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Authors: **Michael Cressey HND BA MSc PhD FSA Scot MIFA**
Sue Dawson BSc PhD
Phil Richardson BA MA FSA Scot PIFA
Ross White BSc AIFA
Illustrations: Ross White BSc AIFA
Karen Clarke BA MA MSc
Editor: Sue Anderson BA Mphil MIFA FSA Scot
Tim Neighbour BSc FSA Scot MIFA

CFA ARCHAEOLOGY LTD
The Old Engine House
Eskmills Business Park
Musselburgh EH21 7PQ

Tel: 0131-273-4380
Fax: 0131-273-4381
email: cfa@cfa-archaeology.co.uk

Clachan Harbour, Churchton Bay, Raasay: An Archaeological and Palaeoenvironmental Assessment of an Inter-Tidal Peat Deposit

Report No. 1285

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1. INTRODUCTION

1.1 In January 2007 CFA Archaeology Ltd carried out an archaeological and palaeoenvironmental assessment of inter-tidal peat deposits at Clachan Harbour within the larger Churchton Bay, Raasay on behalf of Highland Council. The work was carried out in advance of a proposed ferry terminal and infrastructure development within Churchton Bay (NGR NG 54465 36404 Fig 1).

1.2 Clachan Harbour is a sheltered crescent-shaped bay that lies to the south of Raasay House, facing the Narrows of Raasay and overlooking the Isle of Skye. As part of the Scotland's First Settlers Project (SFSP), an investigation into sediment sequences exposed on the harbour floor led to the discovery of extensive wood and peat deposits covering the western area of the bay in 2002. Woody peat and organic-rich sands and silts now occur in the inter-tidal zone. The presence of the organic sediments in the surf zone makes them susceptible to erosion by storm wave activity as well as disturbance by human activity. The discovery of worked stone tools in association with worked wood and charcoal at the head of the bay strongly suggested the presence of Mesolithic activity.

2. AIMS AND OBJECTIVES

2.1 The objectives of the project were to:

- carry out a survey to map the spatial extent of visible peat surfaces;
- carry out an appropriate sampling programme, including the completion of the programme of sampling that Dr Dawson commenced as part of the Scotland's First Settlers Project;
- evaluate the potential for the survival of stone tools or other archaeological remains below and within the peat;
- assess whether the site is eroding, stable or accreting and to assess the potential impacts that construction of the new ferry terminal may have on the peat;
- where appropriate make a series of recommendations for future work.

3. PREVIOUS WORK
By Sue Dawson BSc PhD

3.1 General information

3.1.1 This section describes previous work carried out at Clachan Harbour by Dr Sue Dawson as part of the 2002 study.

3.1.2 In 2002, the SFSP commissioned Dr Sue Dawson of the School of Geography and Geosciences, University of St Andrews to assess the significance of the peat and its potential for providing important new sea-level data. The results of lithostratigraphic and geomorphological survey combined with pollen and diatom analyses were used to determine the origins of the peat deposit together with the raised suite of shingle ridges and terraces at the head of Clachan Harbour. These results were compared with recent research on Holocene relative sea-level changes in north-west Scotland.

3.1.3 Inter-tidal organic deposits are rarely described for western Scotland with the exception of the Isle of Coll, where early Holocene inter-tidal peats have been described for Traigh Eileraig (Dawson et al 2001). Other inter-tidal deposits are described for south-west Scotland, Orkney, and many from the Outer Hebrides. These latter examples are located at sites which lie around the periphery of the Scottish glacio-isostatic uplift centre. Recent work on the west coast of Skye has been undertaken by Selby (2007), and now provides a useful yardstick with which to assess the timing of the onset of peat development within the study area.

3.2 Field and laboratory techniques

Geomorphological mapping

3.2.1 A morphological survey was undertaken of all terraces and former shoreline features below an altitude of 50m OD in the vicinity of Clachan Harbour. This survey determined the areas for further investigation as well as providing the relative sea-level context of the detailed work undertaken in the harbour. Stratigraphical investigation involved hand coring across the harbour sub-surface to determine the general pattern of estuarine and freshwater sedimentation, which was followed by detailed stratigraphical study of the sediments and the microfossils contained within the sediments. Microfossil analyses were undertaken on two monoliths from the harbour floor sediments which encompassed the greatest extent of the buried peat and underlying clastic sediments. This was to ensure continuity of sedimentation from the clastic to the organic sequences as well as giving an understanding of the possible environment of deposition of the sediment sequences studied.

3.2.2 The surfaces immediately upslope of the harbour were mapped at a scale of 1:10,000 using standard geomorphological techniques. This was followed by measuring the altitudes of all terraces including the present day sand and mudflats along their lengths using a Sokisha total station and Zeiss autoset level. All boreholes and monolith locations were levelled to Ordnance Datum

(OD) Newlyn. Tidal data was taken from Portree, Skye and levels related in the discussion to High Water Mark of Ordinary Spring Tides (HWMOST) refer to the position in the tidal cycle that the transition from estuarine to terrestrial sedimentation occurs.

Stratigraphical analysis

3.2.3 Sites were selected for detailed analyses and monolith sampling after initial examination of the harbour area using a hand operated gouge sampler. Boreholes selected for detailed study were undertaken using a 500mm long, 250mm wide monolith tin, which was pushed into the sediment face after widening a pit in the surface sands.

Microfossil analyses

3.2.4 Microfossil analyses followed standard preparation techniques and included preparation for diatoms, pollen, foraminifera and Ostracoda. The study of the microfossil content of sediments allows determination of general changes in the environment of deposition of the clastic and terrestrial sediments as well as determining the presence or absence of hiatus in sedimentation, to enable the changes in relative sea-level to be assessed.

3.2.5 A minimum of 300 microfossils was counted at every level sampled. Eighteen levels were prepared for diatoms using standard techniques (Barber & Haworth 1981). The sediment was sub-sampled from small tins taken at the site from two trenches (1 and 2, Fig. 2). Approximately 1g wet weight of sediment was placed into a beaker and 20ml of hydrogen peroxide (H_2O_2) added. The beaker was heated gently on a hotplate for 1–3 hours until all organic matter was oxidized. The material was then transferred to centrifuge tubes and topped up with distilled water. The centrifuge was set at 1200rpm for five minutes. The supernatant was then decanted carefully, topped with distilled water and re-centrifuged. This process was repeated five times to reduce the amount of clays and fine silts.

3.2.6 Diatom slides were made up by allowing the suspension to settle out on a cover slip overnight. The resultant cover slips were mounted in Naphrax and heated for a few minutes in a fume cupboard to evaporate the Toluene within the Naphrax. The slides were then left to cool in the fume cupboard until required for counting.

3.2.7 The diatoms were identified with reference to Hendey (1964) and Van der Werff & Huls (1957–1974). Diatom nomenclature follows Hartley (1986) and salinity and lifeform classification is based on Vos & de Wolf (1993) and Denys (1991/2). Polyhalobian and mesohalobian classes broadly reflect marine and brackish conditions and oligohalobian and halophilics reflect freshwater environments.

3.3 Results

Geomorphological setting

3.3.1 Following morphological mapping of the area below 25m OD, terraces representing former sea-level changes were identified around Raasay House, immediately north-east of the harbour (Fig 2). The uppermost level of vegetation in the inter-tidal area occurs at 3.66m OD which lies approximately 0.70m above the tidal level at MHWST. A suite of vegetated shingle ridges occurs immediately to the north-east of the inter-tidal area, downslope of Raasay House. The lowest ridge occurs at 7.57m OD, a second (less well defined) occurs at 8.89m OD and the highest ridge occurs at 14.55m OD. Raasay House itself sits on the surface of a well-defined terrace at c. 24m OD. It is likely that the highest shingle ridge and the terrace that the house stands on are related to late glacial relative sea level changes when sea levels were lower and have been subsequently uplifted to their present altitudes.

3.3.2 The terrace at c. 7.5m OD is comparable to terraces identified in Skye and Applecross as being a product of the highest level attained by the mid Holocene rise in relative sea-level known as the Main Postglacial Transgression. The higher surface at c. 8.90m OD is probably a Holocene terrace formed from exceptional storm wave activity in which storm waves have overtopped the main level at c. 7.5m OD by 2–3m.

Lithostratigraphy

3.3.3 The harbour floor at Clachan is characterised by a thin (less than 50mm) veneer of coarse shelly sand overlying a highly compacted peat with wood, which in turn overlies a suite of sands and silty clays which comprise the inter-tidal sediments. Underlying the surface sand is a highly compacted rich brown peat with large pieces of roundwood up to 35cm (long axis) and woody fragments sometimes accounting for up to 80% of the organic deposit. The peat is variable in terms of the presence within the harbour floor area. A greater extent of exposed peat and wood was noted during survey work by the Scotland's First Settlers Project prior to the 2002 sampling expedition to excavate the monolith for analysis.

3.3.4 A monolith of excavated sediment encompassing the main stratigraphic units was obtained from the northern part of the harbour, towards the back of the present day beach ridge, at an altitude of 0.22m OD. The main units showed the sand veneer clear towards the top of the monolith and the organic deposit below underlain by the silts and clay deposits. The organic deposit exhibits a variable thickness across the area, being up to 0.25m thick in places. In Monolith 1 the organic unit is 0.06m thick. The largest stratigraphic unit is composed of sands, silts and clays which make up the inter-tidal sediments. In the sampled monolith these sediments are c. 0.4m in thickness. The silty clay unit extends to greater depths in excess of several metres and only the sediments around the lithostratigraphic boundaries were collected for further analysis.

3.4 Biostratigraphical analyses – diatoms and pollen

3.4.1 The diatom assemblage for Clachan Harbour shows, at the base of the sequence, the clastic sediments composed of silts and sands have increasing numbers of Mesohalobous (brackish) species. High frequencies of *Diploneis interrupta* and *Navicula peregrina* are indicative of saltings in the supratidal zone. Low numbers of marine and marine-brackish species, including *Diploneis didyma, Achnanthes delicatula* and *Navicula digito-radiata* occur in the sands suggesting deposition on mud or sandflats (Vos & de Wolf 1993). As the contact with the overlying organic sediments is approached, the diatom assemblage returns to Mesohalobous dominated, with *Diploneis interrupta* and *Diploneis ovalis* prominent. The organic unit is characterised by increasing values of oligohalobian (Freshwater) species, with *Fragilaria* sp. and *Navicula pusilla* in greatest numbers. This assemblage is characteristic of a reduction in marine influence. The silty sands providing a thin veneer over the organic sediments across the harbour floor surface are characterised by polyhalobous and mesohalobous species including *Paralia sulcata, Cocconeis scutellum, Navicula peregrine, Nitzschia punctata* and *Diploneis didyma*. The presence of these brackish species together with the aeophile *Diploneis interrupta* indicates deposition within the inter-tidal area.

3.4.2 The overall assemblage provides evidence for a fall and then a subsequent rise in the marine influence at the site in the early to middle Holocene.

3.5 Modern diatom assemblages

3.5.1 An examination of modern diatom assemblages across the vegetated upper inter-tidal zone and the harbour surface sand flats was undertaken to try to establish the altitudinal relationships between the representative diatom assemblages within the monolith examined and the present day tidal levels. This is undertaken to ensure that the interpretation of the fossil sequences is based on an understanding of the natural succession of coastal sedimentary sequences in the immediate vicinity of the study site. It is therefore imperative to establish contemporary relationships between the diatom assemblages, water levels, sedimentary facies and the coastal vegetation communities to determine the indicative meanings of the relative sea-level changes deduced.

3.5.2 The contemporary samples cover Mean High Water Neap Tides (MHWNT), across the sandflats to the landward edge of the beach and the start of vegetation communities at around Mean High Water Spring Tides (MHWST). The altitudes of these environments are related to tidal levels interpolated from the Admiralty Tide Tables for Portree (the nearest Secondary port) and Ullapool (the nearest Main tidal port).

3.5.3 The record of Holocene sea-level changes is reliant upon the identification of distinctive diatom boundaries. These include where the assemblage displays a marked change from polyhalobous (marine) species (indicative of inter-tidal mud and sandflats) to the dominance of mesohalobous (brackish) species (indicative of a developing saltmarsh) and occur at c. 0.2m above the predictive level of MHWST. The second boundary occurs where a change

from mesohalobous species to the dominance of oligohalobous (fresh) taxa is evident. Finally, the third boundary of significance concerns the transition to more freshwater and salt intolerant species around Highest Astronomical Tide (HAT).

3.5.4 Many of the characteristic diatoms observed in the present day sediments are also characteristic of particular diatom zones within the Holocene sequence at Clachan Harbour. The diatom assemblages are similar to recent samples determined for the Kentra Moss area, Arisaig (Shennan et al 1995).

3.6 The pollen record

3.6.1 Pollen analysis was undertaken on the organic sediments from Clachan Harbour by Dr Fraser Green (University of Aberdeen) as part of the original survey for Scotland's First Settlers in 2002. In brief, pollen grains identified at the base of the organic deposit are characterised by *Betula* with low percentages of *Pinus* and *Salix* and high frequencies of Cyperaceae (>50%), some *Artemisia* and minimal counts of *Rumex*. Sedge, willow and birch continue to rise throughout the organic unit with *Artemisia* peaking at 25% before falling to c. 10%. Towards the top of the organic deposit rising *Corylus-Avellana-type* indicate the continued presence of hazel scrub in the vicinity of the site. The continuous curve for *Betula* plus the commencement and development of *Corylus-Avellana-type* at Clachan Harbour suggest that birch-hazel woodland was established in the area and confirm an early Holocene, c. 9300 BP, date for the expansion of this throughout the Hebrides (Birks 1989), which is in keeping with research throughout the area.

3.6.2 The Clachan Harbour pollen assemblages can be compared with other sites in western Scotland to provide an assessment of the timing of deposition of the inter-tidal organic sediments. The pollen record from Gruinart, Isle of Islay (Dawson et al 1998) exhibits a similar sequence at the base of the organic deposit which are characterised by *Betula, Juniperus, Salix* and occasional *Pinus*. *Betula* is replaced up core by *Corylus-Avellana-type*. A similar sequence is also observed for Arisaig within uplifted coastal isolation basins. The pollen assemblages described are typical of early Holocene vegetation development with an open tundra landscape being replaced by the development of birch and hazel woodland as a consequence of climatic amelioration (Walker et al 1992). The pollen sequences described for an inter-tidal organic deposit on the Isle of Coll are dated at 8000 radiocarbon years BP (Dawson et al 2001). The low percentages of arboreal taxa, typical of the Younger Dryas, suggest an early Holocene age but later than that suggested by the Islay and Arisaig pollen evidence.

3.7 Discussion on the relative sea level changes

3.7.1 The pattern of relative sea level changes in Raasay during the early to middle Holocene is characterised by a fall in sea level, when the rate of glacio-isostatic uplift outpaced the glacio-eustatic increase in the volume of ocean water due to widespread ice melt across the globe. This was followed by a rise, when decreasing glacio-isostatic rebound was overtaken by the rate of

rise in sea level caused by increased melting. The rate of rebound is variable across the Inner Hebrides from the mainland due to the variability of the ice thickness across the area.

Isle of Skye

3.7.2 Relatively little is known about the chronology of relative sea level change on the Isle of Skye and Raasay, although many raised marine terraces have been identified no systematic study of the raised shorelines in the area has taken place. Terraces have been identified at c. 30m OD which represent Late glacial sea level changes. Raised shorelines formed during or following the culmination of the Main Postglacial Transgression are widespread in Skye and reach up to 7m OD in eastern Skye at Sconser, the Braes and Peinchorran (Benn 1991). Raised shingle ridges occur at higher altitudes (up to 10m OD) in more exposed locations. The nearest site to Raasay is a raised tombolo (connecting a former island to the mainland) of vegetated beach gravels at c. 7m OD at the Braes, on the mainland opposite Raasay.

3.7.3 Research by Selby et al (2000) has examined the late Devensian and Holocene sea level record from selected isolation basins throughout Skye and shows evidence for marine inundation and sand and silt deposition (in quiet water conditions compared to the high energy raised terraces composed of gravel and shingle around the coastline of Skye), to at least 5m OD.

Isle of Raasay

3.7.4 The sediments analysed from the floor of the harbour in south-west Raasay, together with the information from the raised shingle terraces surrounding the harbour area, can be used to determine the pattern of relative sea level changes for Raasay during the Holocene. The earliest part of the Holocene was characterised by low relative sea levels at c. 0m OD or slightly lower. This is in accord with other areas around the Inner Hebrides. The contact between the silts and clays and the overlying inter-tidal organic unit at 0.15m OD marks a change from marine sedimentation, typical of an inter-tidal environment, to terrestrial sedimentation above the influence of marine activity. This boundary marks a relative marine regression at the site in the earliest part of the Holocene. Relative sea-level remained low, sufficiently long enough to allow the growth of woodland at the site, although it was probably at these levels for between 500 and 1000 years. There then ensued a rise in relative sea-level which commenced at c. 8800 radiocarbon years BP on the Isle of Skye (Selby et al 2000). Pollen evidence from Clachan Harbour suggests that the transgression may be earlier than the Skye and Coll data and be closer to the timing of the transgression on the Isle of Islay around c. 9500 radiocarbon years BP (Dawson et al 1998). The raised shorelines around the harbour provide morphological expression of this transgression with shingle ridges located at c. 7.5m OD and c. 9m OD. The stratigraphic evidence for this transgression is present in the thin veneer of sediments overlying the organic unit across the harbour, although much erosion of the sand unit has undoubtedly taken place due to its situation within the present day inter-tidal

zone. The ridges at c. 7m OD are comparable to terraces located around the Isle of Skye and mark the culmination of the Main Postglacial Shoreline.

Clachan Harbour

3.7.5 The pattern of relative sea level change in western Scotland during the Holocene is the product of the combined effects of glacio-isostatic deformation and glacio-eustatic changes. As a consequence, the pattern of Holocene relative sea level change is regionally variable. Inter-tidal woody peat in south west Raasay began to accumulate during the early Holocene around c. 9500–8500 ^{14}C years BP at which time relative sea level fell close to 0m OD or slightly lower. Terrestrial organic sedimentation and the development of woodland accumulated at, or close to, sea level until c. 8500 ^{14}C years BP when they were submerged by a rise in sea level which reached an altitude of at least c. 7.6m OD, the highest Holocene terrace immediately north-east of the inter-tidal zone in the grounds of Raasay House.

3.7.6 Storm waves deposited shingle ridges at even higher altitudes. In the area immediately surrounding Clachan Harbour, the occurrence of raised storm ridges with crest altitudes up to c. 10m OD implies that storm waves may have occasionally reached and exceeded this altitude. The age of this relative transgression maximum is dependent upon radiocarbon dating. Analysis by Selby et al (2000) for relative sea-level changes in south-west Skye suggests that this transgression maximum may have culminated as recently as c. 3000 radiocarbon years BP.

3.7.7 The stratigraphic position and altitude of the inter-tidal sediments is consistent with the results of relative sea-level investigations undertaken on sediments of a similar age in Islay (Gruinart flats) and north-east Coll. Relative sea level data for this transgression from Kentra Moss (Loch Shiel) and Arisaig, Moidart are at higher altitudes due to the variability in the uplift history between the two areas.

4. METHODOLOGIES

4.1 General

4.1.1 To meet the project objectives it was necessary to appraise and map the inter-tidal peat and to carry out archaeological excavation. The methods used are described below.

4.2 Inter-tidal peat appraisal

4.2.1 In order to establish benchmark criteria for the purpose of monitoring future erosion or accretion of marine sediment within the harbour floor, four wooden marker pegs (MP1 to MP4) were placed at strategic locations (Fig. 3). The distance from the top of the peg to the harbour floor was 0.2m. This will allow any accretion and erosion to be measured accurately. The pegs were surveyed in relation to onshore features and also using a hand-held GPS. The marker pegs were also plotted in relation to exposed surface peat and trench locations.

Monitoring-peg number	NGR Co-ordinate
MP1	NG 54450 36416
MP2	NG 54469 36415
MP3	NG 54477 36414
MP4	NG 54459 36378

Table 1: NGR co-ordinates for four monitoring pegs in Clachan Harbour.

4.2.2 Test pits were excavated to map the spatial distribution of the peat in order to identify the full extent of the peat remains. Using MP2 and MP3 as origin points, test pits were excavated every 5m to the north, east and south of the pegs, up to 30m away. The interval was then decreased until the edge of the peat was located. Test pits to the west of MP2 were randomly placed to confirm the existence of the peat between MP1 and MP2.

4.2.3 The test pits were only excavated to the surface of the peat, exposing its surface after the removal of overlying deposits.

4.2.4 A visual appraisal of the peat and marine deposits within the harbour was made to assess which areas of the harbour are currently experiencing accretion and erosion. This work was undertaken during low water on a neap tide between 1pm and 4pm on 23rd January 2007.

4.2.5 The results of the inter-tidal peat mapping were then compared with the results of the 2002 work.

4.3 Archaeological excavation

4.3.1 Four areas of peat and relict tree stump remains were cordoned off with road pins and hazard tape and numbered F1 to F4 (Fig. 3). The four areas were chosen for investigation because they were most at risk of eroding as they were not fully covered by marine sediments.

4.3.2 F1 measured 16m x 6m, F2 measured 3m x 3m, F3 measured 3m x 3m and F4 measured 5m x 4m. These defined areas were then cleaned by hand and recorded by standard recording techniques, principally by photography and scale drawing.

4.3.3 F1 and F2 were investigated by hand-dug trial trenches to assess their depth and stratigraphy. The deposits from these trial trenches were removed as 100% samples and processed for artefact retrieval.

4.3.4 Following the discovery of worked stone tools below the peat deposit in F2, more extensive excavation was undertaken. An area measuring 3m x 3m was defined and subdivided into 0.2m x 0.2m squares. Each of these squares, numbered [1] to [225], was excavated by hand. Artefacts retrieved were plotted on the grid and their depths below the peat surface recorded in order to facilitate spatial analysis of stone tool deposition. Sampling of available deposits below the peat took place for post-excavation analysis.

4.3.5 The positions of all investigation areas and monitoring pegs were recorded using industry standard surveying equipment.

5. FIELDWORK RESULTS

5.1 Inter-tidal peat appraisal

5.1.1 The results from the main test pits excavated in order to establish the presence of the peat are presented in Appendix 3.

5.1.2 The survey of the inter-tidal peat has established that it is concentrated within the central northern part of the bay (Fig 3). It extends from the north around F2 to F1 and sweeps to the east with its limit at F4. It is probable that the peat survives extensively under the storm beach (Zone 3), and straddles Zones 1 and 2 (see below). Marine deposits of silt or pebble shingle cover the majority of the surviving peat.

5.1.3 The inter-tidal peat was mapped by Dawson (in press). In 2002 there was a more extensive cover of marine deposits (sand and shingle) over the inter-tidal peat surfaces; the work in 2007 has indicated that the peat is more extensive than was suspected in 2002. The recent appraisal confirms that there are four zones of activity within the harbour (Fig. 4):

- *Zone 1, Accreting* – eastern side of bay area, LWM sand-flat characterised by an absence of shingle and other clast materials, low gradient and wet due to seepage from the back-beach area.

- *Zone 2, Eroding and Accreting* – western side of bay area, harbour floor with a variety of clast sizes ranging from shingle to small boulders with seaweed covering exposed inter-tidal peat. Marine shell and shingle concentrated in pockets, predominantly saturated by freshwater seepage from the back-beach area. Small seepage channels are being formed as a result of the amount of freshwater entering the zone from the land behind the harbour.

- *Zone 3, Accreting* – inter-tidal beach deposits with a steeper gradient of pebble and shingle formation, with a series of small berms formed at the HWMST. A well-defined high-tide mark with flotsam and rotting weed following recent winter storms.

- *Zone 4, Eroding* - Low vegetated shingle cliff rising to 0.1m high backed by a fence. Slope failure in parts with exposed shingle due to wave impact.

5.1.4 Zone 1 is being nourished from an off-shore reservoir of sand on the bottom of the Sound of Raasay. Sediment focusing is occurring as a result of the sheltered nature of the crescent shaped harbour. Zone 2 is both accreting and eroding. Heavier clasts are being dragged back down the beach leading to scouring of the inter-tidal peat surfaces. Some accretion is also occurring at the Zone 2/3 interface. Zone 3 is receiving beach material from upslope and is re-deposited during the tidal cycle. Zone 4, the beach head is eroding providing nourishment to Zone 3 as described.

5.2 Archaeological evaluation results

5.2.1 Context numbers are shown in bold type, and excavation square numbers are shown in squared parentheses.

5.2.2 Areas F1 to F4 (Fig. 4), which survived as areas of upstanding tree stumps and areas of visible peat above the sand, were targeted due to their higher potential for erosion. F1 and F2 were subjected to initial investigation by trial trenching.

Area F1

5.2.3 F1 survived as a strip of upstanding peat and tree root remains (Fig. 5). It was aligned approximately north – south, measuring approximately 13.5m long, 4m wide at its southern extremity and 0.6m wide at the north. Straight cut marks on the east and west sides of the feature are remnants of the peat cutting, carried out until very recently, by local people who used the peat for fuel.

5.2.4 Two trenches were excavated in F1. Trench 1 was 4.25m long by 0.5m wide, and aligned north to south. The peat measured 0.3m deep at its maximum (Fig. 6).

5.2.5 Trench 2 measured 3.75m long by up to 0.5m wide and was aligned north-west to south-east. This trench was located across the already erosion damaged southern extremity of F1.

5.2.6 The peat deposits from both trenches in F1 were lifted in 0.5m x 0.25m blocks and put into plastic rubble sacks to be processed for artefact retrieval on shore. This processing yielded a solitary find of a piece of possibly worked mudstone, located in Trench 1, 0.1m below the surface of the peat **1100**, between 1.5m and 1.75m from the southern end of the trench.

Area F2

5.2.7 F2 was initially identified as a thin, fragmentary strip of peat jutting out to the south of the cobble storm beach (at the interface of Zones 2, 3 and 4). It was located to assess whether the peat continued below the cobbles and sand of the storm beach.

5.2.8 Two trenches were excavated to investigate F2. Trench 1 was excavated north – south and measured 3.5m by 0.6m (Fig. 8). It was established that the storm beach cobbles (**2101**) overlay a shell rich sand (**2102**), which in turn overlay the peat (**2104**) (Fig. 7). The peat deposit became thicker towards the north. Occasional patchy lenses of an orange to red silty clay (**2103**) were also identified between **2102** and **2104**. The peat lay on natural orange silty clay and bedrock (**2106**). Thin lenses of dark brown to black firmly compacted silt (**2105**) were present between **2104** and **2106**, particularly to the north of the trench. Several worked stone tools were retrieved from this deposit and, based

upon these findings, an excavation was undertaken further to investigate this feature.

5.2.9 Trench 2 was excavated perpendicularly to Trench 1 to investigate the western extent of the peat and to assess its condition at the point where the storm beach met the shingle beach. This trench was abandoned due to running water and silt quickly collecting in the trench, making effective excavation impossible.

Areas F3 and F4

5.2.10 Areas F3 and F4 survived as patches of upstanding peat and tree root remains. Both of these features were more covered with silt and sand than F1. Constantly running fresh water from the north continuously flooded the features and deposited silt after cleaning. Areas F3 and F4 were not excavated on the recommendations of Dr Cressey and Dr Dawson, as it was thought this would add to the destruction of an already diminishing peat resource.

5.2.11 F4 delineated the eastern extremity of the peat itself, as was evidenced during the peat exploration survey. The peat's southern extremity was identified approximately 0.8m to the south of F3.

5.3 Archaeological excavation results

5.3.1 An area measuring 3m x 3m was excavated on F2, incorporating F2 Trench 1. The 3m x 3m square was subdivided into 0.2m x 0.2m squares and each square was 100% excavated individually (Fig. 8).

5.3.2 The storm beach cobbles (**2101**) rose up to the north at an angle of approximately 30° (Fig. 7). The deposits below this sloped upwards more gently to the north. Several struck stone artefacts were recovered from the peat (**2104**) in squares [31], [72], [76], [89] [123], [164] and [211]. **2105** was present mainly in the middle and on the eastern side of the excavation area, and yielded artefacts from squares [66], [203] and [218] in the form of several flakes of worked stone, many similar to those found in the evaluation. One find of particular note was an animal tooth found in **2105** in square [218], associated with the stone tools.

5.3.3 The artefacts found during the excavation of Trench 1 were ascertained to be from squares [204], [205], [206], [219], [220] and [221].

5.4 Archaeological finds assessment

By Sue Anderson

5.4.1 Nineteen small find numbers were registered during the excavation, representing a total of 34 objects/fragments. Table 1 presents a summary quantification of these by find type; a full list is included as Appendix 4.

Find type	No.	Wt (g)
Lithics	28	208
Stone	1	128
Bone	3	4
Wood	1	1
Peat sample	1	-

Table 1. Finds quantification.

5.4.2 *Lithics*: the majority of finds consisted of lithics, most notably flakes and blades, though one possible scraper was also present. A few fragments were abraded and possibly natural.

5.4.3 *Stone*: one water-worn beach pebble was collected as SF 18. It appeared to have evidence of use-wear at one end and may have been used as a small hammerstone.

5.4.4 *Bone*: fragments were small, soft and stained dark brown. The only identifiable piece was a tooth crown (canid molar) collected as SF 14.

5.4.5 *Organics*: a small sample of peat containing a hazelnut shell and a fragment of ?bone was collected as SF 19. A small piece of wood was collected with SF 1.

6. DISCUSSION

6.1 The inter-tidal peat appraisal conducted in 2007 has meant that the extent of the peat within Clachan Harbour is now better understood than before. Clachan Harbour contains four distinct inter-tidal zones of activity, with the eastern side of the bay (Zone 1) being subjected to more accretion than the western side (Zone 2). The cobble storm beach at the north of the inter-tidal zone (Zone 3) is accreting and the vegetated ground at the head of the bay (Zone 4) is eroding. Four marker pegs were placed to aid future monitoring of the bay area.

6.2 The peat appraisal work has also established that the majority of the peat is now concentrated within Zones 1 and 2 and within Zone 4 at the base of the low cliff at the head of the bay. The Zone 3 deposits overlie the peat and it is probably much more extensive. The presence of peat sealed below the Zone 3 sediment strongly suggests that this deposit runs into the hinterland and is likely still to be extensive below the shoreline at Churchton Bay.

6.3 The inter-tidal peat appraisal sampling strategy has been successful in providing a collection of branchwood that is suitable for identification. This will provide complementary information on the dynamics of the local woodland population to add to that which has been derived so far by pollen analysis. The in situ wood obtained from the peat represents woodland that was growing within the harbour during peat formation; this is more reliable than the pollen record for reconstructing the local woodland environment.

6.4 The discovery of the stone artefacts below and within the peat was not entirely unexpected, as previous limited work in the bay had yielded two or three chipped stone tools. What made this programme of works different was that so many stone tools were retrieved within a confined area, and also that the majority of the tools came from below the peat level, suggesting a very early date for them.

6.5 The majority of the chipped stone assemblage appears to be of local mudstone, similar to assemblages found on other sites in the area. Finds of early Mesolithic worked stone from a secure archaeological context are not common in Scotland, so the artefacts found during this excavation will further add to the knowledge base of Mesolithic sites.

6.6 The artefacts within the peat (**2104**) appear to form no particular pattern in plan (Fig. 8). The artefacts retrieved from **2105** were confined to a very small area, suggesting a limited, but concentrated, area of anthropogenic activity.

6.7 No other archaeological features were found during the excavation, suggesting that this site was used solely for stone tool knapping.

6.8 The decision to excavate only a 3m x 3m square was taken to avoid further damage to the inter-tidal peat resource. It is probable that more stone tools and associated features survive beyond the limits of the excavation area.

6.9 The importance of the inter-tidal peat at Clachan Harbour lies in its ability to provide new evidence on the timing of its formation at a period when relative sea-levels were substantially lower.

6.10 The site at Clachan Harbour has enhanced the rich body of archaeological evidence from the Mesolithic of Western Scotland. Such sites are usually represented by lithic scatters, such as Camas Daraich, Skye (Wickham-Jones and Hardy 2004) or shell midden sites, such as An Corran, Skye (Saville and Miket 1994). However, in contrast to Clachan Harbour, the earliest Mesolithic sites close to Raasay, such as the lithic scatter sites of Kinloch Farm, Rhum, Camas Daraich on Skye, and the Jura sites of Lealt and Lussa Bay, (Mercer 1969 and 1980; Wickham-Jones 1990; Hardy and Wickham-Jones 2002) revealed some evidence of structures. Generally this took the form of circular scoops with surrounding post-holes. There was no evidence of such features at Clachan Harbour, although there may be some elsewhere under the peat. Recent trial excavations 250m north of Clachan Harbour at North Bay revealed evidence of an early prehistoric occupation site, including post-holes of possible Mesolithic date (Wildgoose 2003; Steven Birch pers. comm.). Work by Macklin *et al.* in recent years has suggested that in the Oban area there were 'episodes of woodland decline at *c.* 8235, *c.* 7960, *c.* 7410 and *c.*6370 BP' which some have suggested may represent deliberate vegetation management (Macklin et al 2000, 112). Yet, Macklin is keen to stress that these alone are not enough evidence to suggest an unequivocal human impact upon the environment. Indeed they correspond more with environmental data regarding climatic variations than with the pattern that would be expected if the Mesolithic populations were implementing deliberate vegetation management strategies (Macklin et al 2000). Further work on the environmental deposits recovered from Clachan Harbour will add important information to our body of knowledge regarding these issues on a local and regional scale.

6.11 A brief summary of the archaeological results of the 2007 work described here will be submitted for inclusion in *Discovery and Excavation in Scotland* (Appendix 7). This is produced annually by the Council for Scottish Archaeology and lists all the archaeological survey and excavation work undertaken in Scotland in a year.

6.12 The project archive, comprising all CFA record sheets, plans and reports, will be deposited with the National Monuments Record of Scotland on completion of the project. Appropriate conservation of finds will be conducted before disposal. Finds will be subject to the Scots Law of Treasure Trove and Bona Vacantia, and will be reported to the Crown Agent for disposal.

7. RECOMMENDATIONS

7.1 A programme of post-excavation analyses and reporting is recommended based on the results of this excavation. The project design and costing for this are supplied under separate cover. The final decision for any further work lies with Highland Council Archaeology Unit.

7.2 It is recommended that the Clachan Harbour area be monitored during any dredging works carried out within Churchton Bay. The construction of the harbour may affect the hydrological regime within the bay and it is important to work out whether the accretion zones are still accreting, the erosion zones are still eroding and so on. This monitoring should take place at appropriate intervals: once a year in the first instance for up to five years. The possible outcomes of this monitoring will be:

- a requirement for full excavation of archaeological remains because of severe erosion rates; or
- further monitoring; or
- no further action required.

7.3 A watching brief should be carried out during ground-breaking operations across the hinterland of Churchton Bay. It is likely that road construction would lead to the discovery of the northern extent of the peat deposit that presently outcrops within Clachan Harbour.

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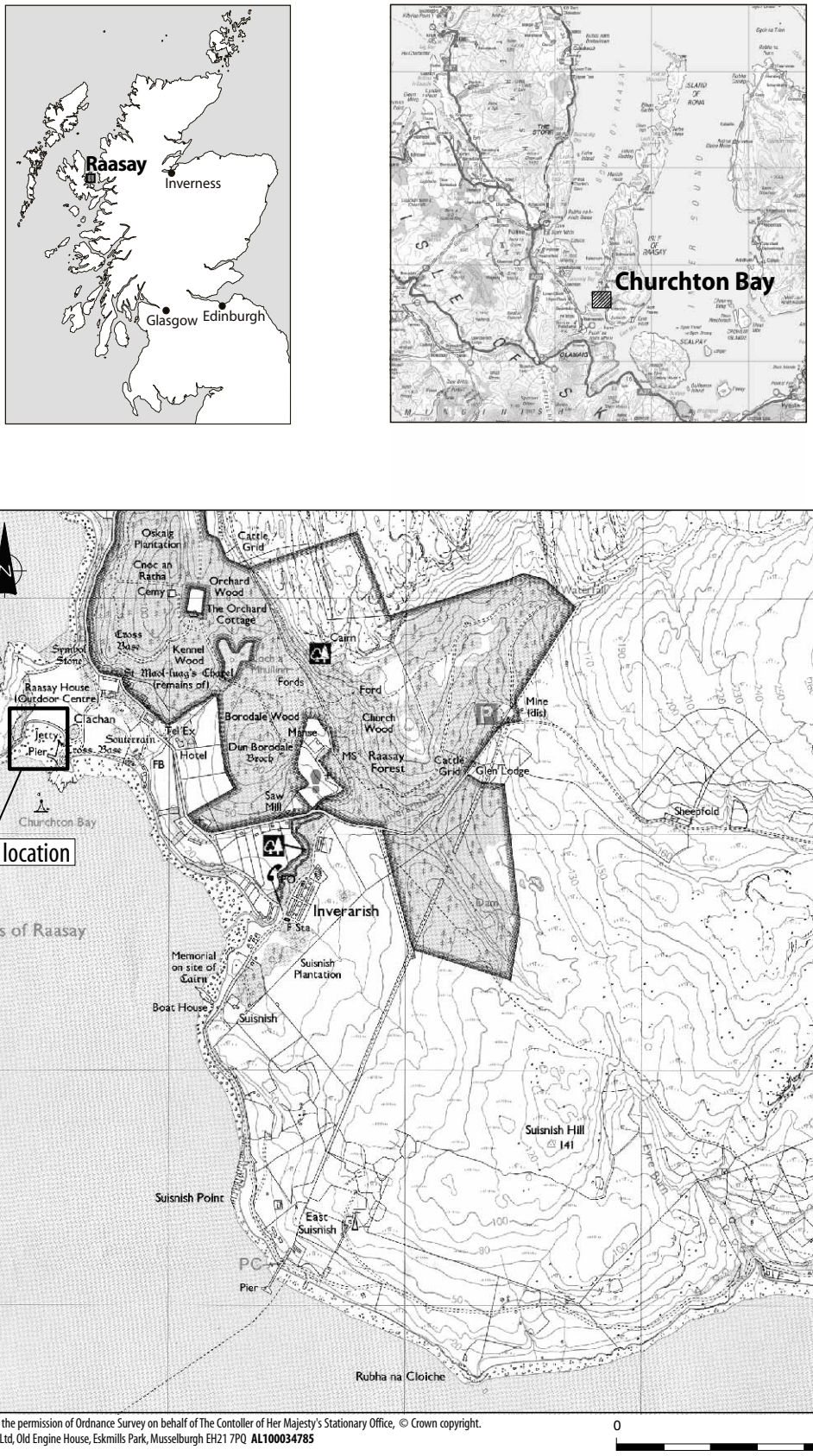


Fig. 1 - Site location plan.

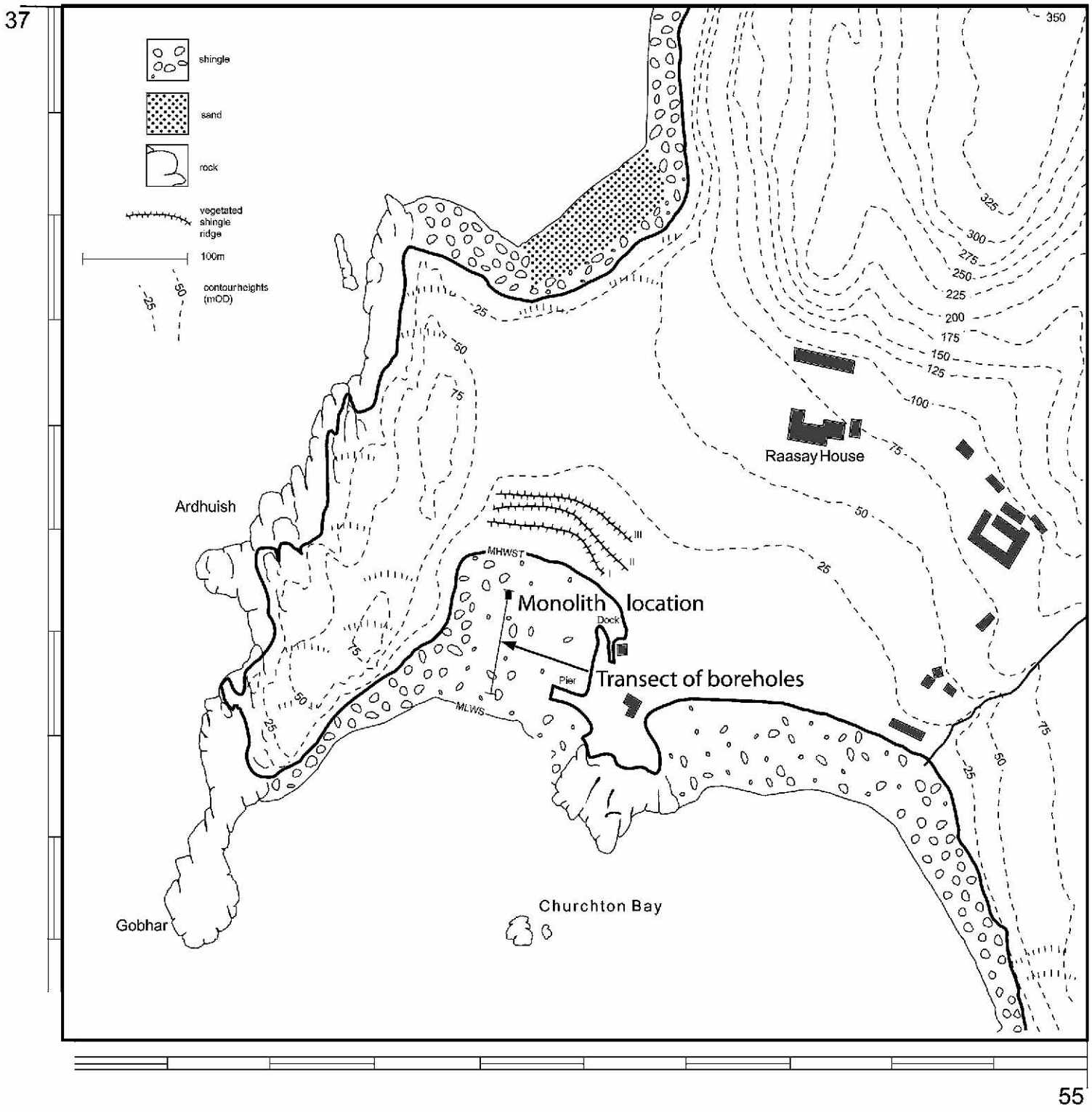


Fig. 2 - Locations of Monolith Samples taken during 2002 work

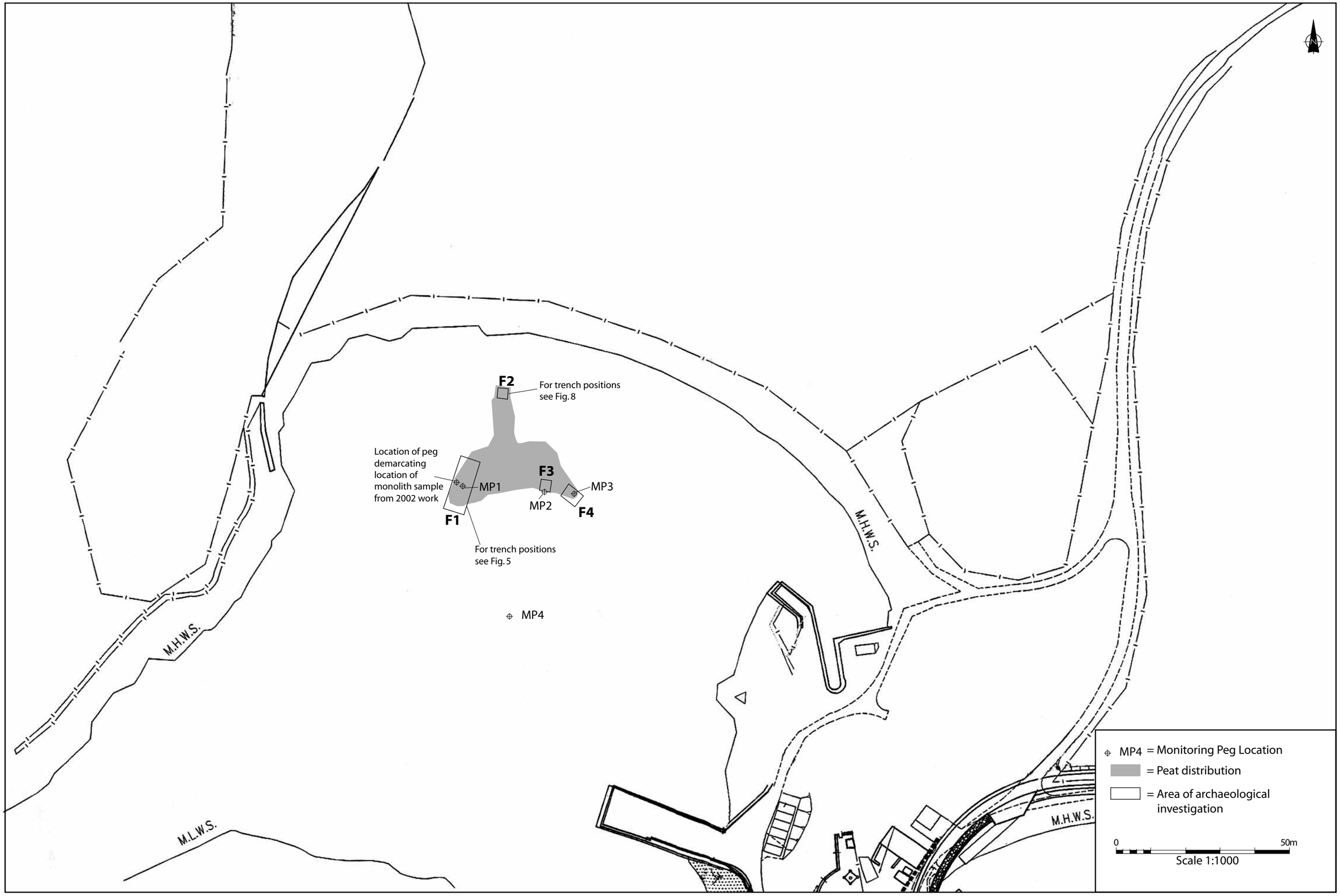
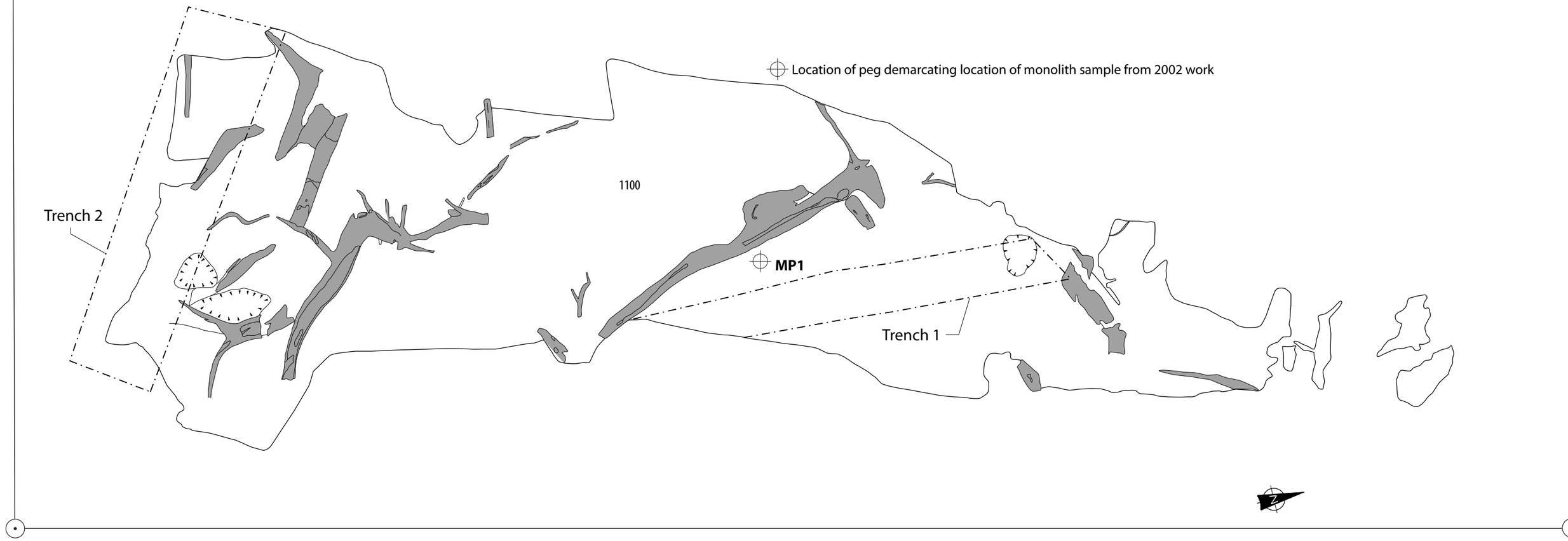


Fig. 3 - Location of Areas of Archaeological Investigation and Peat Distribution

Highland Council

Fig. 4 - Bay Composition Plan Showing Inter-Tidal Zones

RAAS2/1285/0□ □ □ □ 25□ □ □ □ □ CFA



KEY:

= Relic tree root / branch remains

= Surveyed marker defining area of investigation

= Limit of Excavation

Fig. 5 - F1 Plan

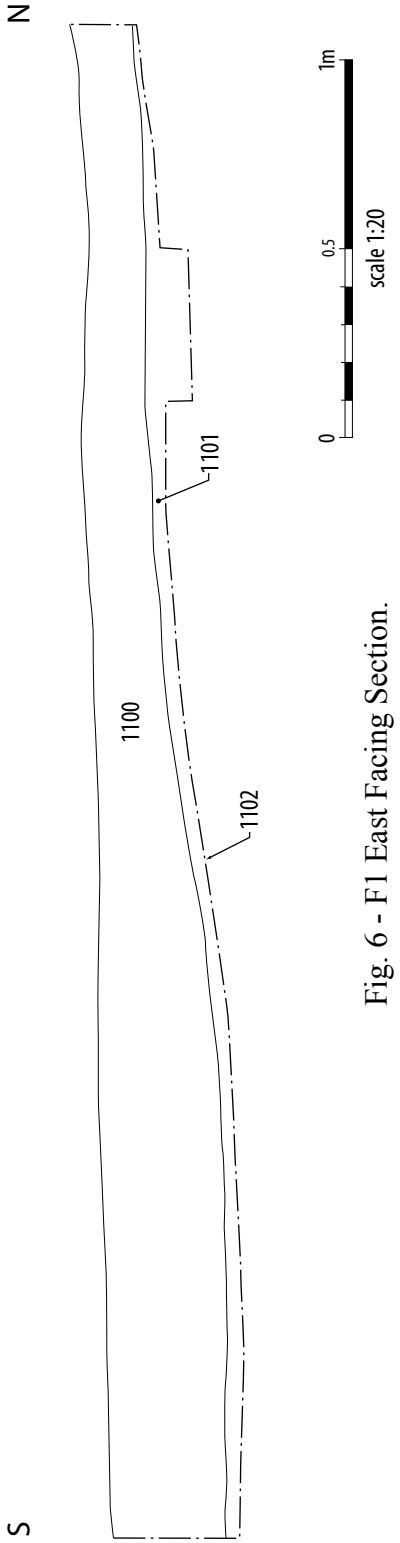


Fig. 6 - F1 East Facing Section.

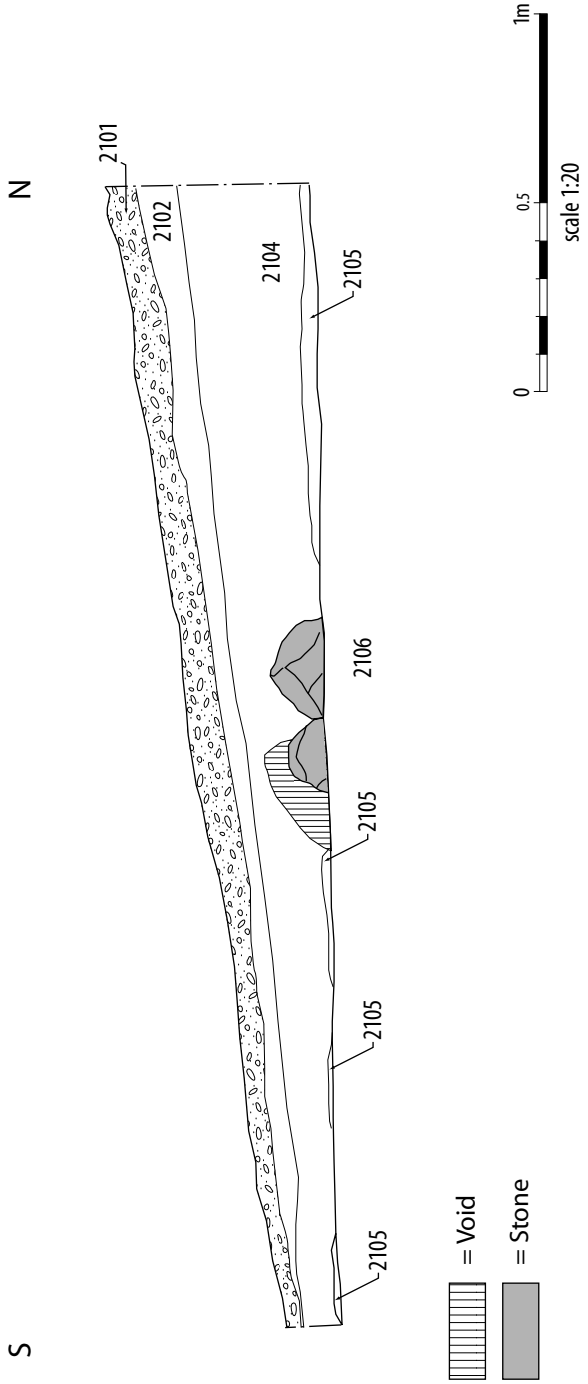


Fig. 7 - F2 ExcavationTrench East Facing Section.

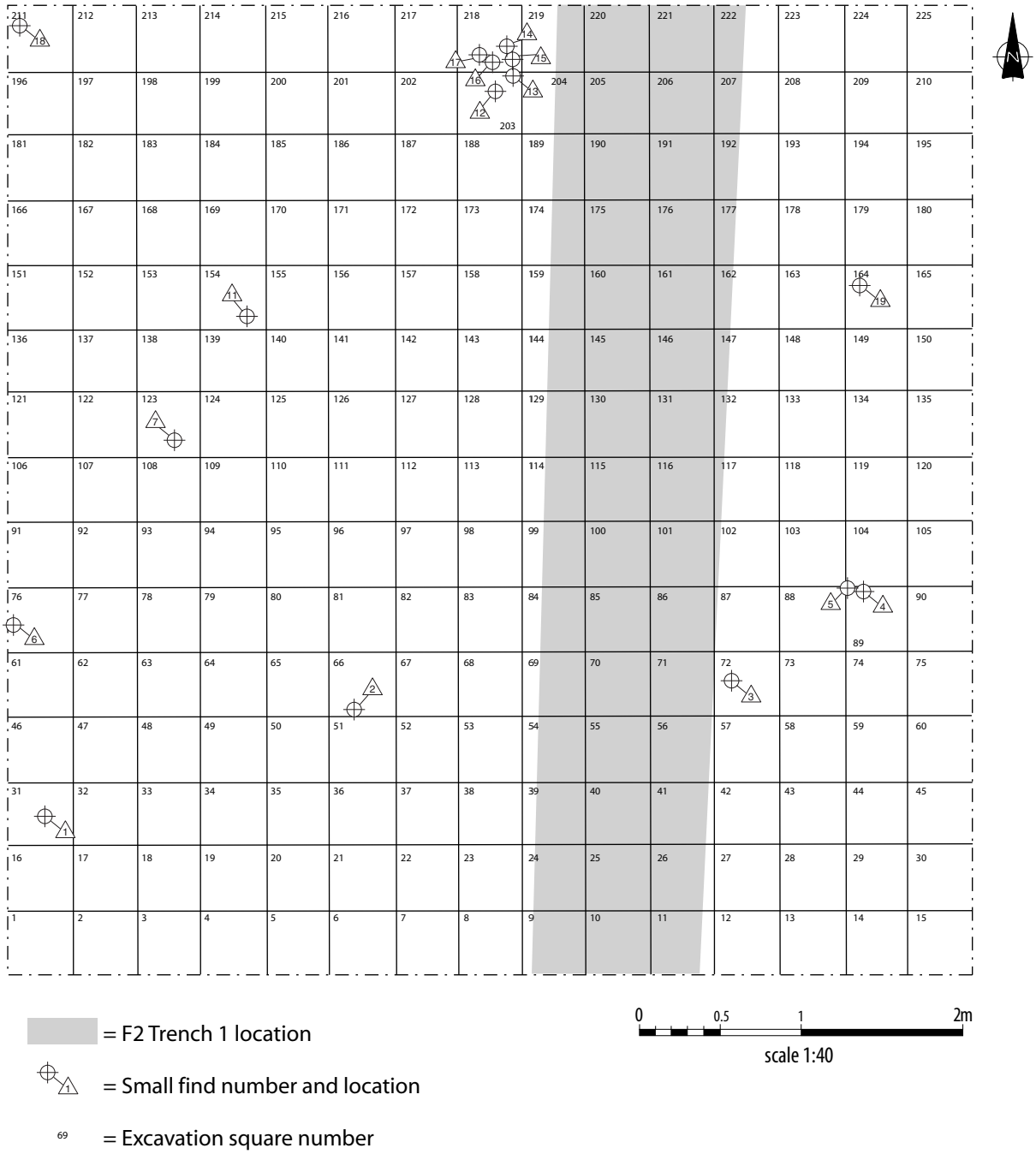


Fig. 8 - F2 Excavation and Artefact Distribution Plan

APPENDIX 1
Archaeological Context Register

Context No.	Feature No.	Trench No.	Description
1100	1	1	Light – dark brown peat with intact tree root remains. Well compacted. Same as **1200**.
1101	1	1	Dark grey fine silty clay, moderate compaction, thin deposit between base of peat and natural subsoil. Same as **1201**.
1102	1	1	Sub-angular and sub-rounded pebble gravel with a slight fine silt matrix surrounding the pebbles. Deposit is very wet and fills with water immediately upon excavation. Natural deposit, same as **1204**.
1200	1	2	Light – dark brown peat with intact tree root remains. Well compacted. Same as **1100**.
1201	1	2	Dark grey fine silty sand, firm compaction compaction, thin deposit between base of peat and natural subsoil. Same as **1101**.
1202	1	2	Dark grey fine silty sand with brown mottling of organic material, moderate to firm compaction, possible relict soil.
1203	1	2	Fine grained, moderately compacted, wet, greyish green silty clay with no inclusions.
1204	1	2	Sub-angular and sub-rounded pebble gravel with a slight fine silt matrix surrounding the pebbles. Deposit is very wet and fills with water immediately upon excavation. Natural deposit, same as **1102**.
2100	2	1	Unassigned
2101	2	1	Loosely compacted stones, sub-rounded to rounded, small pebbles to small boulders = storm beach
2102	2	1	Yellow, loosely compacted shell rich beach sand below cobbles
2103	2	1	Mid brown and orange silt, firmly compacted, very thin deposit mainly filling hollows in the top of the peat **2104**. Discontinuous.
2104	2	1	Light to dark brown firmly compacted peat with tree remains with wood and charcoal remains and very occasional small stone inclusions.
2105	2	1	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature. Struck stone tools and small fragments of charcoal recovered from the interface between this deposit and **2106**.
2106	2	1	Firm to hard compacted orange silt with small to medium sized angular pebble inclusions, probable top of natural subsoil. Becomes firmer with depth, may be bedrock outcrop.
2107	2	1	Loosely compacted yellow sand with small to medium pebble inclusions. This deposit fills a void in the peat which may have been a decayed root or a tunnel carved by the south running ground water
2108	2	1	Firm to soft orange wood remains within **2104**, probably roots. Some remains are flattened and elongated through compaction, while some in lower layers of **2104** still retain bark.
2109	2	-	Fine grained, pale yellow, shell-rich, loosely compacted sand deposited by naturally running water. Present below much of the peat **2104**.
3000	3	-	Light to dark brown firmly compacted peat with tree remains with wood remains and very occasional small stone inclusions.
3001	3	-	Yellow, loosely compacted shell rich beach sand

4000	4	-	Light to dark brown firmly compacted peat with tree remains with wood remains and very occasional small stone inclusions.
4001	4	-	Yellow, loosely compacted shell rich beach sand

APPENDIX 2
Photo Register

Film 1

Shot No.	Description	Taken From	Conditions
1 – 2	Feature 1, pre-excavation plan shot	S	Overcast
3 – 4	Feature 1, pre-excavation plan shot, more of the general area	S	Overcast
5 – 6	Feature 1, pre-excavation plan shot	N	Overcast
7 – 8	Feature 1, close up of timbers pre-excavation	SE	Overcast
9 – 12	Feature 1, close up of timbers pre-excavation	E	Overcast
13 – 14	Feature 1, pre-excavation plan shot, more of the general area	S	Overcast
15 – 16	Feature 2, pre-excavation plan shot	S	Overcast
17 – 18	Feature 2, pre-excavation plan shot, more of the general area	S	Overcast
19 – 20	Feature 2, pre-excavation plan shot	N	Overcast
21	Feature 2, post- excavation of Trench 1	S	Overcast
22	Feature 2, post- excavation of Trench 1	N	Overcast
23 – 24	Feature 2, E facing section (northern portion)	E	Overcast
25 – 26	Feature 2, E facing section (southern portion)	E	Overcast
27 – 28	Feature 1, Trench 2, S facing section	S	Overcast
29 – 30	Feature 1, Trench 1, E facing section	E	Overcast

Film 2

Shot No.	Description	Taken From	Conditions
1 – 2	Registration shots	-	-
3 – 4	Feature 2, pre-excavation shot of excavation area with 2100 and 2101 removed, exposing the top of the peat.	S	Overcast
5 – 6	Feature 2, pre-excavation shot of excavation area with 2100 and 2101 removed, exposing the top of the peat.	N	Overcast
7 – 8	General shot of excavation area showing overnight storm damage	S	Overcast
9 – 10	Excavation Square [31], close up of Small Find 1 in situ	S	Overcast
11 – 12	Excavation area S facing section after removal of Excavation Squares [31] to [45]	S	Overcast

Digital Photo Register

Shot No.	Description	Taken From	Conditions
1634.JPG	General working shot at Feature 2	E	Overcast
1635.JPG	General working shot at Feature 2	N	Overcast
1636.JPG	General shot of site	NW	Bright
1637.JPG	General shot of site	N	Bright
1638.JPG	Shot of Feature 1 marker rods submerged	N	Overcast
1639.JPG	Feature 2, Trench 1 during excavation, top of peat exposed	S	Overcast
1640.JPG	Feature 2, Trench 1 during excavation, top of peat exposed	S	Overcast
1641.JPG	Feature 2, Trench 1 during excavation, top of peat exposed	N	Overcast
1642.JPG	Shieling structure from walkover survey	NE	Overcast
1643.JPG	Shieling structures from walkover survey	NE	Overcast
1646.JPG	Feature 3, post-cleaning plan shot	S	Overcast
1647.JPG	Feature 3, close up shot of roots / branches in peat	N	Overcast

1649.JPG	Feature 4, post-cleaning plan shot	S	Overcast
1650.JPG	Feature 4, close up shot of roots / branches in peat and extent of peat	N	Overcast
1651.JPG	S facing external elevation of boathouse	S	Bright
1652.JPG	W facing external elevation of building next to boathouse	W	Bright
1653.JPG	S facing external elevation of building next to boathouse	S	Bright
1654.JPG	Incised cross slab on E side of the Battery	E	Bright
1656.JPG	Sea wall on E side of the Battery	E	Bright
1657.JPG	Eroding part of sea wall on E side of the Battery	S	Bright
1658.JPG	S portion of sea wall on E side of the Battery	E	Bright
1659.JPG	Boat noost	E	Bright
1660.JPG	Sea wall around SW part of the Battery	E	Bright
1661.JPG	General shot of road around the S side of the Battery	E	Bright
1662.JPG	General shot of the Battery	SW	Bright
1663.JPG	Phil on a mermaid on the Battery	SW	Bright
1664.JPG	Sea wall around SW part of the Battery, and part of the existing pier	W	Bright
1665.JPG	Sea wall around W part of the Battery, and part of the existing pier	W	Bright
1666.JPG – 1671.JPG	General shots of mill house in Inverarish for Mike Cressey	-	Overcast
1672.JPG	Feature 2, pre-excavation shot of excavation area with 2100 and 2101 removed, exposing the top of the peat.	S	Overcast
1673.JPG	Feature 2, pre-excavation shot of excavation area with 2100 and 2101 removed, exposing the top of the peat.	N	Overcast
1674.JPG	General shot of excavation area showing overnight storm damage	S	Overcast
1675.JPG	Excavation Square [31], close up of Small Find 1 in situ	S	Overcast
1676.JPG	Excavation area S facing section after removal of Excavation Squares [31] to [45]	S	Overcast
1677.JPG	Excavation area S facing section after removal of Excavation Squares [46] to [60]	S	Overcast
1678.JPG	Excavation Square [72], close up of Small Find 3 in situ	S	Overcast
1679.JPG	Excavation area S facing section after removal of Excavation Squares [61] to [75]	S	Overcast
1680.JPG	Excavation area S facing section after removal of Excavation Squares [76] to [90]	S	Overcast
1681.JPG	Excavation area S facing section after removal of Excavation Squares [91] to [105]	S	Overcast
1682.JPG	Excavation area S facing section after removal of Excavation Squares [121] to [135]	S	Overcast
1683.JPG	Excavation area S facing section after removal of Excavation Squares [151] to [165]	S	Bright
1685.JPG	Excavation area S facing section after removal of Excavation Squares [181] to [195]	S	Bright
1686.JPG	Excavation area E facing section, post-excavation	E	Bright
1687.JPG	Excavation area S facing section after removal of Excavation Squares [211] to [225]	S	Bright
1689.JPG	Excavation area W facing section, post-excavation	W	Bright

APPENDIX 3
Peat Exploration Test Pit Results

Monitoring Peg No.	Distance & Direction from Monitoring Peg	Deposits Present	Approx. Depth of Deposit Below Surface
MP2	5m N	Peat	0.25m
MP2	10m N	Peat	0.21m
MP2	12m N	Peat	0.33m
MP2	14m N	Peat	0.36m
MP2	15m N	Greenish grey marine clay	0.37m
MP2	20m N	Greenish grey marine clay	0.32m
MP2	25m N	Beach shingle	0.14m
MP2	0.8m S	Peat	Surface
MP2	1m S	Greenish grey marine clay	0.4m
MP2	2m S	Greenish grey marine clay	0.38m
MP2	5m S	Greenish grey marine clay	0.42m
MP2	10m S	Greenish grey marine clay	0.47m
MP2	15m S	Greenish grey marine clay	0.51m
MP2	20m S	Greenish grey marine clay	0.49m
MP2	25m S	Red sandstone bedrock	0.21m
MP2	30m S	Red sandstone bedrock	0.17m
MP3	3m S	Greenish grey marine clay	0.51m
MP3	5m S	Greenish grey marine clay	0.56m
MP3	10m S	Greenish grey marine clay	0.55m
MP3	15m S	Greenish grey marine clay	0.51m
MP3	20m S	Greenish grey marine clay	0.4m
MP3	25m S	Red sandstone bedrock	0.2m
MP3	30m S	Red sandstone bedrock	0.25m
MP3	2m E	Greenish grey marine clay	0.43m
MP3	5m E	Greenish grey marine clay	0.29m
MP3	10m E	Greenish grey marine clay	0.27m
MP3	15m E	Greenish grey marine clay	0.39m
MP3	20m E	Greenish grey marine clay	0.41m
MP3	25m E	Greenish grey marine clay	0.57m
MP3	30m E	Greenish grey marine clay	0.51m
MP3	3m N	Greenish grey marine clay	0.42m
MP3	5m N	Greenish grey marine clay	0.39m
MP3	10m N	Greenish grey marine clay	0.41m
MP3	15m N	Greenish grey marine clay	0.35m
MP3	20m N	Beach gravels and shingle	0.26m
MP3	25m N	Beach shingle	0.19m
MP3	30m N	Storm beach cobbles	-

APPENDIX 4
Small Finds Register

SF	Context	Excavation Square	Find type	No	Wt (g)	Notes
1	**2104**	31	Lithics	1	10	Blade
			Wood?	1	1	v. poor, peaty
2	**2105**	66	Lithics	1	1	flake
3	**2104**	72	Lithics	1	3	flake
4	**2104**	89	Lithics	1	<1	flake
5	**2104**	89	Lithics	1	<1	flake
6	**2104**	76	Lithics	1	1	chip
7	**2104**	123	Lithics	1	2	blade (notched?)
8	**1100**	-	Lithics	1	1	flake
9	**2105**	204, 205, 206, 219, 220, 221	Lithics	7	77	1 core, 5 ?blades, 1 chip Found during excavation of Trench 1 in F2
10	**2105**	204, 205, 206, 219, 220, 221	Lithics	2	14	Blades Found during excavation of Trench 1 in F2
			Lithics?	4	51	abraded chunks, poss natural
11	**2104**	154	Lithics	1	1	small blade
12	**2105**	203	Lithics	1	6	blade?
13	**2105**	203	Lithics	1	10	broad flake
14	**2105**	218	Bone	3	4	?dog tooth and frags
15	**2105**	218	Lithics	1	15	chunk
16	**2105**	218	Lithics	1	13	end scraper? (not much retouch)
17	**2105**	218	Lithics?	2	1	small chunks, poss not worked
18	**2104**	211	Stone	1	128	rounded oval beach pebble, poss signs of use wear at one end?
19	**2104**	164	Peat	1	-	peat fragment containing hazelnut and fragment of ?bone

APPENDIX 5
Archaeological Samples Register

Sample No.	Context	Description	Comments	Sample Size
1	**1100**	Feature 1, Trench 1	From block 2.25m to 2.5m	0.25m x 0.5m
2	**1200**	Feature 1, Trench 2	From block 2m to 2.25m	0.25m x approx. 0.5m
3	**1200**	Feature 1, Trench 2	From block 1.25m to 1.5m	0.25m x approx. 0.5m
4	**1100**	Feature 1, Trench 1	From block 2m to 2.25m	0.25m x 0.5m
5	**1100**	Feature 1, Trench 1	From block 3.25m to 3.5m	0.25m x 0.5m
6	**1100**	Feature 1, Trench 1	From block 2.5m to 2.75m	0.25m x 0.5m
7	**1100**	Feature 1, Trench 1	From block 2.75m to 3m	0.25m x 0.5m
8	**1100**	Feature 1, Trench 1	From block 1m to 1.25m	0.25m x 0.5m
9	**1100**	Feature 1, Trench 1	From block 0.5m to 0.75m	0.25m x 0.5m
10	**1100**	Feature 1, Trench 1	From block 0.75m to 1m	0.25m x 0.5m
11	**1100**	Feature 1, Trench 1	From block 3m to 3.25m	0.25m x 0.5m
12	**1100**	Feature 1, Trench 1	From block 0m to 0.25m	0.25m x 0.5m
13	**1100**	Feature 1, Trench 1	From block 1.25m to 1.5m	0.25m x 0.5m
14	**1100**	Feature 1, Trench 1	From block 1.5m to 1.75m	0.25m x 0.5m
15	**1100**	Feature 1, Trench 1	From block 0.25m to 0.5m	0.25m x 0.5m
16	**1100**	Feature 1, Trench 1	From block 1.75m to 2m	0.25m x 0.5m
17	**1100**	Feature 1, Trench 1	From block 4m to 4.25m	0.25m x 0.5m
18	**1100**	Feature 1, Trench 1	From block 3.5m to 3.75m	0.25m x 0.5m
19	**1200**	Feature 1, Trench 2	From block 1.5m to 1.75m	0.25m x approx. 0.5m
20	**1200**	Feature 1, Trench 2	From block 2.5m to 2.75m	0.25m x approx. 0.5m
21	**1200**	Feature 1, Trench 2	From block 2.75m to 3m	0.25m x approx. 0.5m
22	**1200**	Feature 1, Trench 2	From block 3.75m to 4m	0.25m x approx. 0.5m
23	**1200**	Feature 1, Trench 2	From block 0.5m to 0.75m	0.25m x approx. 0.5m
24	**1200**	Feature 1, Trench 2	From block	0.25m x

			1m to 1.25m	approx. 0.5m
25	**1200**	Feature 1, Trench 2	From block 0.75m to 1m	0.25m x approx. 0.5m
The following samples were taken from the excavation area, unless stated otherwise				
26	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [112]	1 bag
27	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [128]	1 bag
28	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [126]	1 bag
29	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [127]	1 bag
30	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [118]	2 bags
31	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [133]	2 bags
32	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [105]	1 bag
33	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [111]	1 bag
34	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [123]	1 bag
35	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [110]	1 bag
36	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [107]	1 bag
37	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [121]	1 bag
38	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [113]	1 bag
39	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [109]	1 bag
40	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [120]	1 bag
41	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [124]	1 bag
42	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [135]	1 bag
43	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit	From Excavation	1 bag

		(c. 0.05m thick). Possibly organic in nature.	Square [134]	
44	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [119]	1 bag
45	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [72]	1 bag
46	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [74]	1 bag
47	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [73]	1 bag
48	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [75]	1 bag
49	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [68]	1 bag
50	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [65]	1 bag
51	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [52]	1 bag
52	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [50]	1 bag
53	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [67]	1 bag
54	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [66]	1 bag
55	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [64]	1 bag
56	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [60]	1 bag
57	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [58]	1 bag
58	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [59]	1 bag
59	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [37]	1 bag
60	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [31]	1 bag
61	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [18]	1 bag
62	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [35]	1 bag
63	**2105**	Dark brown to black firmly compacted silt,	From	1 bag

		possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	Excavation Square [44]	
64	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [45]	1 bag
65	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [28]	1 bag
66	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [37]	1 bag
67	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [29]	1 bag
68	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [30]	1 bag
69	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [103]	1 bag
70	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [102]	1 bag
71	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [93]	1 bag
72	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [97]	1 bag
73	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [96]	1 bag
74	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [89]	1 bag
75	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [94]	1 bag
76	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [82]	1 bag
77	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [84]	1 bag
78	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [79]	1 bag
79	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [87]	1 bag
80	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [88]	1 bag
81	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [90]	1 bag
82	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [76]	1 bag

83	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [104]	2 bags
84	**2104**	Charcoal rich silt from around Small Find 1	From Excavation Square [31]	1 bag
85	**2104**	Possible burnt wood remains	From Excavation Square [18]	1 bag
86	**2104**	Possible nut	From Excavation Square [87]	1 bag
87	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [173]	1 bag
88	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [194]	1 bag
89	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [177]	1 bag
90	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [149]	1 bag
91	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [163]	1 bag
92	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [195]	1 bag
93	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [187]	1 bag
94	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [172]	1 bag
95	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [162]	1 bag
96	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [188]	1 bag
97	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [164]	1 bag
98	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [147]	1 bag
99	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [143]	1 bag
100	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [165]	1 bag
101	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [201]	1 bag
102	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit	From Excavation	1 bag

		(c. 0.05m thick). Possibly organic in nature.	Square [210]	
103	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [141]	1 bag
104	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [148]	1 bag
105	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [200]	1 bag
106	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [178]	1 bag
107	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [209]	1 bag
108	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [208]	1 bag
109	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [179]	1 bag
110	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [155]	1 bag
111	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [157]	1 bag
112	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [171]	1 bag
113	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [180]	1 bag
114	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [193]	1 bag
115	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [142]	1 bag
116	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [139]	1 bag
117	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [150]	1 bag
118	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [203]	1 bag
119	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [156]	1 bag
120	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [217]	1 bag
121	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [224]	1 bag
122	**2105**	Dark brown to black firmly compacted silt,	From	1 bag

		possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	Excavation Square [225]	
123	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [218]	1 bag
124	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Excavation Square [223]	1 bag
125	**2105**	Dark brown to black firmly compacted silt, possibly a relict ground surface. Thin deposit (c. 0.05m thick). Possibly organic in nature.	From Evaluation Trench 1 in Feature 2, around Excavation Squares [219, 220, 221]	5l tub
126	**-**	Kubiena tin sample	F1, east facing section of Trench 1	1 tin
127	**-**	Kubiena tin sample	F2, east facing section of Trench 1	1 tin

APPENDIX 6
Archaeological Field Drawings Register

Drawing No.	Sheet No.	Description	Scale
1A	**1**	Plan of Feature 1	1:20
1B	**2**	Plan of Feature 1	1:20
1C	**3**	Plan of Feature 1	1:20
2	**4**	East Facing Section of Feature 2, Trench 1	1:20
3	**5**	South Facing Section of Feature 1, Trench 2	1:20
4	**5**	East Facing Section of Feature 1, Trench 1	1:20
5	**6**	Plan of Feature 4	1:20
6A	**7**	Feature 2 Excavation Square Location Plan	1:10
6B	**8**	Feature 2 Excavation Square Location Plan	1:10
7	**9**	Feature 2 Excavation, S Facing Section after removal of Squares 1 – 15	1:10
8	**9**	Feature 2 Excavation, S Facing Section after removal of Squares 16 – 30	1:10
9	**9**	Feature 2 Excavation, S Facing Section after removal of Squares 34 – 45	1:10
10	**9**	Feature 2 Excavation, S Facing Section after removal of Squares 46 – 60	1:10
11	**9**	Feature 2 Excavation, S Facing Section after removal of Squares 61 – 75	1:10
12	**10**	Feature 2 Excavation, S Facing Section after removal of Squares 76 – 90	1:10
13	**10**	Feature 2 Excavation, S Facing Section after removal of Squares 91 – 105	1:10
14	**10**	Feature 2 Excavation, S Facing Section after removal of Squares 121 – 135	1:10
15	**11**	Feature 2 Excavation, S Facing Section after removal of Squares 151 – 165	1:10
16	**11**	Feature 2 Excavation, S Facing Section after removal of Squares 181 – 195	1:10
17	**11**	Feature 2 Excavation, E Facing Section, Post-Excavation	1:10
18	**12**	Feature 2 Excavation, S Facing Section after removal of Squares 211 – 225	1:10
19	**12**	Feature 2 Excavation, W Facing Section, Post-Excavation	1:10

APPENDIX 7
Discovery and Excavation in Scotland Entry

LOCAL AUTHORITY:	Highland Council
PROJECT TITLE/SITE NAME:	Clachan Harbour, Raasay
PROJECT CODE:	RAAS2
PARISH:	Portree
NAME OF CONTRIBUTOR:	Ross White
NAME OF ORGANISATION:	CFA Archaeology Ltd
TYPE(S) OF PROJECT:	Archaeological Excavation and Palaeoenvironmental Assessment
NMRS NO(S):	NG53NW 70
SITE/MONUMENT TYPE(S):	Inter-tidal peat resource
SIGNIFICANT FINDS:	Lithic scatters, animal bone
NGR (2 letters, 6 figures)	NG 54465 36404
START DATE (this season)	15 January 2007
END DATE (this season)	03 February 2007
PREVIOUS WORK (incl. *DES* ref.)	Hardy and Wickham-Jones, K and C (2001) 'Inner Sound, Highland (Portree parish), Coastal Survey', Discovery Excav Scot, 2, 2001, 62
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	An archaeological evaluation and excavation and palaeoenvironmental assessment of inter-tidal peat within Clachan Harbour, Raasay, was required in advance of the construction of a new ferry terminal. The archaeological excavation uncovered a lithic scatter below as well as within the peat layer, suggesting the site is of Mesolithic origins.
PROPOSED FUTURE WORK:	Monitoring of peat resource erosion rate in the first instance, post-excavation analyses and publication of results
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Highland Council
ADDRESS OF MAIN CONTRIBUTOR:	The Old Engine House, Eskmills Park, Musselburgh, East Lothian EH21 7PQ
EMAIL ADDRESS:	cfa@cfa-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS. Report lodged with SMR and NMRS.