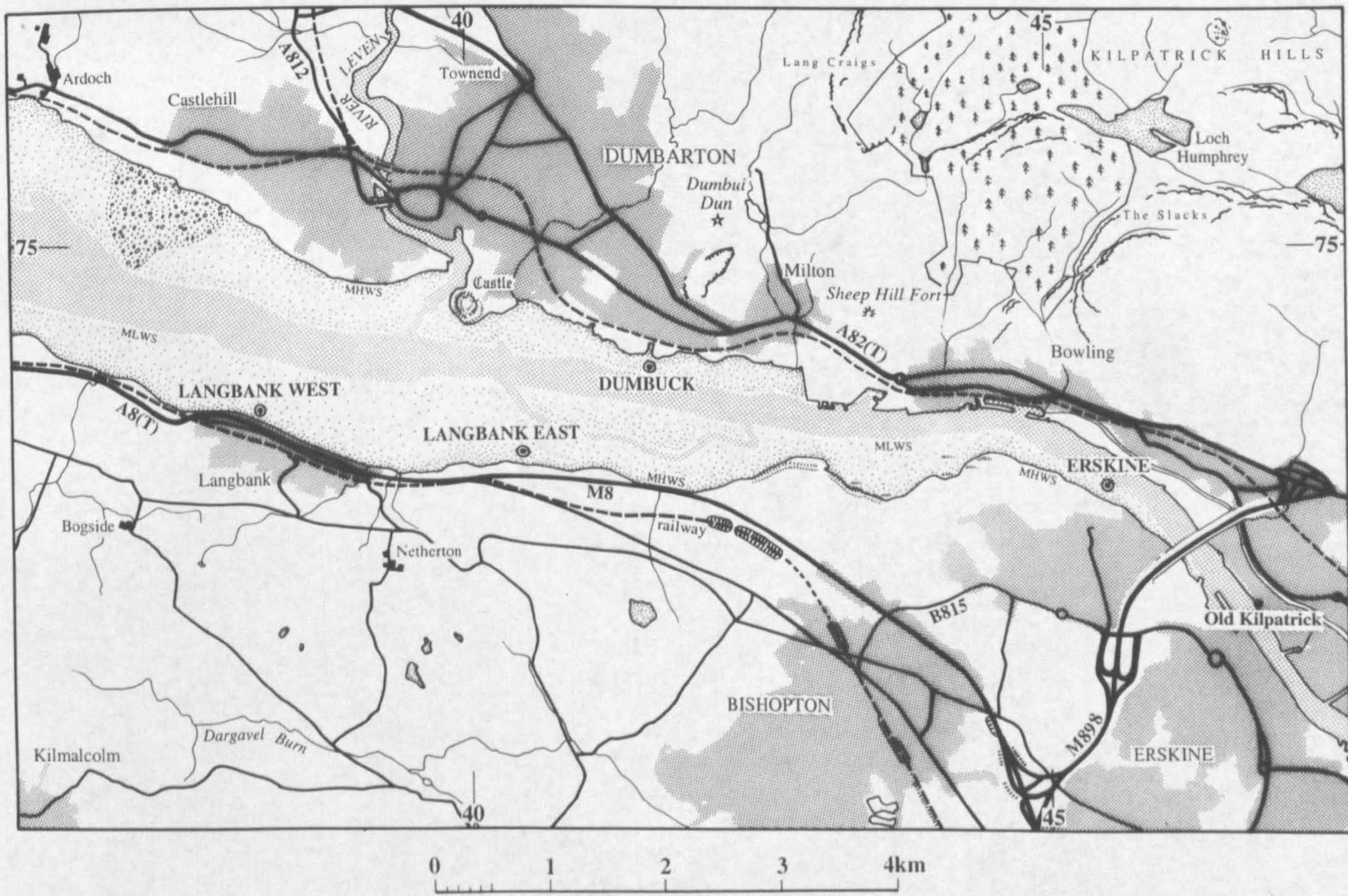
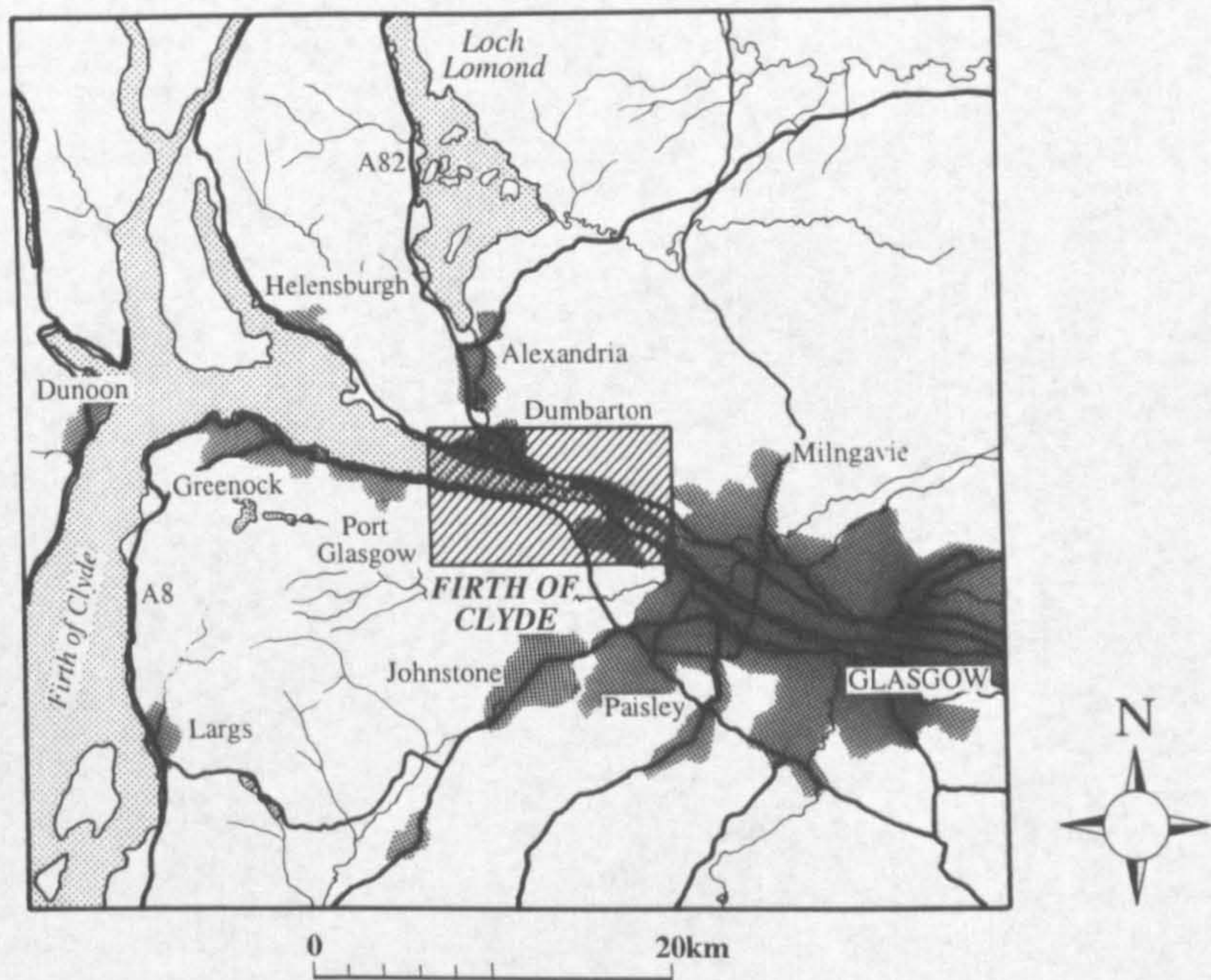


Figure 4.6. Location map of marine crannogs in the Firth of Clyde.



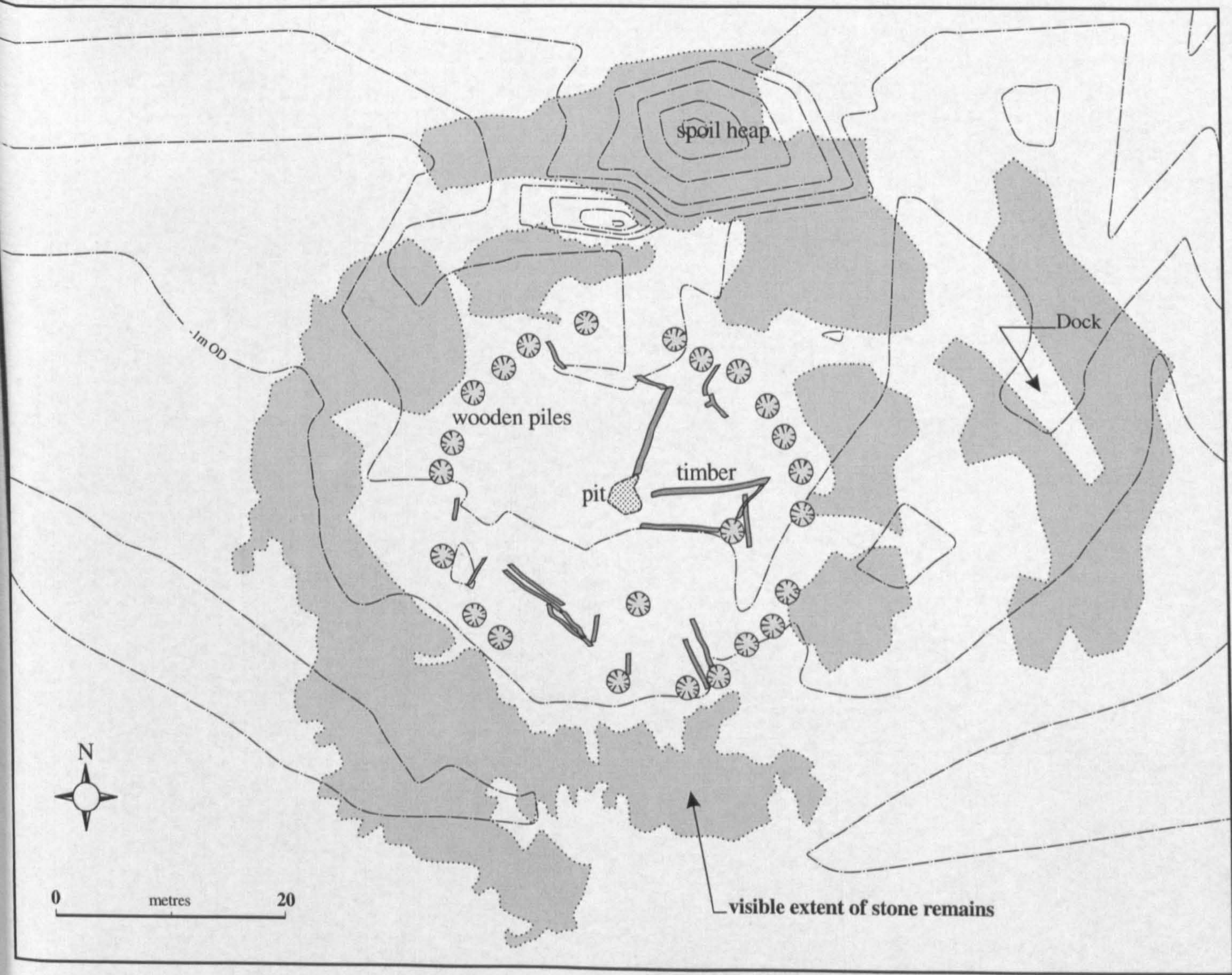
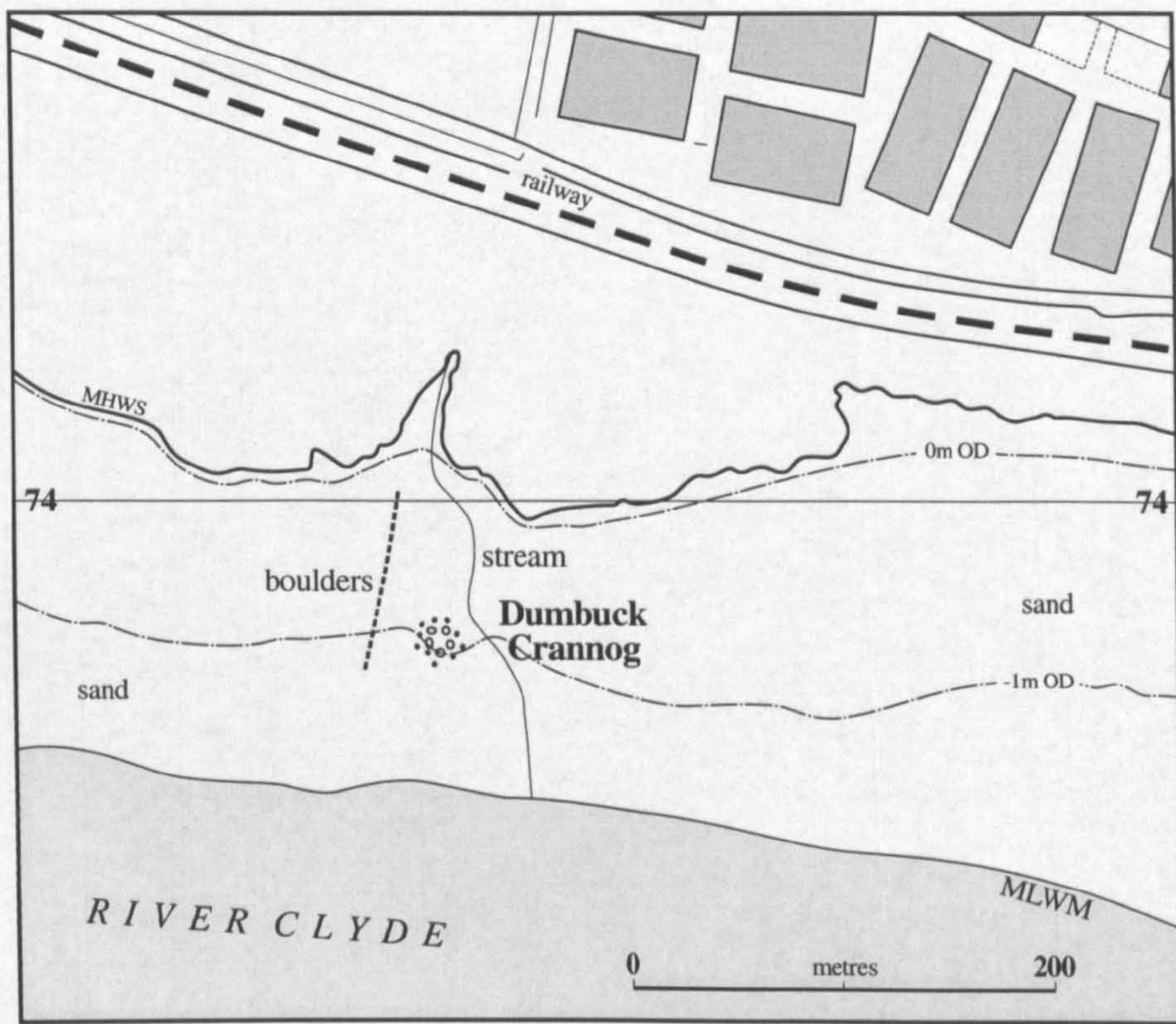


Figure 4.7. Location map and contour survey of Dumbuck marine crannog.



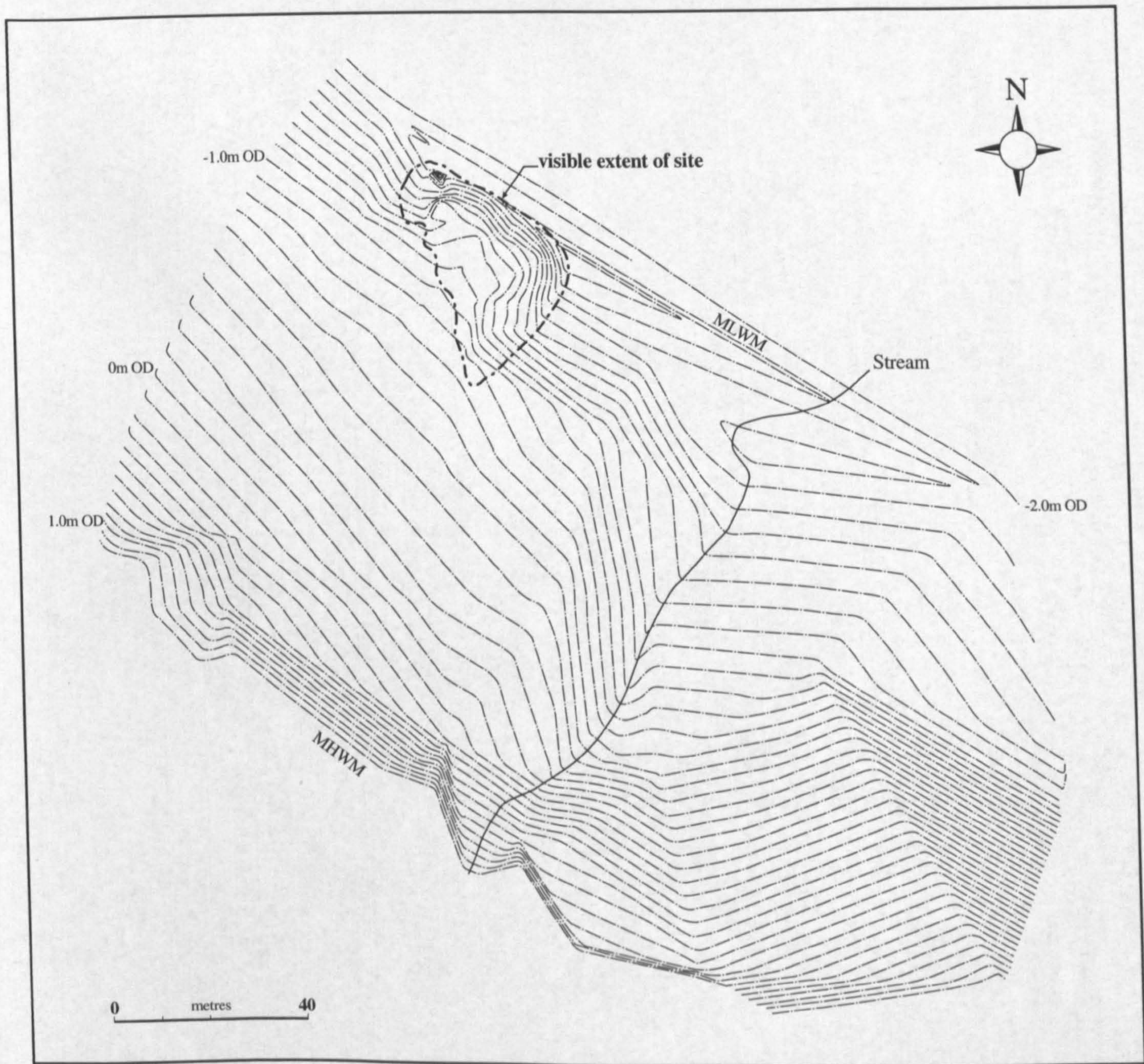
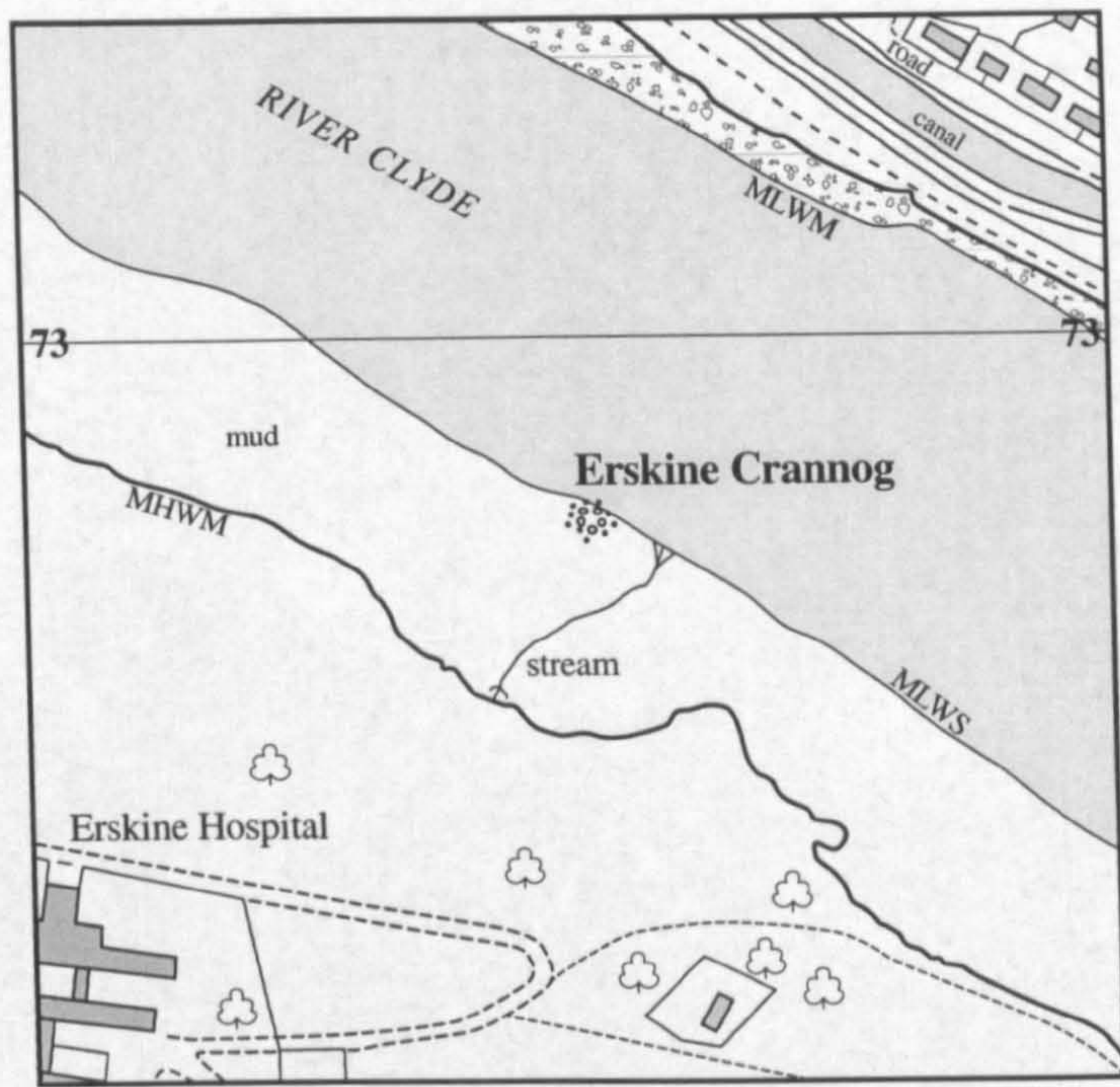


Figure 4.8. Location map and contour survey of Erskine marine crannog.



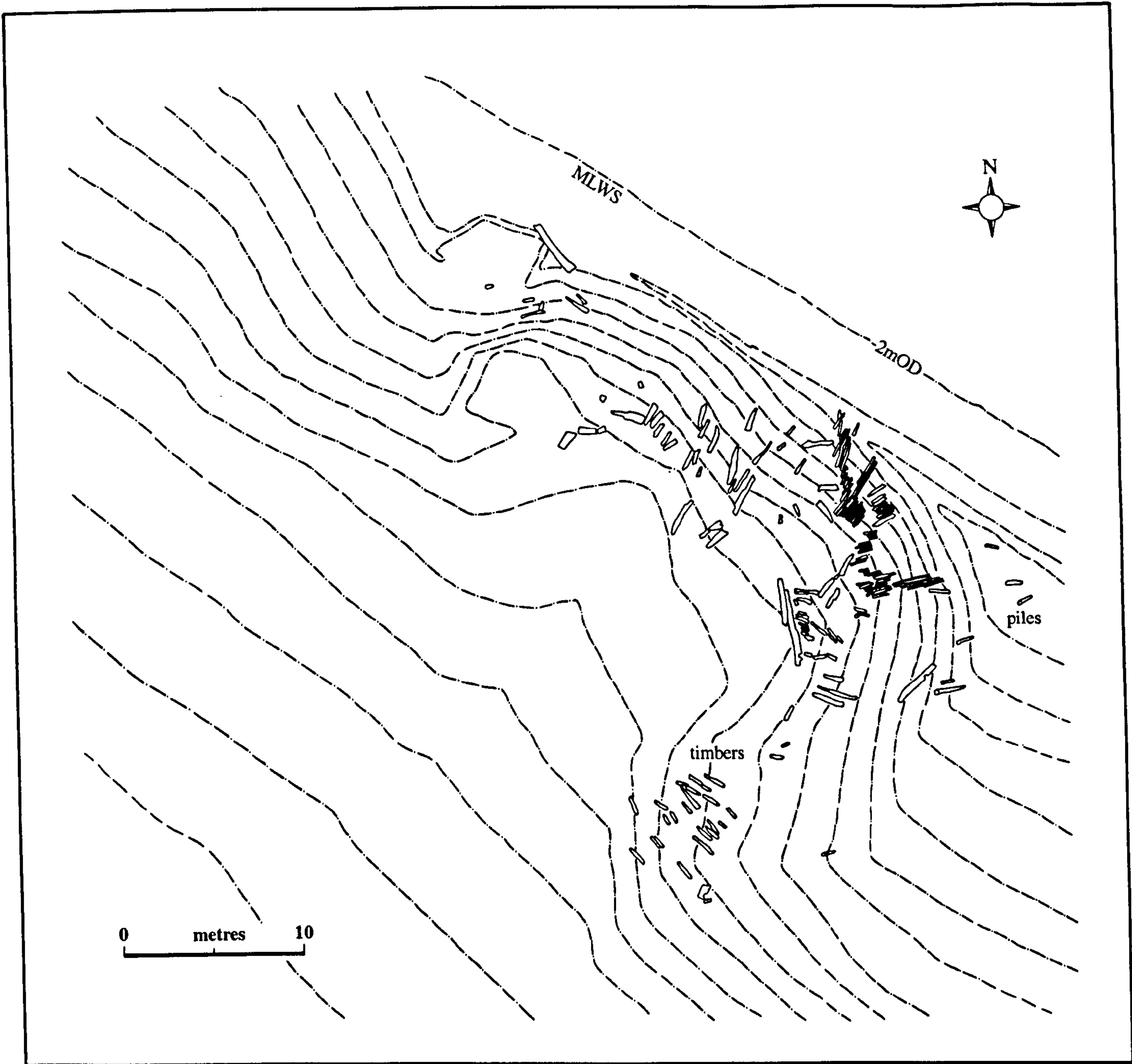


Figure 4.9. Survey of Erskine marine crannog, showing timber remains in 1998.



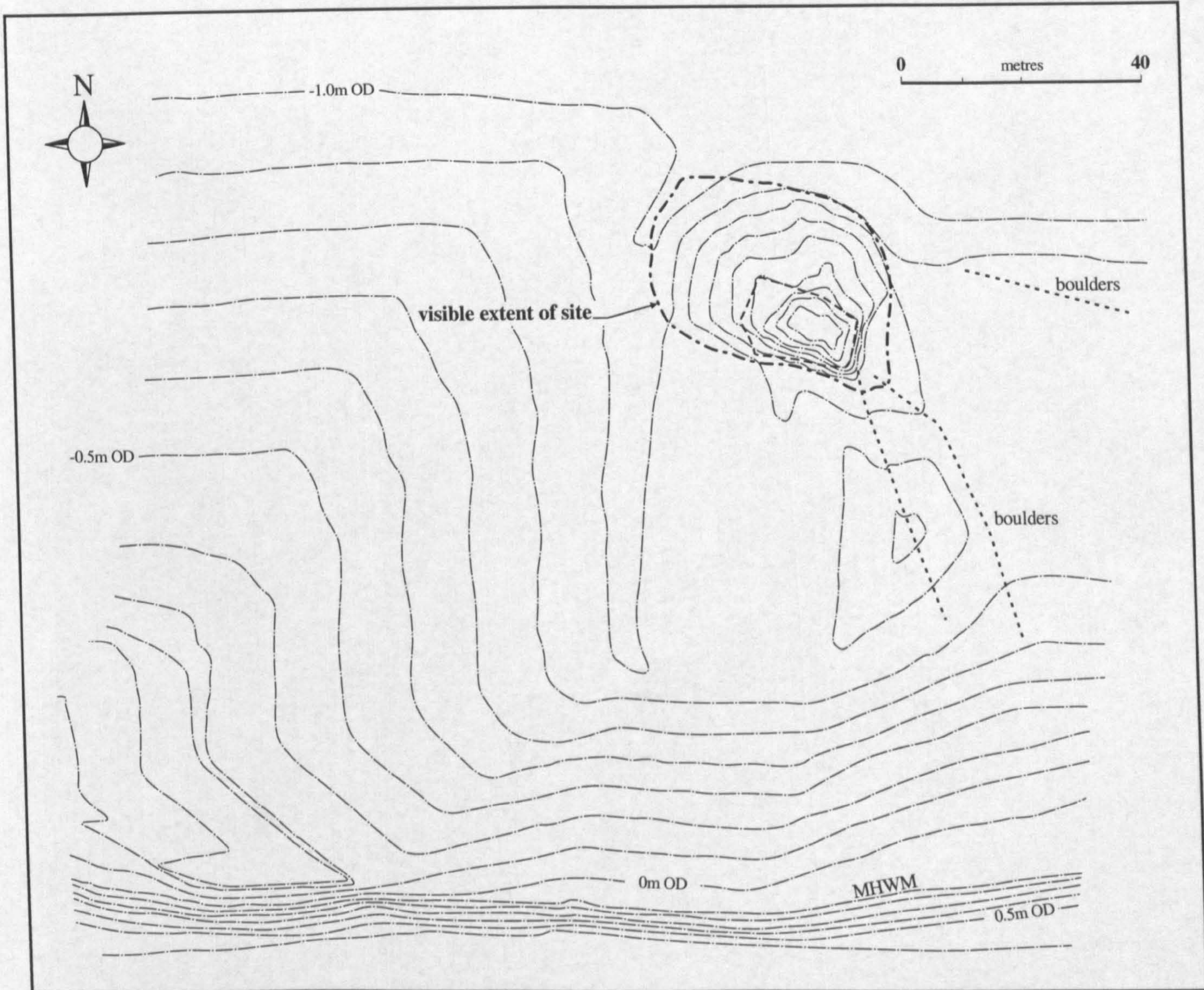
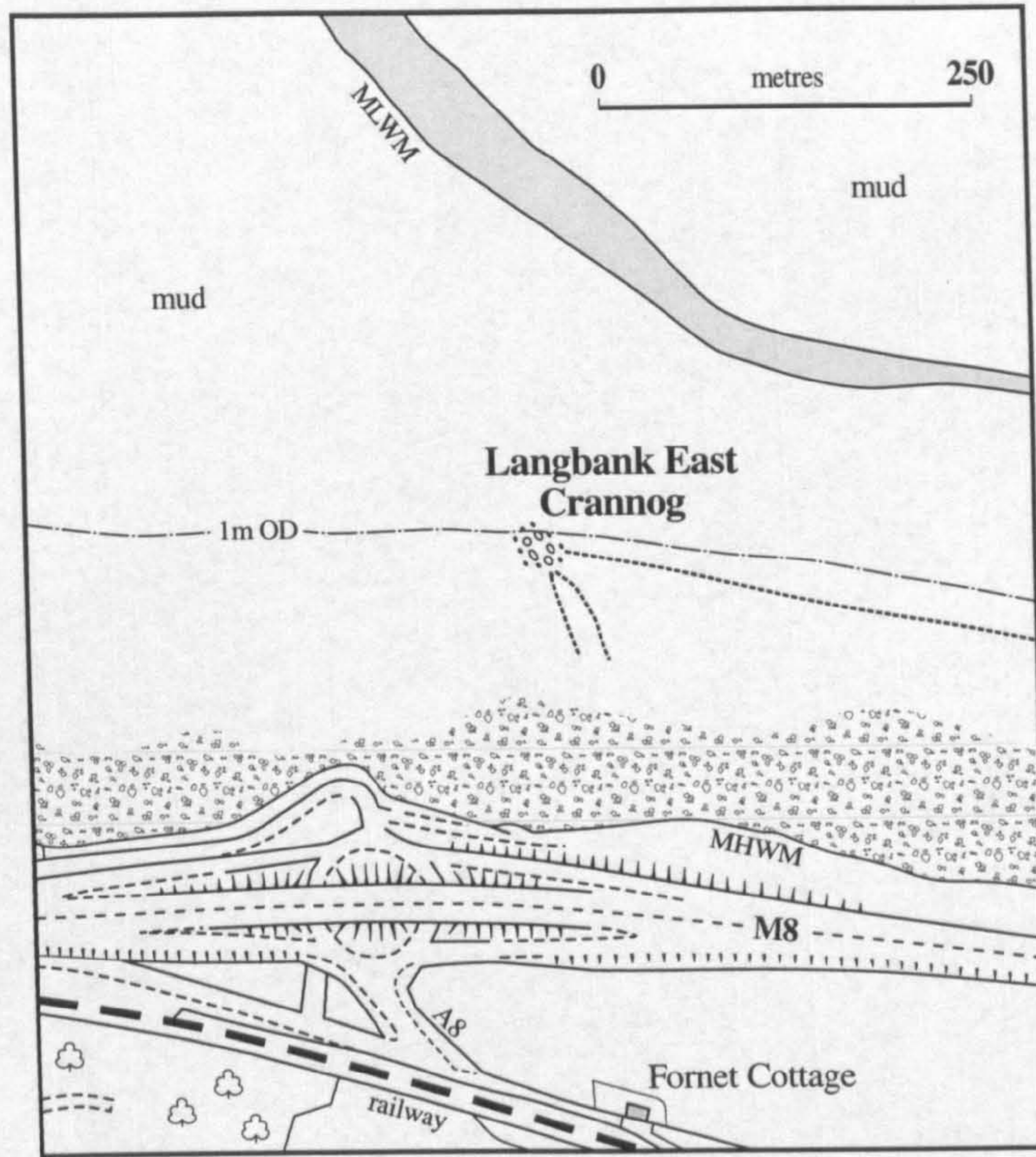


Figure 4.10. Location map and contour survey of Langbank East marine crannog.



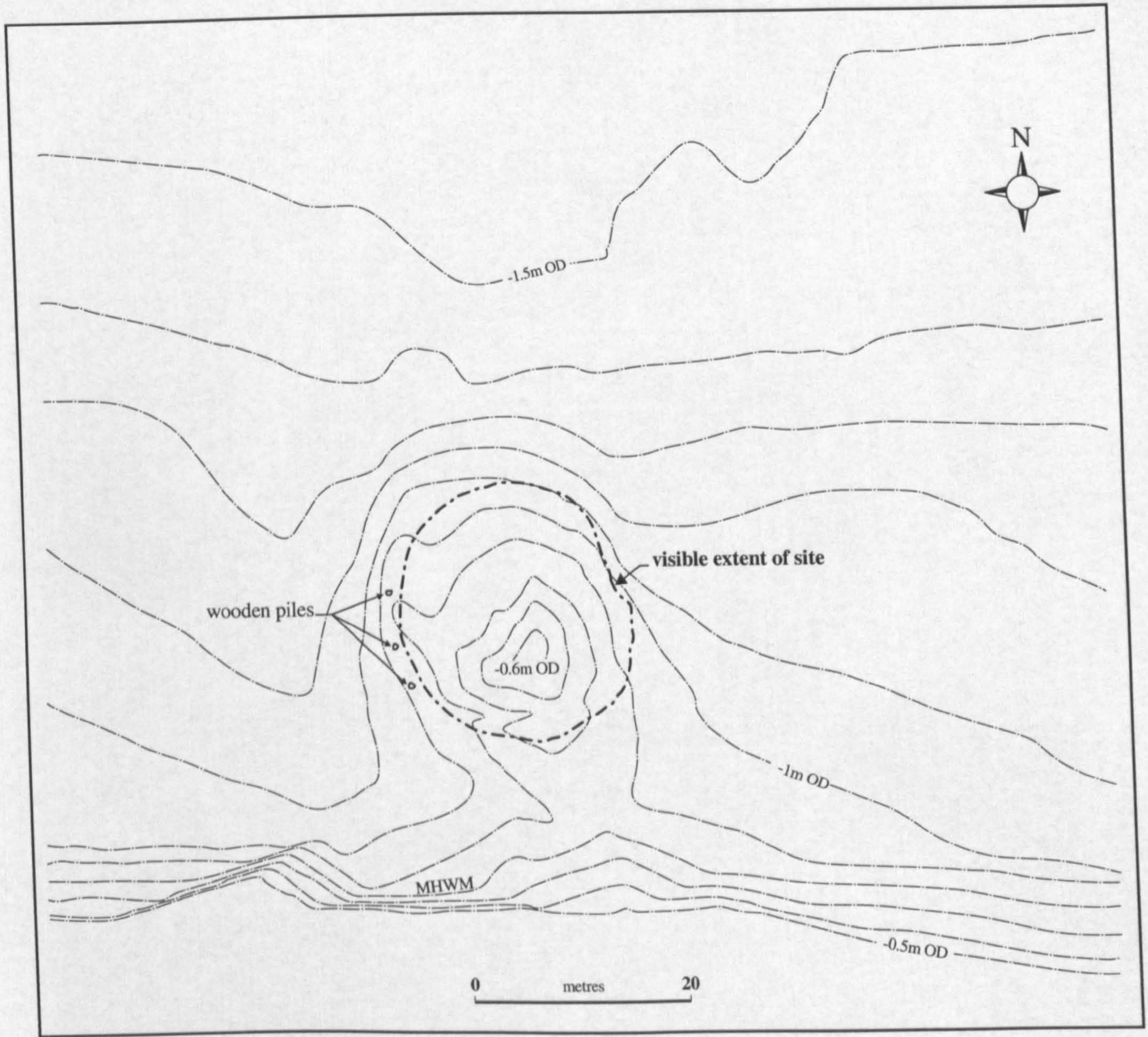
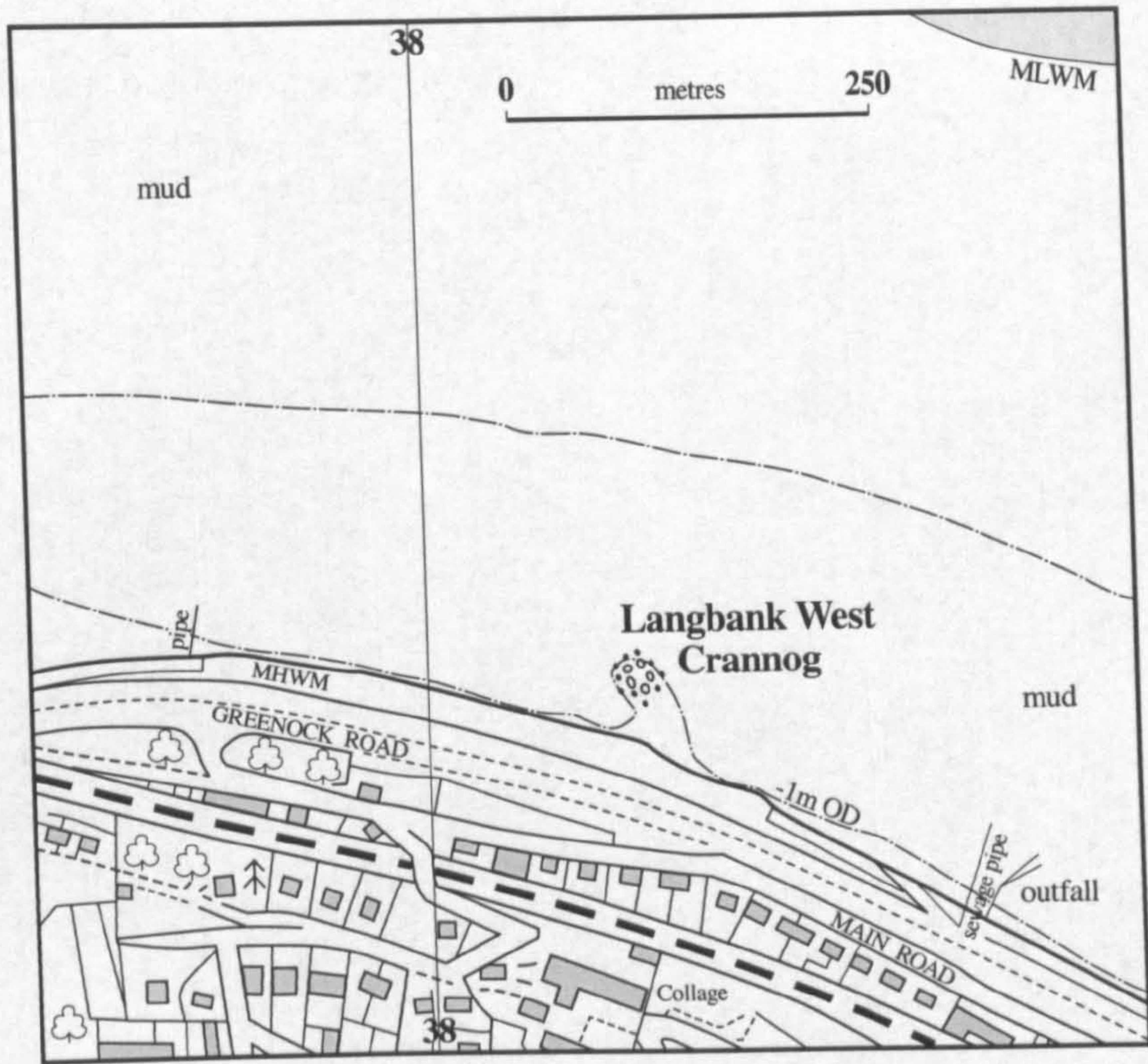


Figure 4.11. Location map and contour survey of Langbank West marine crannog.



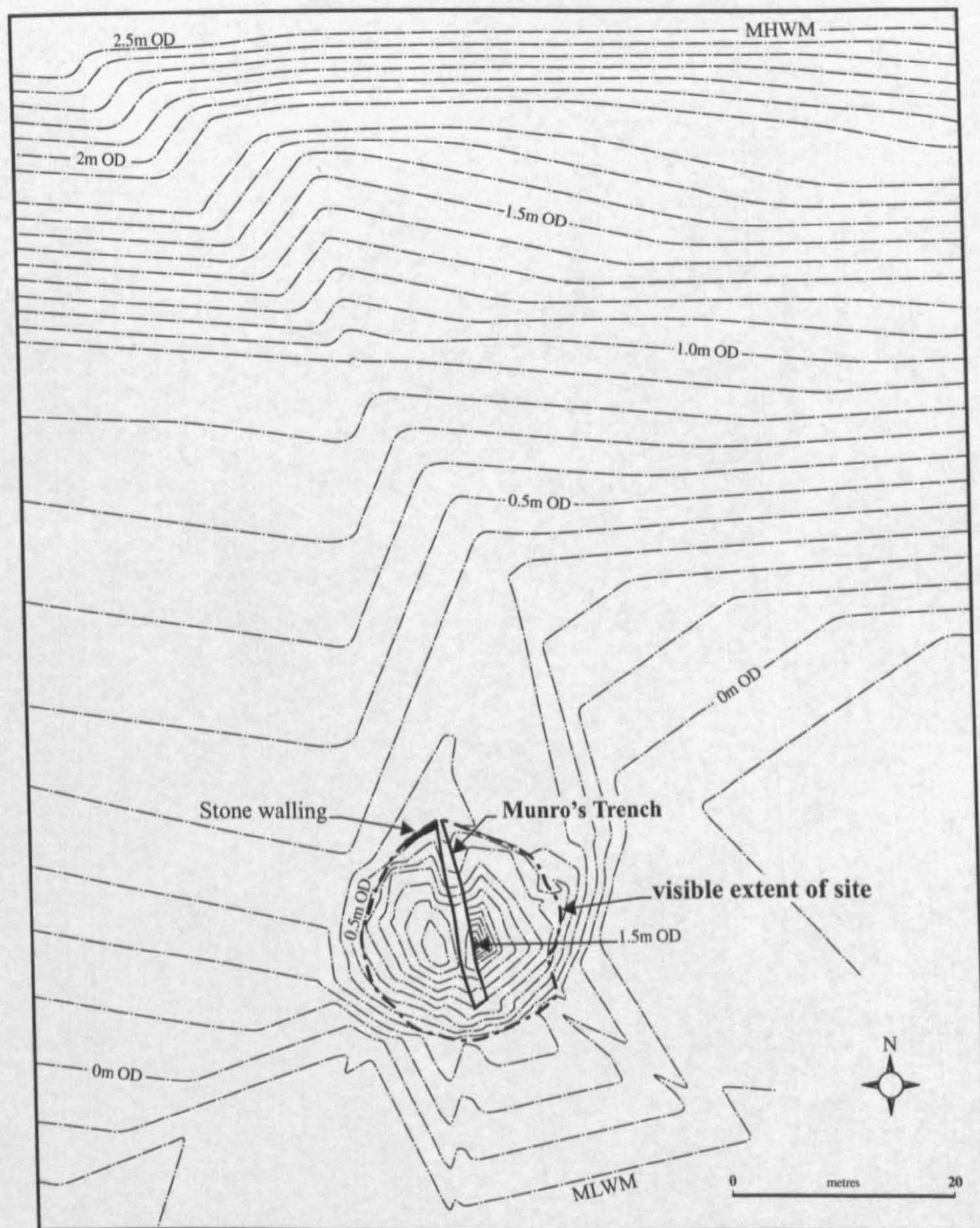
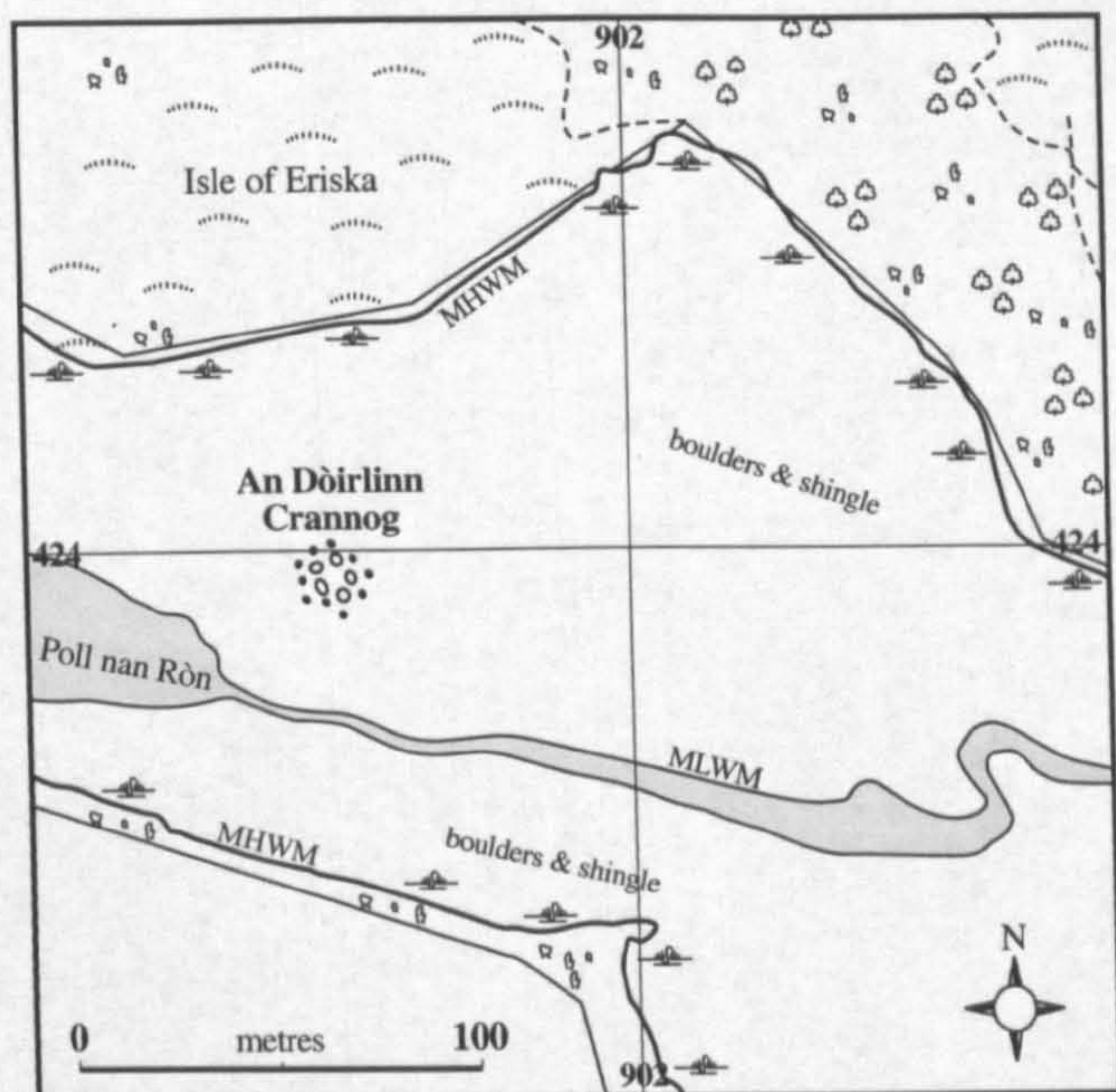
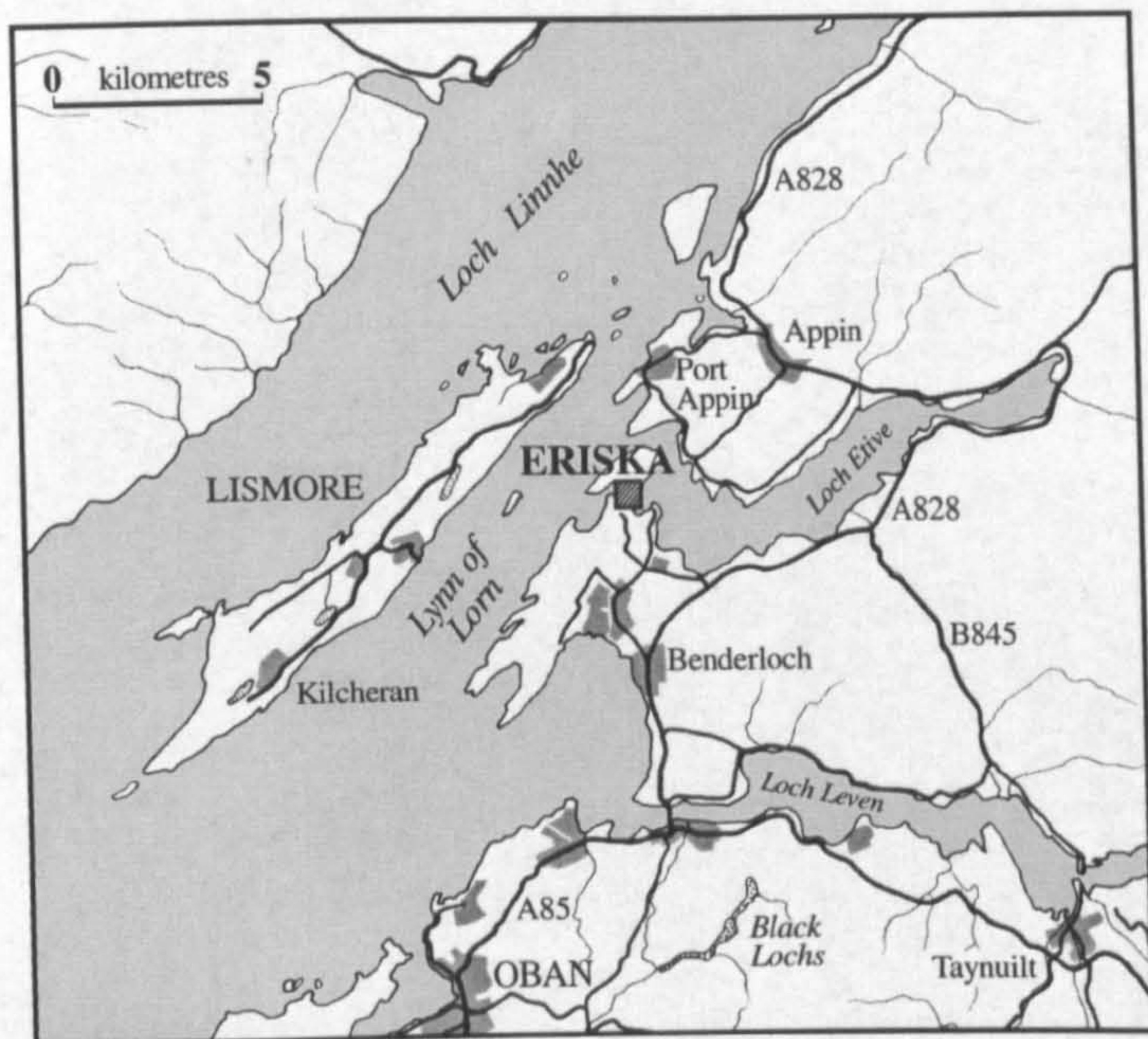


Figure 4.12. Location map and contour survey of An Dòirlinn marine crannog.



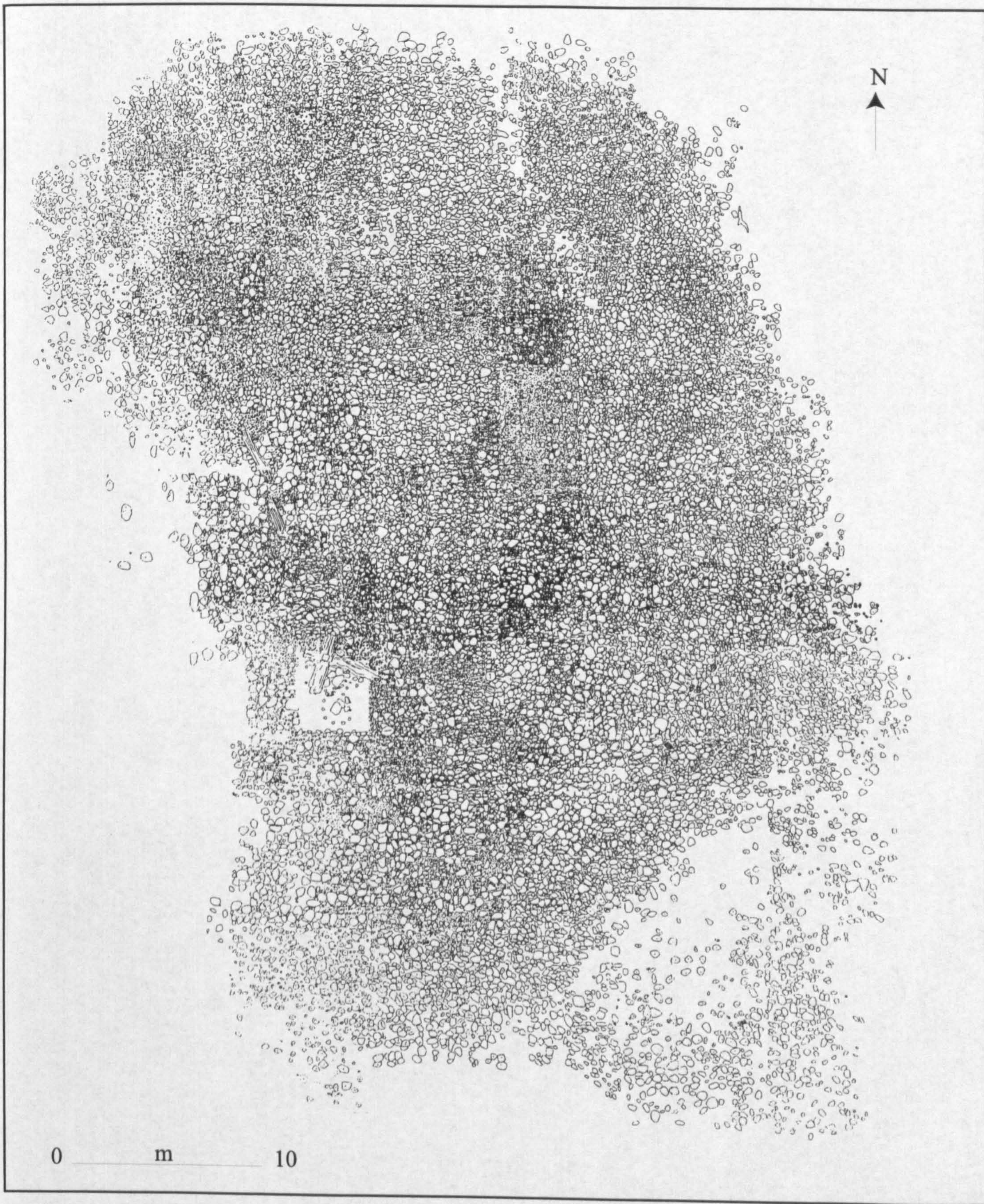


Figure 5.1. Plan of Redcastle marine crannog from 1:20 scale survey.



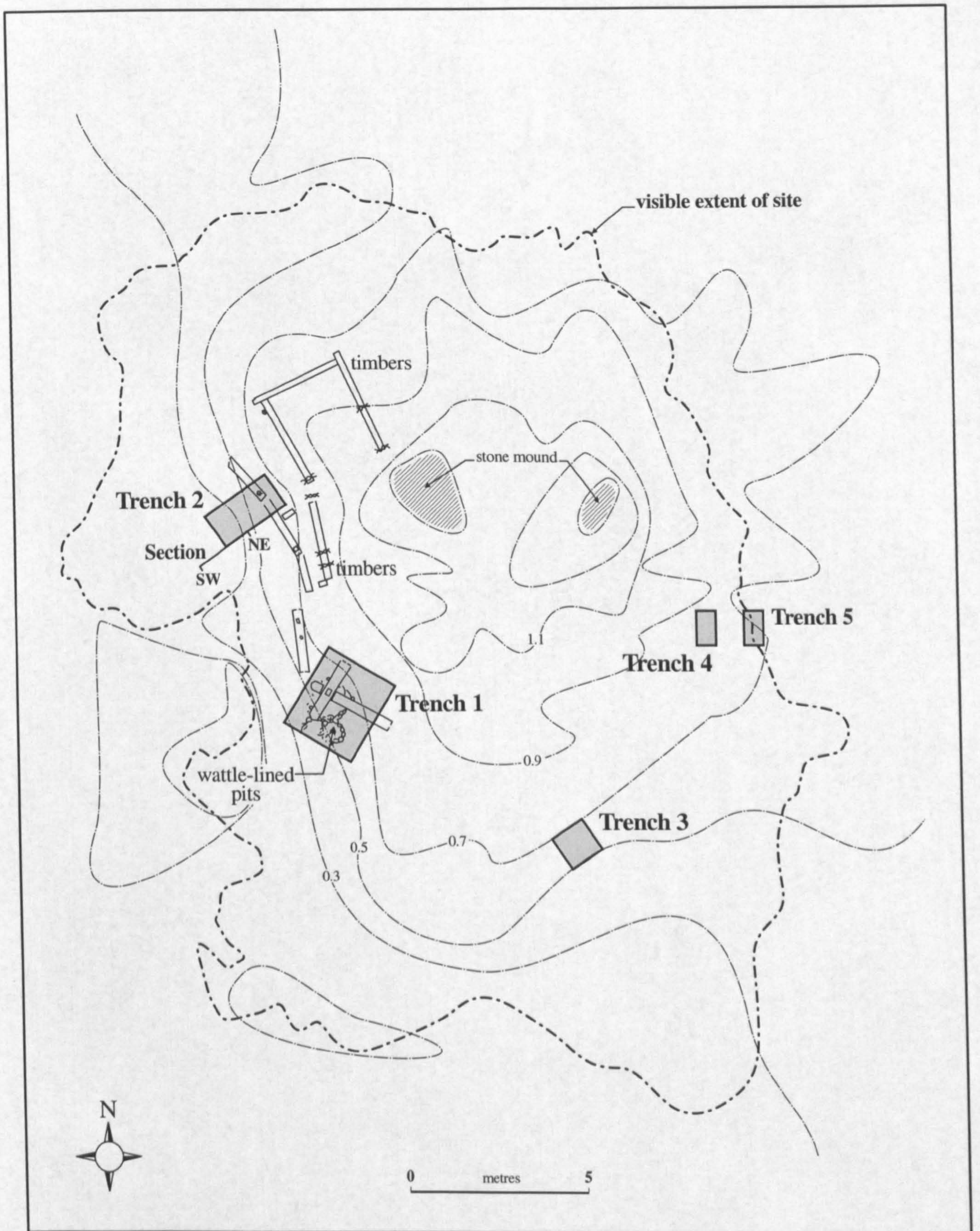
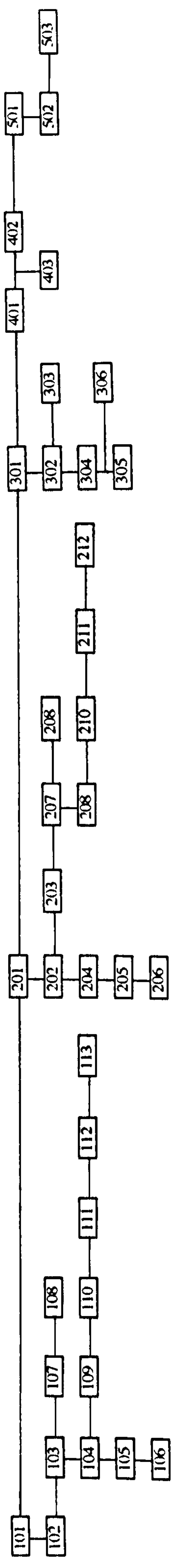


Figure 6.1. Contour survey showing position of trenches and other surface features on Redcastle marine crannog.





TRENCH 1 CONTEXT TABLE

Context number	Description
101	seaweed
102	large stones
103	pebbles and gravel
104	fine sandy silt
105	compacted fine sands
106	sandy organic layer
107	horizontal framework
108	retaining piles
109	sails
110	packing stones
111	clay lining
112	watting
113	other branches across pit

TRENCH 2 CONTEXT TABLE

201	seaweed
202	large stones
203	pebbles and gravel
204	fine sandy silt
205	compacted fine sands
206	sandy organic layer
207	horizontal framework
208	vertical retaining piles
209	sails
210	packing stones
211	clay lining
212	watting

TRENCH 3 CONTEXT TABLE

301	seaweed
302	large stones forming walling
303	fallen stones
304	sand and gravel, plus organic debris
305	compacted fine sand
306	piles

TRENCH 4 CONTEXT TABLE

401	large surface stones
402	estuarine mud
403	sand

TRENCH 5 CONTEXT TABLE

501	surface estuarine mud
502	large stones
503	sand

Figure 7.1. Harris matrix diagram and context descriptions for Redcastle.



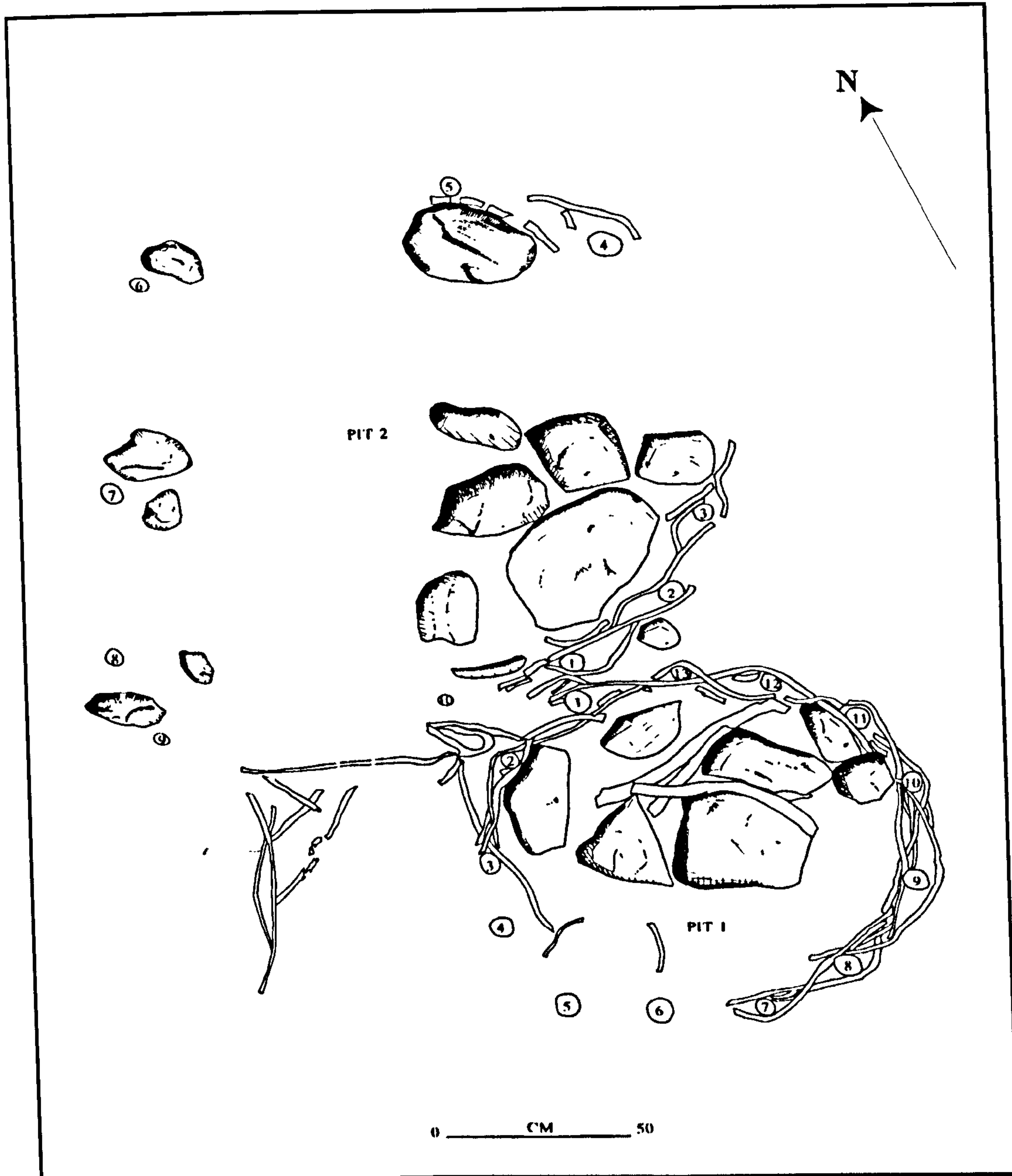


Figure 7.2. Plan of Trench 1, showing the location of Pits One and Two.



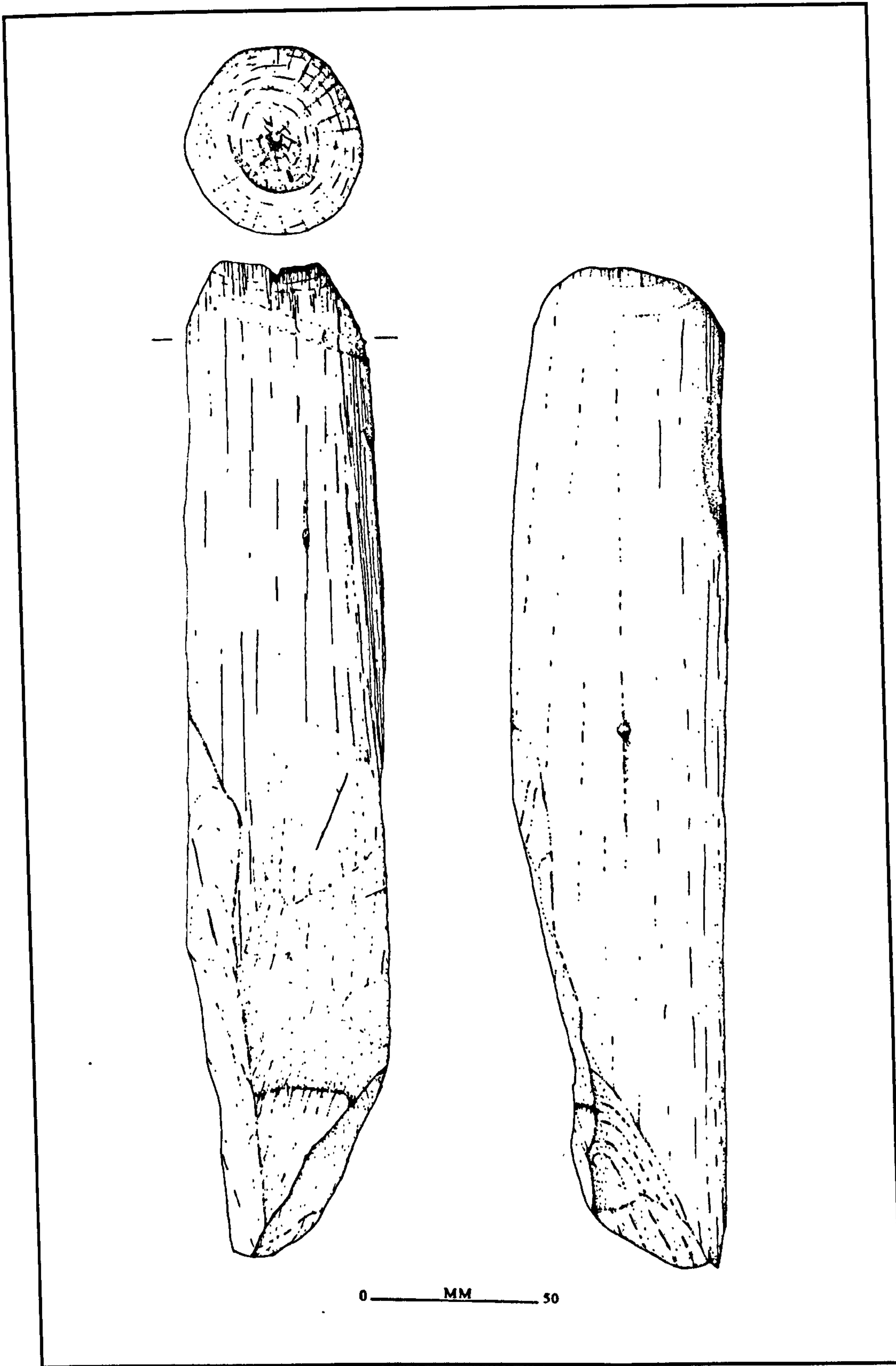


Figure 7.3. Sail 5, excavated from Pit One in Trench 1, on Redcastle marine crannog.



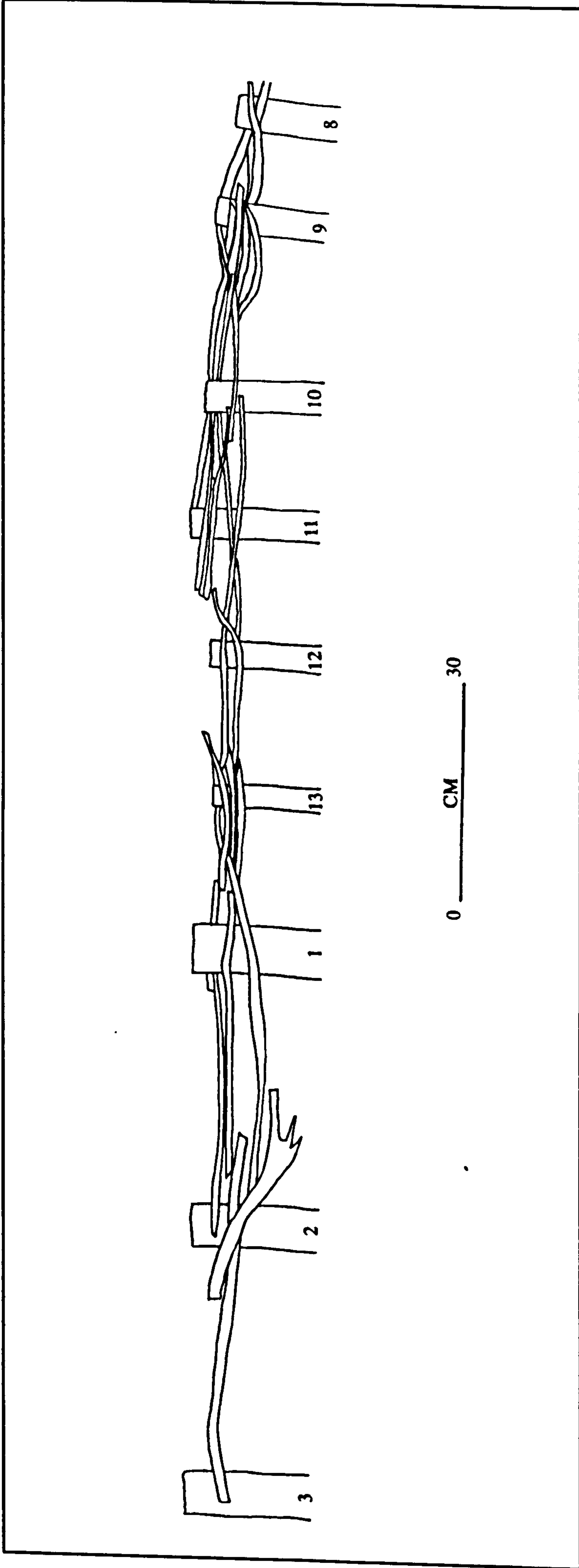


Figure 7.4. Complete section of wattle remaining in Pit One, Trench 1 on Redcastle marine crannog.



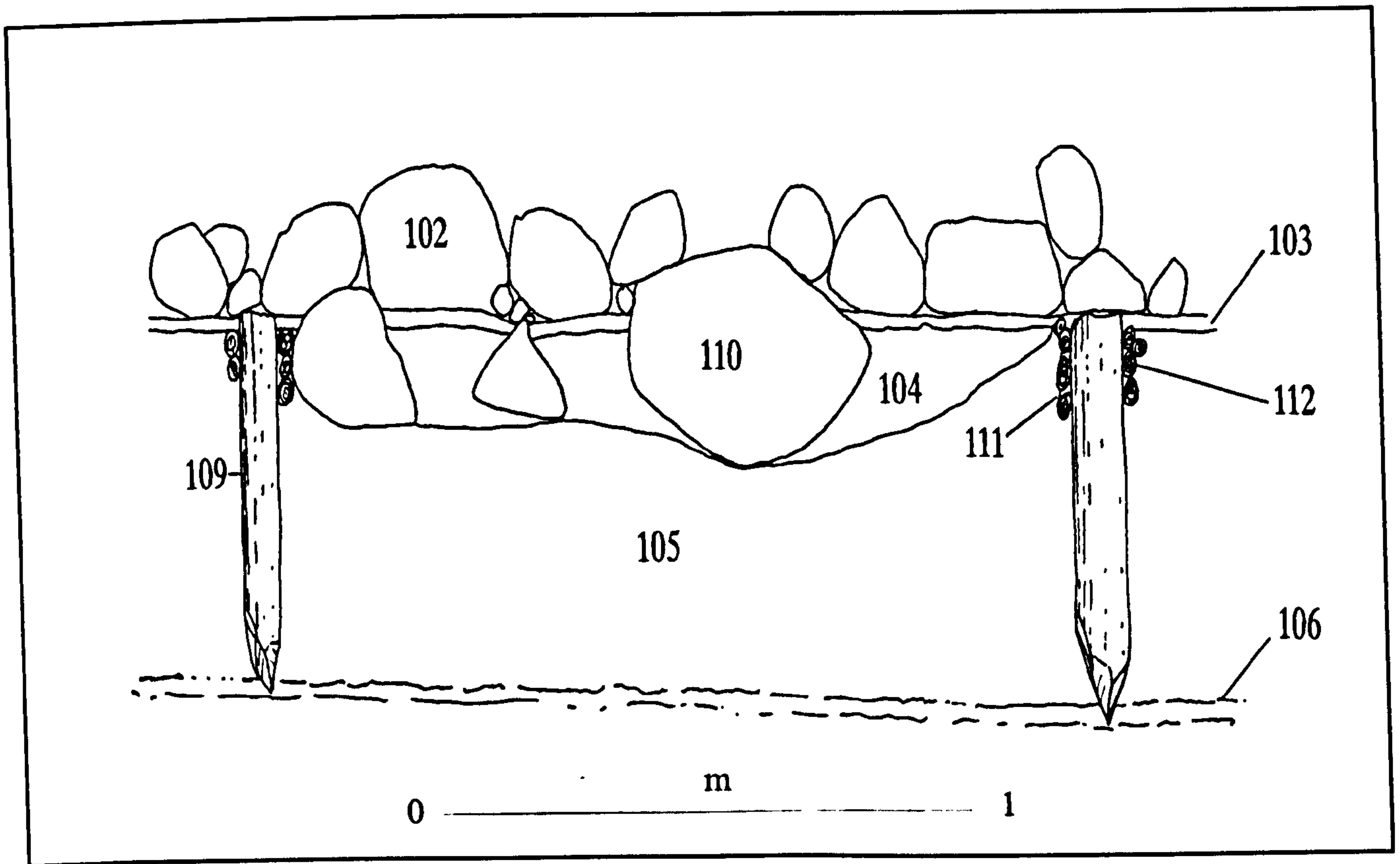


Figure 7.5. Schematic section through Pit One in Trench 1 on Redcastle marine crannog, including the context numbers for the different features of the structure.



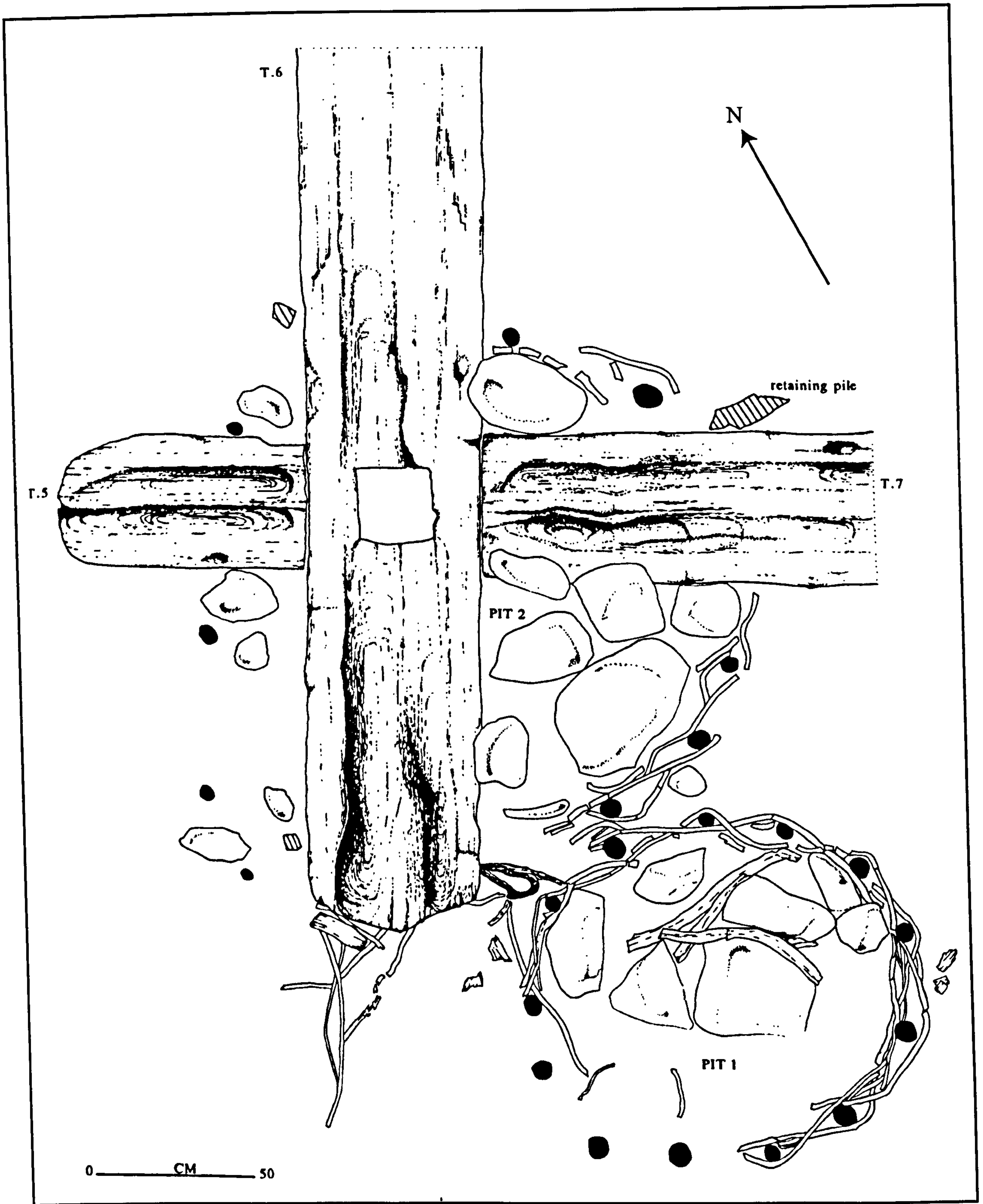


Figure 7.6 Trench 1 on Redcastle marine crannog showing Phase 2 on top of Phase 1.



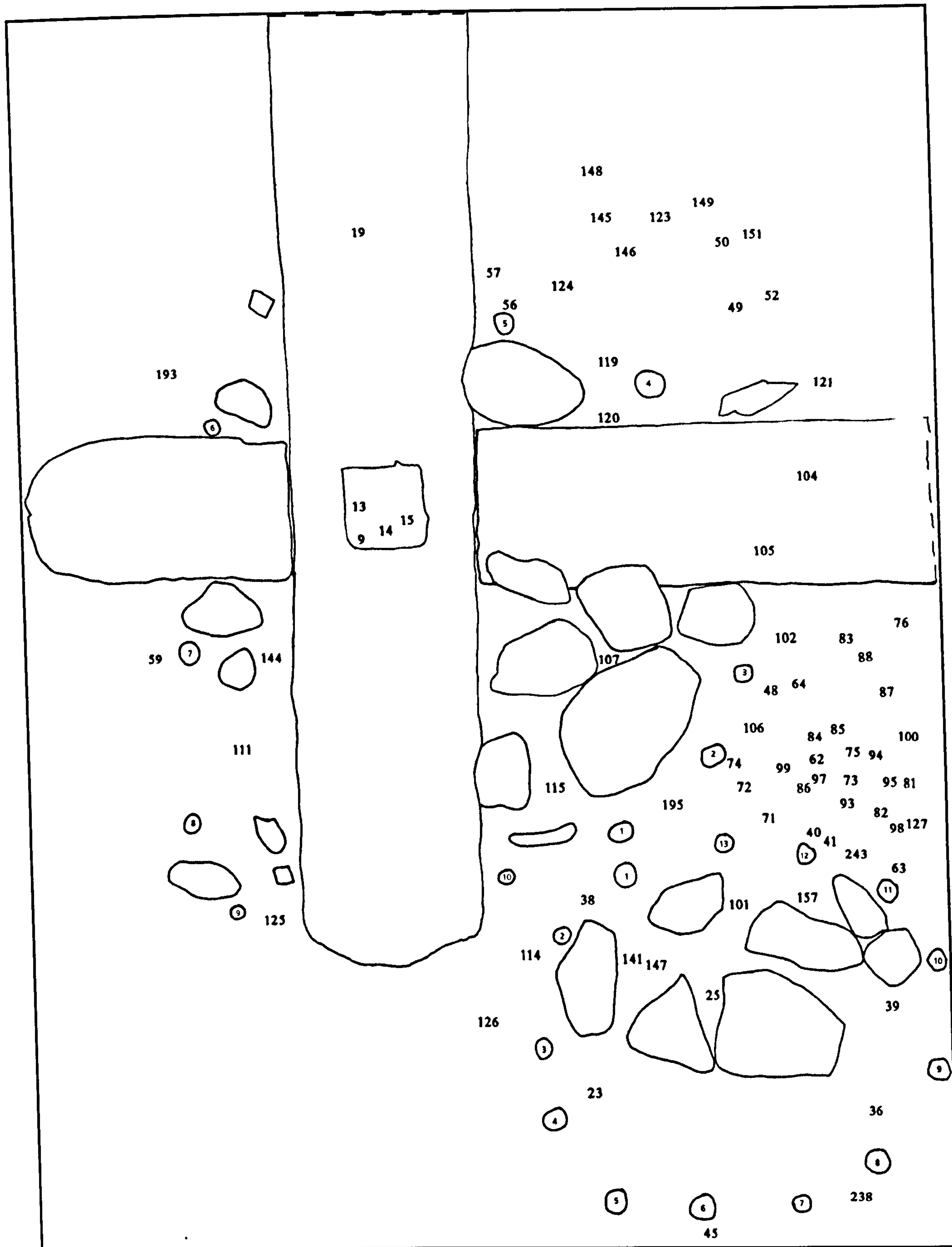


Figure 7.7. Cattle (*Bos*) bones found scattered over Trench 1 on Redcastle marine crannog.



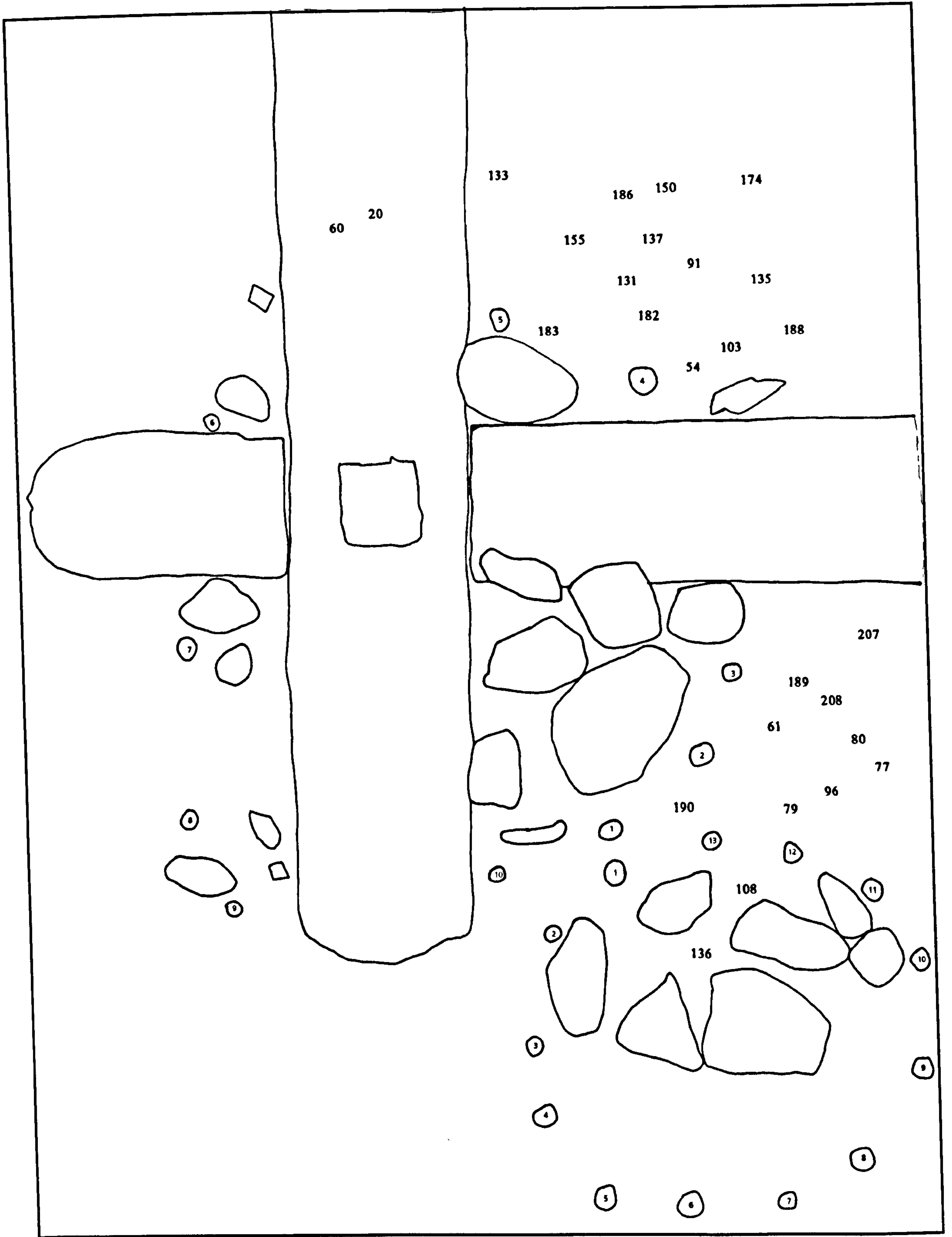


Figure 7.8. Bones identified as sheep/goat (*Ovicaprid*), Red Deer (*Cervus Elaphus*) or medium sized mammals found in Trench 1 on Redcastle.







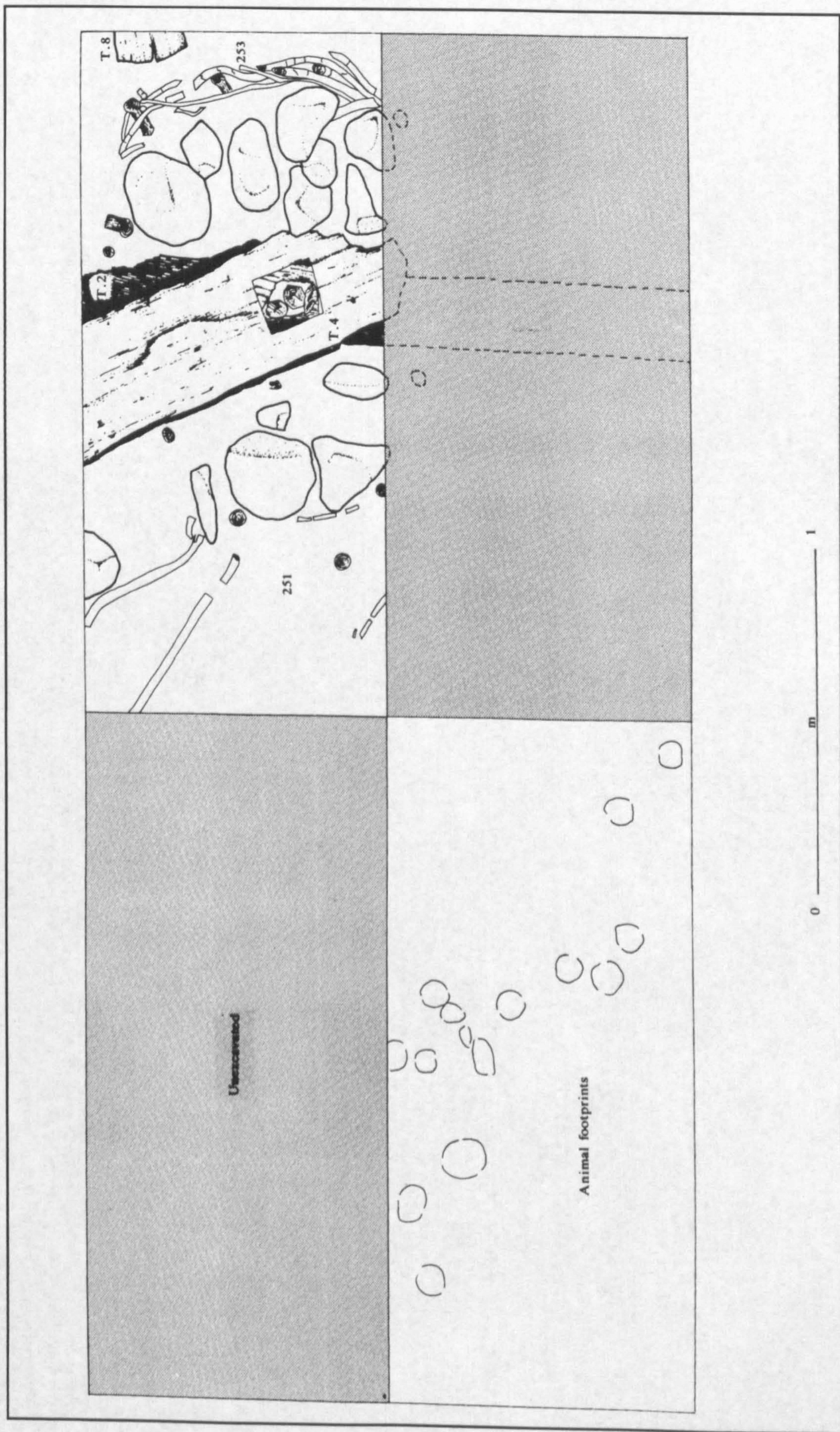


Figure 7.10. Trench 2 on Redcastle marine crannog, showing the principal features and two bone small finds (numbers 251, 253).



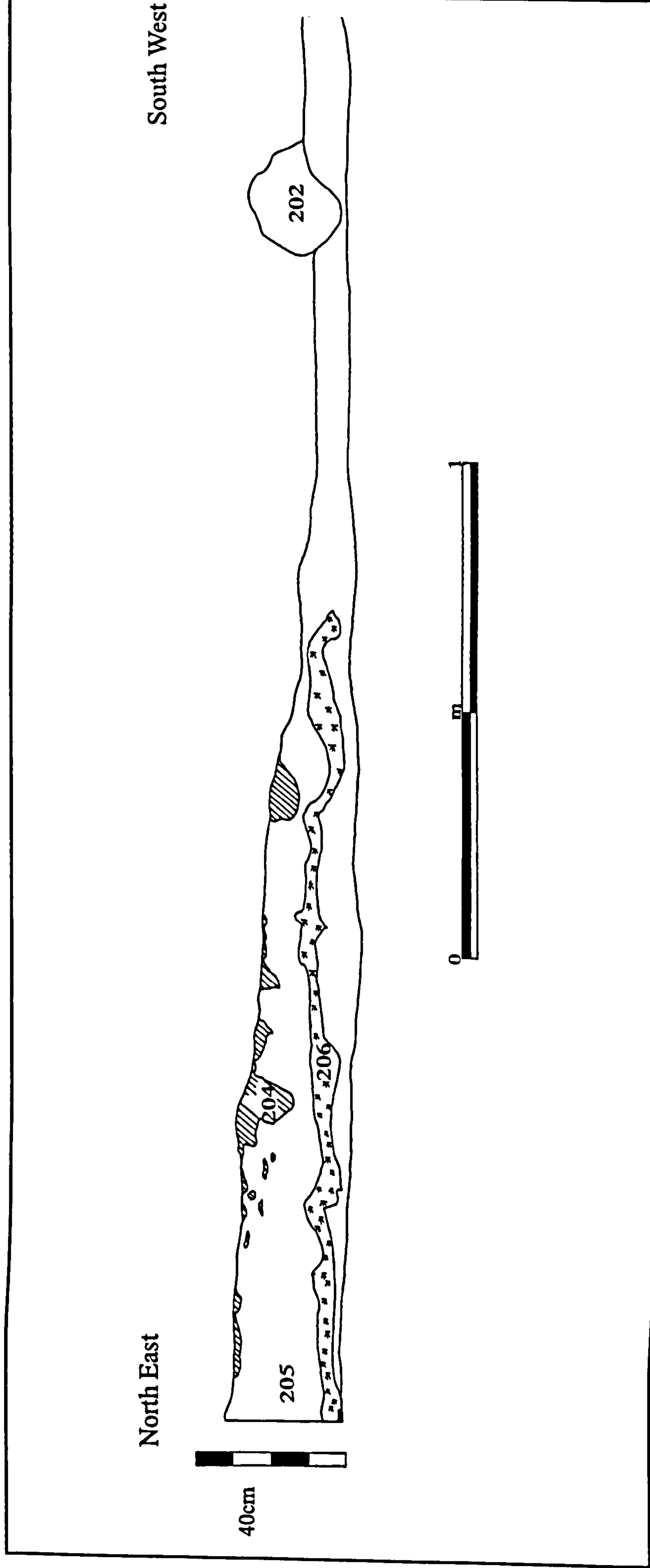


Figure 7.11. Section excavated from Trench 2 on Redcastle marine crannog, showing the various contexts (see Figure 7.1.).



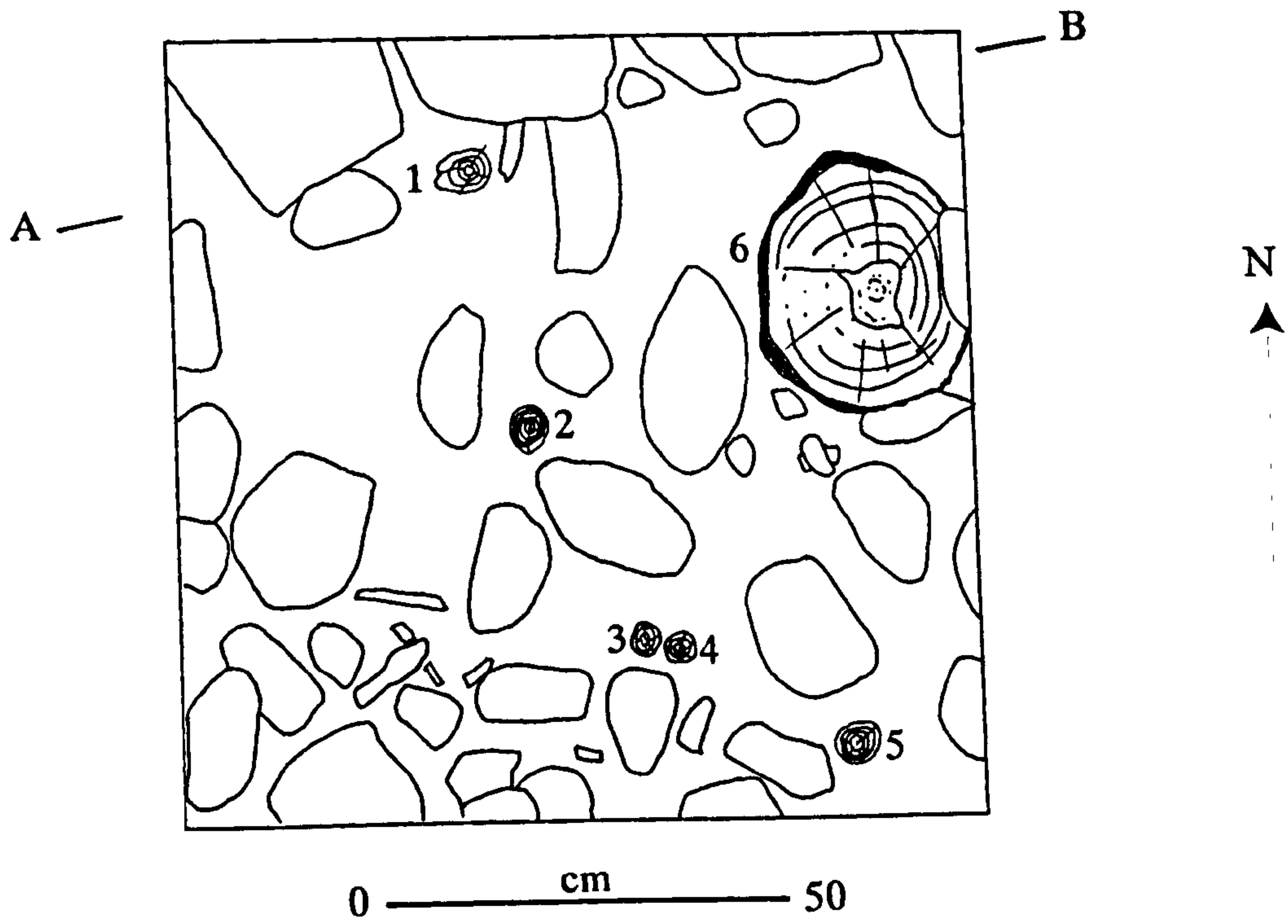


Figure 7.12. Trench 3 on Redcastle marine crannog, showing the six piles and the excavated section line (A-B).

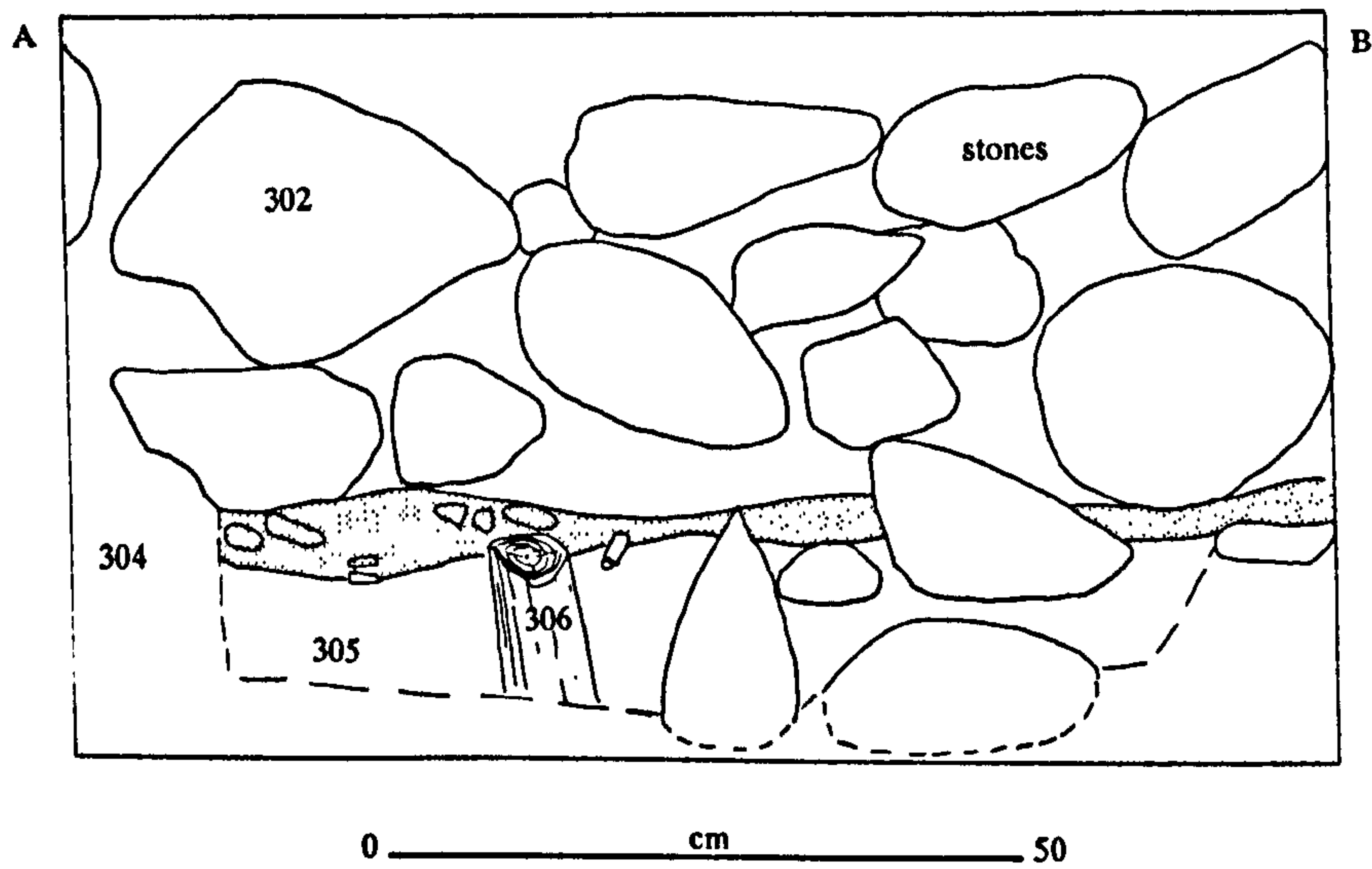


Figure 7.13. Section A-B through stone walling on north edge of Trench 3, showing the various contexts.



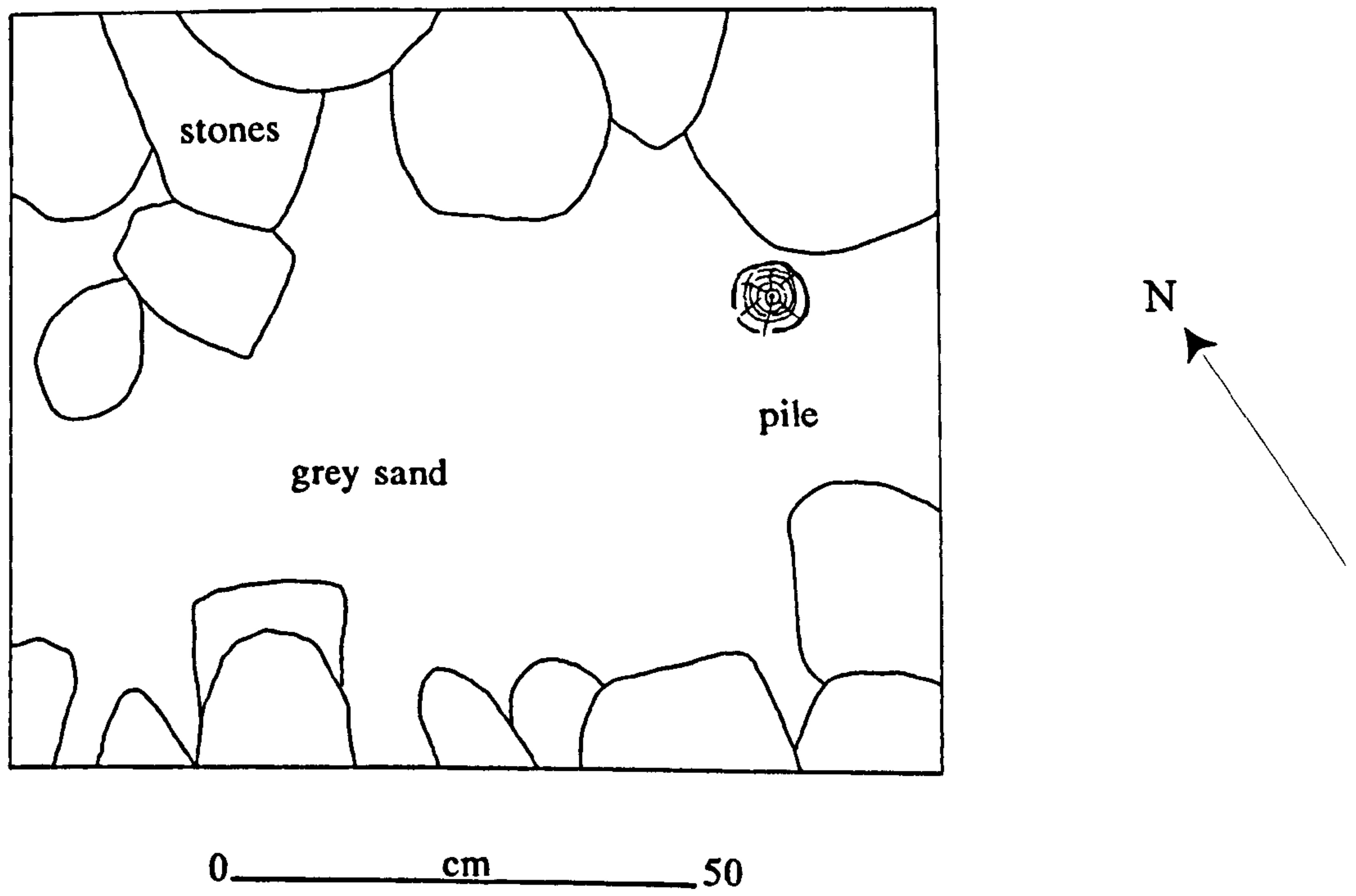


Figure 7.14. Plan of Trench 4 on Redcastle marine crannog.

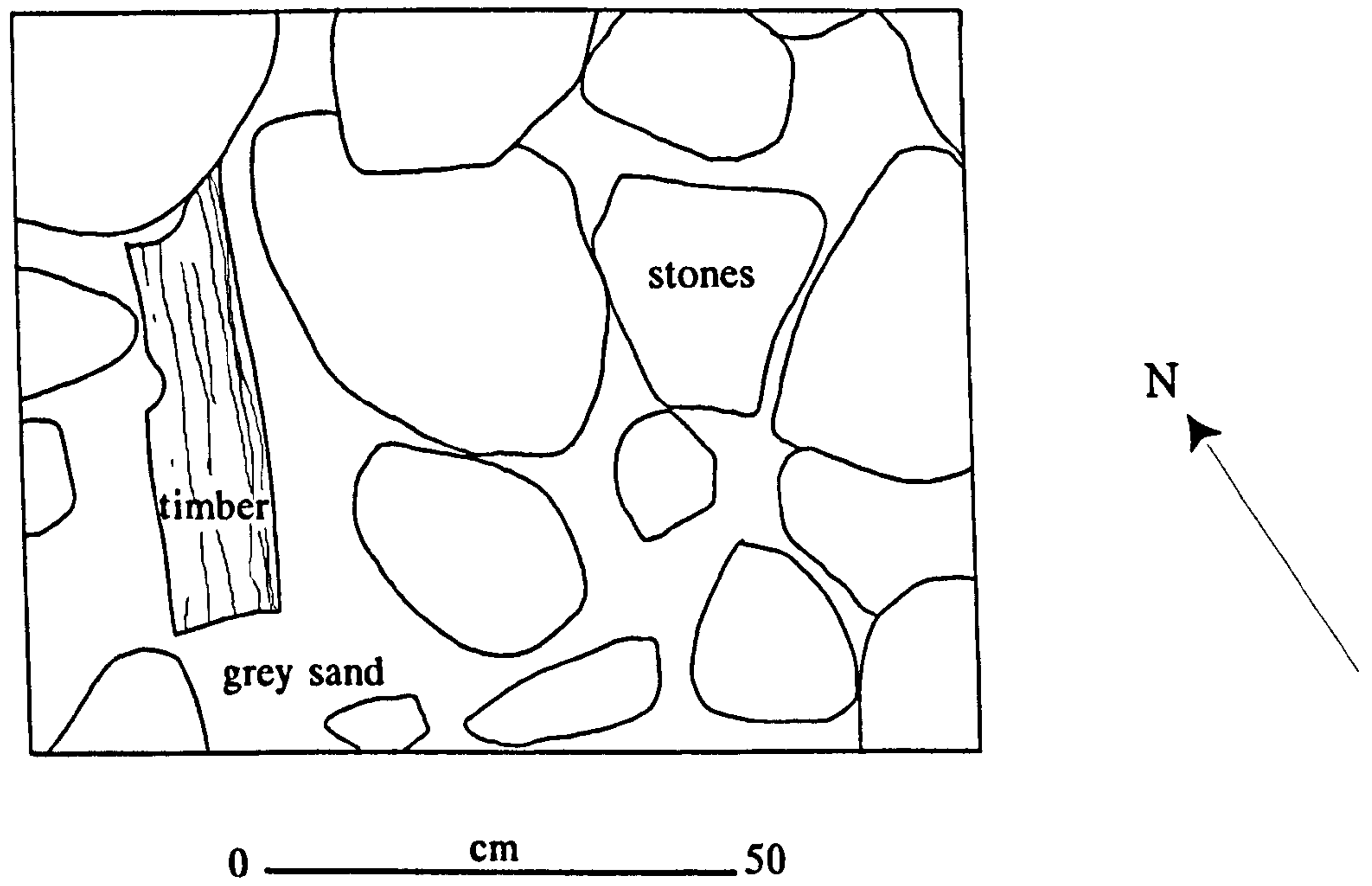


Figure 7.15. Plan of Trench 5 on Redcastle marine crannog.



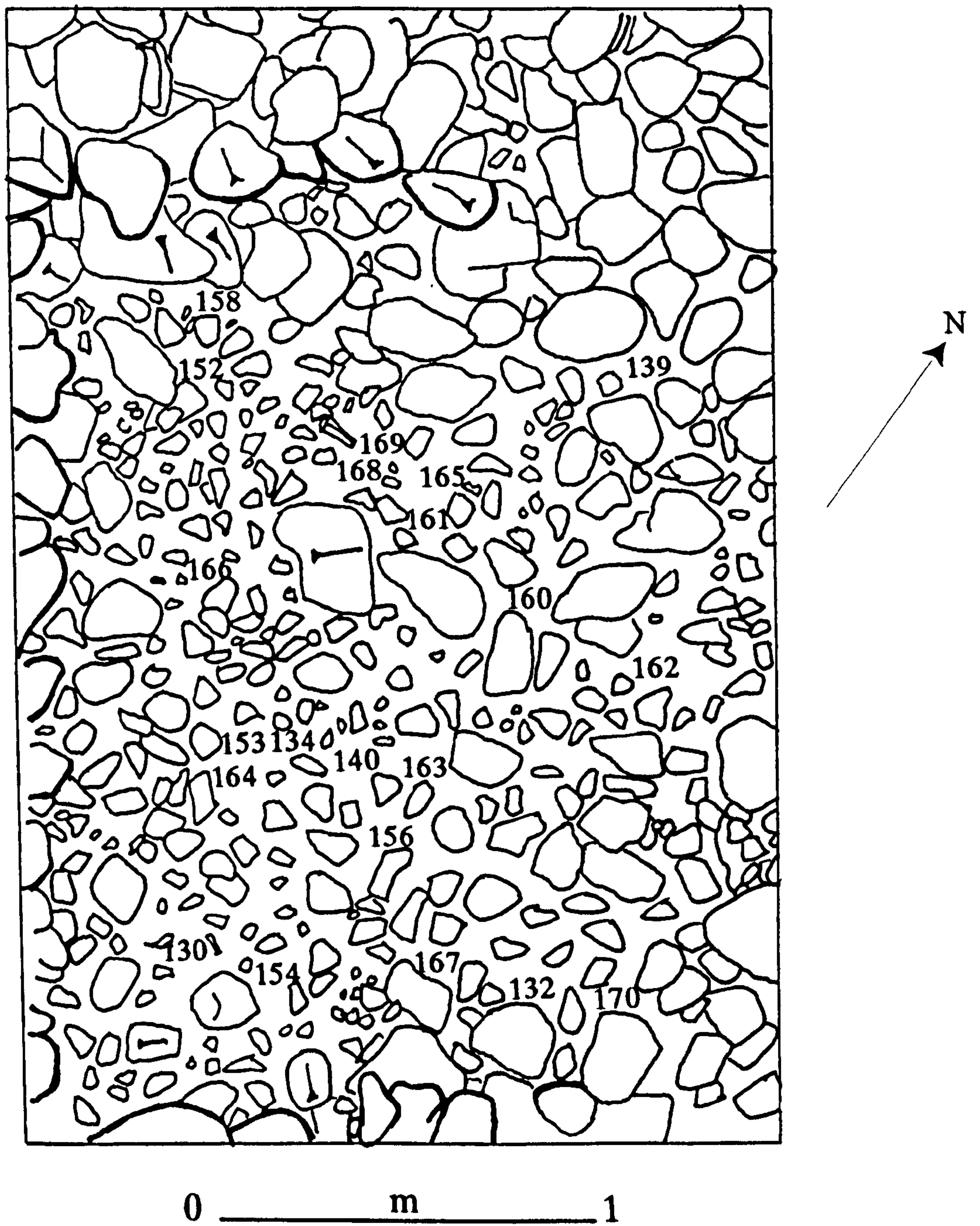


Figure 7.16. Stone mound on Redcastle after excavation, showing the location of animal bones found on the underlying ground surface.







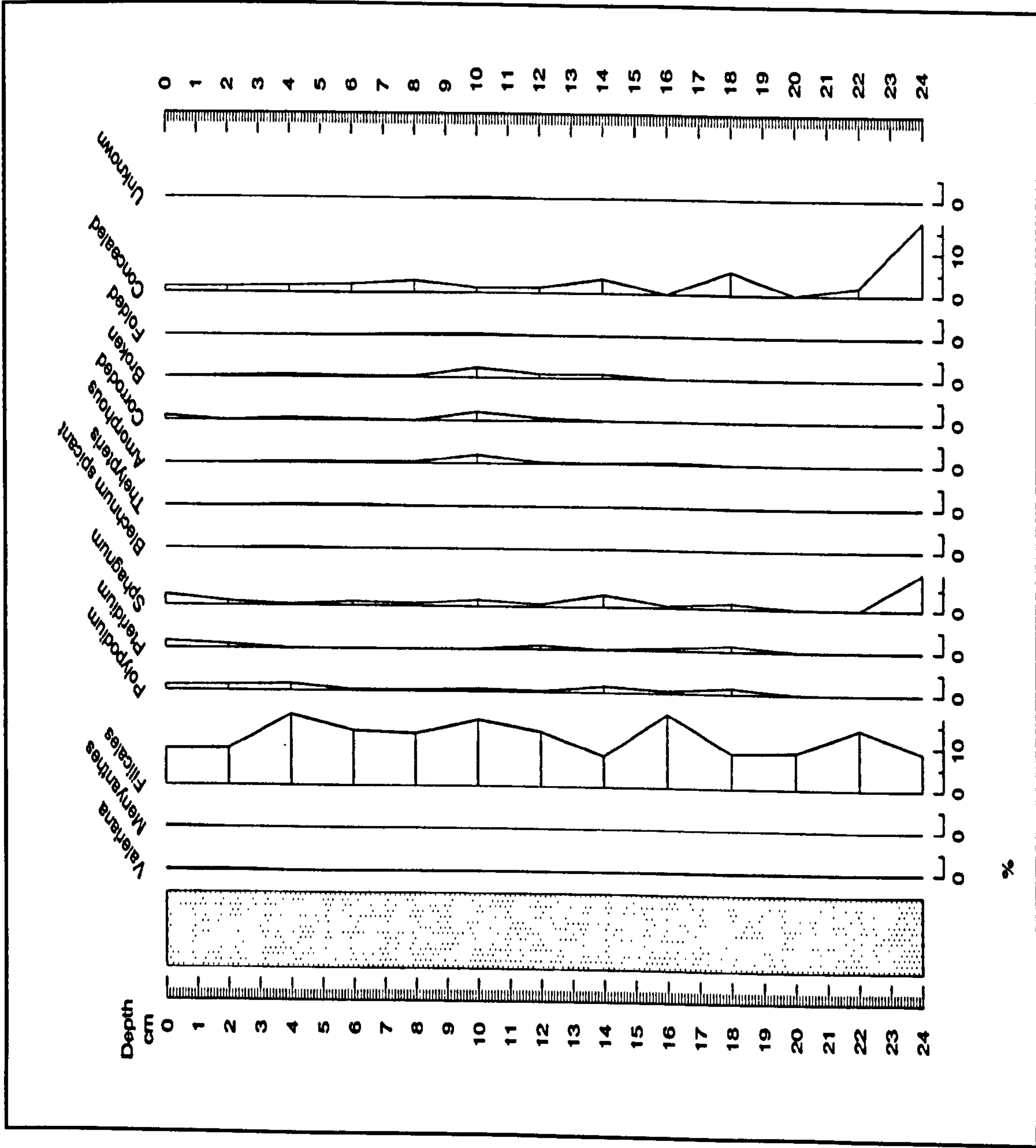


Figure 8.1. (continued) Pollen diagram from monolith RDC95.29, sampled from Redcastle marine crannog.







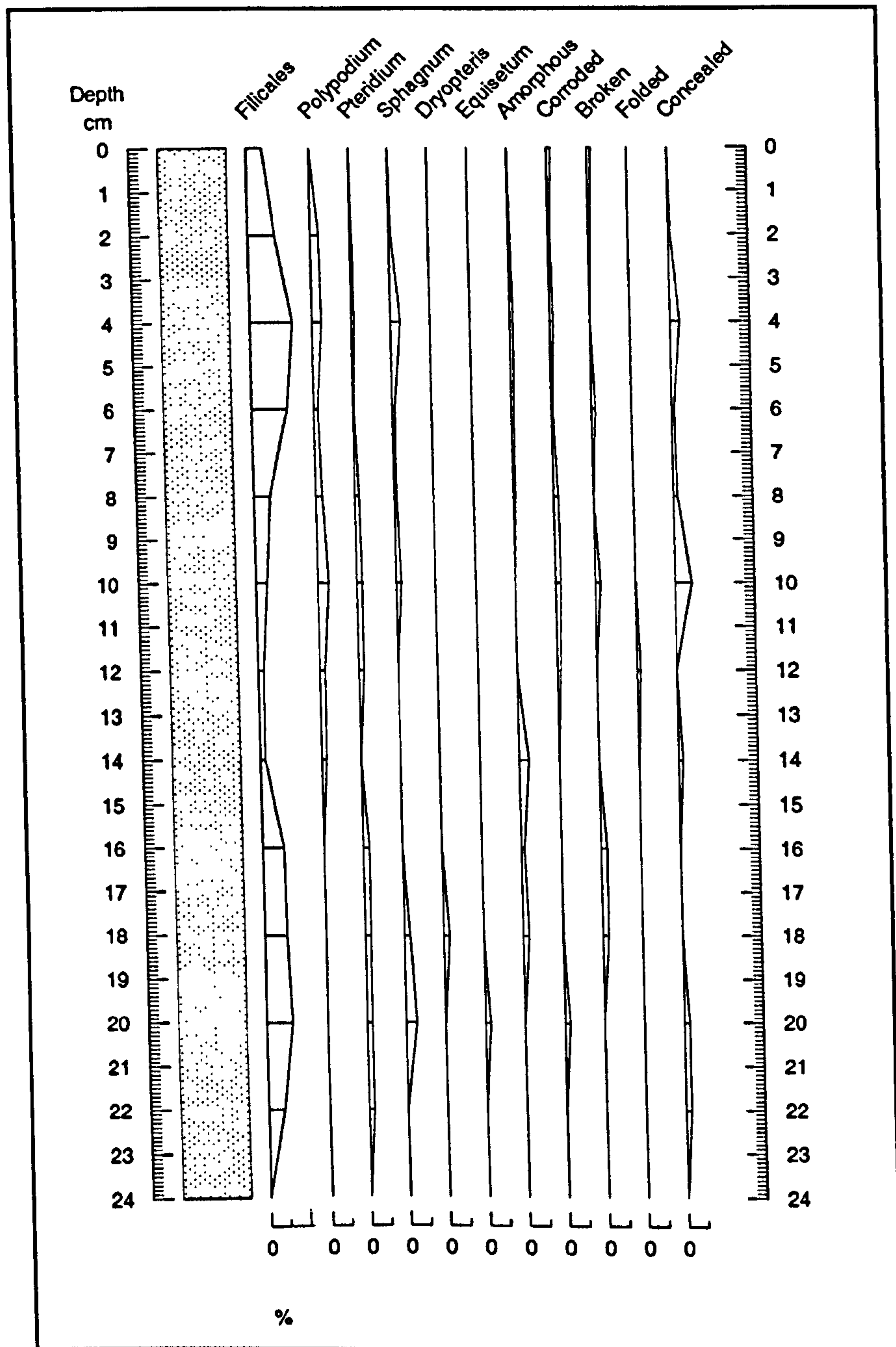


Figure 8.2. (continued) Pollen diagram from monolith RDC95.50, sampled on Redcastle marine crannog.



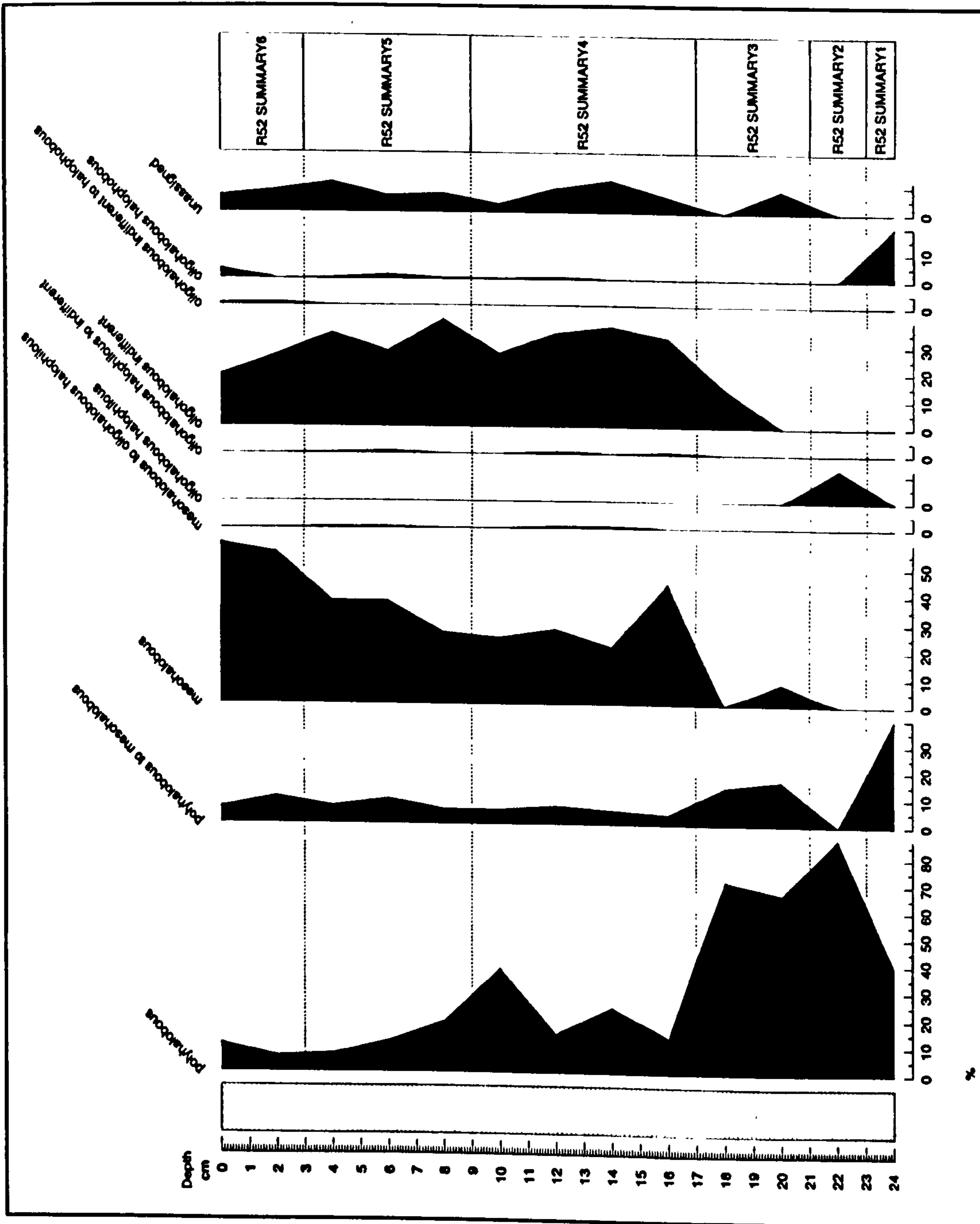


Figure 8.3. Summary diagram of diatom analysis of monolith RDC95.52.











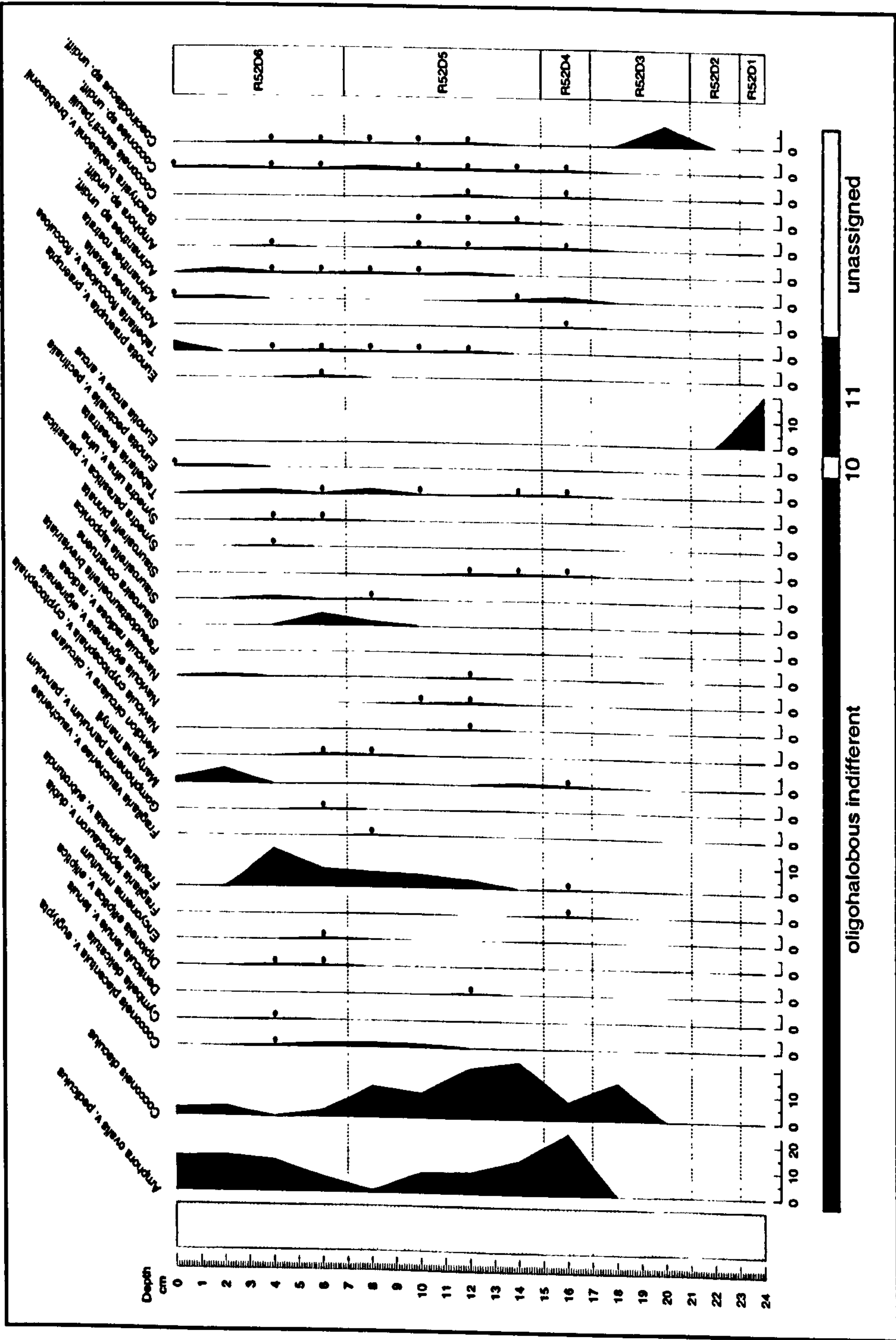


Figure 8.4. continued.







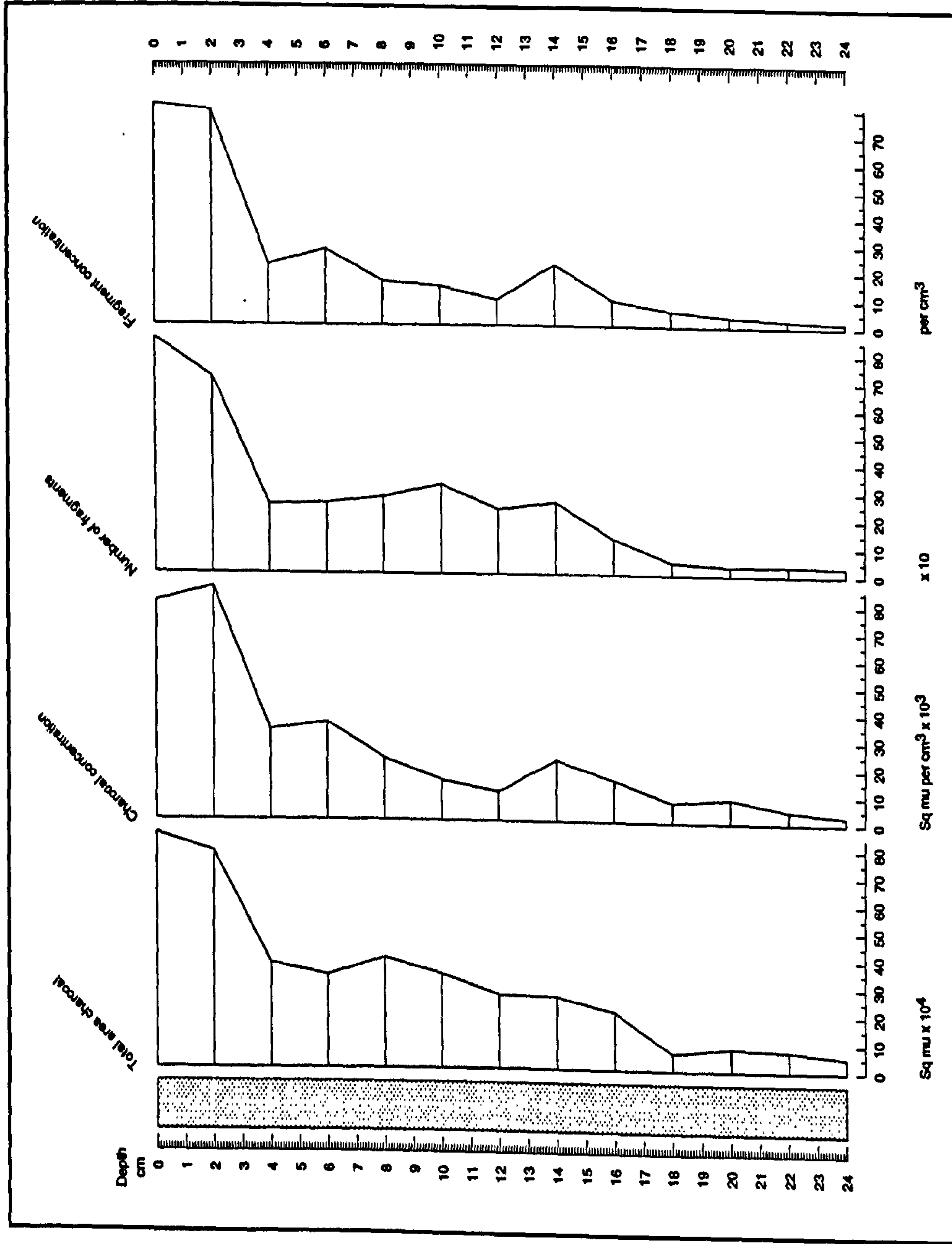


Figure 8.5. Diagram of charcoal remains found in monolith RDC95.29 on Redcastle marine crannog.



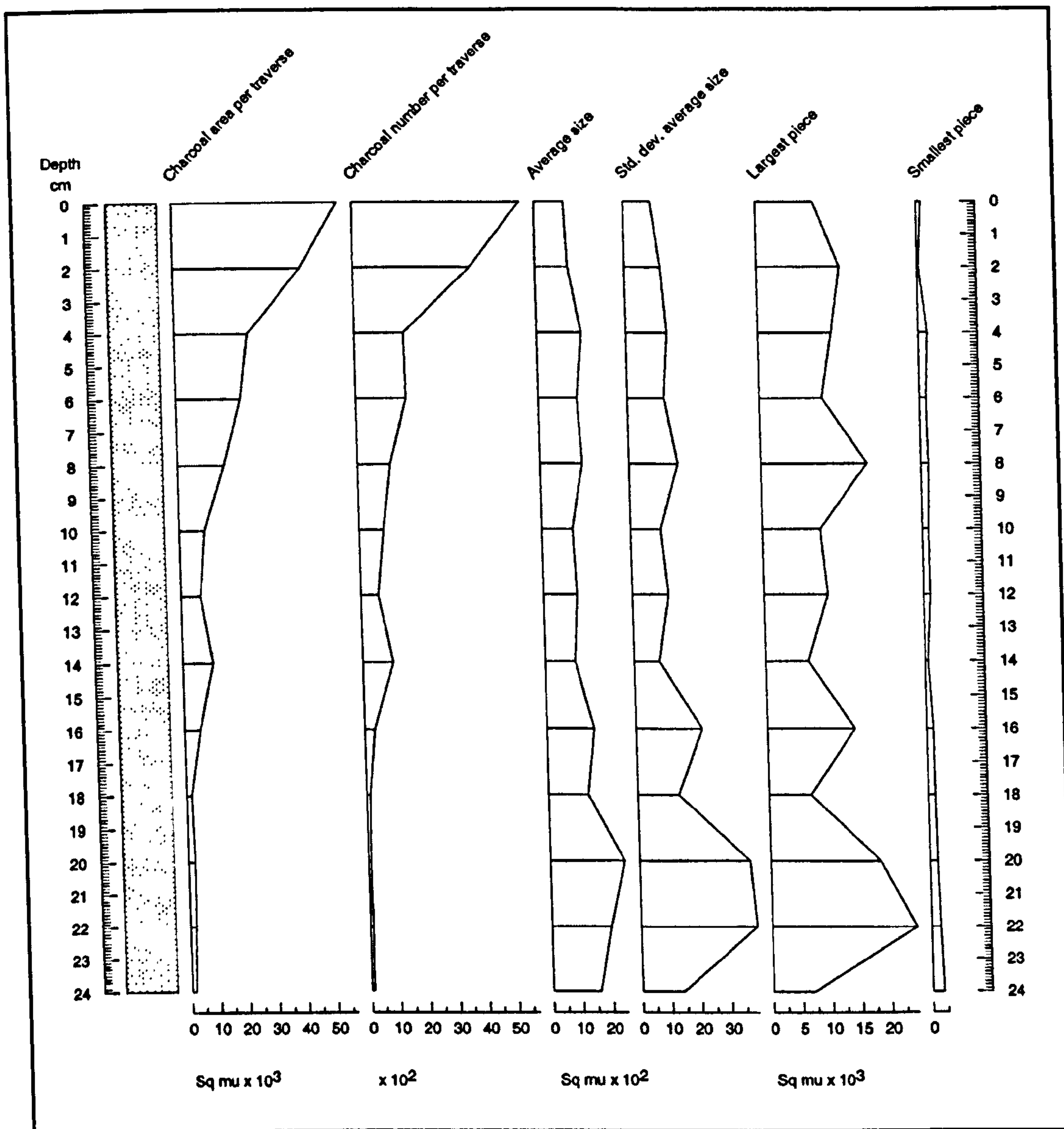


Figure 8.6. Results of charcoal analysis from monolith sample RDC95.29.



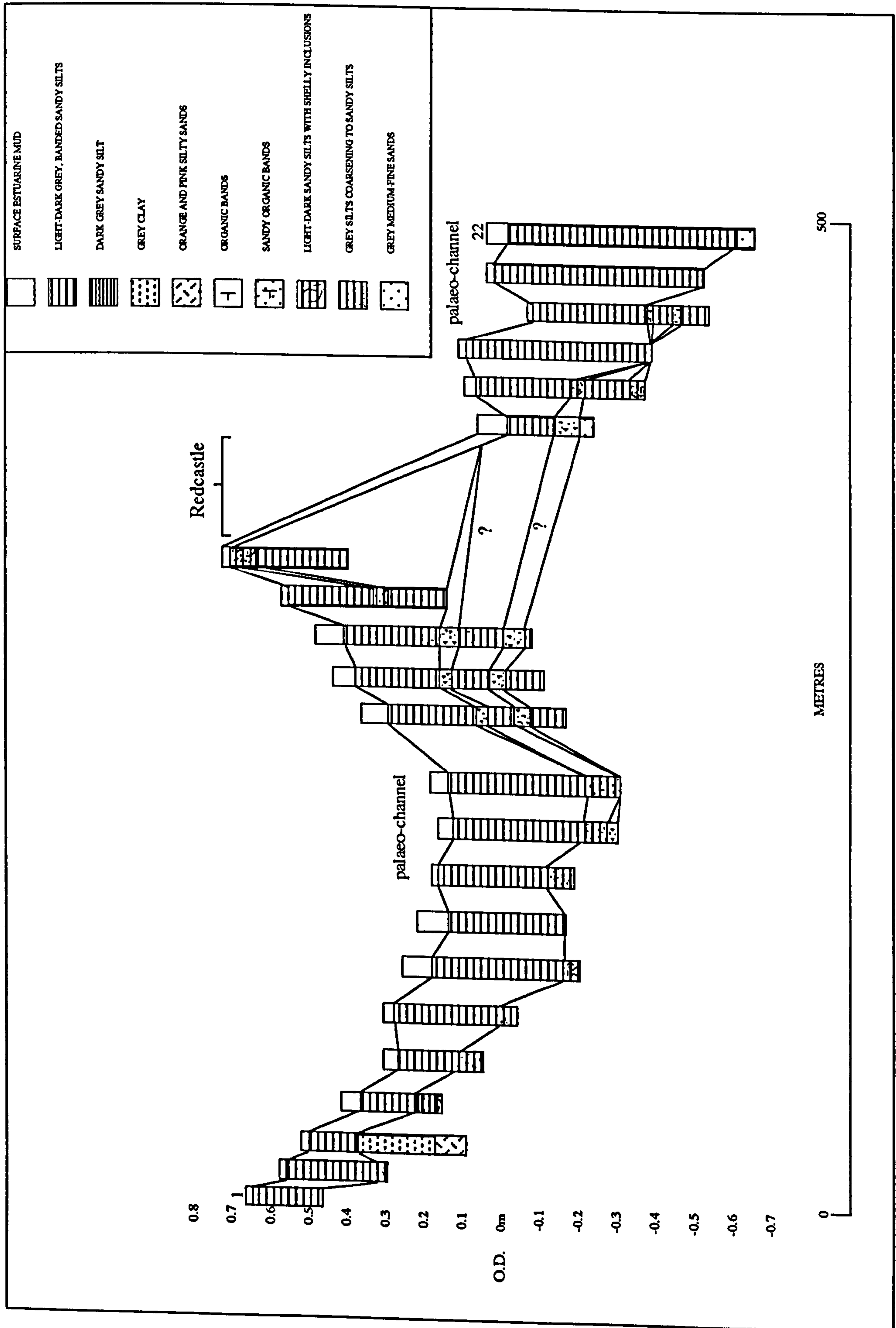


Figure 9.1. Core profile between shoreline and Redcastle marine crannog.



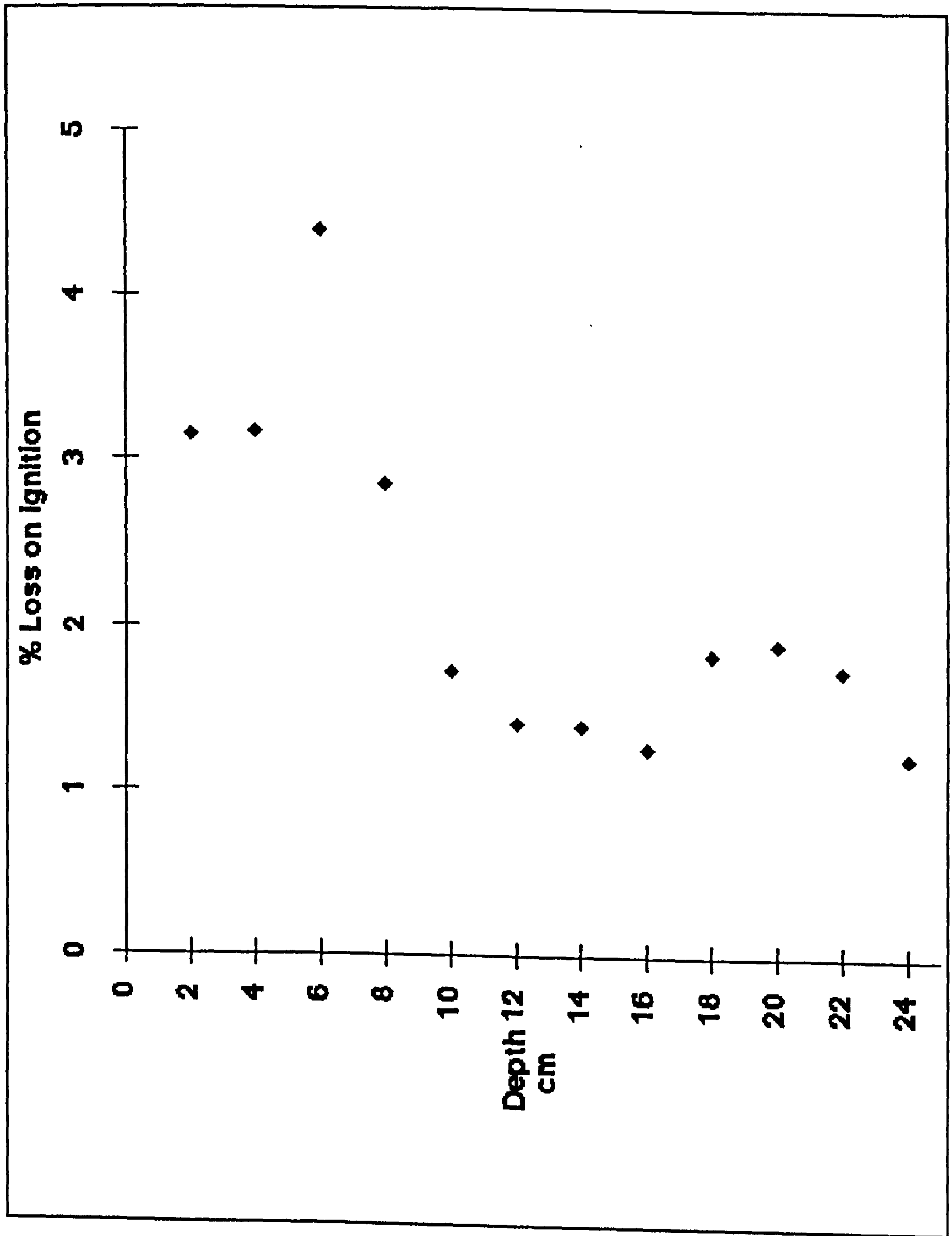


Figure 9.2. Loss on ignition results for monolith RDC95.29.



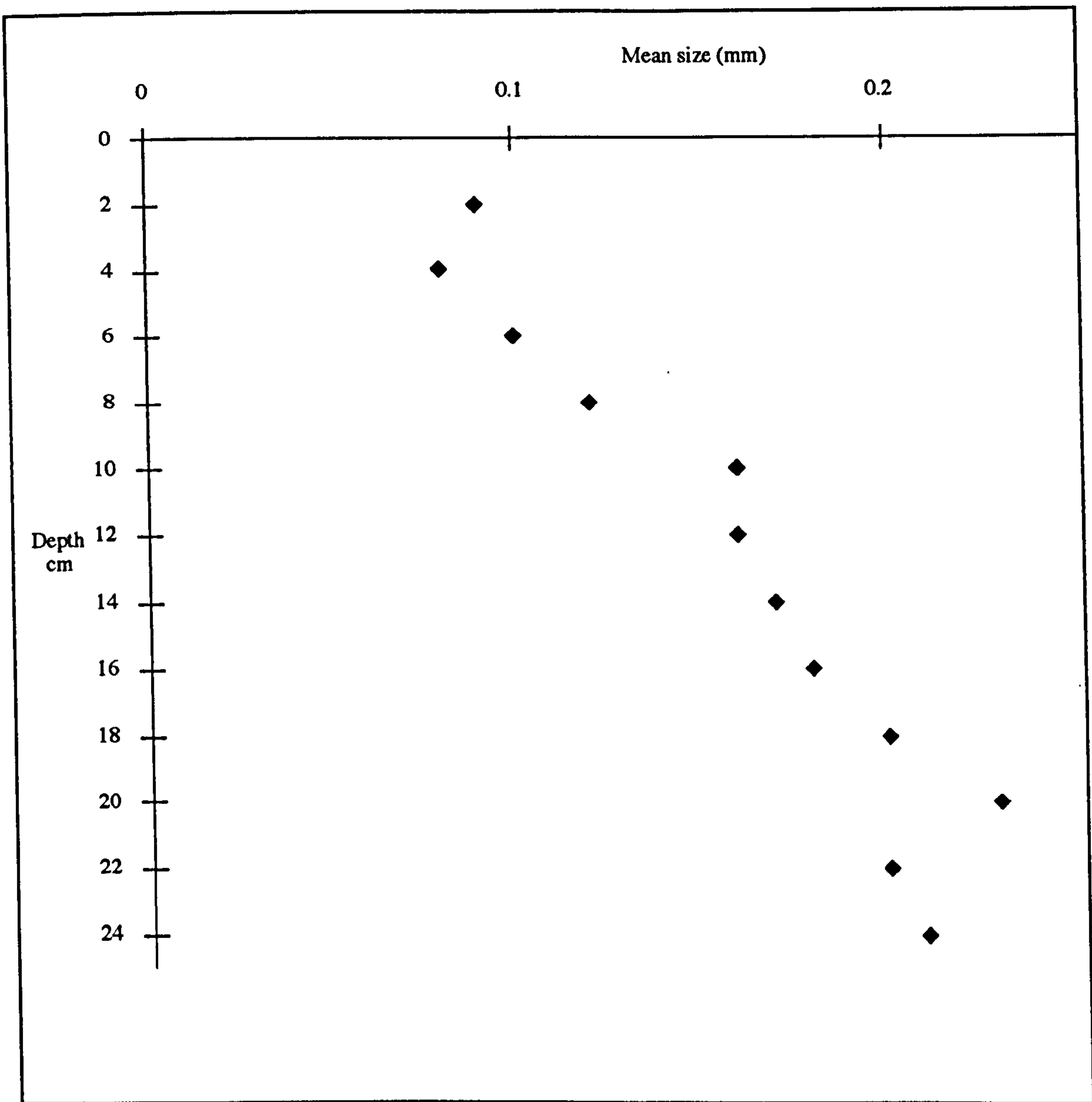


Figure 9.3. Grain size (mm) analysis results from monolith RDC95.29.



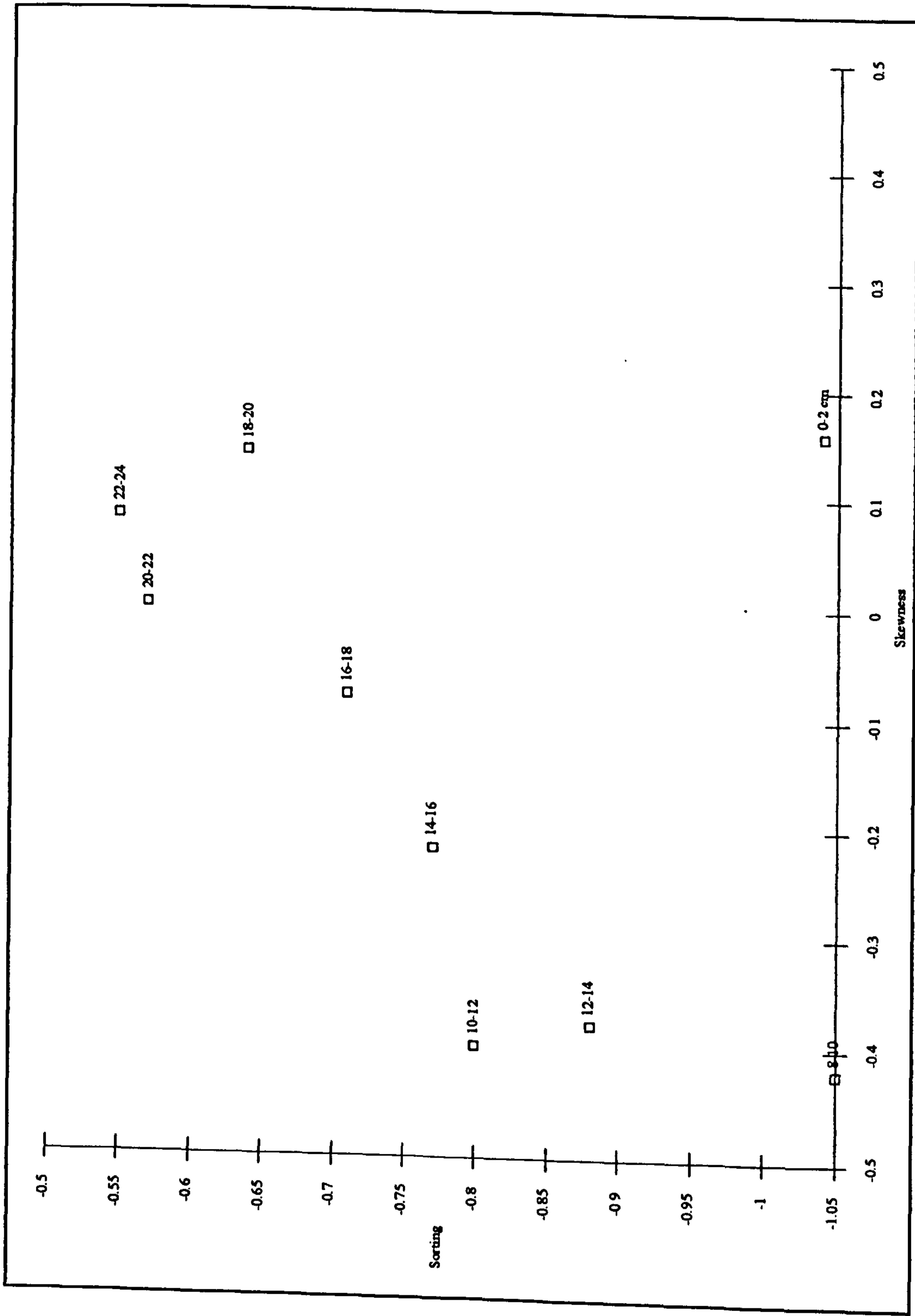


Figure 9.4. Bivariate scattergram showing sorting and skewness characteristics of the sediment analysed from monolith RDC95.29.



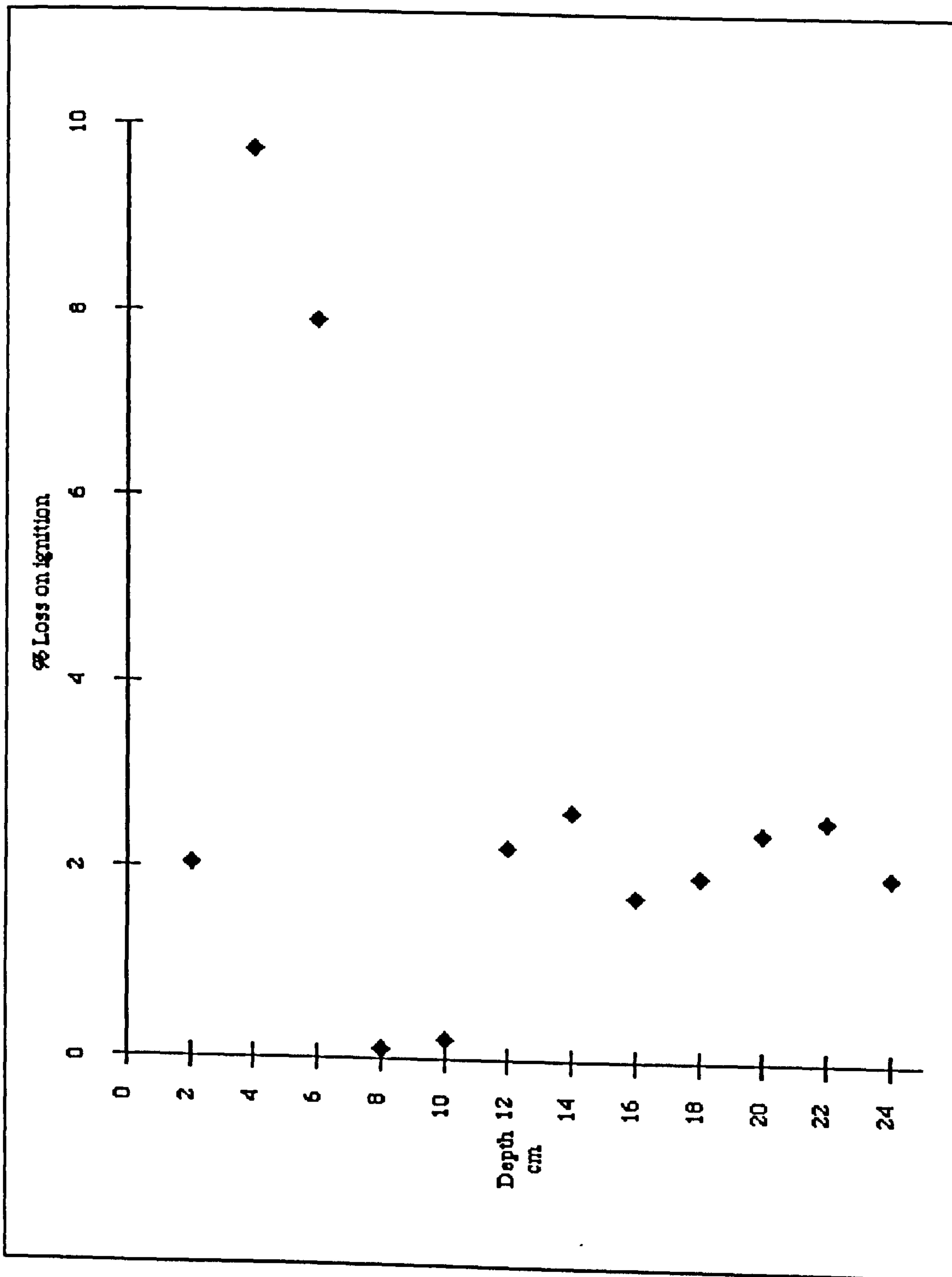


Figure 9.5. Loss on ignition results from monolith RDC95.50.



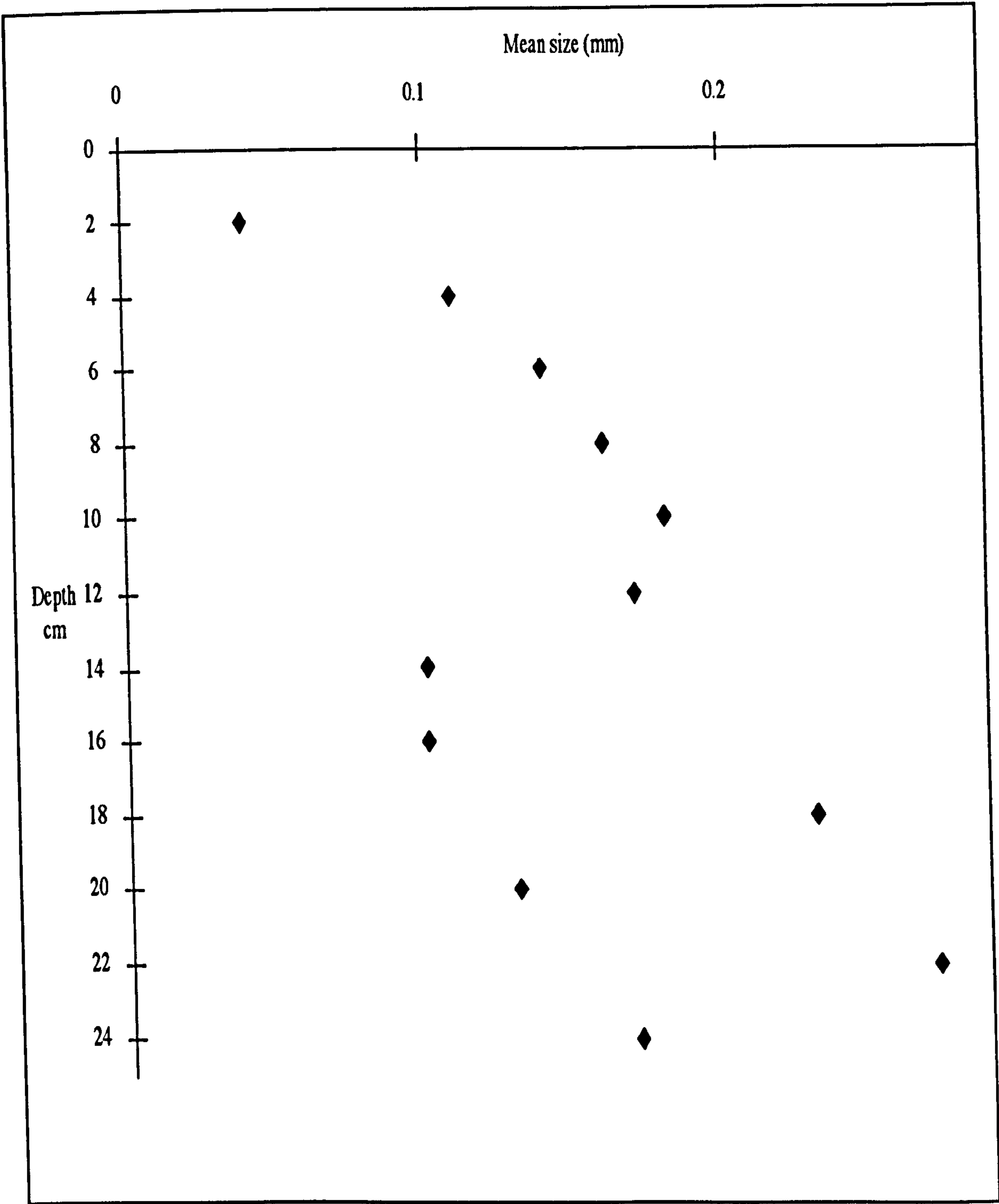


Figure 9.6. Grain size (mm) analysis results from monolith RDC95.50



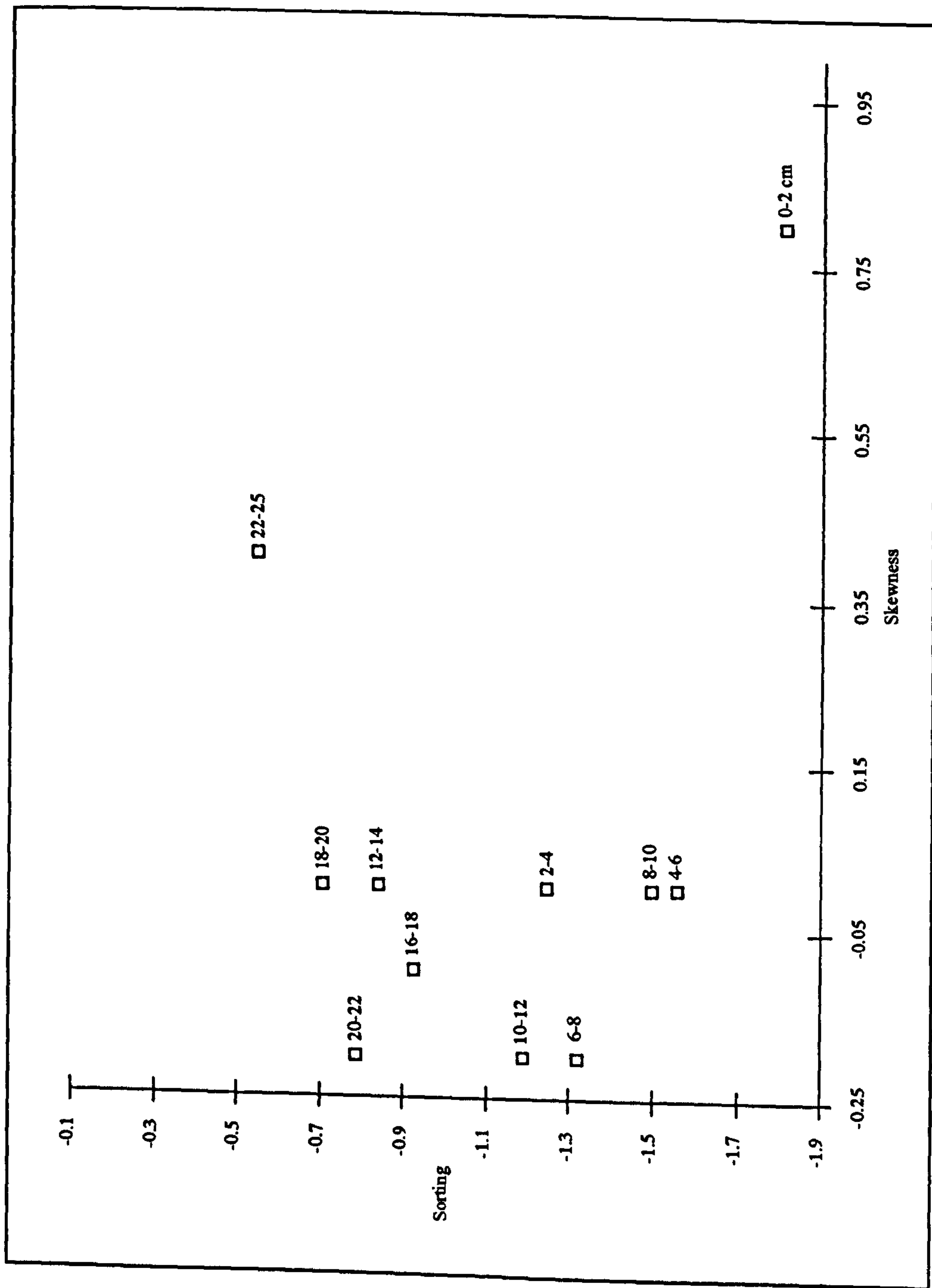


Figure 9.7. Bivariate scattergram showing sorting and skewness characteristics of the sediment analysed from monolith RDC95.50.



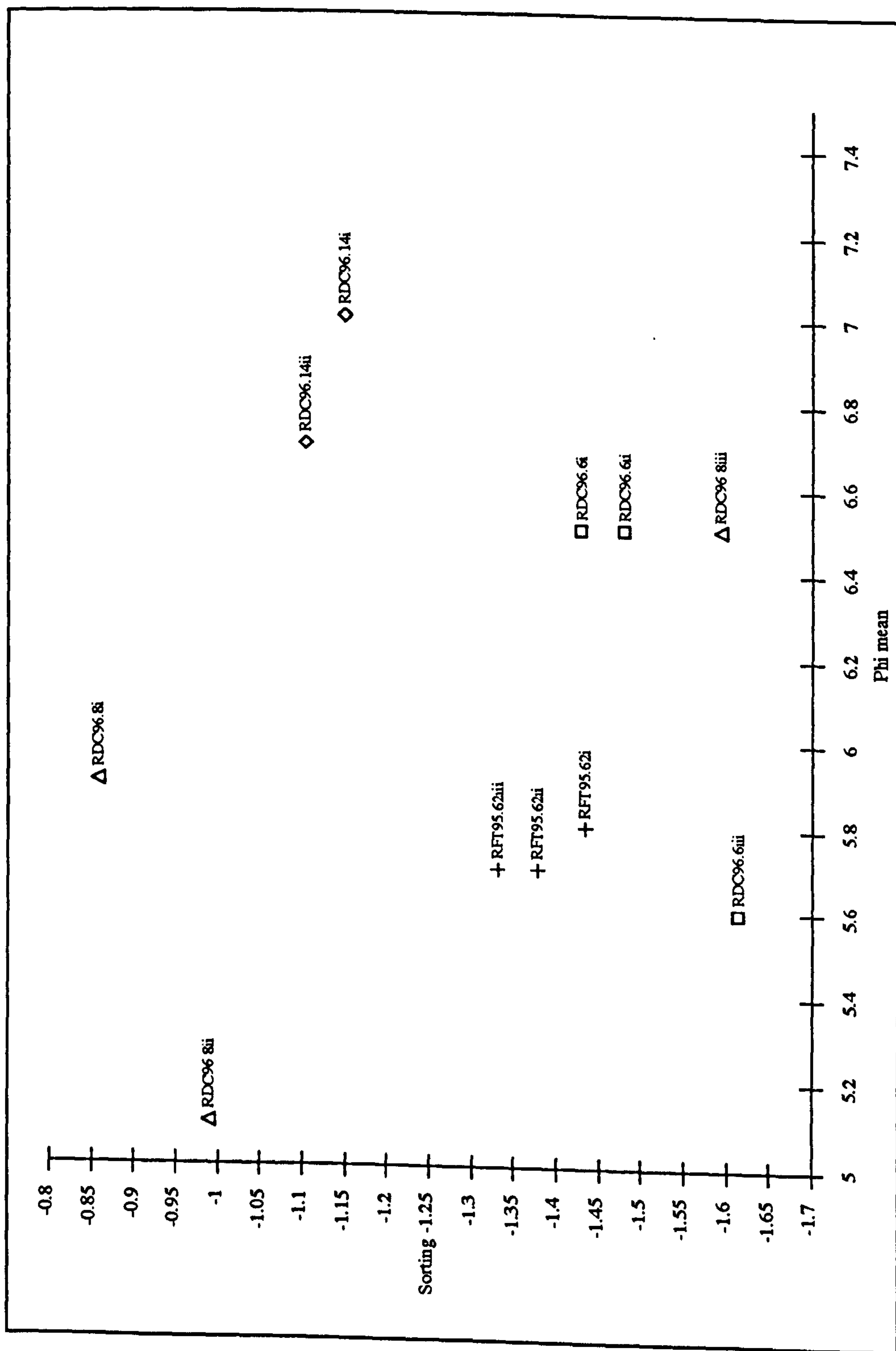


Figure 9.8. Bivariate scattergram of the comparative sediments sampled on and around Redcastle marine crannog.



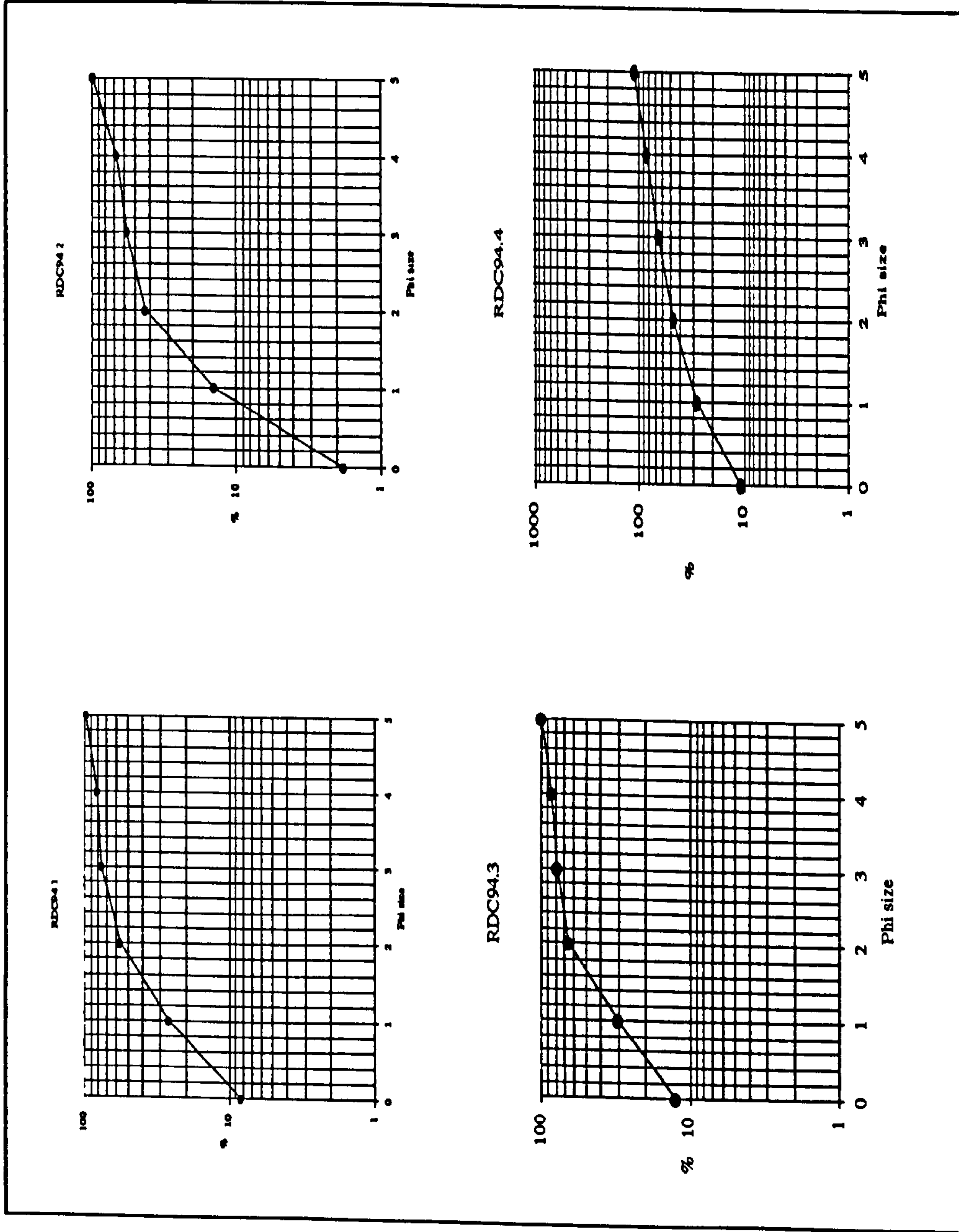


Figure 9.9. Cumulative frequency curves for the phase three sediment samples on Redcastle marine crannog.



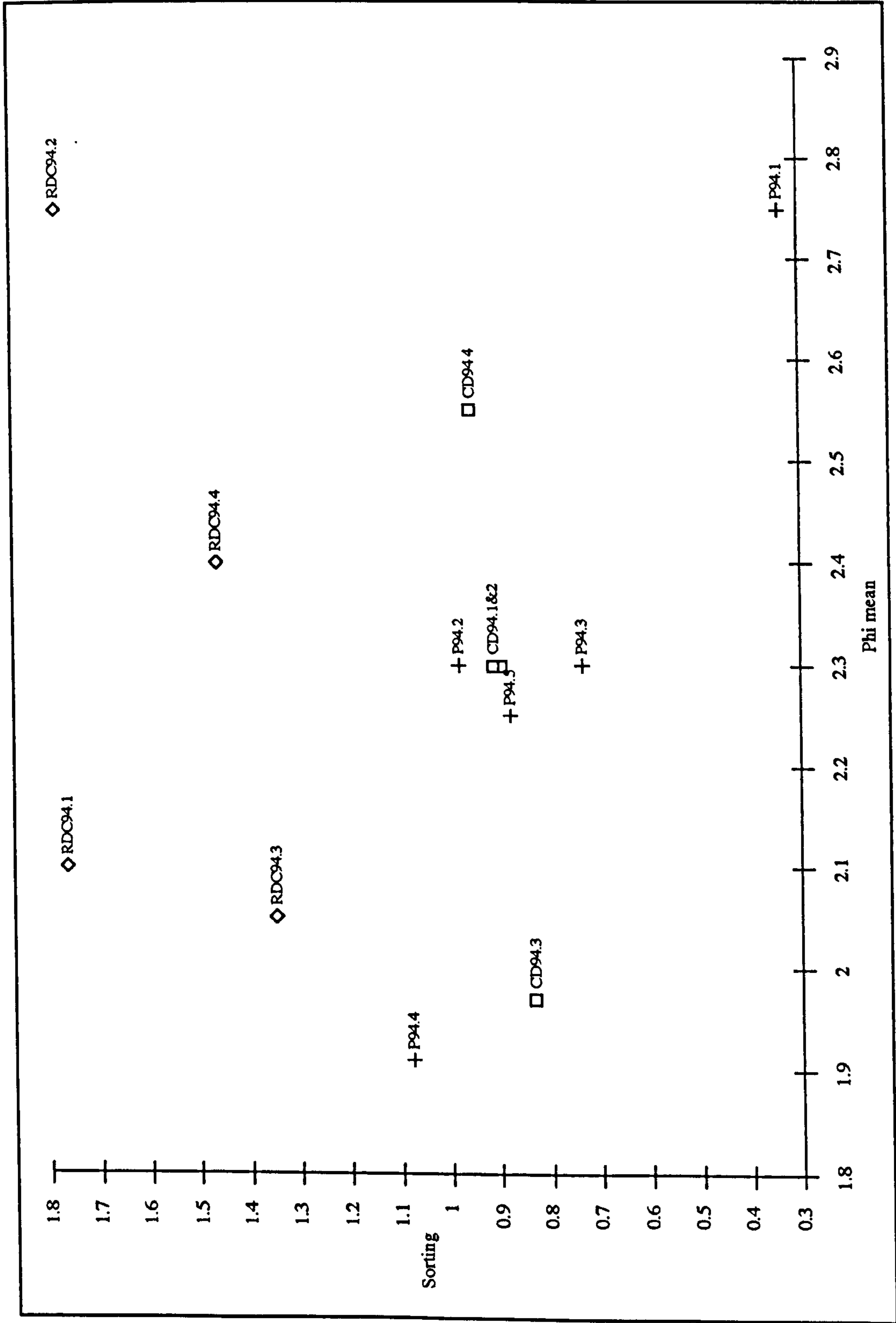


Figure 9.10. Bivariate scattergram (Sorting and Phi mean) of the sediments sampled on Cam Dubh, Phopachy and Redcastle.



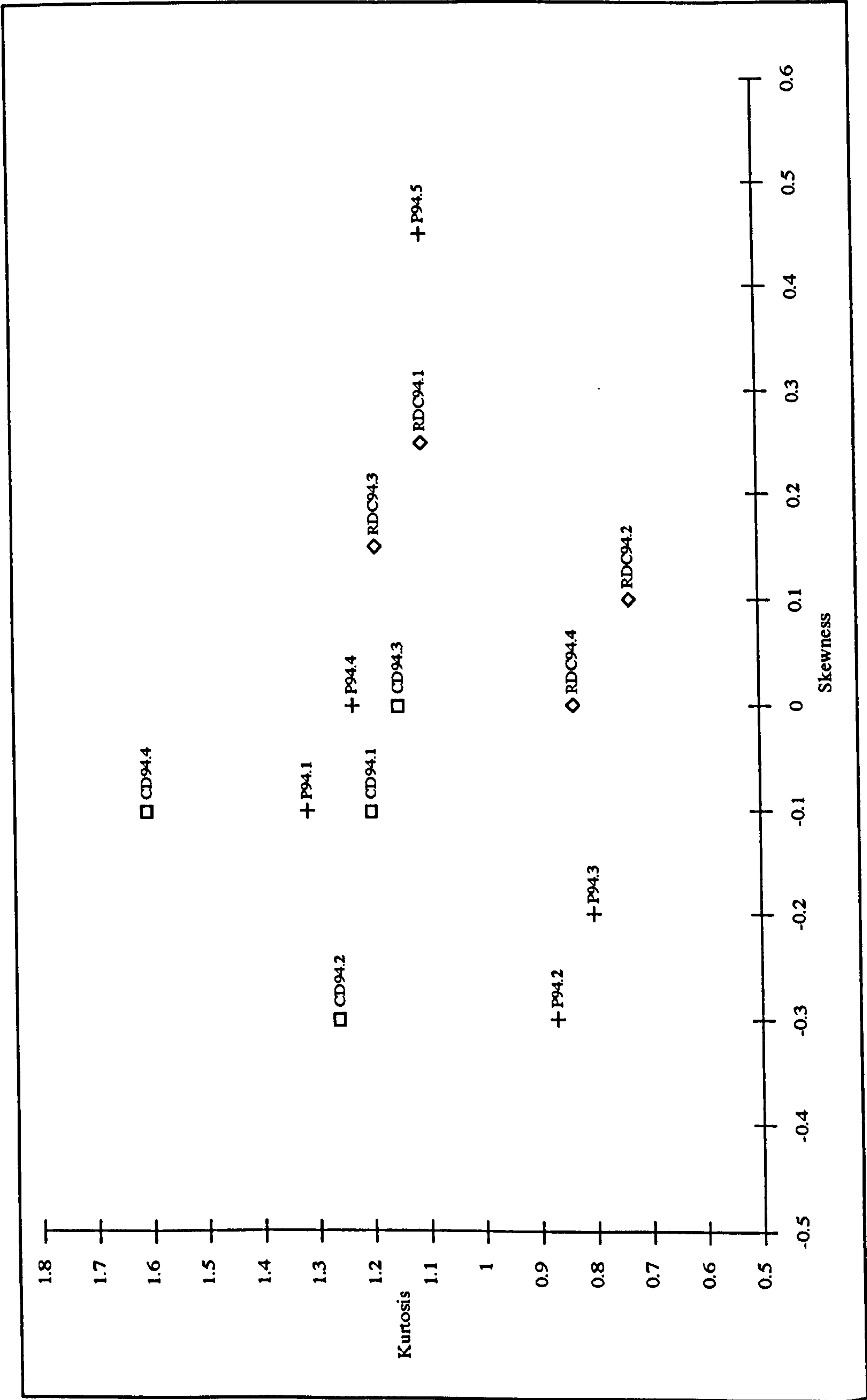


Figure 9.11. Bivariate scattergram (Kurtosis and Skewness) of the sediments sampled on Cam Dubh, Phopachy and Redcastle.



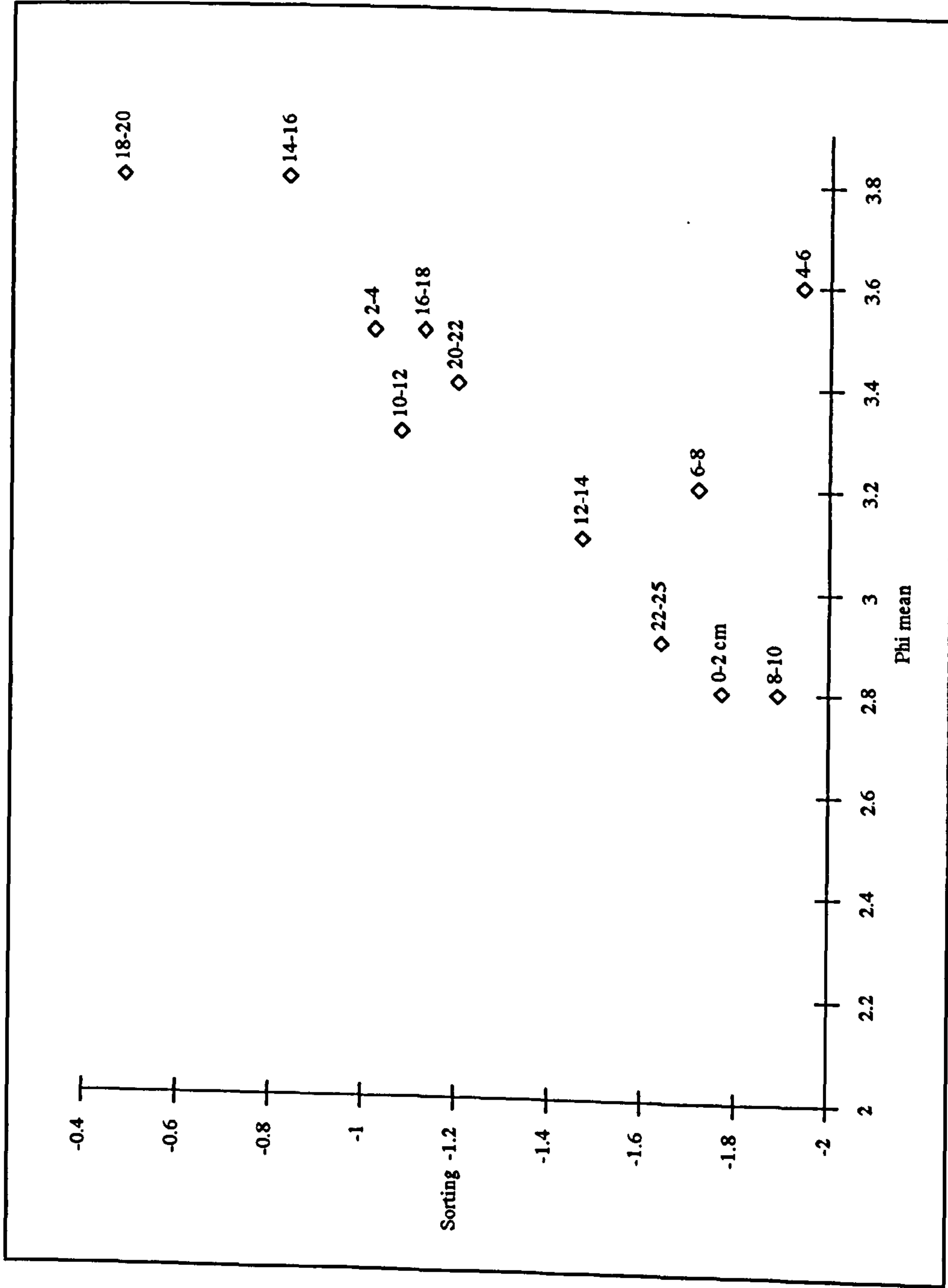


Figure 9.12. Bivariate scattergram (Sorting and Phi mean) of the sedimentary analysis results from monolith RDC95.52.



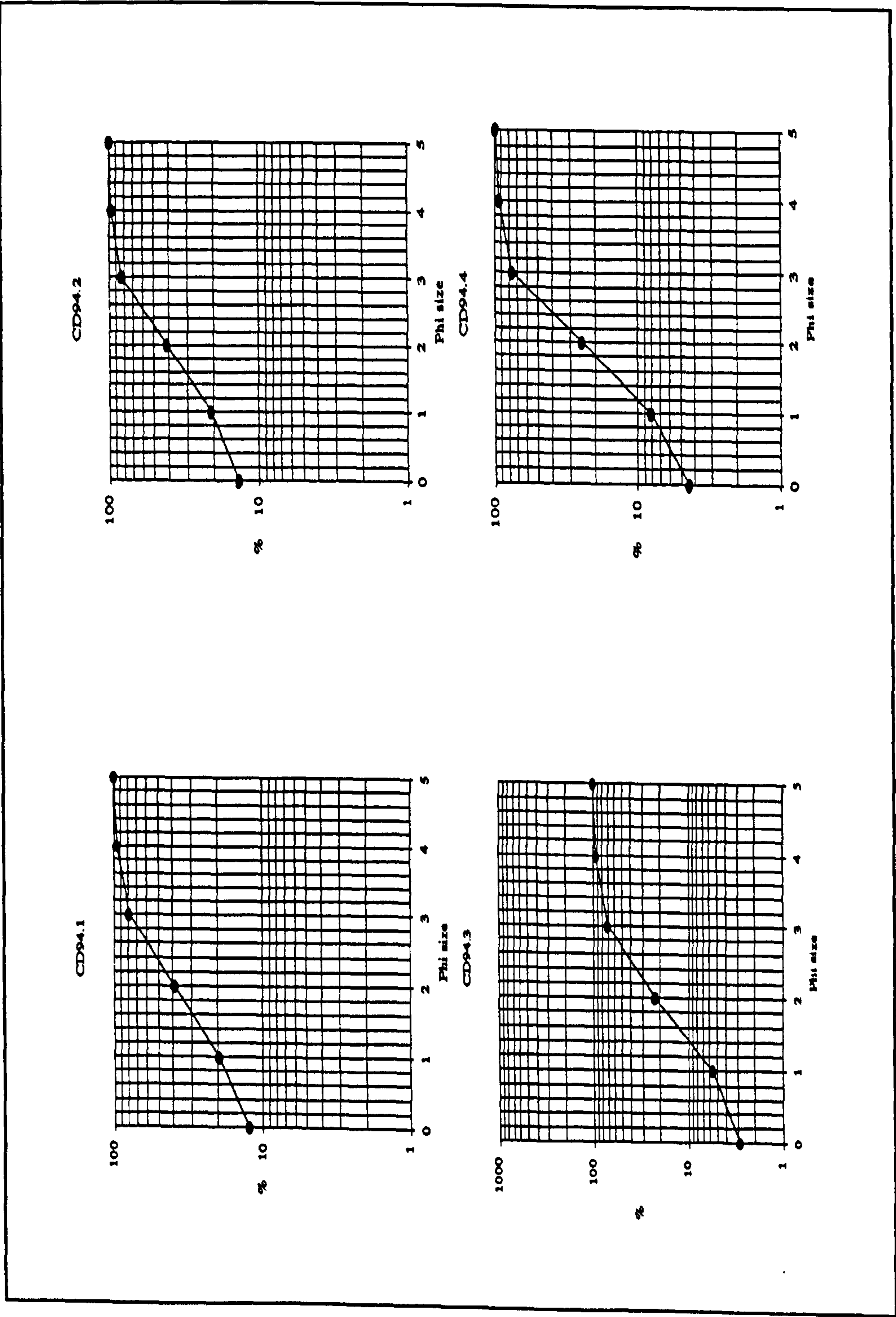


Figure 9.13. Cumulative frequency curves for the sediment samples taken on Cam Dubh marine crannog.



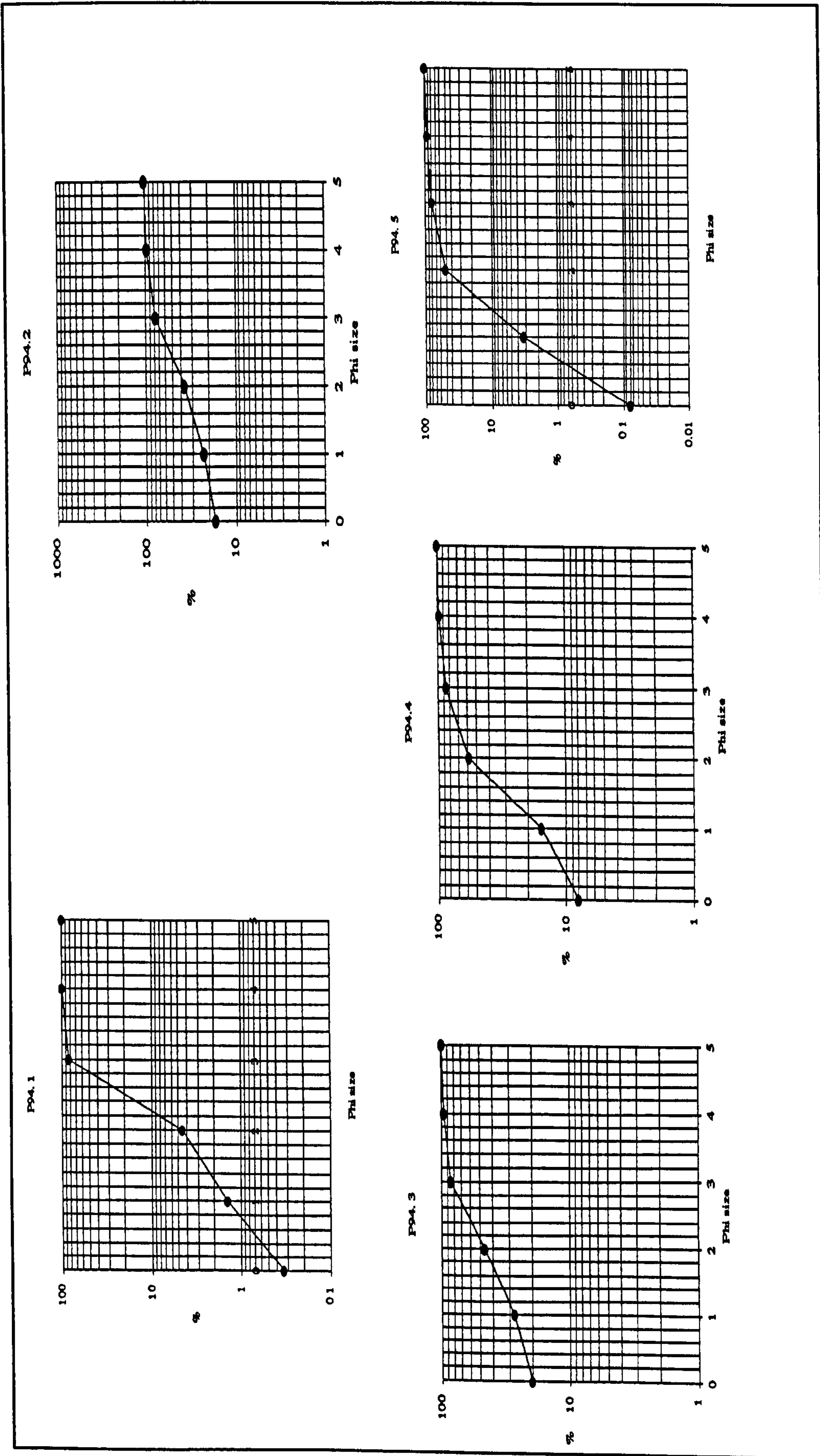


Figure 9.14. Cumulative frequency curves for the sediments sampled on Phopachy marine crannog.



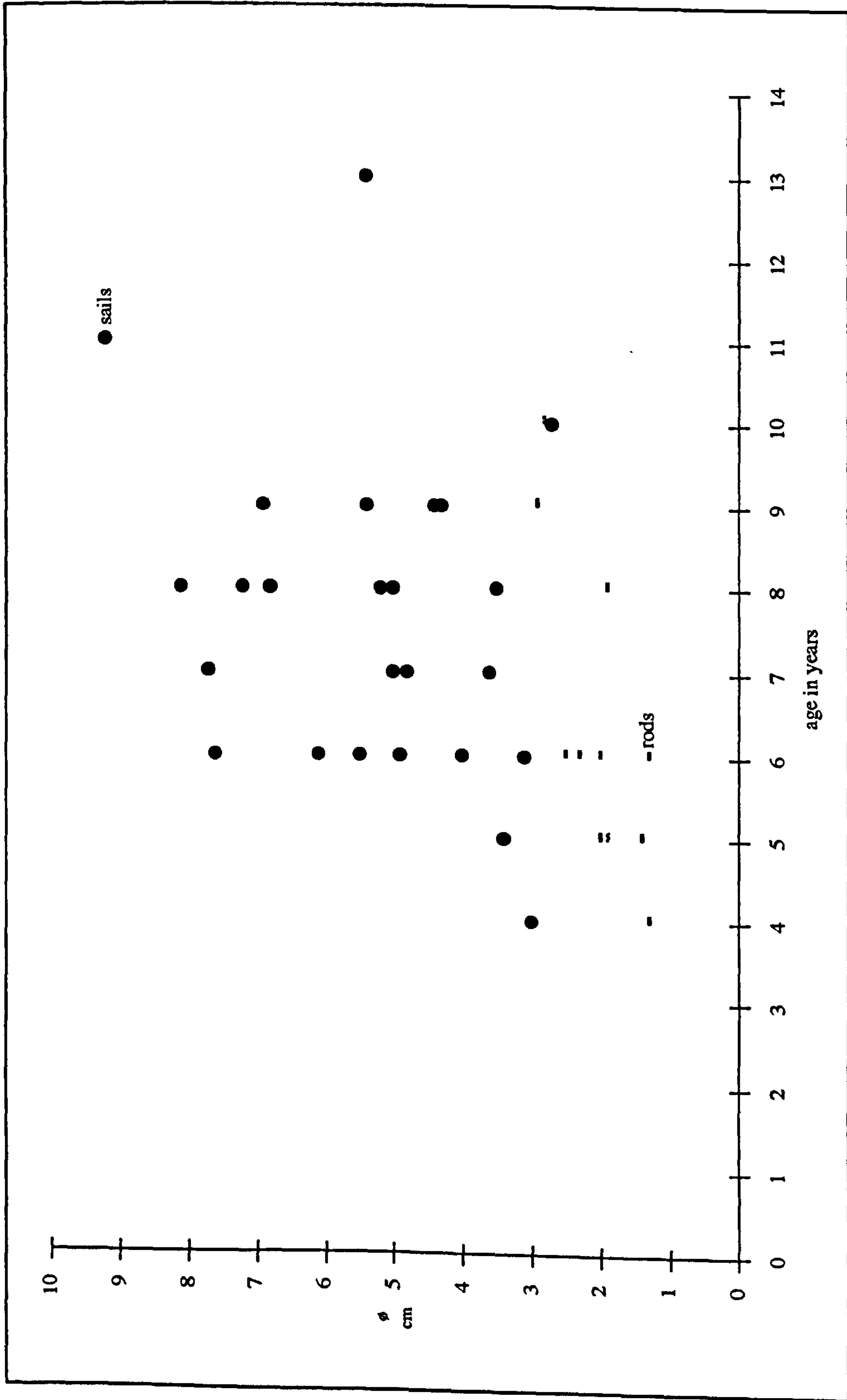


Figure 10.1. Bivariate scattergram comparing the sails and rods from all the wattle pits on Redcastle marine crannog.



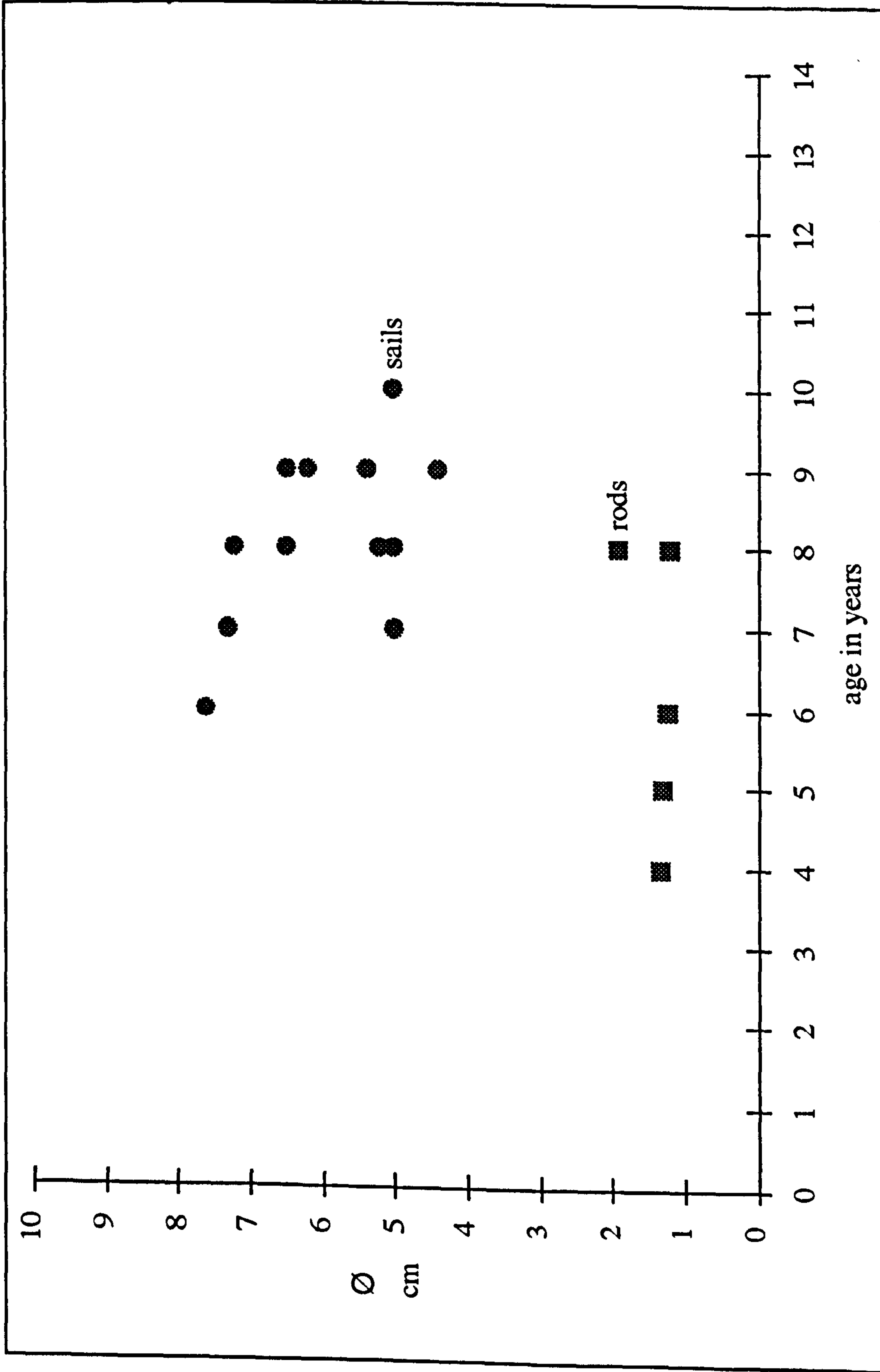


Figure 10.2. Bivariate scattergram of the rods and sails from Pit One on Redcastle marine crannog.



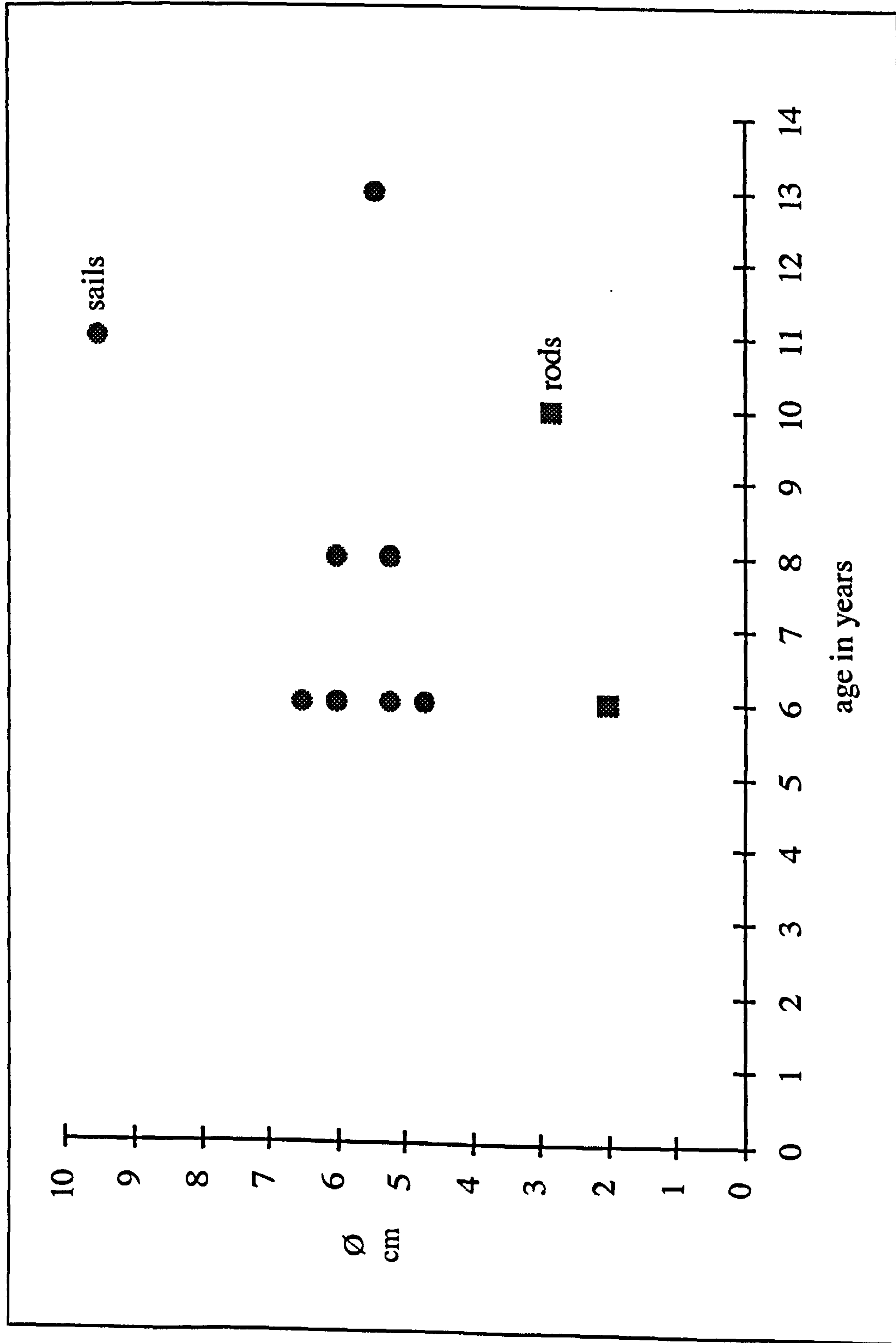


Figure 10.3. Bivariate scattergram of the rods and sails from Pit Two on Redcastle marine crannog.



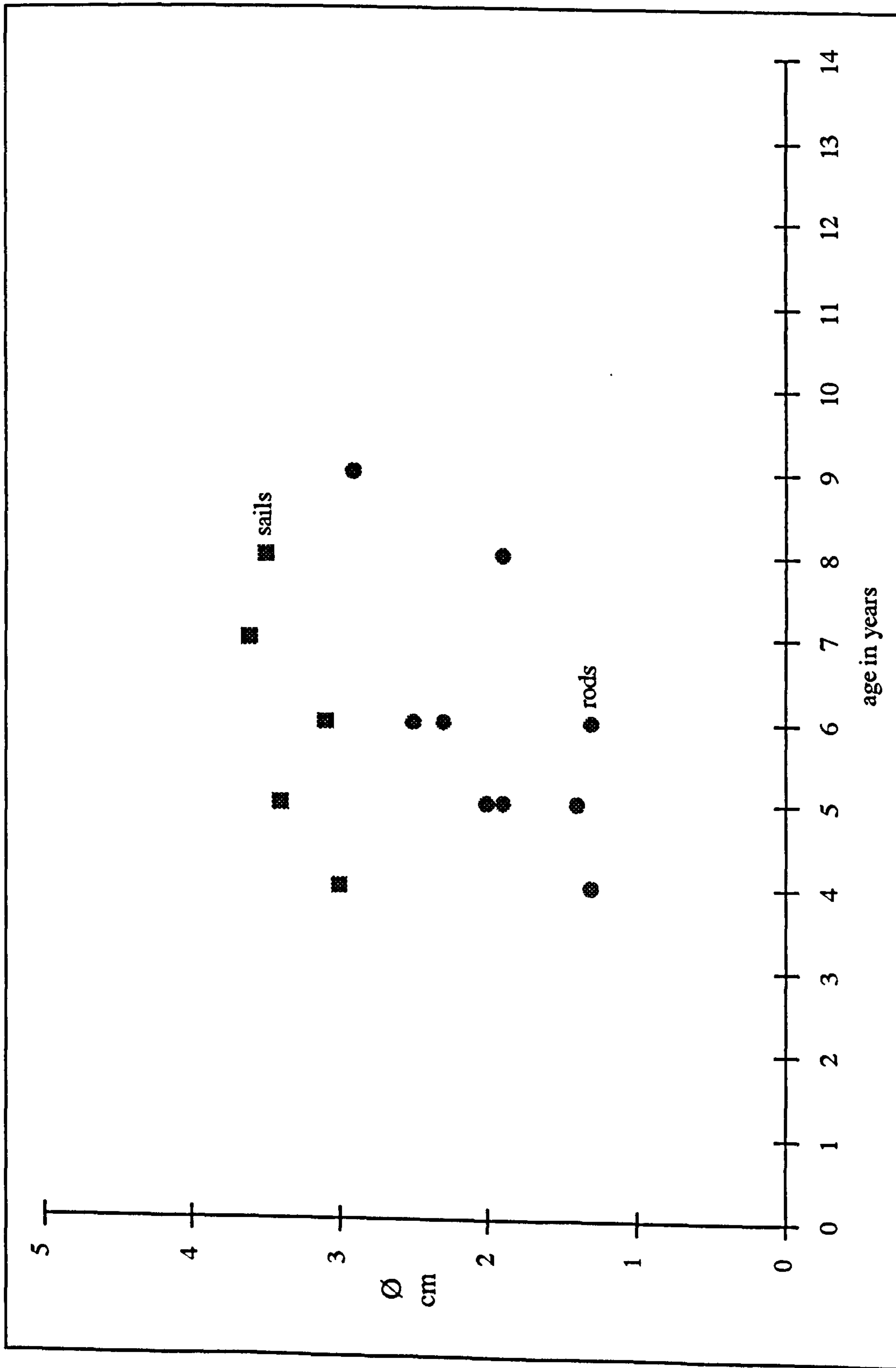
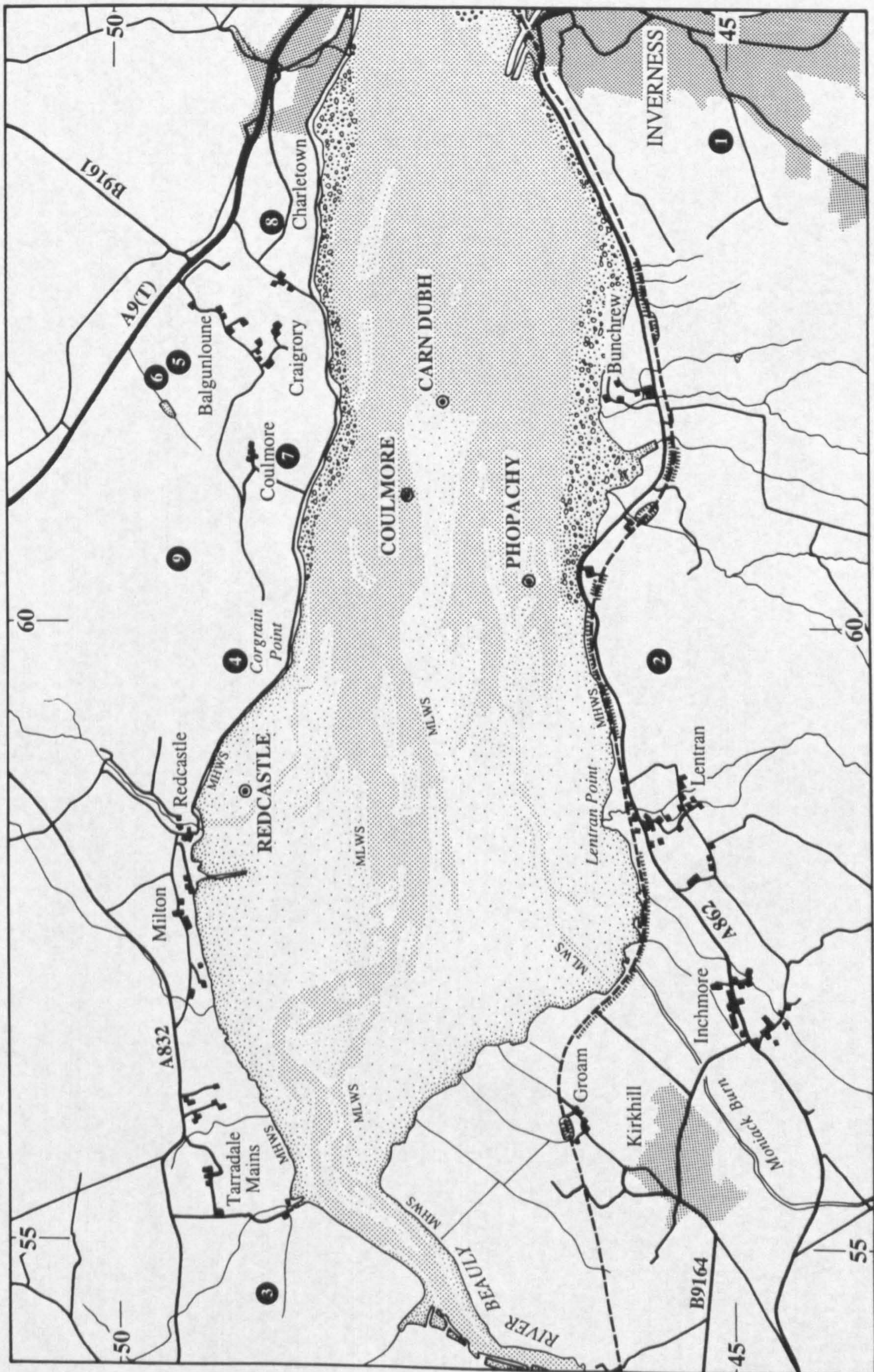


Figure 10.4. Bivariate scattergram of the rods and sails from Pit Three on Redcastle marine crannog.

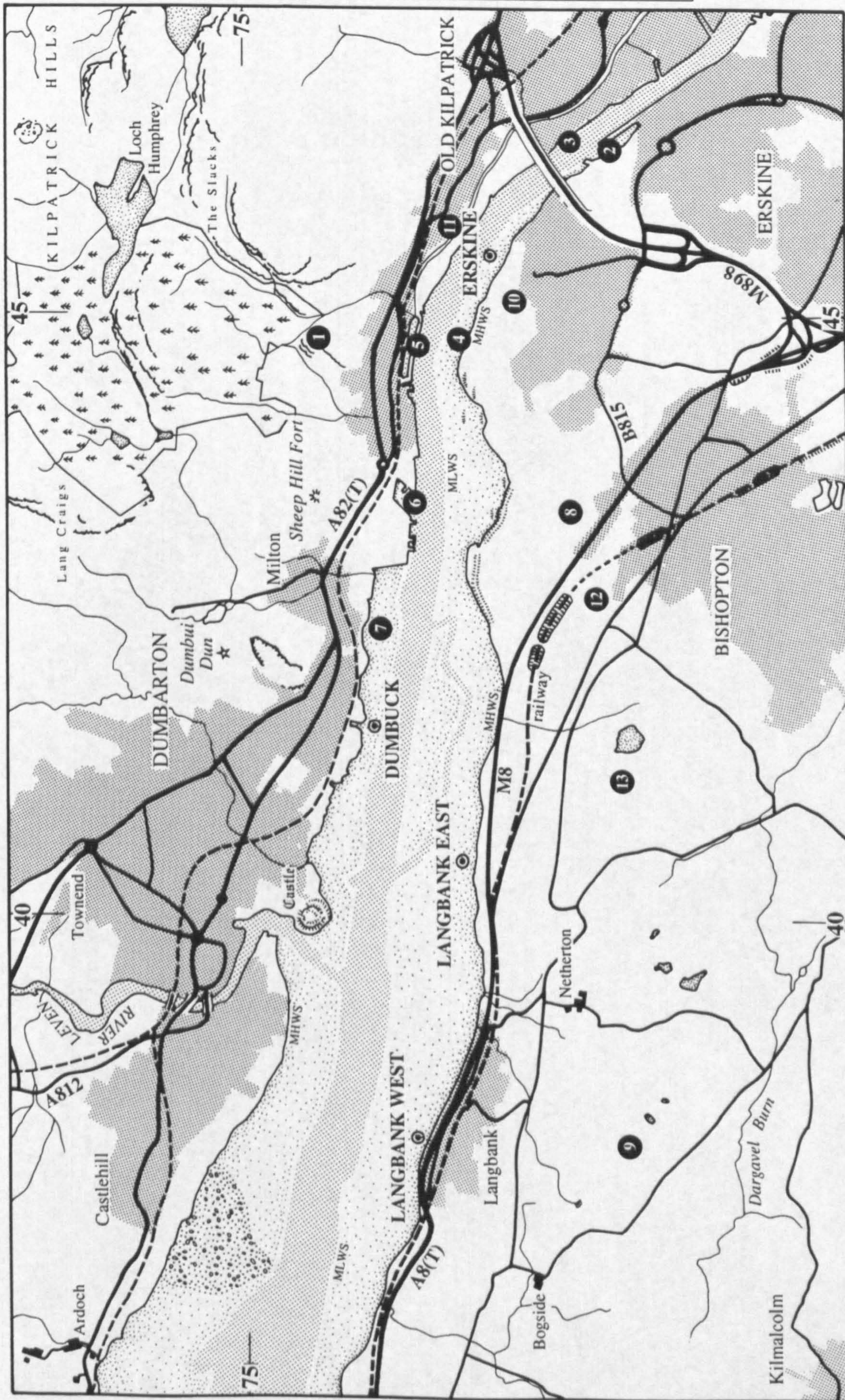




- Key to numbered sites**
- 1 Craig Phadraig Hillfort
  - 2 Dun
  - 3 Enclosure / Cropmarks / Enclosed Settlement
  - 4 Cropmark Enclosure
  - 5 Field System
  - 6 Hut Circles
  - 7 Cropmark Enclosure
  - 8 Cropmark Enclosure / Ring Ditch
  - 9 Field System and Hut Circles

Figure 11.1. Sites surrounding the Beauty Firth.





**Key to numbered sites**

1	Hill of Dun Hillfort
2	Log Boat
3	Log Boat
4	Log Boats x 3
5	Log Boats x 2
6	Log Boat
7	Log Boat
8	Cropmark Enclosures
9	Cropmark Enclosures
10	Cropmark Enclosures
11	Roman Fort End of Antonine Wall
12	Roman Fort
13	Hillfort / Settlement

Figure 11.2. Sites surrounding the Firth of Clyde.



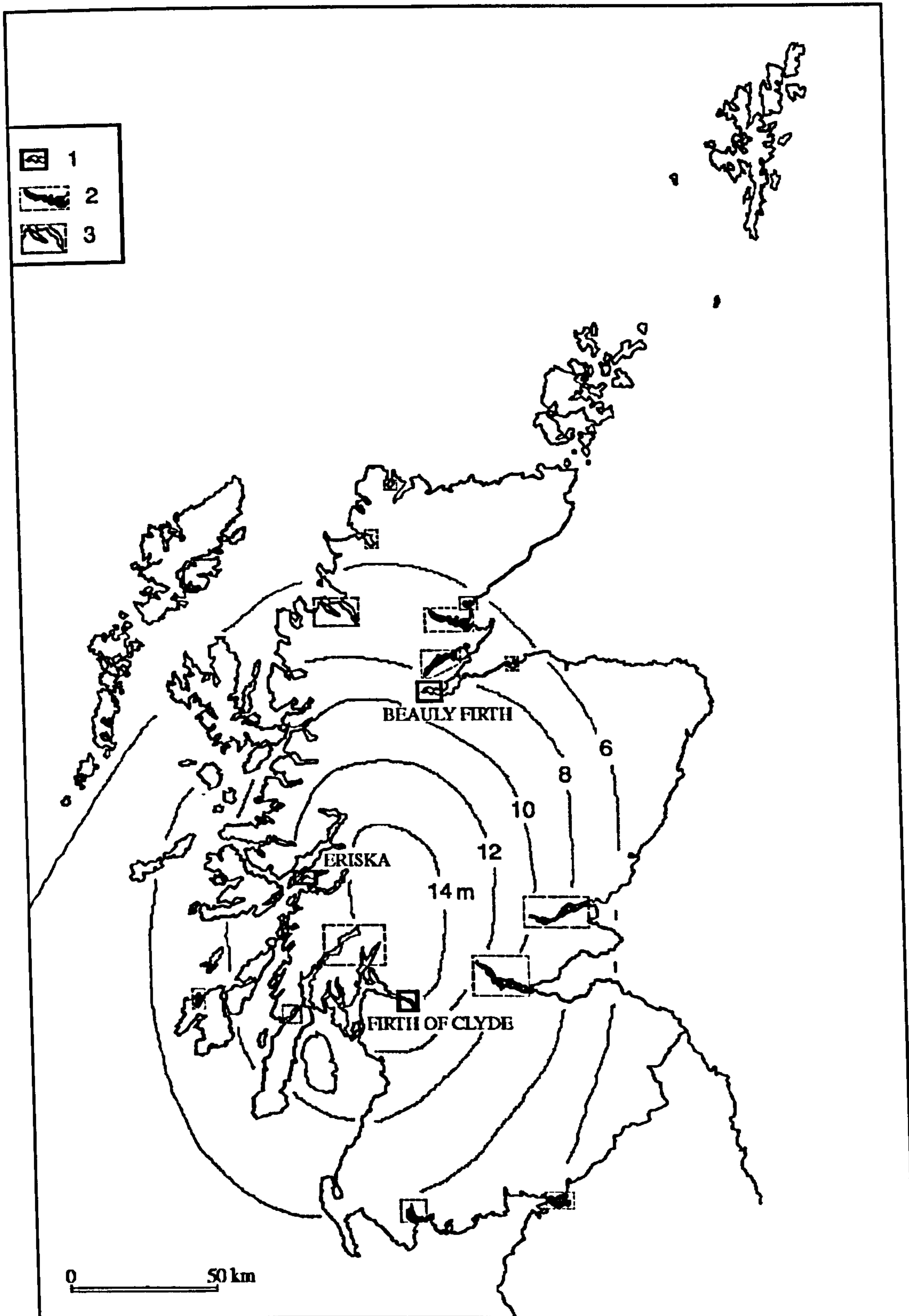


Figure 12.1. Map of Scotland including glacial isostatic rebound isobases (after Sissons 1976), showing the areas where further marine crannogs may be located according to the predictive model.

Key to areas: 1 - known marine crannog sites, 2 - sites probably present, 3 - sites possibly present.



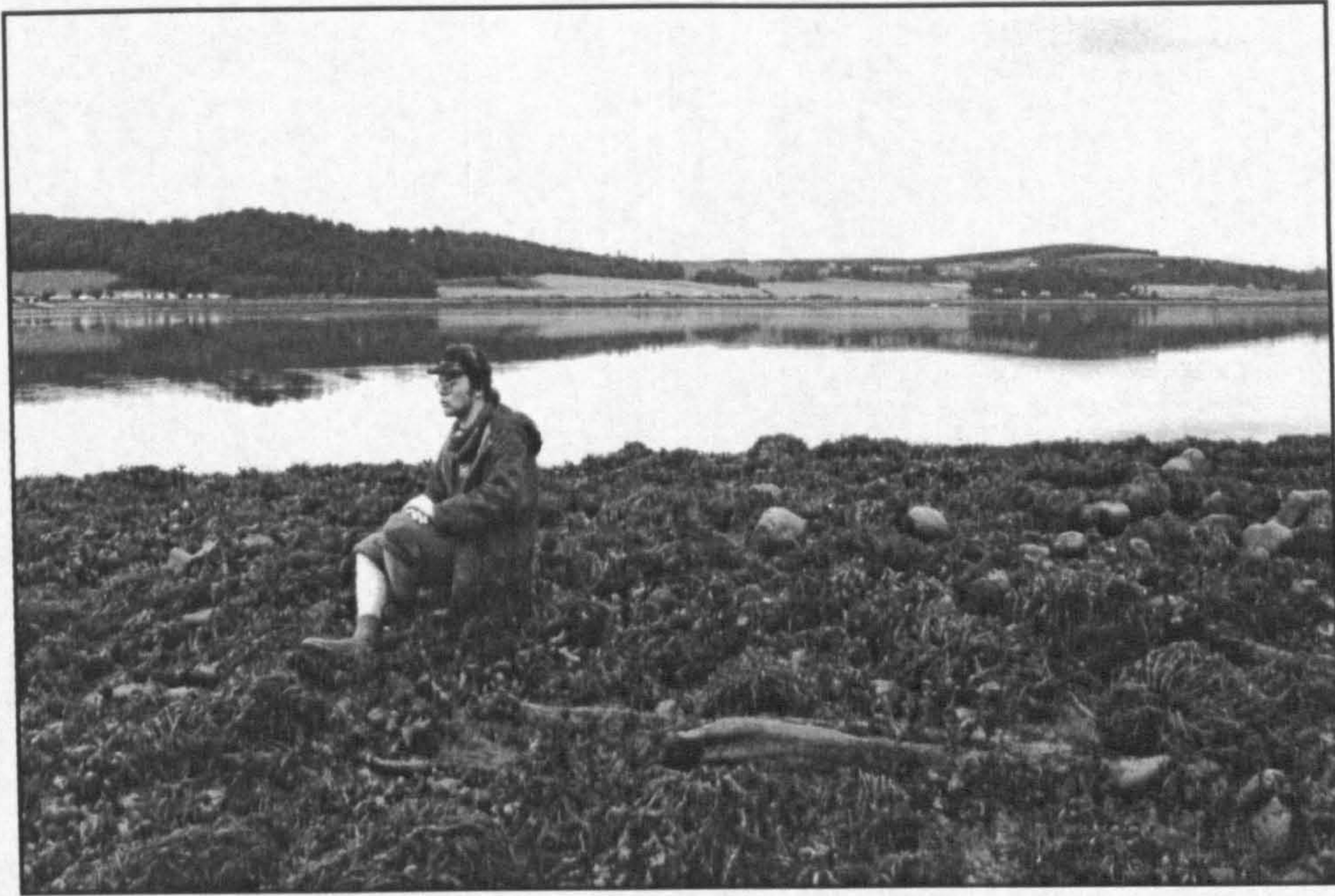


Plate 2.1. Photograph of a surface timber found on Carn Dubh, 1994.  
(Reconstruction of photograph in the *Proceedings of the Society of Antiquaries of Scotland*, 1909-1910).

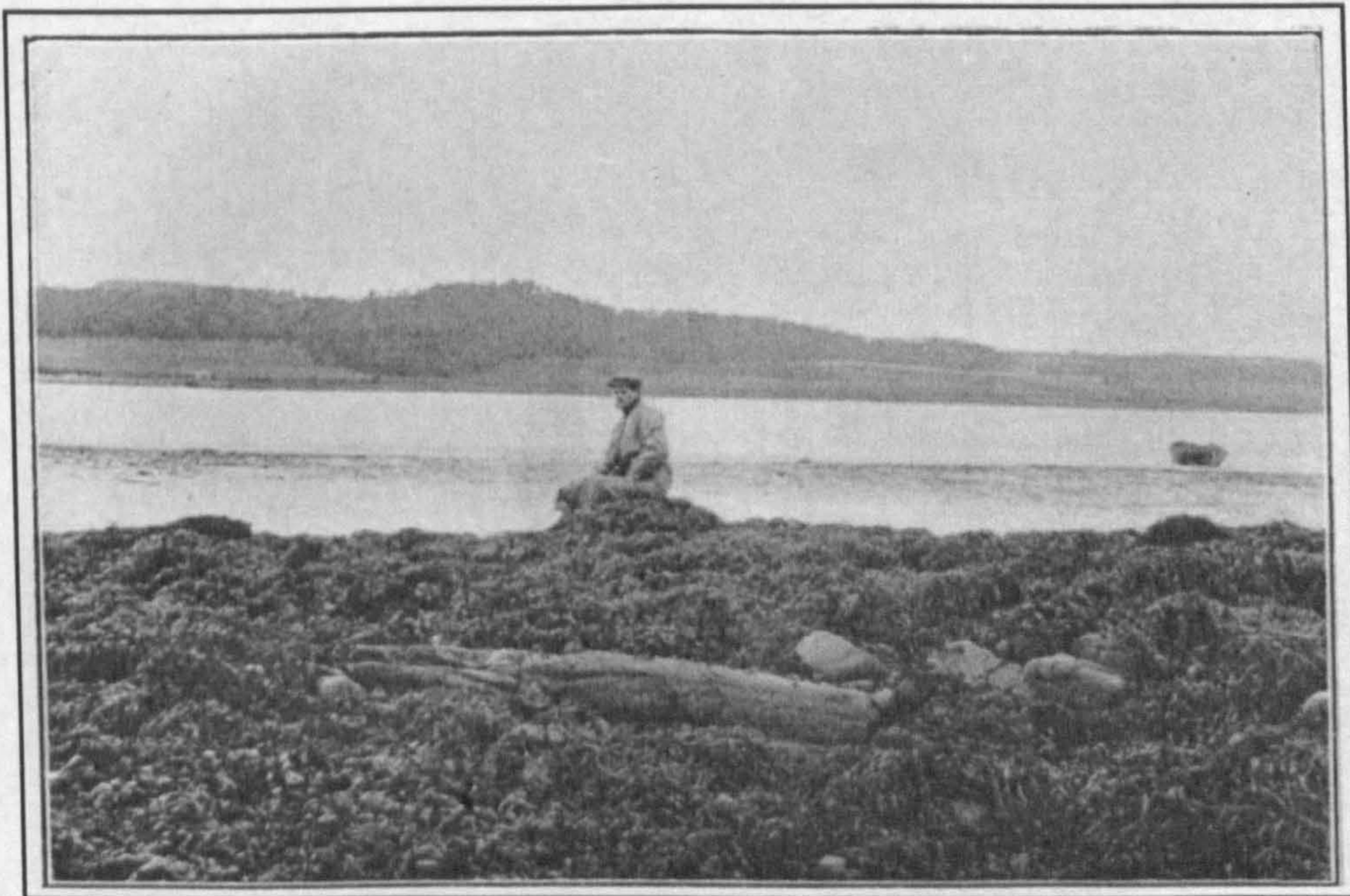


Plate 2.2. Photograph of a surface timber found on Carn Dubh  
by Odo Blundell in 1908 (photograph published in the *Proceedings of the Society of Antiquaries of Scotland*, 1909-1910, p. 18).





Plate 2.3. William Donnelly's watercolour of Dumbuck during excavations, c. 1898.





Plate 2.4. Morticed timber found on Dumbuck marine crannog  
(reproduced by kind permission of Kelvingrove Art Gallery and Museum, Glasgow).



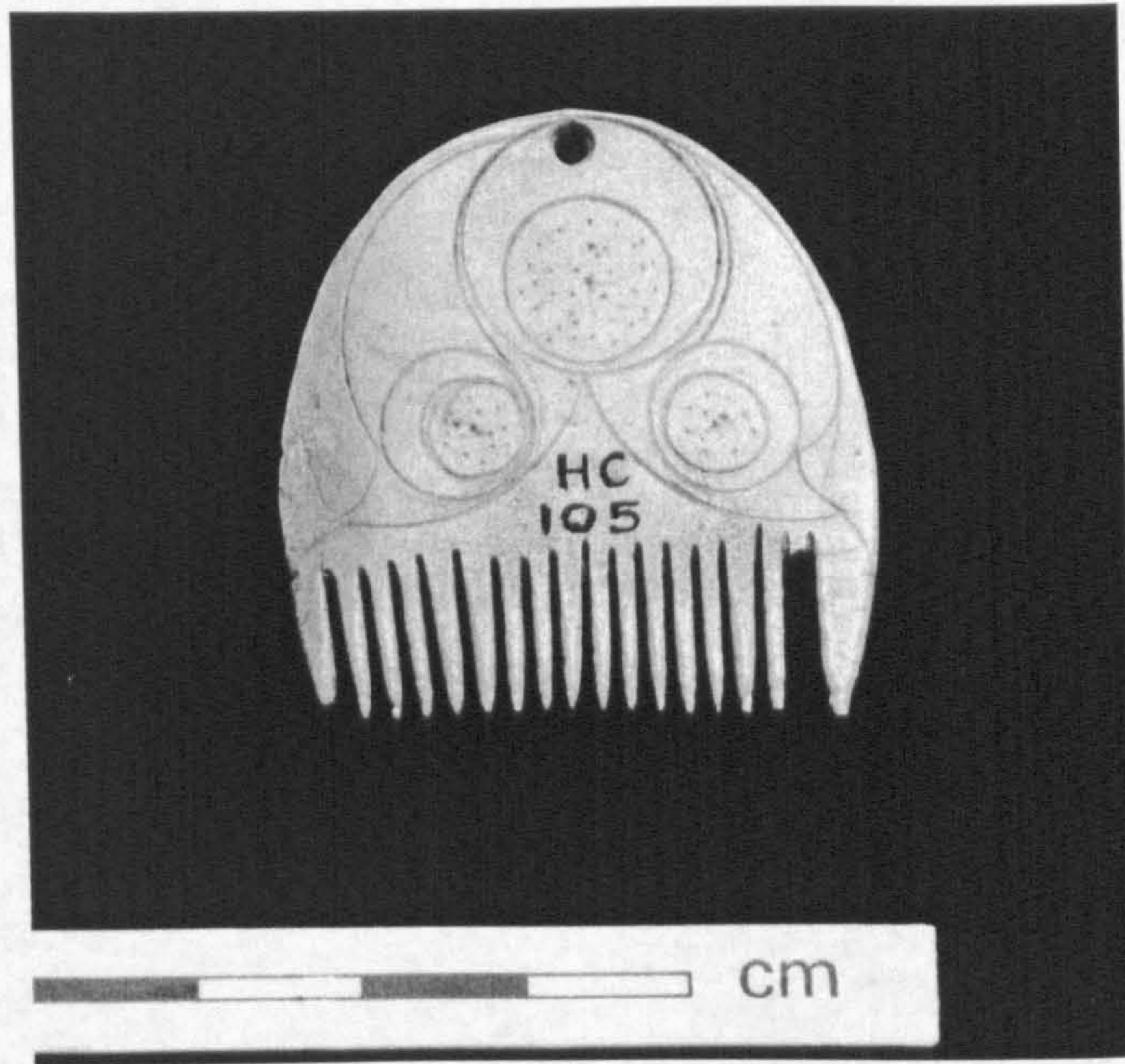


Plate 2.5. Bone comb found on Langbank East marine crannog (reproduced by kind permission of the Trustees of the National Museums of Scotland).

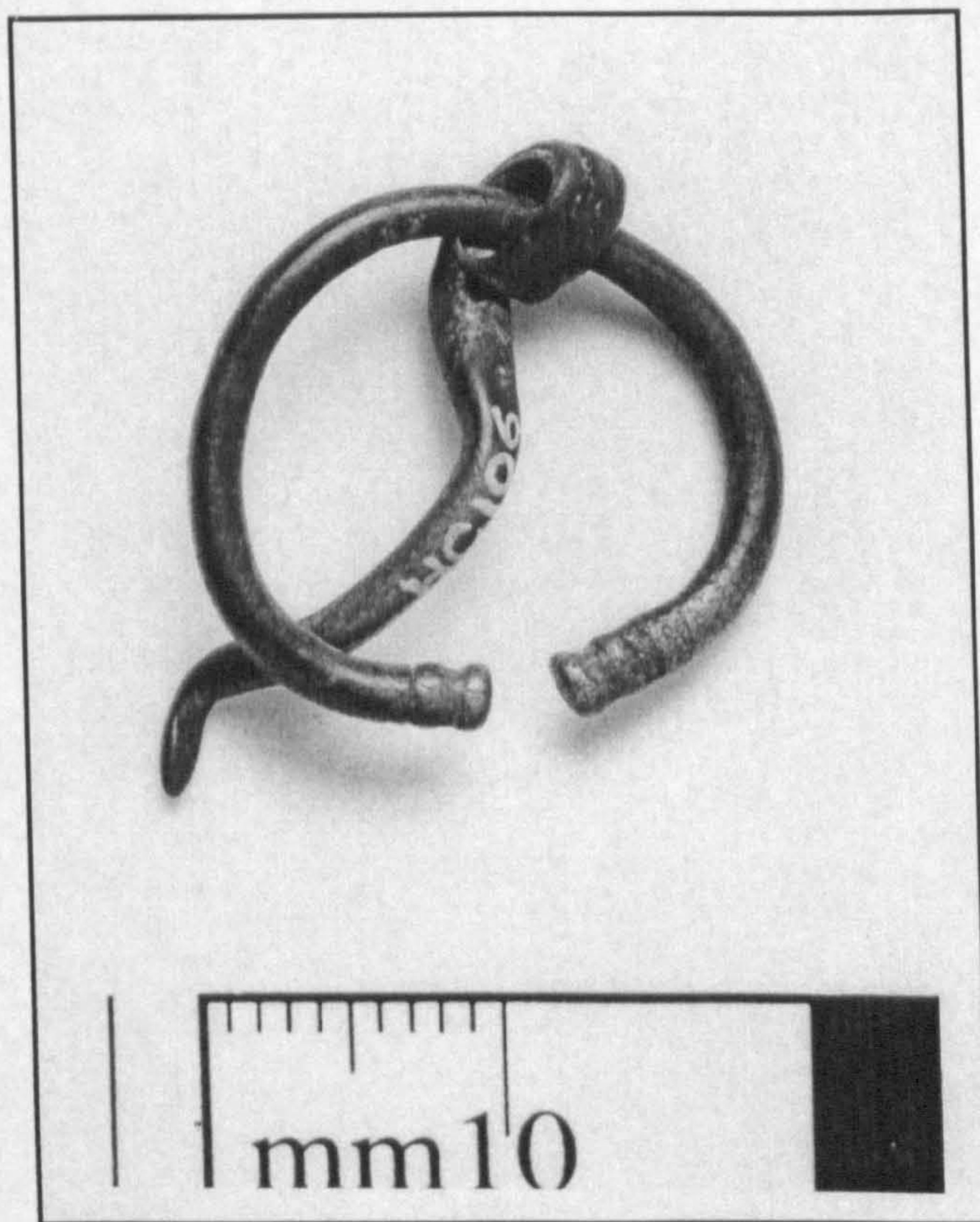


Plate 2.6. Bronze penannular brooch found on Langbank East marine crannog (reproduced by kind permission of the Trustees of the National Museums of Scotland).





Plate 2.7. Morticed piles found during the excavation of Old Kilpatrick marine crannog (reproduced by kind permission of the RCAHMS).



Plate 2.8. Timbers and morticed piles on Old Kilpatrick marine crannog (reproduced by kind permission of the RCAHMS).



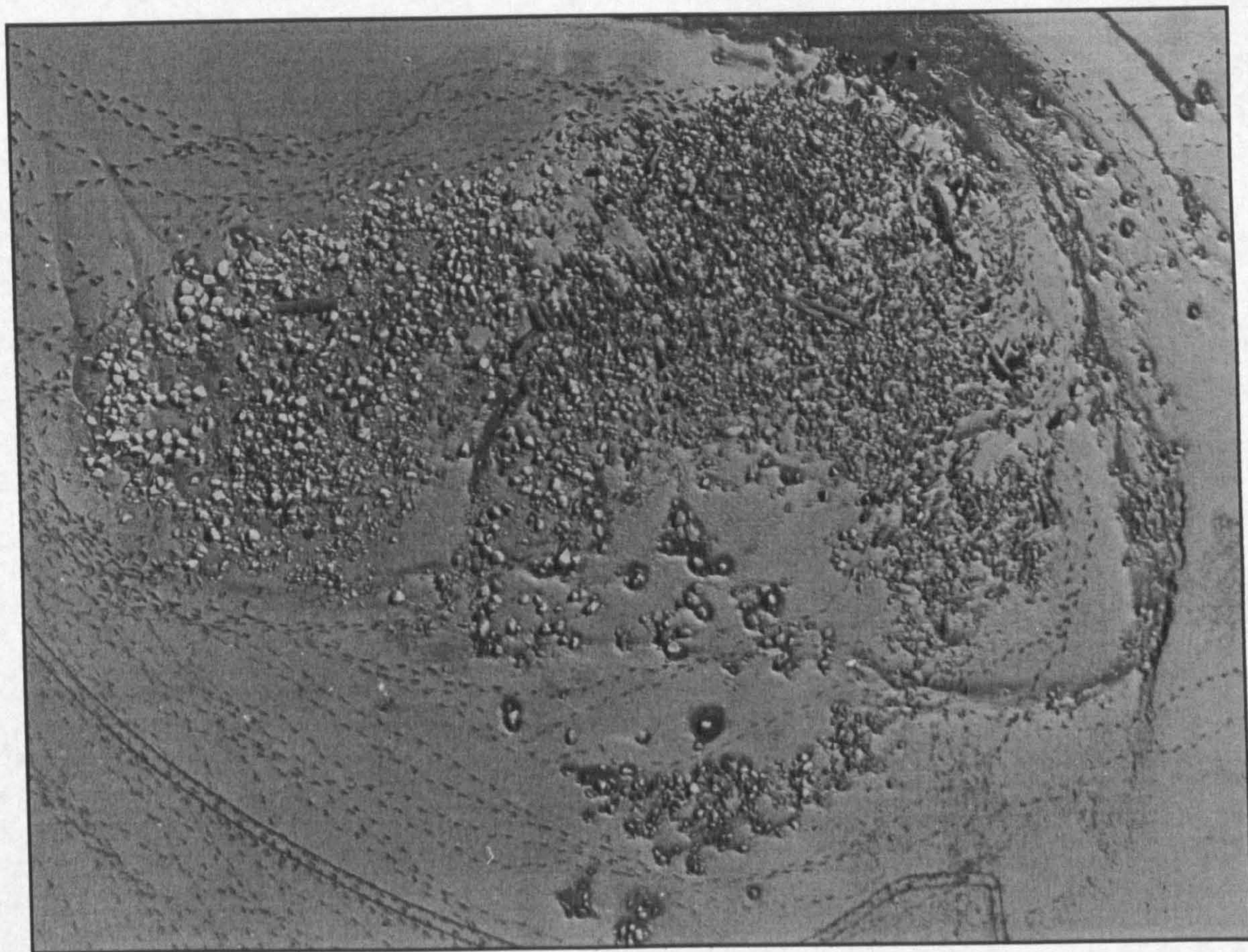


Plate 2.9. Aerial photograph of Erskine marine crannog  
(reproduced with kind permission from J. MacDonald).





Plate 3.1. Aerial photograph of Redcastle marine crannog, taken in 1966.





Plate 4.1. Carn Dubh marine crannog, photographed from the North in 1997.



Plate 4.2. Coulmore marine crannog, photographed from the East in 1994.





Plate 4.3. Phopachy marine crannog, photographed from the South East in 1997.



Plate 4.4. Redcastle marine crannog showing the tide rising over the raised promontory. Photographed from the North in 1996.



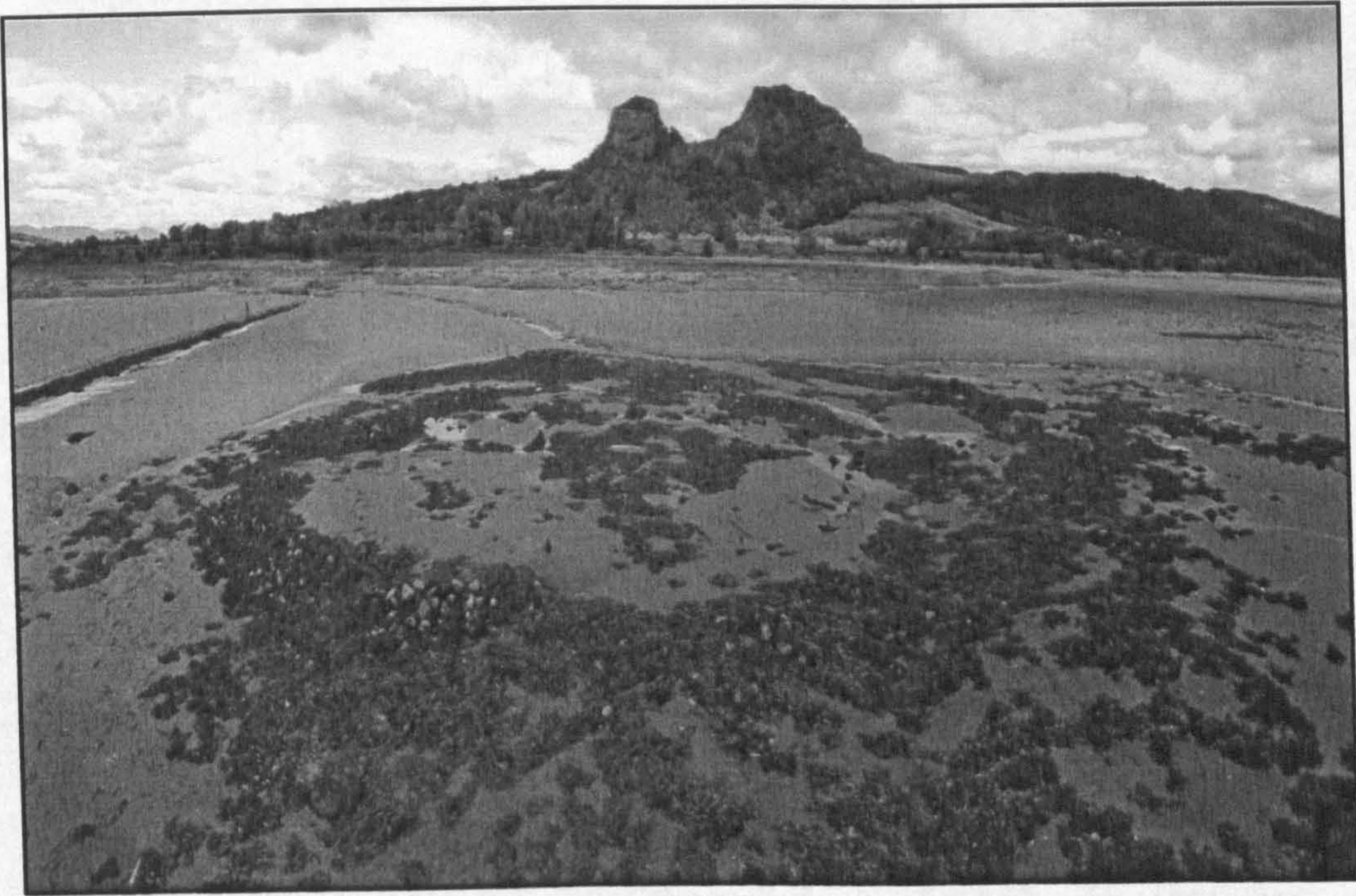


Plate 4.5. Dumbuck marine crannog, photographed from the South  
(taken from a photographic tower in 1998).

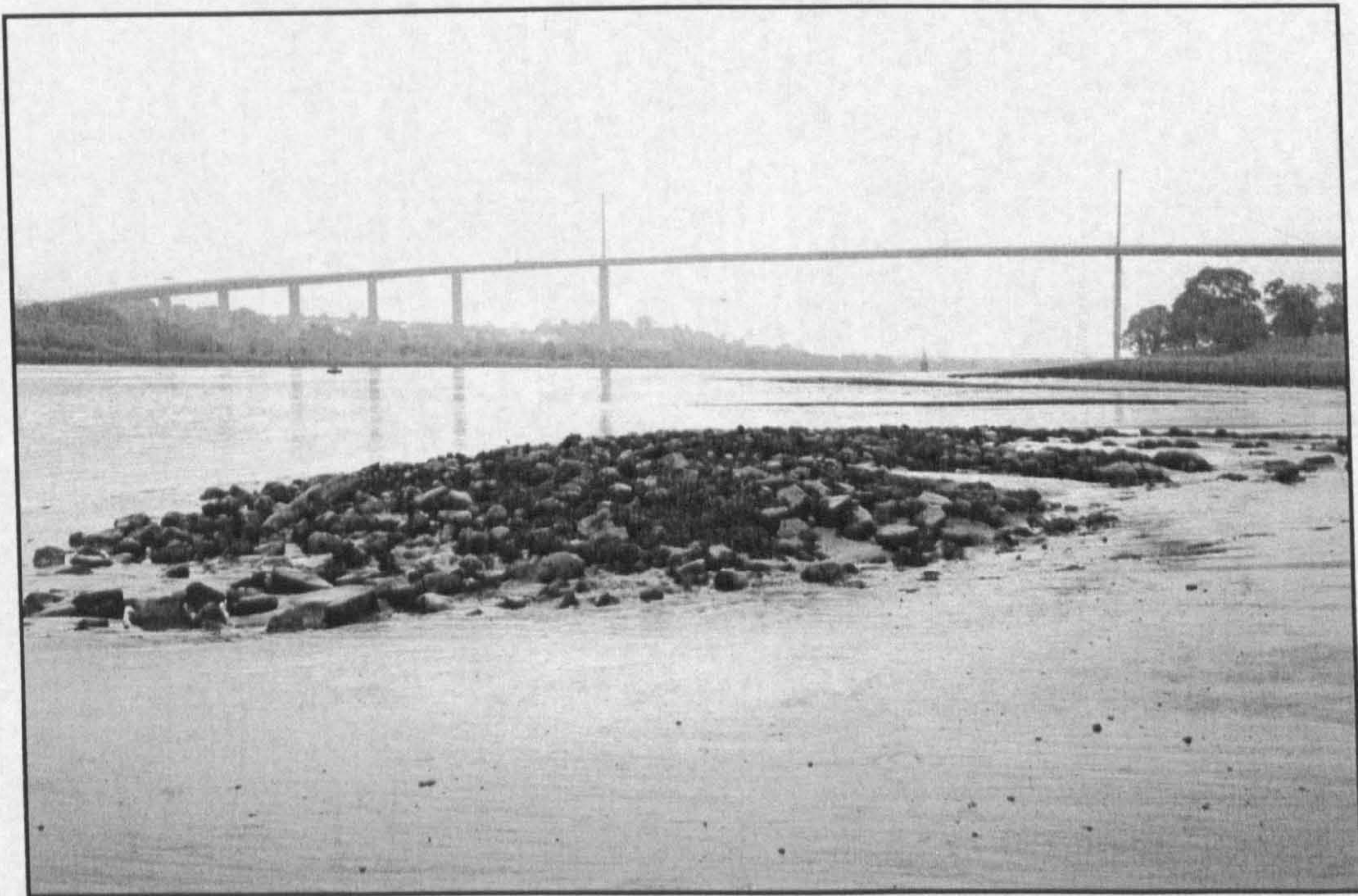


Plate 4.6. Erskine marine crannog, photographed from the West in 1997.



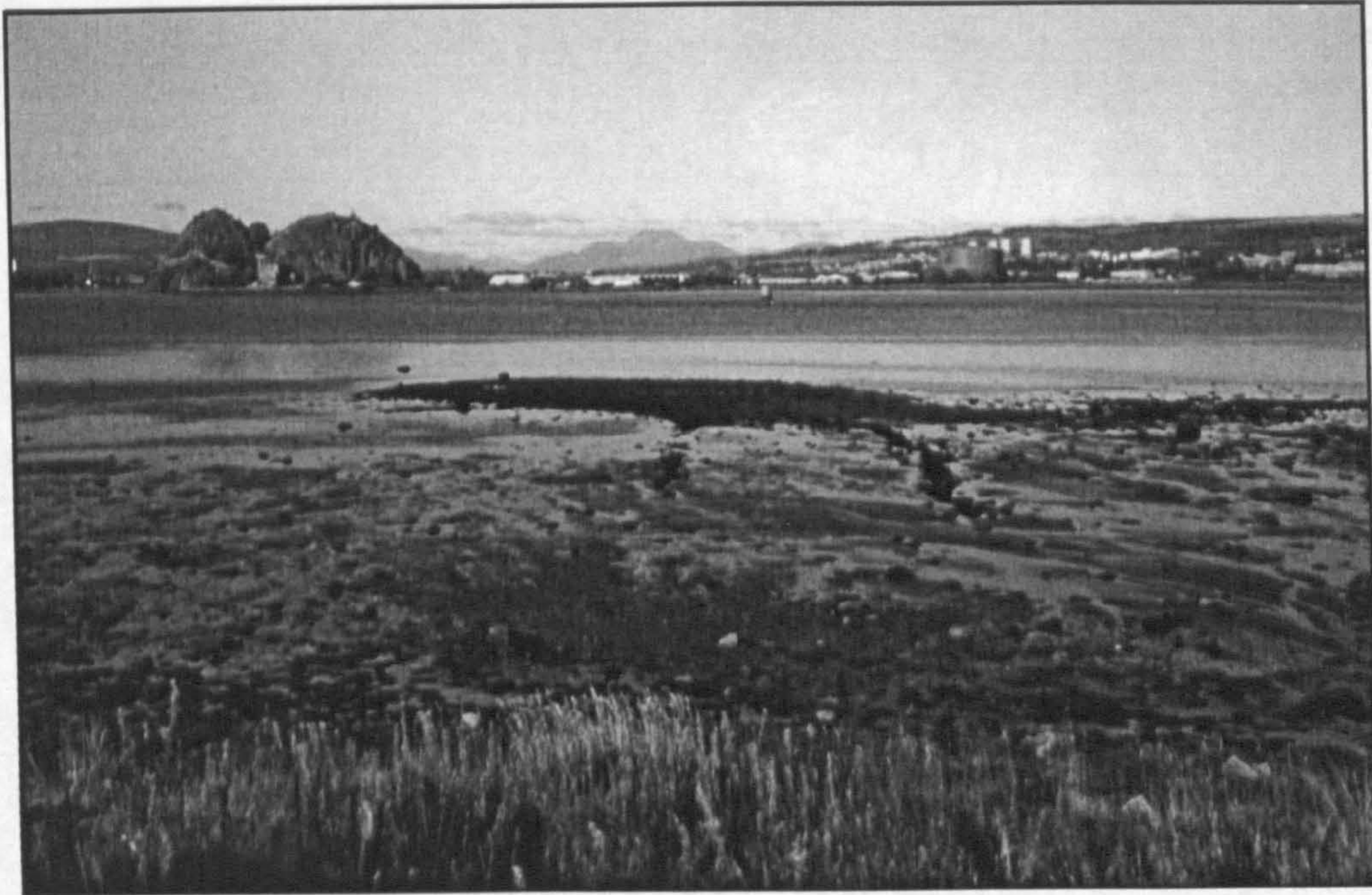


Plate 4.7. Langbank East marine crannog, photographed from the South in 1998.

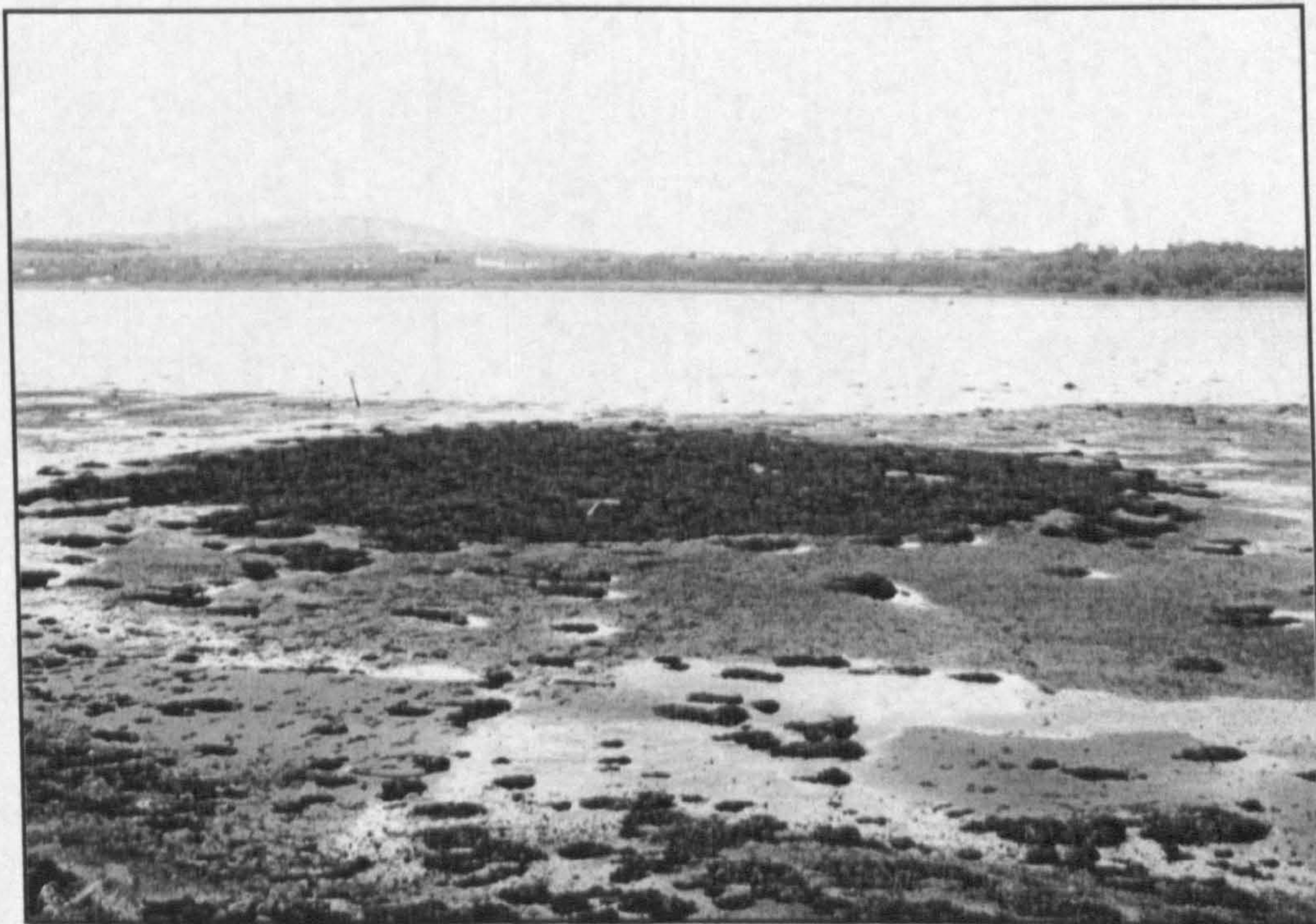


Plate 4.8. Langbank West marine crannog, photographed from the South in 1997.





Plate 4.9. An Dòirlinn marine crannog, photographed from the North in 1998.





Plate 6.1. Protective sheeting over Trench 2, on Redcastle marine crannog.



Plate 6.2. Stone wall feature on Redcastle marine crannog, photographed from the South.





Plate 7.1. Aerial photograph of the Redcastle marine crannog  
(taken by Professor G. D. B. Jones in 1993).





Plate 7.2. Pit One on Redcastle marine crannog.



Plate 7.3. Woodchip found inside Pit One on Redcastle marine crannog.



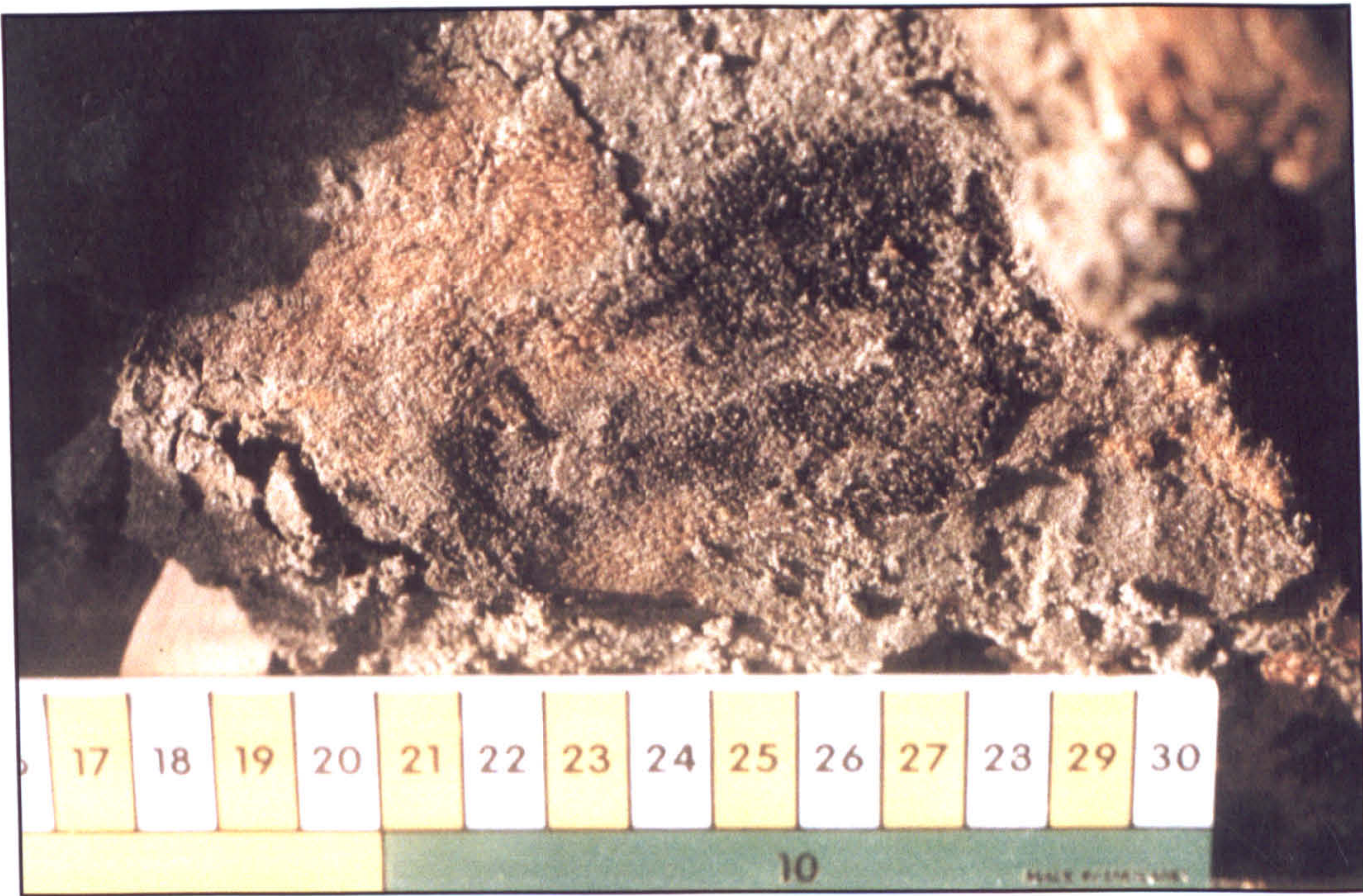


Plate 7.4. Leather fragment found inside Pit One on Redcastle  
(scale in cms).



Plate 7.5. Part of timber framework in Trench 1 on Redcastle marine crannog.



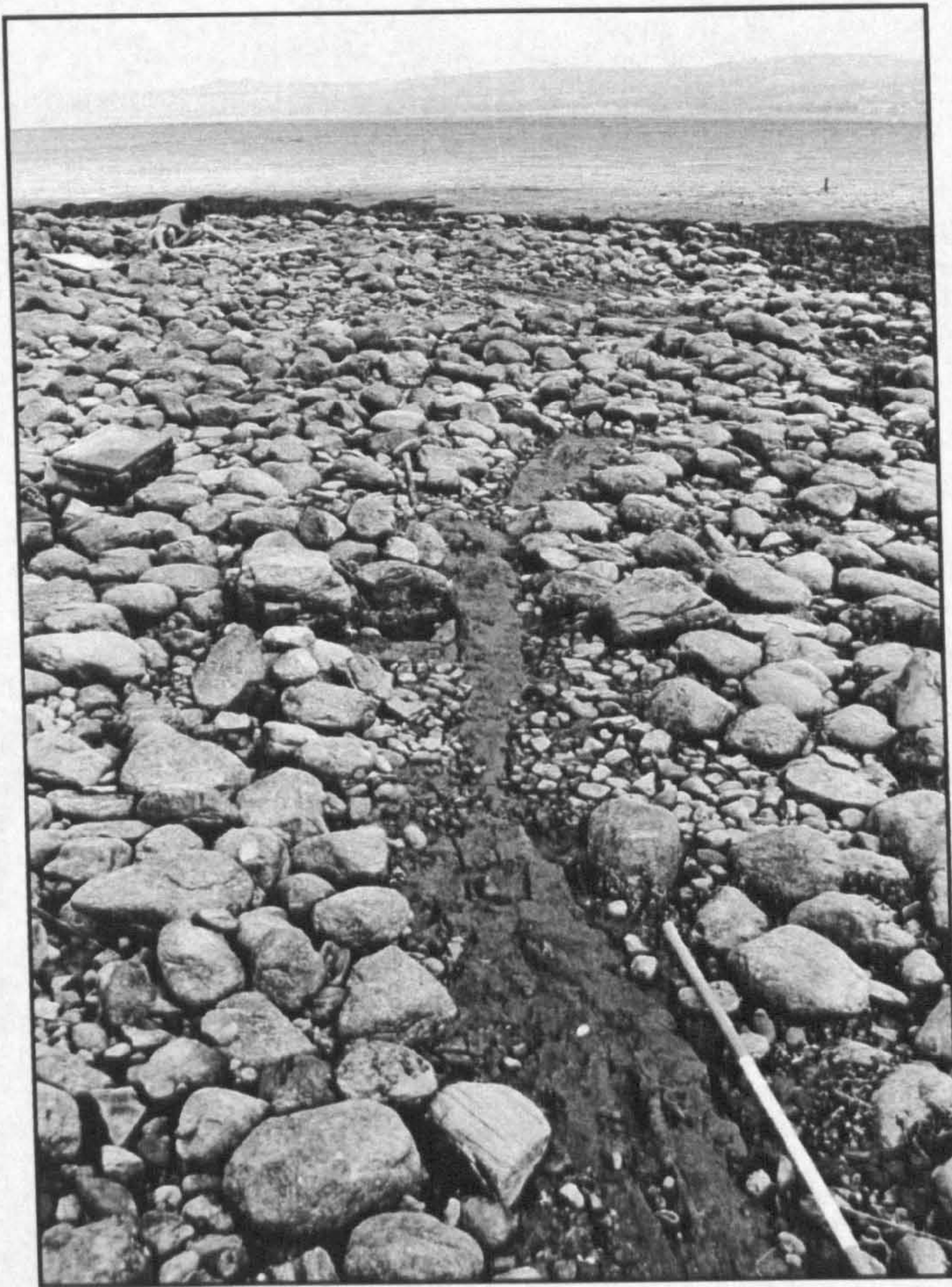


Plate 7.6. Horizontal timbers on surface of Redcastle, photographed from the North West.

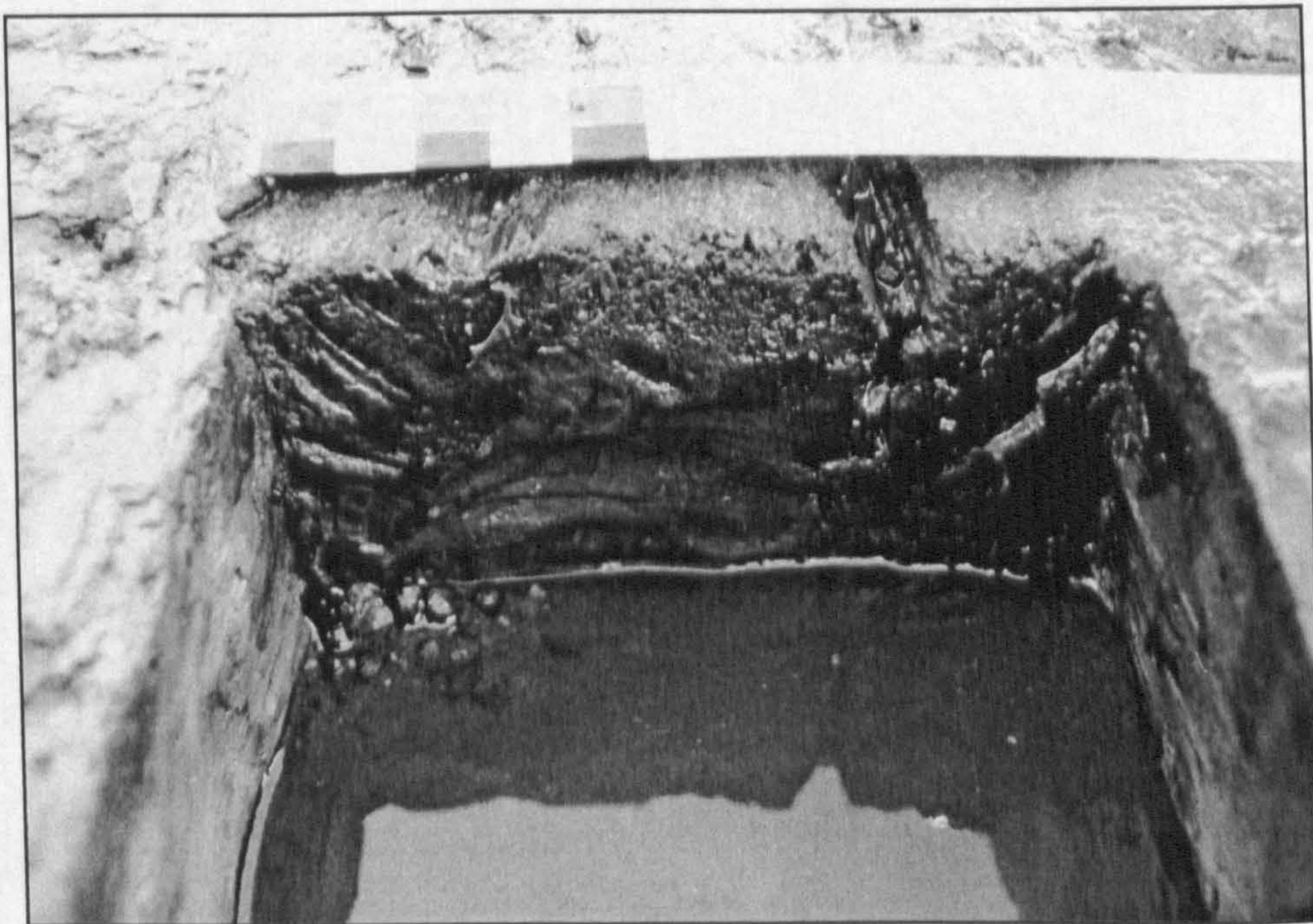


Plate 7.7. Cut-marks inside the mortise hole of Redcastle RDC94.Timber 5, Trench 1 (scale in cms).





Plate 7.8. Trench 2 on Redcastle marine crannog, photographed from the South West.

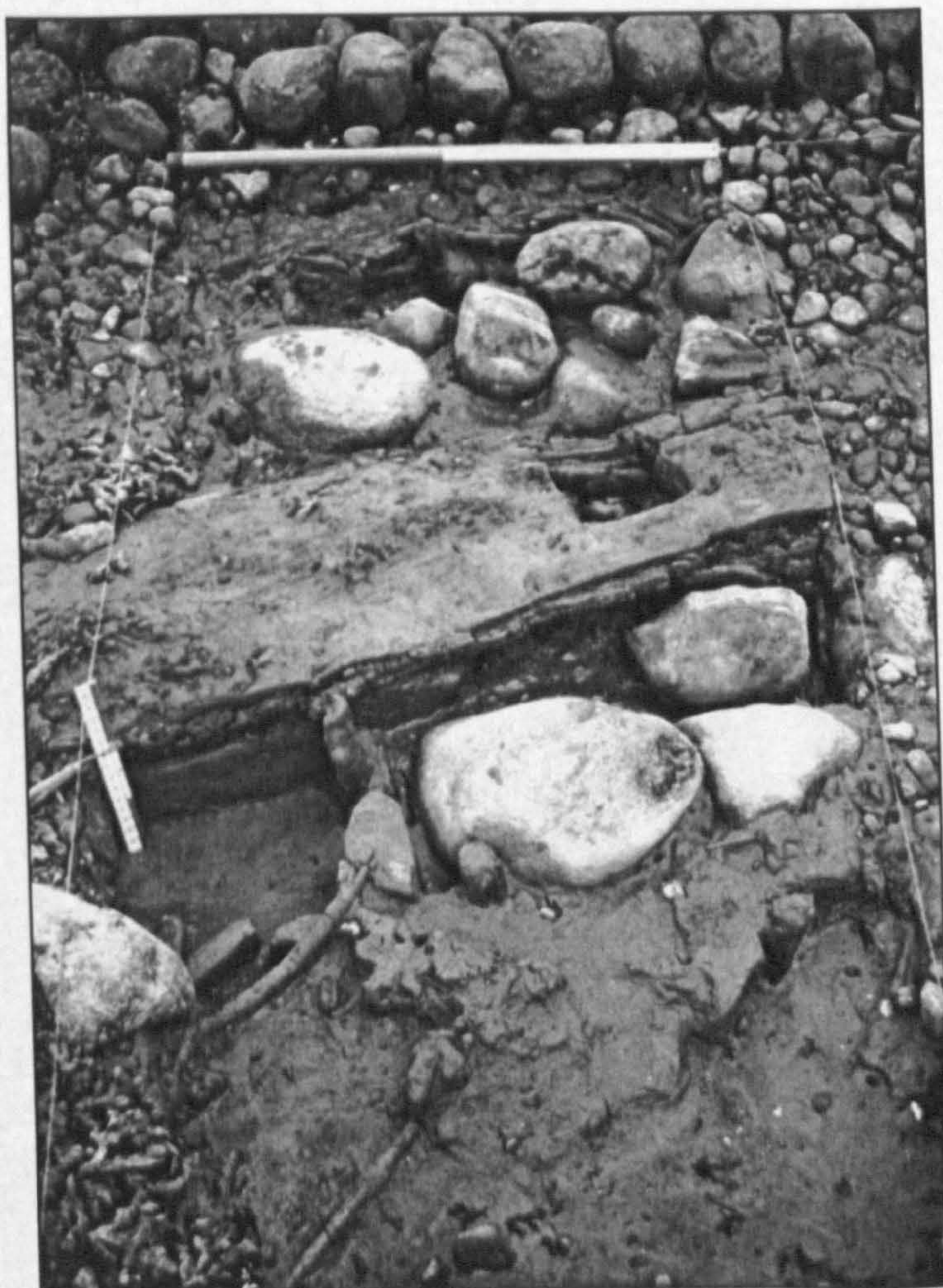


Plate 7.9. Trench 2 on Redcastle, showing packing stones inside wattle Pit Three, either side of a horizontal timber.





Plate 7.10. Animal footprints on lower quadrant of Trench 2, Redcastle marine crannog (scale 1m).



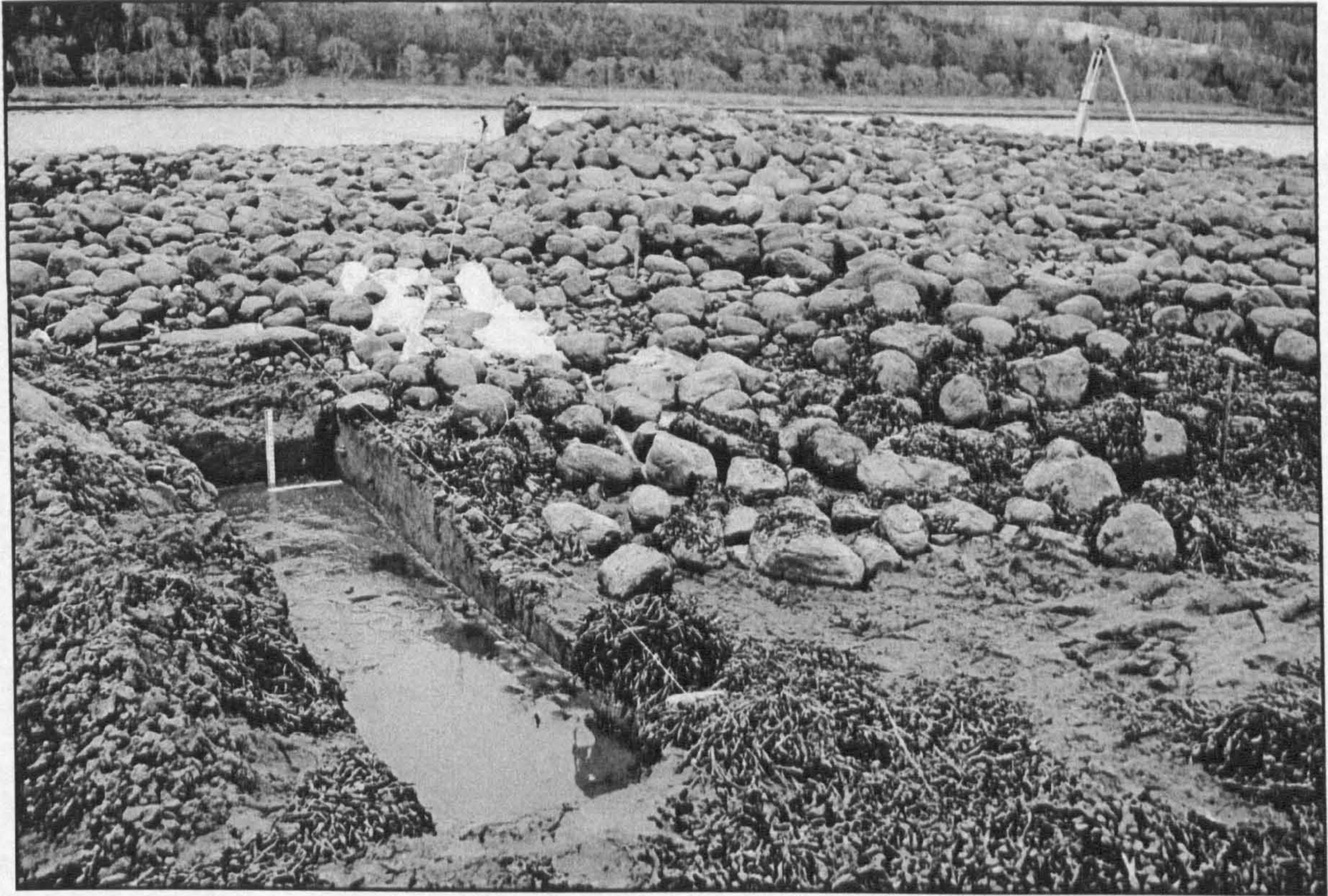


Plate 7.11. Section in Trench 2, on Redcastle marine crannog showing basal sands and intercalated organic deposit.





Plate 7.12. Trench 3 on Redcastle marine crannog, photographed from the South.



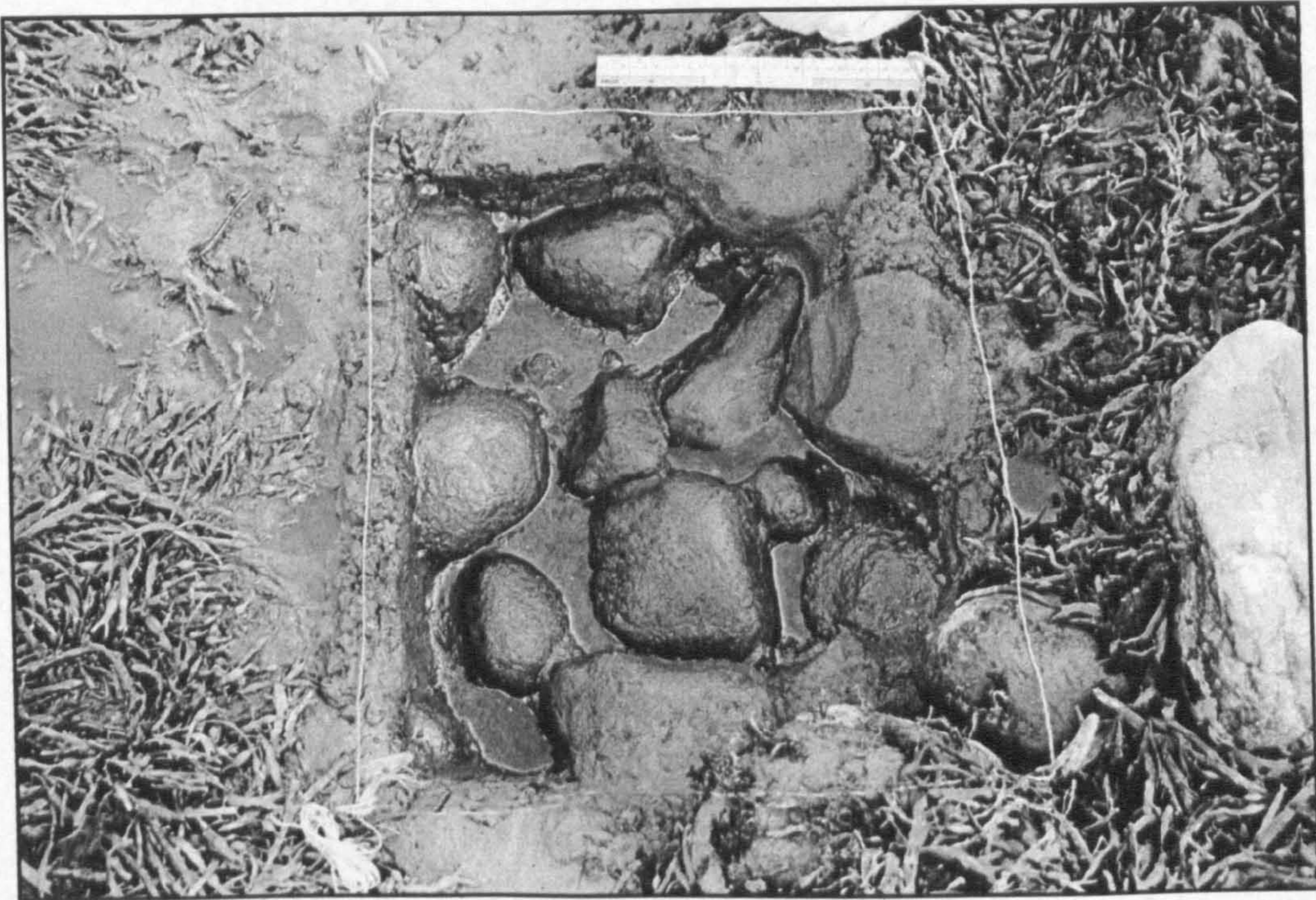


Plate 7.13. Trench 4 on Redcastle marine crannog.

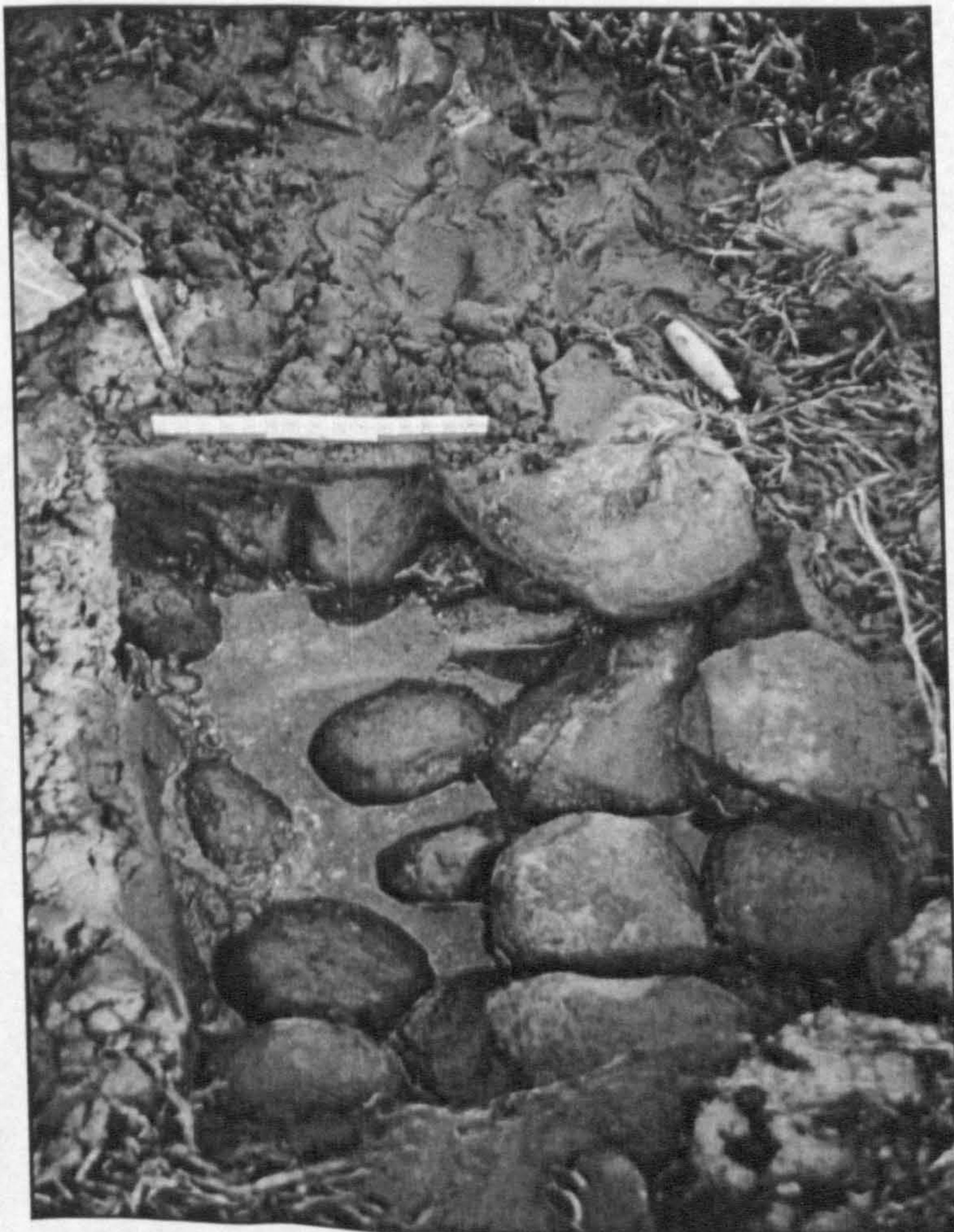


Plate 7.14. Trench 5 on Redcastle marine crannog.





Plate 7.15. Stone mound excavated on Redcastle marine crannog (scale 2m).





Plate 8.1. Kubiena sample tin *in situ*, during excavations on Redcastle marine crannog.



Plate 10.1. Withey tie found in Trench 1, on Redcastle marine crannog (scale cms).





Plate 10.2. Reconstruction wattle-sided pit, showing damage by tidal action.



Plate 10.3. Wattle-sided pit excavated on Crannog 61, Rathtinaun, Ireland (photograph reproduced by kind permission of Professor Barry Raftery, Department of Archaeology, UCD).



NAME	LOCATION	NGR	RCAHMS #	SHAPE	Ø/LONG AXIS	SHORT AXIS	HEIGHT (±0.1 m)	RELATIVE HEIGHT	DISTANCE TO MLWM	MHW	EXPOSURE TIME
AN D'OIRLINN	Isle of Eriska	NM9010042400	NM94SW7 (scheduled)	oval mound	20 m	20m	1.4 m above OD	1.2 m	<20m	70m	4 hrs
CAIRN AIRC	Beauly Firth	NH65974726	NH64NE5	not located							
CARN DUBH	Beauly Firth	NH6175547423	NH64NW4 (scheduled)	oval mound	62 m	45 m	0.9 m below OD	0.8 m	20 m	800 m	4 hrs
COULMORE	Beauly Firth	NH6102147642	NH64NW41 (scheduled)	oval mound	25m	20m	1.7 m below OD	0.6 m	MLWM	750 m	> 2 hrs
DUMBUCK	Firth of Clyde	NS4167273928	NS47SW8	oval	38 m	30 m	1 m below OD	0.6 m	30 m	80m	6 hrs
ERSKINE	Firth of Clyde	NS455372888	NS47SE6	irregular mound	40 m	30 m	1.2 m below OD	0.9 m	5 m	100 m	4 hrs
LANGBANK E	Firth of Clyde	NS4050173363	NS47SE29	oval	45 m	30m	0.5 m below OD	0.9 m	<300 m	95 m	6 hrs
LANGBANK W	Firth of Clyde	NS3822673652	NS37SE9	oval	46 m	19 m	1 m below OD	0.6 m	<500 m	20 m	5 hrs
OLD KILPATRICK	Firth of Clyde	NS46567211	NS47SE23	not located	c. 30 m	c. 28 m					
PHOPACHY	Beauly Firth	NH6022146610	NH64NW40 (scheduled)	oval mound	20 m	18 m	1.1 m below OD	1 m	20 m	500m	3 hrs
REDCASTLE	Beauly Firth	NH5858248953	NH54NE2 (scheduled)	irregular mound	38 m	28 m	1 m above OD	1.4 m	750 m	350 m	6 hrs

Table 3.1. Marine crannog database.



NAME	INTRA-SITE VISIBILITY	SURFACE REMAINS	SURFACE FEATURES	STRUCTURAL EVIDENCE
AN D'OIRLINN		Stones, sand and gravel	N-S trench, from 1884 investigation	Horizontal timber platform
CAIRN AIRC				
CARN DUBH	C/P/RDC	Stones, sand and gravel	Three surface timbers	Single pile 1 m below surface
COULMORE	CD/P/RDC	Stones, sand and gravel		Unknown
DUMBUCK		Stones, timbers and sand	Stone breakwater/timbers/piles/spoil heap	Circular, horizontal timber platform, central wattle-lined pit, timber and stone causeway
ERSKINE	OK	Timbers, stones and sand	Piles and horizontal timbers	Possible horizontal timber platform
LANGBANK E	D/LW	Stones and gravel	Rectangular stone structure	Circular, horizontal timber platform
LANGBANK W	D/LE	Stones and gravel	Three piles on west side	Unknown
OLD KILPATRICK	Erskine			Horizontal mortised timbers and piles
PHOPACHY	CD/C/RDC	Stones and sand		Horizontal timber work
REDCASTLE	CD/C/P	Stones, sand and timbers	Stone mounds and timber work exposed on south west side	Oval wattle-sided pits, horizontal timber framework, overlying timberwork

Table 3.1. Marine crannog database.



NAME	OTHER FEATURES	SMALL FINDS
AN D'OIRLINN	Probable	Animal bones
CAIRN AIRC		
CARN DUBH	Probable	Possible whetstone
COULMORE	Possible	
DUMBUCK	Adjacent dock, other probable	Stone tools, animal bones, possible wasters from cannel coal working, fakes and a rotary quern
ERSKINE	Probable	Rotary quern fragment
LANGBANK E	Stone lines to shore	Bone comb, penannular brooch, animal bones, fakes, possible stone tools and wasters from stone working
LANGBANK W	Possible	
OLD KILPATRICK	Unknown	
PHOPACHY	Probable	
REDCASTLE	Adjacent stone line	Animal bones, wood-chips, leather fragments and other plant remains

Table 3.1. Marine crannog database.



C14 DATES
CD: 2530 ± 50 (GU-4540), 280 ± 50 BP (GU-4539)
D: 2090 ± 50 (GU-7470), 2060 ± 50 (GU-7473), 2040 ± 50 (GU-7472), 1910 ± 50 (GU-7471)
E: 2210 ± 50 (GU-2186), 2170 ± 60 (GU-2383), 1970 ± 50 (GU-2187), 1950 ± 50 (GU-2328)
OK: Unclear provenance; 2390 ± 50 (GU-2154)
P: 2060 ± 50 (GU-4098), 2030 ± 60 (Beta 48766), 1990 ± 50 (GU-4099), 1940 ± 60 (Beta 48765)
RDC: 2570 ± 50 (GU-4542), 2550 ± 50 (GU-4543), 2510 ± 50 (GU-4541), 2480 ± 50 (GU-4097), 2330 ± 50 (GU-4095), 2310 ± 50 (GU-4094), 2220 ± 70 (AA 21249), 2150 ± 60 (Beta 48763), 1750 ± 90 (Beta 48764)

Table 3.1. Marine crannog database.



Feature	Location, description	Small find number	Species	Diamete	Rings	conditio	tool mark	C14 dates	
Wattle lined pit	Trench 1, wattle rods	RDC94.0.s.39	corylus			good			
		RDC94.1.1/13.40	salix			good			
		RDC94.1.1/2.29	salix			good			
		RDC94.1.3/4.30	salix			good			
		RDC94.1.2/9.31	salix			good			
		RDC94.1.10/11.32	salix			good			
		RDC94.1.12.1&2.37	salix			good			
		RDC94.1.9/10.48	salix	1.35cm	4	good			
		RDC95.rod between sails 13-1 (bo	salix	1.9cm	8	good			
		RDC95. " " " 13-1 (t	salix	1.25cm	6	good			
		RDC95. " " " 7-8 (bot	salix	1.2cm	8	good			
		RDC95. " " " 7-8 (top	salix	1.3cm	5	good			
		RDC95.19	salix						
		vertical sails	RDC95.1.1	alnus	7.6cm	6	good		
RDC95.2.1	alnus		4.4cm	9	good				
RDC95.3.1	alnus		5.4cm	9	good				
RDC95.4.1	alnus		5.2cm	8	good				
RDC95.5.1	alnus			8	good	yes			
RDC95.6.1	alnus			8	good				
RDC95.7.1	alnus			7	good				
RDC95.8.1	alnus			7	good				
RDC95.9.1	alnus			9	good				
RDC95.10.1	alnus		5cm	8	good				
RDC95.11.1	alnus		5cm	7	good				
RDC95.12.1	alnus			9	good		2310 +/- 50 BP (GU-409)		
RDC95.13.1	alnus		2.7cm	10	good				
Wattle lined pit	Trench 1, vertical sails		RDC95.1.2	quercus		6			
		RDC95.2.2	quercus		damaged				
		RDC95.3.2	quercus		6	good			
		RDC95.4.2	quercus		11	good			
		RDC95.5.2	quercus		6	good		2330 +/- 50 BP (GU-409)	
		RDC95.6.2	quercus		8	good			
		RDC95.7.2	quercus		8	good			
		RDC95.8.2	quercus		13	good			
		RDC95.9.2	quercus		6	good			
Wattle lined pit	Trench 2, upper quadrat, wattle	RDC96.04.3	salix	1.4cm	5	good			
		RDC96.10.3	salix	2.5cm	6	good			
		RDC96.33.3	salix	1.3cm	6	good			
		RDC96.30.3	salix	1.9cm	8	good			
		RDC96.73i.3	salix	2cm	5	good			
		RDC96.73ii.3	salix	1.3cm	3	good			
		RDC96.79.3	salix	2.3cm	6	good			
		RDC96.83i.3	salix	1.9cm	8	good			
		RDC96.83ii.3	salix	2.3cm	7	good			
		RDC96.96i.3	salix	2.9cm	9	good			
		RDC96.96ii.3	salix	1.6cm	5	good			
		RDC96.96iii.3	salix	1.7cm	6	good			
		RDC96.96iv.3	salix	1.7cm	6	good			
		RDC96.102.3	salix	2.5cm	6	good			
		RDC96.40.3	salix	1.9cm	5	good			
		RDC96.74.3	salix	1.3cm	4	good			
		vertical sails	RDC96.126.3	alnus	3.1cm	6	good		
			RDC96.127.3	quercus	3.5cm	8	good		
			RDC96.128.3	quercus	too small		poor		
			RDC96.129.3	alnus	damaged		poor		
			RDC96.130.3	alnus	3.4cm	5	good		
			RDC96.131.3	alnus	3.6cm	7	good		
			RDC96.132.3	alnus	3cm	4	good		
Pile feature	Trench 3, piles	RDC96.121(P8)	alnus	5cm	8	good			
		RDC96.122(P9)	alnus	too small		poor			
		RDC96.123(P10)	alnus	4cm	6	good			
		RDC96.124(P11)	alnus	4.4cm	8	good			
		RDC96.125(P13)	alnus	4.2cm	17	good			
		RDC96.134 (P14)	alnus	31 cm	>50	good			

Table 7.1. Worked wood finds from Redcastle marine crannog.



Description	Location	Woodchip	Species
Surface finds	Trench 1	RDC'94.0.0.15	<i>alnus</i>
		RDC'94.0.0.16	<i>alnus</i>
		RDC'94.0.0.17	<i>alnus</i>
Wattle lined pit	Trench 1, pit 1	RDC'94.1.8/9.14	<i>alnus</i>
		RDC'94.1.8-10.26	<i>alnus</i>
		RDC'94.1.9/10.23	<i>alnus</i>
		RDC'94.2.1/1.13.28	<i>alnus</i>
		RDC'95.8	<i>quercus</i>
		RDC'95.11	<i>alnus</i>
		RDC'95.18	<i>quercus</i>
		RDC'95.20 (damaged)	
		RDC'95.22	<i>alnus</i>
		RDC'95.23	<i>alnus</i>
		RDC'95.27	<i>alnus</i>
		RDC'95.30	<i>alnus</i>
		RDC'95.34	<i>alnus</i>
Wattle lined pit	Trench 1, pit 2	RDC'94.2.7.24	<i>alnus</i>
		RDC'95.44	
Deposit	Trench 2	RDC'96.1	<i>alnus</i>
Deposit	Trench 2, upper quadrat	RDC'96.19	<i>alnus</i>
Sediment	Trench 2, upper quadrat	RDC'96.22	<i>quercus</i>
		RDC'96.24	
		RDC'96.25	<i>alnus</i>
		RDC'96.26	<i>quercus</i>
		RDC'96.27	<i>salix</i>
Horizontal timber	Trench 2, upper quad, framework	RDC'96.29.i	<i>alnus</i>
		RDC'96.29.ii	<i>alnus</i>
		RDC'96.29.iii	<i>alnus</i>
		RDC'96.37	<i>alnus</i>
		RDC'96.75	<i>alnus</i>
Deposit	Trench 2, lower quadrat	RDC'96.71	<i>alnus</i>
		RDC'96.97	<i>alnus</i>
		RDC'96.38.i	<i>alnus</i>
		RDC'96.38.ii	<i>alnus</i>
		RDC'96.60	<i>quercus</i>
		RDC'96.63	<i>quercus</i>
Deposit	Trench 3	RDC'96.111.i	<i>alnus</i>
		RDC'96.111.ii	<i>alnus</i>
		RDC'96.111.iii	<i>quercus</i>
Deposit	Trench 4		
Deposit	Trench 5		

Table 7.2. Woodchips from Redcastle marine crannog.



Number	Small find No.	Species	Element	Part	Sid	Cutmar	Other
1	RDC 94.0.0.11.i	?	vertebre				
2	RDC 94.0.0.11.ii	?	fragment				
3	RDC 94.0.0.11.iii	?	fragment				
4	RDC 94.0.0.11.iv	?	fragment				
5	RDC 94.0.0.11.v	?	fragment				burnt
6	RDC 94.0.0.11.vi	?	fragment				
7	RDC 94.0.0.11.vii	?	vertebra			cut mark	
8	RDC 94.0.0.20	?	fragment				
9	RDC 94.0.0.21.i	Bos	upper molar 1/2		R		moderate we
10	RDC 94.0.0.21.ii	?	fragment				
11	RDC 94.0.0.21.iii	?	fragment				
12	RDC 94.0.0.21.iv	?	caudal vertebra				
13	RDC 94.0.0.21.v	Bos	middle phalan	complete			
14	RDC 94.0.0.21.vi	Bos	radius	distal end	R		burnt
15	RDC 94.0.0.21.vii	Bos	fragment				
16	RDC 94.0.0.21.ix	?	fragment				
17	RDC 94.0.0.21.x	?	fragment				
18	RDC 94.0.N.42	?	fragment				
19	RDC 94.0.N.43	Bos	distal phalanx	complete			
20	RDC 94.0.N.44	Cervus elaphus	tibia	distal end	L		unfused
21	RDC 94.1.0.12.i	?	fragment				
22	RDC 94.1.0.12.ii	?	fragment				
23	RDC 94.1.0.12.iii	Bos	metatarsal	proximal end; split lo	L		
24	RDC 94.1.0.12.iv	?	vertebra			cutmark	
25	RDC 94.1.0.18	Bos	proximal phal	complete			
26	RDC 94.1.0.8.i	?	fragment				
27	RDC 94.1.0.8.ii	?	fragment				
28	RDC 94.1.0.8.iii	?	fragment				
29	RDC 94.1.0.8.iv	?	fragment				
30	RDC 94.1.0.8.v	?	fragment				
31	RDC 94.1.0.8.vi	?	tooth fragment				
32	RDC 94.1.0.8.vii	?	fragment				
33	RDC 94.1.0.8.viii	?	fragment				
34	RDC 94.1.0.8.ix	?	fragment				
35	RDC 94.1.0.8.x	?	fragment				
36	RDC 94.1.0.9	Bos	incisor				
37	RDC 94.1.1/13.7	?	fragment				
38	RDC 94.1.1/2.i	large herbivore	rib fragment				
39	RDC 94.1.1/4.46	Bos	lower molar 1/2				no wear
40	RDC 94.1.12.2	Bos	upper premolar				heavy wear
41	RDC 94.1.12.5	Bos	distal phalanx	complete			
42	RDC 94.1.12/1,13/1.	?	fragment				
43	RDC 94.1.12/13,13/1	?	axis				burnt
44	RDC 94.1.12/13,13/1	?	fragment				
45	RDC 94.1.6.4	Bos	upper premolar				heavy wear
46	RDC 94.1.N.4	Cervus elaphus?	T				
47	RDC 94.1.N.41	Cervus elaphus?	antler tine				
48	RDC 94.2.3.3	large herbivore	rib fragment				
49	RDC 94.2.4.6.i	Bos	calcaneus	almost complete	L		
50	RDC 94.2.4.6.ii	Bos	ulna	proximal end	R		
51	RDC 94.2.4.6.iii	?	fragment				
52	RDC 94.2.4.6.iv	Bos	atlas				
53	RDC 94.2.4.6.vi	?	fragment				
54	RDC 94.2.4.6.vii	medium herbivore	rib fragment				
55	RDC 94.2.5.10.ii	?	vertebra				
56	RDC 94.2.5.10.iii	Bos	proximal phal	complete			
57	RDC 94.2.5.47	Bos	lower molar 1/2				heavy wear
58	RDC 94.2.7.22.i	?	fragment				
59	RDC 94.2.7.22.ii	Bos	atlas	fragment			
60	RDC 94.0.N.45	medium herbivore	rib fragment				

Table 7.3. Bones found on Redcastle.



Number	Small find No.	Species	Element	Part	Age	Side	Cutmarks	Other
61	RDC 95 39 xv	Medium Sized Mammal	Rib	Shaft Fragment	NA	L		
62	RDC 95 39xiv	Large Mammal	Mandible	Fragment	NA	R		
63	RDC 95 39 xxv	Large Mammal	Mandible	Fragment	NA	R	Possible cut marks	
64	RDC 95 39xviii	Large Mammal	Mandible	Fragment	NA	NA		
65	RDC 95 39 xxiii	Not Identifiable	Mandible	Fragment	NA	NA		
66	RDC 95 39 xxx	Not Identifiable	Bone Fragment	NA	NA	NA		
67	RDC 95 39 xxxv	Not Identifiable	Bone Fragment	NA	NA	NA		
68	RDC 95 39 xxii	Not Identifiable	Mandible	Fragment	NA	NA		
69	RDC 95 39 xxxii	Not Identifiable	Bone Fragment	NA	NA	NA		
70	RDC 95 39 xxxiv	Not Identifiable	Bone Fragment	NA	NA	NA		
71	RDC 95 39 xxviii	Large Mammal	Cranium	Fragment	Unfused	NA		
72	RDC 95 39 xix	Large Mammal	Mandible	Fragment	NA	NA		
73	RDC 95 39 xxxiii	Large Mammal	Cranium	Fragment	NA	NA		
74	RDC 95 39 xxi	Large Mammal	Long Bone	Diaphysis Fragment	NA	NA		
75	RDC 95 39 iv	Bos	Mandible	Ramus	Adult	R		
76	RDC 95 39 xxvi	Large Mammal	Bone Fragment	NA	NA	NA		
77	RDC 95 39 xxix	Medium Sized Mammal	Rib	Shaft Fragment	NA	R		
78	RDC 95 39 xxxvi	Not Identifiable	Bone Fragment	NA	NA	NA		
79	RDC 95 39 xxxi	Medium Sized Mammal	Rib	Shaft Fragment	NA	L		
80	RDC 95 39 xxxvii	Cervus elaphus	Antler	Fragment	NA	R	Extensive cut marks on medial side	
81	RDC 95 39 i	Bos	Humerus	Diaphysis Fragment	Juvenile	R		
82	RDC 95 39 ii	Bos	Lumbar Vertebrae	Cranial Articulation Fragment	Adult	NA		
83	RDC 95 39 vii	Bos	Innominate	Ischium Fragment	Unfused	R		
84	RDC 95 39 iii	Bos	Cervical Vertebrae	Caudal Fragment	Fused	NA		
85	RDC 95 39 ix	Bos	Rib	Proximal End Fragment	Fused	R		
86	RDC 95 39 xvi	Large Ungulate	Cranium	Fragment	Fused	NA		
87	RDC 95 39 xvii	Large Ungulate	Thoracic Vertebrae	Spine Fragment	NA	NA		
88	RDC 95 39 xxiv	Large Mammal	Mandible	Fragment	NA	NA		
89	RDC 95 39 xxxvii	Not Identifiable	Bone Fragment	NA	NA	NA		
90	RDC 95 39 xx	Not Identifiable	Bone Fragment	NA	NA	NA		
91	RDC 95 39 xxvii	Cervus elaphus	Antler	Tyne Fragment	NA	NA		
92	RDC 95 39 xxxix	Not Identifiable	Bone Fragment	NA	NA	NA		
93	RDC 95 39 xi	Bos	Astragalus	Complete	Juvenile	R		
94	RDC 95 39 xiii	Bos	Calcaneus	Proximal End & Articulation Fragment	Unfused	L	Split down lateral side	
95	RDC 95 39 vi	Bos	Mandible	With Canine Erupting	No wear on Canine	L		
96	RDC 95 39 v	Ovicaprid	Metacarpal	Proximal End & Diaphysis Fragment	Adult	L		Cut/gnaw marks on volar side
97	RDC 95 39 xxxx	Bos	Maxillary Tooth	P3 Complete	Adult	R		
98	RDC 95 39 viii	Bos	Thoracic Vertebrae	Spine Fragment	Adult	NA		
99	RDC 95 39 x	Bos	Rib	Proximal End Fragment	Adult	R		
100	RDC 95 39 xii	Bos	Rib	Proximal End Fragment	Adult	R		
101	RDC 95 81 ii	Bos	Tibia	Distal End & Diaphysis Fragment	Just Fusing (small)	R		
102	RDC 95 81 iii	Bos	Ulna	Proximal Articulation & Diaphysis Fragment	Juvenile/Adult	L		Very Large in Size
103	RDC 95 81 iv	Cervus elaphus	Radius	Distal End Fragment	Fused	L		
104	RDC 95 81 xv	Bos	Middle Phalanx	Almost Complete	Juvenile	NA		
105	RDC 95 81 xx	Bos	Middle Phalanx	Almost Complete	Juvenile	NA		
106	RDC 95 81 xvi	Bos	Proximal Phalanx (pez)	Lateral End Fragment	Adult	NA	Split down centre	
107	RDC 95 81 vi	Bos	Radius	Proximal End Fragment	Fused	R		
108	RDC 95 81 xxi	Ovicaprid	Rib	Shaft Fragment	Adult	L		
109	RDC 95 81 xxxiii	Not Identifiable	Bone Fragment	NA	NA	NA		
110	RDC 95 81 xvii	Not Identifiable	Bone Fragment	NA	NA	NA		

Table 7.3. Bones found on Redcastle.



Find No.	Species	Element	Part	Age	Side	Cutmarks	Other
162	RDC 95 81 xxiv	Bone Fragment	NA	NA	NA		
163	RDC 95 81 xxv	Bone Fragment	NA	NA	NA		
164	RDC 95 81 xxvi	Bone Fragment	NA	NA	NA		Possibly not bone
165	RDC 95 81 xxvii	Bone Fragment	NA	NA	NA		
166	RDC 95 81 xxviii	Bone Fragment	NA	NA	NA		
167	RDC 95 81 xxix	Long Bone	Fragment	NA	NA		
168	RDC 95 81 xxx	Long Bone	Fragment	NA	NA		
169	RDC 95 81 xxxi	Bone Fragment	NA	NA	NA		
170	RDC 95 81 xxxii	Cranium	Fragment	Sutures Fused: Adult	NA		
171	RDC 95 81 xxxiii	Long Bone	Fragment	NA	NA		
172	RDC 95 81 xxxiv	Cranium	Fragment	NA	NA		Burnt
173	RDC 95 81 xxxv	Bone Fragment	NA	NA	NA		Burnt?
174	RDC 95 81 xxxvi	Thoracic Vertebra	Spine	Spine Unfused: Very Young	NA		
175	RDC 95 81 xxxvii	Bone Fragment	NA	NA	NA		
176	RDC 95 81 xxxviii	Cranium	Fragment	NA	NA		
177	RDC 95 81 xxxix	Bone Fragment	NA	NA	NA		Wood?
178	RDC 95 81 xl	Long Bone	Fragment	NA	NA		Wood?
179	RDC 95 81 xli	Bone Fragment	NA	NA	NA		
180	RDC 95 81 xlii	Bone Fragment	NA	NA	NA		
181	RDC 95 81 xliiii	Cranium	Fragment	NA	NA		
182	RDC 95 81 xliv	Thoracic Vertebra	Spine Fragment	Permanent, Roots Closed	NA		
183	RDC 95 81 xlv	Incisor	Complete	NA	R		
184	RDC 95 81 xlvi	Bone Fragment	NA	NA	NA		
185	RDC 95 81 xlvii	Bone Fragment	NA	NA	NA		
186	RDC 95 81 xlviii	Inconspicuous	Ischium Fragment	Unfused: Juvenile	R		
187	RDC 95 81 xlix	Bone Fragment	NA	NA	NA		
188	RDC 95 81 l	Mandible	Fragment	NA	R?		
189	RDC 95 81 li	Mandible	Ramus Fragment	NA	R		Possibly with 8 l xxxlii
190	RDC 95 81 lii	Femur	Caput	Fused: Adult	L		
191	RDC 95 81 liii	Bone Fragment	NA	NA	NA		
192	RDC 95 81 liiii	Rib	Fragment	NA	NA		
193	RDC 95 81 lvi	Long Bone	Fragment	NA	NA		
194	RDC 95 81 lvii	Cranium	Fragment	NA	NA		
195	RDC 95 81 lviii	Incisor	Complete	Crown Worn, Roots Closed	L		
196	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		Wood?
197	RDC 95 81 lvii	Bone Fragment	NA	NA	NA		Wood?
198	RDC 95 81 lviii	Mandible	Fragment	NA	NA		
199	RDC 95 81 lvi	Long Bone	Fragment	NA	NA		Burnt?
200	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
201	RDC 95 81 lvi	Thoracic Vertebra?	Spine Fragment	NA	NA		
202	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
203	RDC 95 81 lvi	Long Bone	Fragment	NA	NA		Burnt
204	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
205	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
206	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
207	RDC 95 81 lvi	Cranium	Petrous Fragment	NA	NA	Sliced	
208	RDC 95 81 lvi	Rib	Fragment	NA	NA		
209	RDC 95 81 lvi	Long Bone	Fragment	NA	NA		
210	RDC 95 81 lvi	Long Bone	Fragment	NA	NA		Burnt?
211	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		
212	RDC 95 81 lvi	Bone Fragment	NA	NA	NA		

Table 7.3. Bones found on Redcastle.



Find No.	Species	Element	Part	Age	Side	Catmarks	Other
111	RDC 95 81 vii	Atlas	Fragment	Adult	NA		
112	RDC 95 81 xviii	Bone Fragment	NA	NA	NA		
113	RDC 95 81 xxii	Bone Fragment	NA	NA	NA		
114	RDC 95 81 xi	Cervical Vertebrae	Fragment	Adult	NA		
115	RDC 95 81 ciii	Tooth	Fragment	NA	NA		
116	RDC 95 81 civ	Bone Fragment	NA	NA	NA		
117	RDC 95 81 cvi	Bone Fragment	NA	NA	NA		
118	RDC 95 81 i	Bone Fragment	NA	NA	NA		
119	RDC 95 81 ix	Lumbar Vertebrae	Body Fragment	Unfused	NA		
120	RDC 95 81 xiii	Maxillary Tooth	Complete M1 or M2	High Crown	R		
121	RDC 95 81 v	Rib	Shaft Fragment	NA	R		
123	RDC 95 81 viii	Pre-Maxilla	Fragment	Fused	R		
124	RDC 95 81 xii	Humerus	Diaphysis Fragment	Unfused: Neonatal	L		
125	RDC 95 81 xiv	Innominate	Ilium Fragment	Unfused: Neonatal	L		
126	RDC 95 81 x	Lumbar Vertebrae	Body Fragment	Unfused	NA		
127	RDC 95 81 xix	Innominate	Ilium Fragment	Unfused: Neonatal	R		
128	RDC 95 53 vi	Long Bone	Diaphysis Fragment	NA	NA		
129	RDC 95 53 ii	Rib	Proximal End and Shaft	NA	NA		
130	RDC 95 53 xi	Rib	Almost Complete	NA	NA		
131	RDC 95 53 xiii	Rib	Body Fragment	NA	R		
132	RDC 95 53 xvi	Tarso-Metatarsus	Almost Complete	Proximal End Fused	R		Possible surface/intrusive
133	RDC 95 53 xv	Rib	Shaft Fragment	NA	NA		
134	RDC 95 53 xii	Humerus	Distal Shaft Fragment	NA	L		Possibly with 53 x
135	RDC 95 53 xxii	Maxillary Tooth	Fragment of Vestibular Side	NA	NA		
136	RDC 95 53 xxiii	Rib	Body Fragment	NA	NA		
137	RDC 95 53 xxiv	Rib	Body Fragment	NA	NA		
138	RDC 95 53 v	Long Bone	Shaft Fragment	NA	NA		
139	RDC 95 53 iv	Coracoid?	Shaft Fragment	NA	NA		
140	RDC 95 61	Ulna	Complete	Both Ends Fused: Adult	L		
141	RDC 95 3 i	Maxillary Tooth	P2 Complete	Heavy Wear: Adult	L		
142	RDC 95 47	Vertebra	Almost Complete	NA	NA		
143	RDC 95 45 ih	Mandible?	Fragment	NA	NA		
144	RDC 95 2	Vertebra	Centrum Fragment	Unfused	NA		
145	RDC 95 45 i	Humerus	Proximal End and Epiphysis	Proximal End Unfused: Juvenile	R		
146	RDC 95 45 ii	Middle Phalanx (manus)	Complete	Proximal End Recently Fused	NA		
147	RDC 95 1, Pit 1	Distal Phalanx	Complete	NA	NA		Possibly articulates with 45 ii
148	RDC 95 3 ii	Maxillary Tooth	P2 Complete	Heavy Wear: Adult	L		
149	RDC 95 5	Scapula	Body Fragment	NA	R		
150	RDC 95 58	Innominate	Ilium and Ischium Fragments	Fused: Adult	L		
151	RDC 95 53 xxi	Rib	Shaft Fragment	NA	L		Both ends cleanly sliced vertically along shaft
152	RDC 95 53 i	Tibia	Distal End and Fragment of Diaphysis	Distal Fused, Sutures Visible	L		Broken down length of diaphysis
153	RDC 95 53 xx	Tibio-Tarsus	Complete	Both Ends Fused: Adult	L		Probably surface/intrusive
154	RDC 95 53 xviii	Humerus	Shaft Fragment	NA	L		
155	RDC 95 53 xiv	Rib	Body Fragment	NA	NA		
156	RDC 95 53 xvii	Femur	Complete	Both Ends Fused: Adult	R		Probably surface/intrusive
157	RDC 95 53 xix	Thoracic Vertebra	Caudal Epiphysis Fragment	Unfused Juvenile	NA		
158	RDC 95 53 ix	Long Bone	Fragment of Diaphysis	NA	NA		
159	RDC 95 53 x	Long Bone	Fragment of Diaphysis	NA	NA		
160	RDC 95 53 viii	Long Bone	Fragment of Diaphysis	NA	NA		
161	RDC 95 53 iii	Long Bone	Fragment of Diaphysis	NA	NA		

Table 7.3. Bones found on Redcastle.



Number	Small find No	Species	Element	Part	Age	Unfused	Side	Cutmarks	Other
213	RDC96(N)14	Bos	Ulna	Diaphysis Fragment	Neonatal	Unfused	R		
214	RDC96(N)3	Bos	Tibia	Proximal end & Diaphysis Fragment	Adult	Fused	R	Cutmarks	
215	RDC96(N)3	Bos	Mandible	I3-P4	Juvenile		L		I3: erupting under 3 yrs; P2 erupting 2.25 yrs, dP3 2 yrs; P4 erupting 2.75 yrs
216	RDC96(N)3	Bos	Proximal Phalange	Complete	Adult	Fused	NA		
217	RDC96(N)3	Bos	Distal Phalange	Complete	Adult	Fused	NA		
218	RDC96(N)3	Bos	Mandibular Tooth	Complete			R		
219	RDC96(N)3	Bos	Maxillary Tooth	Complete			L		
220	RDC96(N)3	Bos	Innominate	Ischium Complete	Calf	Unfused	R		
221	RDC96(N)3	Large Mammal	Femur?	Diaphysis Fragment	Adult		NA		
222	RDC96(N)3	Ovis/Capra	Humerus	Diaphysis Fragment	Juvenile	Unfused	L		
223	RDC96(N)3	Ovis/Capra	Scapula	Distal end Fragment	Juvenile	Unfused	L		
224	RDC96(N)3	Large Mammal	Ribs	Fragments	NA	NA	NA		
225	RDC96(N)3	Bos	Rib	Almost Complete	Adult	Fused	L		
226	RDC96(N)3	Bos	Rib	Body Fragment	Adult	Fused	L	Cutmark	
227	RDC96(N)3	Medium Mammal	Rib	Fragment	Adult		L		
228	RDC96(N)3	Medium Mammal	Rib	Proximal end Fragment	Adult		R		
229	RDC96(N)3	Bos	Lumbar Vertebrae	Spine Fragment	Adult?		NA	Possible cut	
230	RDC96(N)3	Bos	Cervical Vertebrae	Body Fragment	Juvenile	Unfused	NA	Bone is sliced	The proximal and distal articulation are unfused
231	RDC96(N)3	Large Mammal	Cranium	Fragment	Adult?	Fused	NA		
232	RDC96(N)3	Large Mammal	Cranium	Fragment	Adult?	Fused	NA		
234	RDC96(N)3	Large Mammal	Cranium	Fragment	Adult?	Fused	NA		
235	RDC96(N)3	Not Identifiable	Bone	Fragment	NA		NA		
236	RDC96(N)11	Not Identifiable	Bone	Fragment	NA		NA		
237	RDC96(N)11	Not Identifiable	Bone	Fragment	NA		NA		Burnt
238	RDC96(N)11	Bos	Rib	Fragment	Adult?		NA		
239	RDC96(N)11	Medium Mammal	Rib	Fragment	Adult?		NA		
240	RDC96(N)11	Large Mammal	Long Bone	Fragment	Adult?		NA		
241	RDC96(N)10	Not Identifiable	Bone	Fragment	NA		NA		
242	RDC96 (N)10	Bos	Rib	Almost Complete	Adult	Fused	L	Cutmark	
243	RDC96 77	Bos	Rib	Fragment	Adult		R		
244	RDC96(N)15	Bos	Rib	Fragment	Adult		R		
245	RDC96 15	Bos	Scapula	Distal end Fragment	Adult		L	Cutmarks	
246	RDC96(N)12	Bos	Femur	Diaphysis Fragment	Juvenile		L		
247	RDC96 85	Medium Mammal	Rib	Fragment	Adult?		R?		
248	RDC96 116	Bos	Radius	Distal end & Diaphysis Fragment	NA		L		
249	RDC96 100	Bos	Mandibular Tooth	P3	Adult		L		
250	RDC 96 112	Large Mammal	Bone	Fragment	NA		NA		
251	RDC96 13	Bos	Mandibular Tooth	M2	Juvenile		R		
252	RDC96 90	Large Mammal	Bone	Fragment	NA		NA		
253	RDC96 8	Not Identifiable	Cranium?	Fragment	NA		NA		Burnt

Table 7.3. Bones found on Redcastle.



ID	ID (English)	RDC97.3	RDC97. core 7
<i>Alnus glutinosa</i>	Alder seed	+	+
<i>Betula</i> sp.	Birch seed	+	+
<i>Betula</i> sp.	Birch catkin scale	+	+
cf. <i>Betula</i> sp.	Birch leaf fragments	+	
	Indet. leaf fragments	+++	+
	Indet. weed	+	+
<i>Pteridium aquilinum</i>	Bracken frond	+	

(+ 1-10 items; ++ 11-50 items; +++ 51-100 items)

Table 8.1. Plant macrofossils identified on and associated with Redcastle marine crannog (pre-construction).



ID	ID (English)	RDC96.5	RDC 96.17	RDC95.36	RDC95.76
<i>Alnus glutinosa</i>	Alder seed		+		+
<i>Carex</i> spp.	Sedges	+			
<i>Chenopodium</i> sp.	Fat hen/ Goosefoot			++	+
<i>Eleocharis palustris</i> (L)	Common spike rush	+			
<i>Fumaria</i> sp.	Fumitory			+	
	Leaf buds	+			
<i>Lycopus europaeus</i> L.	Gipsywort	+			
<i>Polygonum convolvulus</i> L.	Black bindweed	+			
<i>Polygonum lapathifolium</i> L.	Pale persicaria	+			
<i>Polygonum</i> sp.		+			
<i>Prunus avium</i> (L.) L.	Wild cherry	+			
<i>Ranunculus</i> subgen. <i>Batrachium</i>	Crowfoot	+			
<i>Rubus</i> cf. <i>idaeus</i>	Raspberry				+
<i>Ranunculus acris/repens/bulbosus</i>	Buttercup	+			+
<i>Stellaria media</i> type	Chickweed			+	

(+ 1-10 items; ++ 11-50 items; +++ 51-100 items)

Table 8.2. Plant macrofossils identified on Redcastle marine crannog (associated with the structural remains).







Redcastle 50 pollen counts	0	2	4	6	8	10	12	14	16	18	20	22	24
Depth													
cm3 sediment	0.5	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
Tablets	2	2	2	2	2	2	2	2	2	2	2	2	2
Exotics counted	200	305	208	472	338	197	677	202	495	353	349	240	157
Lyc per tablet	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542
Alnus	6	6	9	21	9	6	30	5	12	11	8	39	
Betula	7	9	9	9	4	3	16	4	9	1	4	1	1
Pinus	50.5	129	67.5	177.5	111	45	98	44.5	56.5	32	34.5	15	2
Quercus	10	13	6	22	11	3	15	7	16	5	4	4	
Tilia		1											
Ulmus					2	1	2	2			3		
Fraxinus	1			1			1						
Corylus type	17	16	15	21	17	4	27	16	17	13	9	8	
Erica Spp.	3	2	3	2	4	1	4	1	3	1	2		
Calluna							1						
Crataegus					1								
Cyperaceae	2	4	5	4	4	2	7	2	4	2	2	1	
Poaceae	4	11	2	10	4	2	13	3	7	4	7	1	
Poaceae >40mu				1		2	2				1		
Artemisia	1												
Chenopodiaceae	1	1	3	1	4	1	1	1	2			1	
Caryophyllaceae			1	1		1							
Compositae liguliflorae													
Compositae tubuliflorae	1			1									
Filipendula							1						
Potentilla				1									
Plantago lanceolata				2									
Ranunculaceae				1						1			
SUMTLP	103.5	192	120.5	275.5	172	71	218	85.5	126.5	70	74.5	71	3
Menyanthes	0			1									
Filicales	4	13	13	25	7	2	3	1	7	4	5	3	
Polypodium	0	4	3	3	3	2	3	1					
Pteridium	0	1	1	1	2	1	3		2	1	1	1	
Sphagnum	0	1	3	2	1	1				1	2		
Dryopteris										1			
Equisetum											1		
Amorphous		1	1	2	1			2	1	1			
Corroded	1	1	1	1	2	1	2				1		
Broken	1	1		3		1			2	1			
Folded							2						
Concealed	0	1	3	2	2	3	2	1			1	1	
TP+S	107.5	211	140.5	307.5	185	77	227	87.5	135.5	77	83.5	75	3

Table 8.4. Data used in Figure 8.2. to produce pollen diagram of monolith RDC95.50.



DEPTH	OD	SPECIES ID	ECOLOGY (AFTER DENYS 1991/2)	%		
0-1cm	1m±0.1m	Diploneis bombus	P-M	0.1		
		Paralia sulcata	P	0.1		
		Auliscus sculptus	P	0.1		
10cm	0.9m	no diatoms				
17-18cm	0.83m	Pinnularia viridis	OI	73		
		Pinnularia alpina sp.	OI	5.8		
		Rhabdeonema minutum	P	0.1		
		Grammatophora macilenta	P	0.1		
		Paralia sulcata	P	0.1		
		Fragilaria brevistriata	OI	0.1		
24cm	0.76m	Rhabdeonema minutum	P	0.1		
		Paralia sulcata	P	2.9		
29cm	0.71m	Grammatophora macilenta	P	10.2		
		Paralia sulcata	P	23.5		
		Nitzschia punctata	M	2.9		
		Acnnanthes brevipes	M	0.1		
		Diploneis smithii	M	4.4		
		Rhabdeonema minutum	P	4.4		
		Fragilaria pinnata	OI	2.9		
		Navicula digitoradiata	M	2.9		
		Coscinodiscus sp.	P	0.1		
		Cocconeis leandestina	P	0.1		
		32-33cm	0.68m	Diploeis sp. fragments	M	2.9
				Auliscus sculptus	P	0.1
Paralia sulcata	P			5.8		
Diploneis bombus	P-M			0.1		
Rhadonema arcuatum	P			0.1		
Hyalodiscus stelliger	P-M			0.1		
Plagiogramma staurophora	P			0.1		

Ecology notes:

P - Polyhalobous (>30% salinity tolerance).

M - Mesohalobous (0.2 - 30% salinity tolerance).

OI - Oligohalobous Indifferent (<0.2% salinity tolerance).

Table 8.5. Results from analysis of the diatom core taken on Redcastle.











Redcastle 29 Charcoal counts		0	2	4	6	8	10	12	14	16	18	20	22	24
Depth		441	379	569	464	875	814	1252	581	689	414	469	791	921
Exotics		15	18	15	15	25	39	40	25	39	38	39	39	39
Traverses		0.6	0.6	0.5	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CC		2	2	2	2	2	2	2	2	2	2	2	2	2
ITabs		12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542	12542
No Lyc per tab		2081	2081	2081	2081	2081	2081	2081	2081	2081	2081	2081	2081	2081
Std Dev		846981	779100	375563	332794	396488	338131	266844	260738	207919	62550	84419	75306	52381
Charcoal sq mu		80294	85941	33113	35982	22733	14885	10693	22514	15139	7580	9030	4776	2853
Conc sq mu per cc		852	711	250	255	278	323	234	258	131	47	34	38	33
Charcoal no. counted		80.77	78.43	22.04	27.57	15.94	14.22	9.38	22.28	9.54	5.70	3.64	2.41	1.80
Conc no. per cc		56465.42	43283.33	25037.50	22186.25	15859.50	8670.03	6671.10	10429.50	5331.25	1646.05	2164.58	1930.93	1343.11
Charcoal sq mu/traverse		56.80	39.50	16.67	17.00	11.12	8.28	5.85	10.32	3.36	1.24	0.87	0.97	0.85
Charcoal no/traverse		992.94	1094.24	1496.27	1305.07	1421.10	1046.85	1140.36	1010.61	1587.17	1330.85	2482.90	1981.74	1587.31
Av size charcoal sq micro		891.19	1195.07	1363.40	1220.18	1624.49	1002.52	1204.16	848.51	2214.04	1370.71	3704.51	3885.61	1391.30
Std dev charcoal size		9588	13838	12250	10469	17794	9750	10763	7250	14781	7150	18563	24375	7013
Largest piece		150	44	306	225	263	219	225	100	219	225	250	300	375
Smallest piece														

Table 8.7. Data used in Figures 8.5. and 8.6. showing charcoal analysis results of monolith sample RDC95.29.



SAMPLE NUMBER	PHOSPHATE CONTENT	pH
RFT95.62	low	4.79
RDC95.4	high	3.04
RDC95.32	high	3.2
RDC95.60	high	6.28
RDC95.76	high	6.6

Table 8.8. Routine soil tests on samples from Redcastle marine crannog.



Redcastle 29		Mean phi size	Mean size (mm)	Skewness	Sorting	Kurtosis	Loss on ignition (%)
Depth							
0	2	3.53	0.09	0.16	-1.04	0.84	3.15
2	4	3.58	0.08	#	#	#	3.17
4	6	3.34	0.10	#	#	#	4.40
6	8	3.11	0.12	#	#	#	2.85
8	10	2.69	0.16	-0.42	-1.05	1.12	1.72
10	12	2.63	0.16	-0.40	-0.80	1.59	1.40
12	14	2.60	0.17	-0.39	-0.88	1.56	1.39
14	16	2.51	0.18	-0.23	-0.77	1.65	1.26
16	18	2.33	0.20	-0.08	-0.71	1.28	1.83
18	20	2.13	0.23	0.14	-0.64	1.07	1.90
20	22	2.35	0.20	0.00	-0.57	1.16	1.74
22	25	2.28	0.21	0.08	-0.55	1.06	1.22

Skewness	Sorting	Kurtosis
-1 - -0.3	Very negatively skewed	<0.67
-0.3 - -0.1	Negatively skewed	0.67 - 0.90
-0.1 - 0.1	Symmetrical	0.90 - 1.11
0.1 - 0.3	Positively skewed	1.11 - 1.50
0.3 - 1.0	Very positively skewed	1.50 - 3.00
		>3.0

Skewness	Sorting	Kurtosis
	<0.35	<0.67
	0.35-0.7	0.67 - 0.90
	0.7-1.0	0.90 - 1.11
	1.0-2.0	1.11 - 1.50
	2.0-4.0	1.50 - 3.00
	>4.0	>3.0

Skewness	Sorting	Kurtosis
	Very well sorted	<0.67
	Well sorted	0.67 - 0.90
	Moderately well sorted	0.90 - 1.11
	Poorly sorted	1.11 - 1.50
	Very poorly sorted	1.50 - 3.00
	Extremely poorly sorted	>3.0

Table 9.1. Particle size analysis data from monolith RDC95.29.



<b>Redcastle 50</b>		<b>Mean phi size</b>	<b>Mean size (mm)</b>	<b>Skewness</b>	<b>Sorting</b>	<b>Kurtosis</b>	<b>Loss on ignition (%)</b>
<b>Depth</b>	<b>0</b>	4.54	0.04	0.91	-1.81	0.92	2.06
	2	3.14	0.11	0.05	-1.25	0.91	9.72
	4	2.82	0.14	0.08	-1.56	0.92	7.89
	6	2.64	0.16	-0.24	-1.32	0.86	0.10
	8	2.46	0.18	0.00	-1.50	0.96	0.21
	10	2.58	0.17	-0.20	-1.19	1.05	2.25
	12	3.33	0.10	0.00	-0.84	1.15	2.66
	14	3.34	0.10	6.74	0.30	0.23	1.75
	16	2.14	0.23	-0.12	-0.93	1.11	1.97
	18	2.99	0.13	0.00	-0.71	0.84	2.45
	20	1.87	0.27	-0.23	-0.79	0.86	2.58
	22	2.55	0.17	0.46	-0.55	0.84	1.98
	25						

<b>Skewness</b>	<b>Sorting</b>	<b>Kurtosis</b>
-1 - -0.3	Very negatively skewed	<0.67
-0.3 - -0.1	Negatively skewed	0.67 - 0.90
-0.1 - 0.1	Symmetrical	0.90 - 1.11
0.1 - 0.3	Positively skewed	1.11 - 1.50
0.3 - 1.0	Very positively skewed	1.50 - 3.00
	>4.0	>3.0

Table 9.2. Particle size analysis data from monolith RDC95.50.



SAMPLE NUMBER	WEIGHT OF SAMPLE (gms)	WEIGHT OBTAINED BELOW 63 $\mu$ m (gms)	% OF TOTAL WEIGHT
RDC96.6	200	40	25
RDC96.8	200	5.6	3.09
RDC96.14	150	25.9	17.26
RFT95.62	200	9.1	4.8

Table 9.3. Results of sieving samples from Redcastle, MHW and MLW in the Beaully Firth.

Sample number and depth cm	mean Phi size	skewness	sorting	kurtosis
RDC96.6 i 10cm	6.538	-1.514	-1.43	-0.465
RDC96.6 ii 10cm	6.537	-1.492	-1.481	-0.925
RDC96.6 iii 10cm	5.687	-1.483	-1.613	-0.825
RDC96.8 i 50cm	5.95	-1.48	-0.858	-0.447
RDC96.8 ii 50cm	5.191	-1.646	-0.99	-0.361
RDC96.8 iii 50cm	6.507	-1.851	-1.594	-0.497
RDC96.14 i 5cm	7.08	-2.529	-1.15	0.435
RDC96.14 ii 5cm	6.77	-2.511	-1.103	0.435
RDC96.14 iii 5cm	N/A			
RFT95.62 i 0cm	5.88	-1.42	-1.433	-0.86
RFT95.62 ii 0cm	5.787	-1.362	-1.377	-1.011
RFT95.62 iii 0cm	5.762	-1.49	-1.33	-0.916

Table 9.4. Analysis of the sieved samples shown in Table 9.3.



Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	8.38	8.39	coarse sand
1.0	1/2	500	17.854	17.87	medium sand
2.0	1/4	250	29.864	29.90	fine sand
3.0	1/8	125	20.127	20.15	very fine sand
4.0	1/16	63	5.327	5.33	silt/clay
Pan			15.681	15.7	
Total				97.34	

Table 9.5. Particle size analysis from sample RDC94.1 (original sample weight 99.867 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	1.859	1.817	coarse sand
1.0	1/2	500	12.641	12.358	medium sand
2.0	1/4	250	29.493	28.834	fine sand
3.0	1/8	125	14.501	14.177	very fine sand
4.0	1/16	63	10.592	10.355	silt/clay
Pan			32.499	31.773	
Total				99.314	

Table 9.6. Particle size analysis from sample RDC94.2 (original sample weight 102.284 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	8.346	12.451	coarse sand
1.0	1/2	500	12.134	18.103	medium sand
2.0	1/4	250	23.631	35.256	fine sand
3.0	1/8	125	8.174	12.195	very fine sand
4.0	1/16	63	4.851	7.237	silt/clay
Pan			9.629	14.608	
Total				99.85	

Table 9.7. Particle size analysis from sample RDC94.3 (original sample weight 67.026 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	7.364	10.74	coarse sand
1.0	1/2	500	12.014	17.52	medium sand
2.0	1/4	250	13.048	19.03	fine sand
3.0	1/8	125	12.398	18.08	very fine sand
4.0	1/16	63	41.371	19.09	silt/clay
Pan				60.35	
Total				144.81	

Table 9.8. Particle size analysis from sample RDC94.4 (original sample weight 68.545 gms).



Redcastle 52 Depth	Mean phi size	Mean size (mm)	Skewness	Sorting	Kurtosis	Loss on ignition (%)
0	2	2.84	0.14	0.58	-1.77	1.23
2	4	3.51	0.09	0.57	-1.13	1.53
4	6	3.60	0.08	0.77	-1.94	1.19
6	8	3.26	0.10	0.59	-1.72	1.24
8	10	2.82	0.14	0.60	-1.89	1.20
10	12	3.38	0.10	0.60	-1.08	1.58
12	14	3.10	0.12	0.61	-1.47	1.33
14	16	3.88	0.07	0.54	-0.84	1.25
16	18	3.56	0.08	0.44	-1.23	1.02
18	20	3.86	0.07	0.58	-0.48	4.34
20	22	3.41	0.09	0.63	-1.20	1.48
22	25	2.92	0.13	0.71	-1.64	1.57

Skewness	Sorting	Kurtosis
-1 - -0.3	Very negatively skewed	<0.67
-0.3 - -0.1	Negatively skewed	0.67 - 0.90
-0.1 - 0.1	Symmetrical	0.90 - 1.11
0.1 - 0.3	Positively skewed	1.11 - 1.50
0.3 - 1.0	Very positively skewed	1.50 - 3.00
	>4.0	>3.0
	Very well sorted	Very platykurtic
	Well sorted	Platykurtic
	Moderately well sorted	Mesokurtic
	Poorly sorted	Leptokurtic
	Very poorly sorted	Very leptokurtic
	Extremely poorly sorted	Extremely leptokurtic

Table 9.9. Particle size analysis data from monolith RDC95.52.



Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	7.776	12.386	coarse sand
1.0	1/2	500	4.468	7.116	medium sand
2.0	1/4	250	12.319	19.622	fine sand
3.0	1/8	125	25.47	40.57	very fine sand
4.0	1/16	63	9.576	15.253	silt/clay
Pan			2.705	4.308	
Total				99.255	

Table 9.10. Particle size analysis results from sample CD94.1 (original sample weight 87.98 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	6.109	13.579	coarse sand
1.0	1/2	500	3.11	6.913	medium sand
2.0	1/4	250	9.304	20.681	fine sand
3.0	1/8	125	18.837	41.873	very fine sand
4.0	1/16	63	6.183	13.744	silt/clay
Pan			1.146	2.547	
Total				99.337	

Table 9.11. Particle size analysis results from sample CD94.2 (original sample weight 44.986 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	2.198	2.901	coarse sand
1.0	1/2	500	1.982	2.616	medium sand
2.0	1/4	250	12.774	16.864	fine sand
3.0	1/8	125	36.758	48.528	very fine sand
4.0	1/16	63	16.313	21.536	silt/clay
Pan			6.893	9.1	
Total				101.45	

Table 9.12. Particle size analysis results from sample CD94.3 (original sample weight 75.745 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	3.416	4.352	coarse sand
1.0	1/2	500	2.955	3.765	medium sand
2.0	1/4	250	13.204	16.825	fine sand
3.0	1/8	125	40.149	51.16	very fine sand
4.0	1/16	63	13.644	17.385	silt/clay
Pan			4.594	5.853	
Total				99.34	

Table 9.13. Particle size analysis results from sample CD94.4 (original sample weight 78.477 gms).



SAMPLE # & depth	mean phi size	skewness	sorting	kurtosis
CD94.1 (surface)	2.39	-0.128	0.91	1.2
CD94.2 (10cm)	2.29	-0.315	0.896	1.261
CD94.3 (20cm)	1.97	-0.038	0.83	1.148
CD94.4 (30cm)	2.56	-0.145	0.952	1.606

Table 9.14. Carn Dubh sedimentary data analysis.

SAMPLE # & depth	mean phi size	skewness	sorting	kurtosis
P94.1 (surface)	2.794	-0.121	0.339	1.315
P94.2 (10cm)	2.343	-0.345	0.981	0.867
P94.3 (20cm)	2.321	-0.238	0.735	0.802
P94.4 (30cm)	1.91	0.012	1.075	1.234
P94.5 (40cm)	2.294	0.475	0.877	1.098

Table 9.15. Phopachy sedimentary data analysis.

SAMPLE # & depth	mean phi size	skewness	sorting	kurtosis
RDC94.1 (surface)	2.1	0.253	1.764	1.102
RDC94.2 (10cm)	2.76	0.129	1.783	0.733
RDC94.3 (20cm)	2.05	0.17	1.349	1.187
RDC94.4 (30cm)	2.443	0.013	1.462	0.834

Table 9.16. Redcastle phase three sedimentary data analysis.

#### Key

##### Skewness

- 1 - -0.3 Very negatively skewed
- 0.3 - -0.1 Negatively skewed
- 0.1 - 0.1 Symmetrical
- 0.1 - 0.3 Positively skewed
- 0.3- 1.0 Very positively skewed

##### Kurtosis

- <0.67 Very platykurtic
- 0.67 - 0.9 Platykurtic
- 0.9 -1.11 Mesokurtic
- 1.11 - 1.5 Leptokurtic
- 1.5 - 3.0 Very leptokurtic
- >3.0 Extremely leptokurtic

##### Sorting

- <0.35 Very well sorted
- 0.35 - 0.7 Well sorted
- 0.7 -1.0 Moderately well sorted
- 1.0 -2.0 Poorly sorted
- 2.0 -4.0 Very poorly sorted
- >4.0 Extremely poorly sorted



Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	0.293	0.337	coarse sand
1.0	1/2	500	0.939	1.082	medium sand
2.0	1/4	250	2.702	3.113	fine sand
3.0	1/8	125	69.44	80.02	very fine sand
4.0	1/16	63	12.246	14.112	silt/clay
Pan			0.949	1.0936	
Total				99.7576	

Table 9.17. Particle size analysis results from sample P94.1 (original sample weight 86.777).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	9.006	17.15	coarse sand
1.0	1/2	500	2.885	5.494	medium sand
2.0	1/4	250	7.624	14.518	fine sand
3.0	1/8	125	21.796	41.507	very fine sand
4.0	1/16	63	9.623	18.348	silt/clay
Pan			2.196	4.181	
Total				101.198	

Table 9.18. Particle size analysis results from sample P94.2 (original sample weight 52.511 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	10.612	19.93	coarse sand
1.0	1/2	500	3.95	7.418	medium sand
2.0	1/4	250	10.439	19.605	fine sand
3.0	1/8	125	19.831	37.245	very fine sand
4.0	1/16	63	6.476	12.1628	silt/clay
Pan			1.441	2.706	
Total				99.066	

Table 9.19. Particle size analysis results from sample P94.3 (original sample weight 53.244 gms).

Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	5.869	7.977	coarse sand
1.0	1/2	500	5.595	7.604	medium sand
2.0	1/4	250	31.217	42.431	fine sand
3.0	1/8	125	21.188	28.799	very fine sand
4.0	1/16	63	7.285	9.901	silt/clay
Pan			2.056	2.794	
Total				99.542	

Table 9.20. Particle size analysis results from sample P94.4 (original sample weight 73.571 gms).



Phi value	mm	$\mu\text{m}$	weight retained gms	% of total	particle size
0.0	1	1000	0.068	0.079	coarse sand
1.0	1/2	500	2.753	3.217	medium sand
2.0	1/4	250	40.608	47.457	fine sand
3.0	1/8	125	25.029	29.25	very fine sand
4.0	1/16	63	10.565	12.347	silt/clay
Pan			6.142	7.178	
Total				96.528	

Table 9.21. Particle size analysis results from sample P94.5 (original sample weight 85.567 gms).



Tide levels relative to OD, m	MHWST	MTL	MLWST
Inverness	2.55	0.5	-1.55
Beaulieu	2.5	0.492	-1.56
Landform	Reference water level	Indicative range	
Saltmarsh	MHWST	0.3 m	
Mudflats	MHWNT + 0.2 m	0.35 m	
Sand beach	MHWST +0.2 m	0.4 m	
Shingle beach	-	0.8 m	

Table 10.1. Predictive tidal levels (after Admiralty Tide Tables 1994) and the relative positions of shoreline features in the Beaulieu Firth.

RDC on-site core	Altitude OD ( $\pm 0.1$ m)	Indicative diatom species	Tidal position
	+0.83	<i>Pinnularia viridis</i>	above HAT
	+0.71	<i>Paralia sulcata</i>	between MHWNT and MHWST

Table 10.2. Redcastle on-site diatom core species and tide level.

R52 sample zone	Altitude OD ( $\pm 0.1$ m)	Indicative diatom species	Tidal position and conditions
R52. 6	-0.03 to -0.00	<i>Achnanthes delicatula</i> , <i>Fragilaria pinnata</i> v. <i>subrotunda</i>	Brackish (HAT) Freshwater influence
R52. 5	-0.09 to -0.03	<i>Cocconeis disculus</i> <i>Achnanthes delicatula</i> <i>Paralia sulcata</i>	Freshwater Brackish (HAT) Marine influence
R52. 4	-0.17 to -0.09	<i>Achnanthes delicatula</i>	Brackish (HAT)
R52. 3	-0.21 to -0.17	<i>Achnanthes delicatula</i> <i>Paralia sulcata</i>	Brackish (HAT) Between MHWNT and MHWST
R52. 2	-0.23 to -0.21	<i>Paralia sulcata</i>	Between MHWNT and MHWST
R52. 1	-0.24 to -0.23	<i>Paralia sulcata</i> <i>Pseudopodosira westii</i>	Between MHWNT and MHWST Between MHWNT and MHWST

Table 10.3. Redcastle off-site diatom sample species and tide position.