

SHETLAND  
COASTAL ZONE  
ASSESSMENT SURVEY



WEST BURRA  
EAST BURRA  
TRONDRA

Hazel Moore  
Graeme Wilson

Commissioned and Funded by

Historic Scotland  
Shetland Amenity Trust

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TRONDRA

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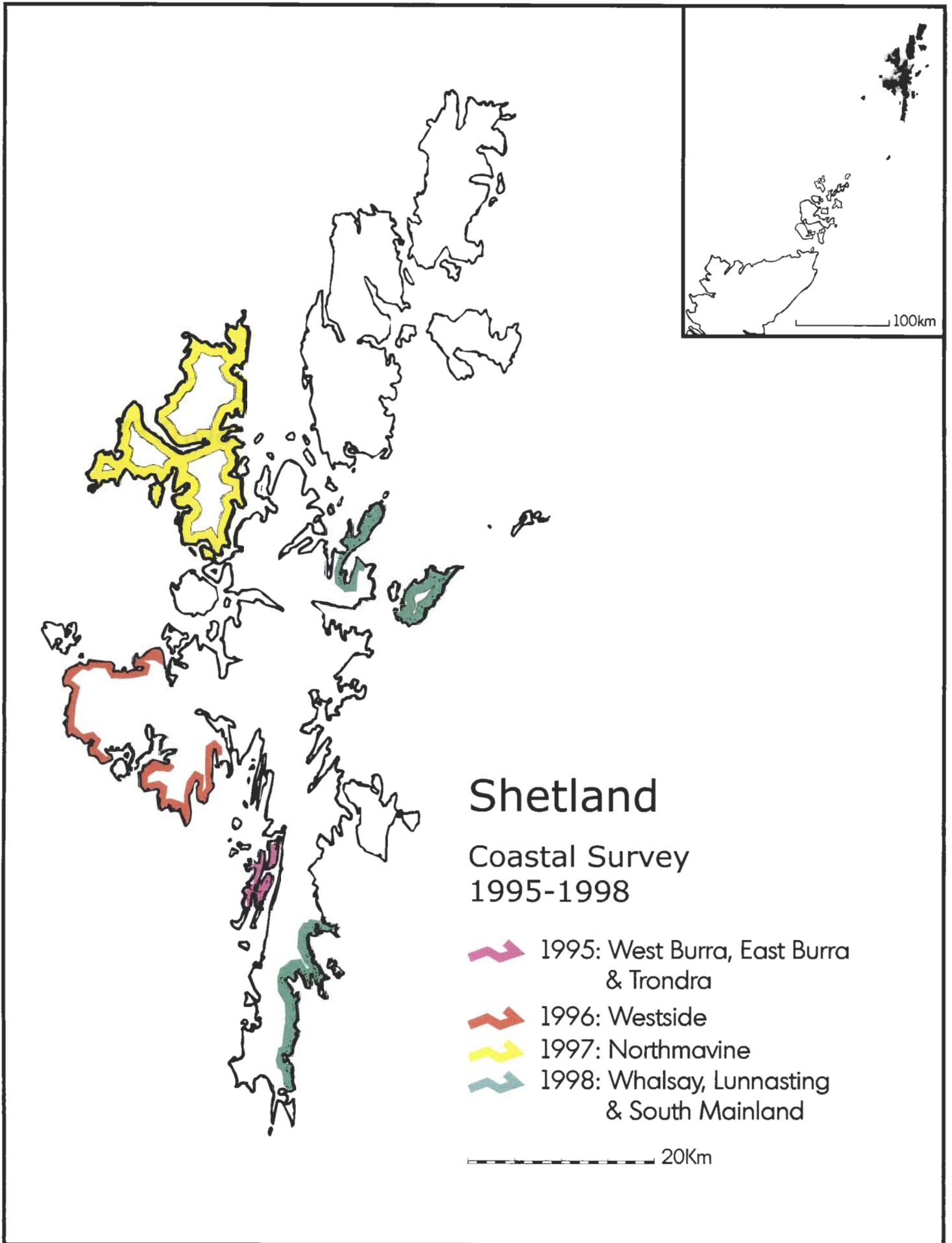
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WEST BURRA

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In 1998 it was decided that additional work should be carried out to bring the West Burra, East Burra and Trondra survey in to line with the definition set by Historic Scotland. Accordingly, the areas were rapidly re-surveyed, this time examining a wider coastal strip and recording details of the geology, geomorphology and erosion. This was carried out at the end of a season of coastal assessment work on Whalsay, Lunnasting and South Mainland; no additional funding was sought. In 2000 Historic Scotland provided funding for the production of this report.

The area covered by this survey takes in the entire length of the coastline indicated on the location map. The actual distance covered on the ground varies according to the scale of map used for measuring (see Ashmore, 1993). At a scale of 1:25,000 the combined length of the West Burra, East Burra and Trondra coastlines is estimated to be 62.95km, with West Burra at 34.05km, East Burra at 18.10km and Trondra at 10.80km. At a scale of 1:10,000, the combined distance is estimated to be in the region of 66.5km.

## Background

A desk-based review of the known sites and monuments indicated that 40 sites had previously been recorded in the survey area. Of these 30 sites were located on West Burra with 3 on East Burra and 7 on Trondra. Two sites, both of which are on Trondra, are protected as scheduled ancient monuments.

Where possible, each known site was visited in the field and re-examined. In a very few cases it was either not possible to locate a known site or to inspect a site. In this instance, the site description provided within this report is taken directly from the NMR or SMR record cards.

## Conditions

Large parts of the survey area are wild, unenclosed and accessible only by foot. This applies to much of the east coast of East Burra, the South east part of Trondra and the West side of West Burra. The terrain is rough and boggy and frequently covered with heather scrub and maritime grasses. The vegetation cover was generally not an impediment to site visibility. The few roads that exist generally run down the spine of the islands rather than around the coast. In a few places, namely around Hamnavoe, Papil, Duncansclett and Sunnybank on West Burra, around Norbister on East Burra and at Cauldhame

## Introduction

This report documents the findings of a coastal zone assessment survey carried out on the islands of West Burra, East Burra and Trondra in 1995 and 1998. In all, four such surveys have now been carried out in Shetland and this report completes the programme of coastal assessment. The aims of the programme were to gather specific data on the archaeological resource and on the actual and potential risks to its survival. The results, together with those provided from similar programmes of work being undertaken throughout Scotland, will go forward to inform future management strategies.

The archaeological survey was carried out by Hazel Moore and Graeme Wilson, EASE Archaeology; Alan Stapf, ARKENSOL, carried out the survey of coastal geology, hinterland geomorphology and erosion. This report follows the format and specifications set down in Archaeology Procedure Paper 4: Coastal Zone Assessment Survey, Historic Scotland (1996).

The work was funded by Historic Scotland and Shetland Amenity Trust.

## The Survey

The survey area covered the islands of West Burra, East Burra and Trondra (see location map). It was conducted in two parts.

In 1995, a 20m wide area adjacent to the coast was evaluated to locate surviving archaeological remains. The results of this work were presented to Shetland Amenity Trust as a series of record cards which were added to the Sites and Monuments Records (SMR).

In 1996 Historic Scotland published Archaeology Procedure Paper 4: Coastal Zone Assessment Survey which defined a methodology for coastal archaeological assessment. This differed from the methodology used in the 1995 survey in four particulars: it defined the coastal zone as a 50-100m wide strip of land adjacent to the coast edge; it stipulated that survey should record the archaeology and built heritage of this zone without discrimination; it required that a study of the coastal geology, hinterland geomorphology and erosion be conducted alongside the archaeological survey; and it set out the format for reporting the results.

on Trondra, modern settlement is clustered and access along the coast is impeded by numerous walls and fences.

The 1995 survey was carried out in June while the 1998 survey was carried out in November. The weather conditions during both surveys varied from poor to fair; it was constantly windy, however.

## Aims

The aim of the survey was to characterise the built heritage and archaeology of the coastal zone. To achieve this, all previously known sites were revisited and assessed for change. New sites were also located, identified and recorded. Site vulnerability to erosion was assessed. Sites of all types and periods within the coastal zone were investigated.

This survey was limited in scope; its purpose was to rapidly locate and assess all sites within the coastal zone. While not exhaustive, the data collected should, however, be sufficient to generally characterise each of the sites identified and to facilitate its re-location by others in the future.

A survey of the geology and geomorphology of the coastal zone was carried out simultaneously with the archaeological survey. This part of the work was designed to characterise the natural background of the survey area. The data gathered at this stage will provide a benchmark from which to assess future coastal change and to predict the possible effect this may have on the archaeology and built heritage.

## Methodology

The entire coastline of the survey area was walked over and was inspected from both the hinterland and foreshore, where possible. On occasion, especially on rough and hilly ground where visibility was impaired, it proved necessary to conduct the survey using transects set at regular intervals and perpendicular to the coast.

The field record consisted of a card system. Each site was given a unique identifier made up of an area code and a unique number (e.g. WB10 = West Burra, site 10). Some of the field records have been

separated into more than one entry for the purposes of the report, while others have been amalgamated.

The dimensions and characteristics of each site were recorded and a measured sketch plan and photographic record was made. Measurements were calculated with a tape for smaller sites, while the dimensions of larger sites were estimated by systematically pacing out the area. Directions were found using a compass. The sites were located onto a 1:25,000 OS Pathfinder base map, measured, where possible, from fixed features such as field boundaries.

## The Survey Areas

The islands of West Burra, East Burra and Trondra are formed from ridges which once rose above long narrow valleys. The valleys, drowned by rising sea levels after the last glaciation, now form narrow voes separating the islands from each other and from the Shetland Mainland. Trondra and East Burra lie closest to the Mainland, separated by Clift Sound, some 0.5km wide. West Burra, as the name implies, lies to the west and faces into the Atlantic Ocean.

Geologically, the islands comprise of rocks of the Colla Firth Group, consisting of metamorphic rocks such as gneiss. The metamorphic rock of East Burra is more micaceous and is termed the East Burra Pelite. They are separated from Mainland by the Nesting Fault line and their hills and ridges mirror the north, north easterly trending fault lines.

The better quality land on the islands lies closest to the coast, where glacial deposits are deepest and conditions less exposed. The eastern side of West Burra and the western side of East Burra represent the most sheltered areas with pockets of land suitable for cultivation. It is in such locations that the densest concentrations of 19th C settlement is located. On Trondra, pockets of land of reasonable quality are to be found to the north and north west parts of the island. There are limited peat deposits on all of the islands and in many places peat is regenerating following exploitation for fuel in the past. In living memory supplies of peat were brought by boat from East Burra to West Burra and to Trondra from the smaller offshore islands.

East and West Burra have been linked by a road bridge since the early 20th C; further bridges were added to join West Burra to Trondra and Trondra to Mainland in the 1970's. They form a single electoral division, known as Burra and Trondra and belong to the parish of Lerwick

## West Burra Background

West Burra is the largest of the three islands surveyed. It measures 9km in length from tip to tip and is generally no more than 1km in width. The population of East and West Burra together was recorded as 889 in 1991 (Shetland Island Council, 1997). Fishing and fish farming, together with a small amount of stock rearing is carried out but nowadays many people work off the island, commuting to Scalloway, Lerwick and beyond. The largest settlement on the island, and the only one on the west coast, is at Hamnavoe where there is a pier, shops and a post office. Other settlement clusters are located around Sunnybank, Bridge End, Papil and Duncansclett on the east coast. The island is linked by bridge with both East Burra and Trondra and, from there, to the Mainland.

## West Burra Geomorphology & Erosion (Alan Stapf)

The underlying geology of the island is of metamorphic rocks such as gneiss and schist. On the Hamnavoe peninsula there are small areas of granitic rocks and a deep drift bed of shell sand. The main ridge of hills on the island trend in a north-north-westerly direction. The peninsula of Kettle Ness is joined to West Burra at the extreme south by a small, sandy, isthmus. The highest points lie by Mid Field and Sandwick.

There is far less erosion, proportionally, on West Burra than on the neighbouring island of Trondra. This may be accounted for by the smaller amount of low lying soft sediments and the protection provided by the high cliffs of the west coast.

## West Burra Built Heritage and Archaeology

Prior to this survey a total of 30 sites were known to exist within the coastal zone of West Burra. These sites had been recorded by the Royal Commission surveys (RCAHMS, 1946) and by C.S.T. Calder, but by far the largest number had been identified by Gordon Parry. Parry's detailed survey of the island was carried out in 1977 in conjunction with excavations at Tougs; the results were published posthumously (Hedges 1984).

### Parry's Survey

Parry's re-evaluation of the archaeology of West Burra vastly extended the number of prehistoric sites, particularly those of apparent Bronze Age date, recorded on the island. Importantly, the work also discovered that the structures were surrounded by field systems, enclosures and clearance cairns, constituting an extensive and well preserved prehistoric landscape.

In his summary of Parry's work, Hedges identifies several categories of prehistoric structures found on West Burra. Oval houses, of which eleven were recorded in all, were found to vary in size from six to eight meters in length and from five to seven meters in width (Hedges, 1984, 47). They were slighter than the houses excavated by Calder elsewhere in Shetland (Calder, 1956, 1963) and the excavated evidence suggest that that this type was in use throughout the Bronze Age and up to the early Iron Age (Hedges, 1986, 22-23). Parry's survey found that all of the oval houses on West Burra were coastally located and that all but two were situated to the east side of the island.

Sixteen burnt mounds were identified by Parry's survey, five of which were new discoveries. The mounds were found to occur singly and in clusters close to water sources and, interestingly, close to cultivable land. The majority of the burnt mounds were located close to the coast edge and all were sited within the coastal plain.

Of the thirteen sites identified by Parry as potential burial mounds, only two were located in elevated positions and the remainder lay within the coastal plain, some close to the coast edge. Five sites occurred as isolated mounds, while eight occurred in two clusters. They were visible as circular earthen mounds, varying in diameter from 2m to 7m and in two cases, cists were exposed below the mound. These

mounds were of a type similar to those excavated in Orkney at Quoyscottie and found to date to the Bronze Age (Hedges, 1984, 49).

Two other types of settlement remains were found and tentatively ascribed an Iron Age date. These were circular structures and clustered settlements. Two or possibly three circular houses were identified and, of these, two were located close to the coast. A single clustered settlement, also coastally located, was recorded and three probable multi-period settlement mounds, which it was considered might include a broch, were also found.

### Excavations at Tougs

An oval house, burnt mound and a field system at Tougs were investigated by excavation in 1977 in advance of housing development (Hedges, 1986). The sites were located within the coastal strip but set back from the coast edge. The house measured 13m long by 8.5m wide and was defined by an inner face of large boulders; no evidence of an outer face was found. A covered drain lay beneath the wall of the house. The interior comprised of three parts: at the west end, a chamber was divided into five cells or alcoves by projecting piers of masonry. The floor was covered with compacted clay and there was a central hearth. A passage led from this area into a smaller chamber, 2m long by 1.5m wide. The house entrance was not located. It was radiocarbon dated to the e Middle to Late Bronze Age period (1278 BC).

The burnt mound was oval in shape and measured 14m by 8.5m and stood up to 2m high. The removal of one quadrant revealed the mound to be made up of burnt shattered stone in a carbon-rich matrix. A structure was found in close association with the mound. Rectangular in shape, it measured 6.4m long by 5.6m wide and was defined by a double skinned wall with a rubble core. It contained a stone-lined trough and a hearth and was dated to the Early Bronze Age (2009 BC).

## Bur nt M ounds Survey

In 1996 the authors assessed two sites on West Burra as part of a programme of survey investigating coastal burnt mounds in Shetland (Moore & Wilson, 1996, 1999). The project was sponsored by Historic Scotland and Shetland Amenity Trust. The sites were selected on the basis of observations made during the 1995 coastal survey. At Ruff Loch (HU 3622 3210, WB14) a complex cellular structure located on a narrow, high promontory was thought to be a prehistoric house (Hedges 1984). The site had been revisited by the authors in 1995 and it had been noted that anthropogenic deposits, which included quantities of burnt stone, were present in the interior of the building. Work at this site was limited to an examination of the burnt stone deposits which had already been exposed by erosion. In most cases, these deposits were found to be shallow and uninformative. An exposure in the central chamber contained lenses of peat ash and one sherd of undiagnostic pottery. It was concluded that the spread of burnt stone was limited and superficial and that while it most probably related to activities which took place within the building, it was not part of a burnt mound.

At Bight of the Sandy Geos (HU 359 294, WB3-6) and Gossigarth (HU 3621 3002) a visual inspection of five sites previously surveyed by Parry (Hedges 1984) was carried out. This agreed with the earlier site interpretations in all but two cases. It was found that there were two burnt mounds (WB3 & WB6) and one rather than two houses; the second structure (WB5) was considered more likely to be a burial cairn. Inland, the mound at Gossigarth, which had been recorded by Parry as a burial monument with a secondary cist, was reinterpreted as a burnt mound with a recent potato-store set in to its' top. Burnt stone could be seen in numerous small exposures on the mound and the remains of a probable tank lay to its western side. Plans and profiles of the two coastal burnt mounds were made (Moore & Wilson, 1996).

## East Burra Background

The island of East Burra extends for 6.5km in length and is around 1km wide. A single road, running from the bridge with West Burra, gives access to the central and south western parts of the island; the north, east and southern parts are accessible only by rough tracks or on foot. Modern settlement is almost exclusively located between Norbister and Houss; the exception is a settlement at Easter Hogaland on the east coast.

## East Burra Geomorphology & Erosion (Alan Stapf)

This island is sheltered from the worst storms by the adjacent island of West Burra and thus much of the western coastline is less rugged than that of West Burra. The west coast has a wider coastal strip and deeper soils. Geologically, most of East Burra has many vein complexes within the rocks although this is not noticeable within the general geomorphology of the island. A narrow stony ayre connects Houss Ness to the body of the island. The highest point on the island occurs to the north east at Easter Heog, which rises to 81m OD.

The main areas of erosion lie to the north east and south east of the island and along the south west coast of the Houss Ness peninsula. It is only in this latter area and the north west of the island where there is any severity to the erosion.

## East Burra Built Heritage and Archaeology

Prior to the coastal surveys which form the subject of this report, very little archaeological work was carried out on East Burra. The National Monuments Record (NMR) records only three sites. Of these, two sites were recorded as burnt mounds; the other comprised of the ruins of five click mills.

## Burnt Mounds Survey and Dating Programme

In 1996 the authors assessed two possible burnt mound sites on East Burra as part of a programme of a survey investigating coastal burnt mounds in Shetland (Moore & Wilson, 1996, 1999). This project was

sponsored by Historic Scotland and Shetland Amenity Trust. Both sites had been first identified during the 1995 coastal survey.

At Whalsies Ayre (HU3915 3460, EB29) on the north coast of the island, a low sub-circular mound, surrounded by boggy ground, was found to be eroding. The coastal exposure showed peaty deposits containing peat ash and shattered stone. The site was tentatively identified as a burnt mound. To assess the site, a test pit measuring 1.5m by 1m was cut into the centre of the mound to a depth of 1m. The deposits encountered were, from the top, turf and topsoil, a 0.35m deep deposit of peat, an old ground surface with iron pan and drift deposits. Nothing of archaeological interest was found and the site was reclassified as a probable old peat stack.

At Houlls (HU 3755 3230, EB11) on the west coast, a burnt mound was sited on the edge of a low cliff and was already badly eroded when it was found in 1995. By 1996 it had eroded further and there were substantial deposits of collapsed burnt stone spread out on the beach below the site. The mound was truncated along its length and the coastal exposure revealed that it was made up of dense deposits of angular burnt stone in a carbon-rich matrix.

Survey had identified that this site was one of a cluster of at least six burnt mounds in this area and was located close to the remains of two prehistoric settlements and at least two probable burial cairns. A further burnt mound and a burial mound which contained a pot were said to have been found in the area in recent times; it would appear that both sites have been obliterated or obscured by 20th C housing and landscaping development.

The assessment at Houlls took the form of section recording. The coastal exposure was cleaned and straightened to form a continuous 12.4m long section. This revealed the surviving mound to measure 10m by 7m and to stand up to 1.25m high. At the north end of the section, a stone-line tank had been built against a glacial erratic. The mound was found to have been built over a localised deposit of peat and beneath this there was an old ground surface (Moore & Wilson, 1996, 1999).

The site was revisited in 2000 as part of the Burnt Mounds Dating Project being carried out by Iona Anthony and David Sanderson of the Scottish Universities Research and Reactor Centre (SURRC). Funded by Historic Scotland, the aim of the project was to obtain samples from a number of burnt mounds for thermoluminescence dating. It is hoped that this information will permit the duration of use of the mound to be estimated and, more generally, it will test the extent to which sampling exposed

sections at burnt mound sites can be used to provide general chronologies for this class of monument. At Houlls, a selection of samples were retrieved both from the deposits exposed in the erosion face and from a 1m by 1m test trench cut to the rear of the mound. Four samples of burnt stone were recovered along with two soil samples and a sample of the underlying peat (Moore & Wilson, 2000, Anthony et al 2001).

## Trondra Background

Trondra lies to the north of East Burra and to the east of West Burra and is the closest of the three islands to the mainland. It is some 4km long and almost 1km wide. In 1991 the population stood at 117 inhabitants, but within living memory has sunk below twenty (Shetland Islands Council, 1997). Since the early 1970's when the bridge to the mainland was built, the island has had much modern development, both for housing and roads. Modern settlement clusters around the north end of the island, between Cauldhame on the west coast and Cutts on the East coast. More isolated settlements occur at Burland, Glendale and Heugland. The southern part of the island is uninhabited. There is some cultivated land on the west coast, most of centred on the croft at Burland, but the major part of the island comprises of rough grazing land and heath.

## Trondra Geomorphology & Erosion (Alan Stapf)

Trondra is generally low-lying, reaching only 50m OD at its highest points. A ridge runs down the island from north to south. The land slopes away more steeply from this to the east side and there is more gently sloping and level ground to the west. There are, however, rock outcrops and rough, boggy ground to the north west, between Torgur and Burland. Most of the soils on Trondra are peaty or iron podzols. A small area to the extreme north east of the island is marked on the soil survey map as having a brown forest soil; much of this soil, as seen in section in coastal exposures, has an iron pan within the B horizon.

Large areas of coastline are eroding; the majority of coastal erosion lies on the lowest lying sections and there appears to be little protection offered from other islands. Most metamorphic outcrops at the coastal edge are stable. Almost all erosion is due to marine action with only minor erosion due to sub-aerial elements.

## Trondra Built Heritage and Archaeology

Seven sites on Trondra had been recorded in NMRS prior to this survey. These included two click mills and a fishery of 19th-20th C date. Earlier remains were represented by two burnt mounds a prehistoric house (T7) and a broch site. One of the burnt mounds (T10) and the broch site (T26) are scheduled ancient monuments.

The prehistoric house had been partially excavated in the 1960's (Goodlad, 1964, 1965, 1966). The excavation reports are limited to short summaries, but it would appear that the structure was an oval house with internal subdivisions and a central hearth. The enclosing wall was double-faced with a rubble core. Decorated pot sherds, rough stone implements and stone ard tips are said to have been found in the building. Traces of field banks and clearance cairns were found in the near vicinity. The house remains relatively intact and has not been covered over.

### Excavations at Burland

In the interval between carrying out the coastal survey and the production of this report, a season of excavation has taken place on one of the sites noted during the survey. Funded by Historic Scotland and the Shetland Amenity Trust, the focus of this work was a coastal exposure containing archaeological deposits at Burland (HU 3906 3700, T17). A low mound lay in the immediate hinterland and it was supposed that the deposits were associated with a structure which lay buried beneath the mound. The presence of shell and bone midden and occasional sherds of pot and slag had been reported to the Shetland Archaeologist by the crofters, Tommy and Mary Isbister. Prior to excavation, it was thought that the site was a settlement of possible Iron Age date and that it might be associated with a broch which reputedly once stood on a nearby islet. It was from this broch that the place name 'Burland' was thought to be derived.

Excavations were carried out over five weeks in Summer 2000 (Moore & Wilson, 2001). The aim of the work was to ascertain the nature, extent and date of the remains from which the exposed deposits derived. It is hoped that ongoing post excavation analyses and possibly further excavation will expand our understanding of this rare and unusual site.

The site was examined using a single large trench ; a second trench was added later on. It was discovered that the mound which covered the site was a peat stack of recent date. Beneath the peat, the remains of three separate buildings were uncovered.

The latest in the series was a sub-rectangular or oval building which may be a long house of the Viking/Norse period. This was partially exposed in two trenches, where it was seen to be at least 6.8m long by 3.6m wide. The building had an inner face of large upright stones and had a stone-line drain running down its centre. Pot sherds were recovered both from the interior of the building and from the fill of the drain.

Beneath the possible long house, an earlier cellular or lobate building which was aligned parallel to the coast edge, was interpreted as an Iron Age smithy. It contained three small peripheral hearths and two massive central hearths and was filled with extensive deposits of carbonised material, peat ash, metal slag and hammer scale. The floor of this building was partially paved and incorporated within the paving were the remains of several rotary querns, one of which was decorated. Traces of activity predating the smithy were found beneath its floor. The floor was found to have been constructed over rubble deposits and these appeared to derive from an earlier building. The rubble included numerous artefacts, one of which was a small trough quern of probable Bronze Age or Early Iron Age type.

At the south western side of the trench, immediately behind the coast edge, the remains of a probable third structure were found. It had been built over part of the smithy and was therefore of slightly later date. The building extended towards the coast and it is likely that most of it has already eroded away.

A rapid assessment of the adjacent islet, made in conjunction with the excavation, discovered traces of a massive circular stone building which, it is presumed, represents the remains of the broch. Several sherds of pottery and deposits of anthropogenic soil were also noted amongst rubble and debris.