

SCAPE

Scottish Coastal Archaeology and the Problem of Erosion



Coastal Zone Assessment Survey Stronsay Interim Report

Sarah Boyd, Joanna Hambly



The SCAPE Trust and University of St Andrews
November 2023

Supported by



Contents

Key Findings 1

1. Introduction 3

2. Project aims and objectives 4

3. Methodology..... 4

 3.1. Targeting of field walkover survey areas 4

 3.2. Preparation of coastal heritage baseline 5

 3.3. Field survey 6

 3.4. Moderation of records 6

4. Results 7

 4.1. RESULTS: Coastal Change 7

 4.1.1. Summary of coastal change 7

 4.1.2. Notable areas of erosion 7

 4.1.3. Notable areas of dynamic equilibrium and recovery 14

 4.2. RESULTS: Built heritage and archaeology..... 16

 4.2.1. Maritime 17

 4.2.2. Industry 22

 4.2.3. Transport, Infrastructure and Engineering..... 25

 4.2.4. Settlement and Agriculture – Domestic 25

 4.2.5. Defended Buildings, Castles and Forts 28

 4.2.6. Religious, Ritual and Funerary 29

 4.2.7. Miscellaneous 31

5. Priority sites and recommendations 32

6. Acknowledgements..... 35

7. References..... 36

Appendix 1. Known sites visited on 2023 survey 37

Appendix 2. New sites visited on 2023 survey 39

Key Findings

The August 2023 survey of the Stromsay coastline focused on five main areas of soft coastline: Sands of Rothiesholm, Sands of Odie, Bay of Houseby, Mill Bay, and Grice Ness. Heritage sites in Whitehall village were also updated as part of the survey.

We observed the most notable examples of net erosion and historic coastline retreat along low-lying coasts where till and subsoil directly overlies bedrock at the coast edge. This is occurring along sections of Links Ness headland and the Sands of Odie, and Griceness.

Stretches of sandy beaches backed by dunes where extensive archaeological settlement remains have been previously documented, such as Sands of Rothiesholm and Dishes, Mill Bay, were stable and vegetated at the time of the survey. These coasts appear to be in a state of dynamic equilibrium, undergoing cycles of erosion and recovery with little net change in the position of the coast edge since 1900. However, archaeological deposits in them do not recover and remain vulnerable to future erosion events.

Sixty-three archaeological and built heritage sites were visited and documented during the survey. Twenty-seven of these were not previously recorded in heritage records.

The largest categories of site types are maritime: harbours and landing places, and domestic settlement sites, each representing 22% of total sites visited. The presence of settlement sites at or near the coast edge and now exposed to the waves is common in Orkney due to the long-term relative sea level rise that has occurred over the Holocene in the Northern Isles.

Fifteen sites have been identified as a priority for monitoring and in some cases further action, due to a combination of their archaeological, or social historical significance and vulnerability (or potential future vulnerability) to coastal erosion and structural deterioration.

Three sites have been assigned a priority 2 status to reflect rarity and /or vulnerability. These are:

- A rare example of a rocket pole (The Station) which has been assigned a priority 2 status to support a recommendation for conservation.
- Archaeological deposits in the coastal section associated with Greenhill Broch (Greenhill, North End), documented in 1995, which continue to be actively eroding.
- Structures eroding from the coastal cliff below derelict farm buildings (Lower Dishes), which would benefit from better understanding of their character and significance.

Twelve sites have been assigned a priority 3 status:

- An early 20th century concrete slipway (The Station) which has important local associations with Stromsay's lifeboat.
- Two kelp working sites, including the remarkable kelping industrial landscape on the Grice Ness promontory (Grice Ness) which would benefit from a detailed survey and the free-standing kelp kiln at Latan.

- Two settlement sites, which are currently stable but are known to have eroded in the past and which could be at risk of loss in the future (Sand of Rothiesholm), (Banks of the Waspy and Navsy).
- Four examples of eroding archaeological deposits in the coast edge: a possible medieval building (Runthall), possible hearths (Huip and Houseby), and an eroding coastal exposure containing walling and fire cracked stone (Grobister).
- Two brochs (Benni Cuml) and (Lamb Head), and a chambered cairn (Ward of Houseby) are generally in good condition and stable but contain isolated areas of erosion and/or structural instability. All three are scheduled monuments and monitored periodically by Historic Environment Scotland.

1. Introduction

This report presents interim results of a Community Coastal Zone Assessment Survey (CCZAS) of the Island of Stronsay, Orkney. Between 26th and 30th August 2023, SCAPE officers and volunteers undertook four days of survey covering approximately half of the identified vulnerable soft coast of Stronsay, including Sands of Rothiesholm, Sands of Odie, Bay of Houseby, Mill Bay and Grice Ness. The survey also included the coastline around Whitehall and Lower Whitehall village (Figure 1).

The aim of the survey was to characterise and assess the condition and vulnerability of the archaeological resource along stretches of coastline identified as being at moderate to high risk of erosion by 2030. The survey greatly benefited from information from volunteers about local heritage and recent coastline change.



Figure 1. Surveyed coastline highlighted in purple and main locations mentioned in the text.

2. Project aims and objectives

The overarching aim of the survey was to identify and characterise archaeological sites and areas that are likely to be impacted by coastal erosion and other threats in the short to medium term.

Survey objectives were to:

1. Identify the most vulnerable sections of coastline through desk-based assessment to target fieldwork to coastlines experiencing erosion,
2. Involve volunteers from the local community in the field surveys,
3. Locate and record archaeological sites at the coast edge and intertidal zone,
4. Assess the condition and vulnerability of the sites,
5. Assess the field evidence for coastline change during the walkover survey,
6. Share results with Orkney Islands Council and Historic Environment Scotland.

3. Methodology

3.1. Targeting of field walkover survey areas

In advance of fieldwork, we carried out desk-based analysis of models of national coastal susceptibility and national coastal change to understand the vulnerability of the coastline and target areas for walkover survey. ArcGIS 10.7 was used for all analysis. Two models were combined; a national coastal erosion susceptibility model (Fitton et al. 2016) and a model of projected coastal erosion rates by 2030 (Dynamic Coast, Hurst et al. 2021). The coastline was divided into 0.5 km² grid cells and each cell assigned a vulnerability score and associated colour based on the combined results from each model. Grid cells coloured red, orange, and yellow contain coast which will experience erosion by 2030, with red cells having the highest vulnerability to and/or highest predicted rate of erosion according to the underlying models.¹

The resolution of 0.5 km² grid cells is deliberately chosen to give a broad overview of the nature of the coastline for walkover planning purposes (Figure 2). Within a red or orange grid cell there may be areas of accretion or no erosion, however the cell will also contain coastline with moderate to high susceptibility of erosion by 2030.

¹ See <https://scapetrust.org/wp-content/uploads/reports/CCZAS-prioritisation-methodology.pdf> for outline of methodology.



Figure 2. Modelled vulnerability of the Stronsay coastline. Red, orange and yellow cells denote coast which is experiencing erosion and therefore targeted during the 2023 CCZAS survey. Green cells denote coast that is not experiencing erosion and blue cells denote areas where there is a conflict between the models, or which are only included by one model.

3.2. Preparation of coastal heritage baseline

Historic Environment Scotland provided information and point data of all existing known heritage sites on the island of Stronsay. We then screened out sites not relevant to the surveys. Table 1 presents information on main categories of sites removed from the coastal heritage baseline.

Site Category	Reasoning
Shipwrecks and other poorly located sites	Site records with only approximate coordinates (e.g. bottom left corner of a km grid square) were removed from the database due to the inability to accurately locate during fieldwork. Shipwreck records are often poorly located with multiple wrecks plotted in the same grid square corner. When wrecks are noted on our surveys, these are checked against the shipwreck database and linked to the correct record where identifiable.
Urban records	Records which are not at threat from coastal processes in urban coastal areas. This includes listed buildings, market squares, plaques, and

	memorials. For Stronsay, only one was removed relating to a listed building on Papa Stronsay.
Findspots and relocated heritage	Site records where finds were discovered and are no longer there or sites recording the original locations of objects which are now held in museums.
Miscellaneous	Wind Farm, General location records e.g. General Views

Table 1. Categories of sites removed from database.

The resulting sites are uploaded to SCAPE’s interactive Sites at Risk web map (<https://scapetrust.org/sites-at-risk/>) and published to the linked SCAPE Coastal Archaeology Recording App (Figure 3). The app allows users in the field to access the location and summary information about known sites, update existing site information and create new site records, including photographs and point and polygon location information. Satellite imagery and historic map layers provide additional information. All features of the app are fully functional offline.

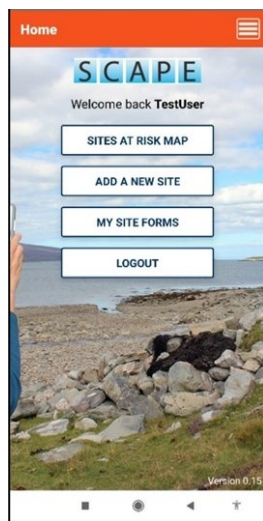


Figure 3A. App Home Screen

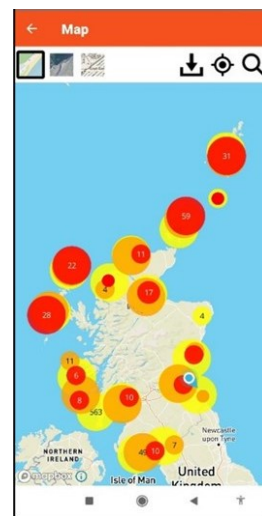


Figure 3B. Interactive Sites at Risk Map

Site markers are initially coloured green to indicate that they have not yet been visited and updated during the CCZA survey. Once visited and moderated, a colour code is assigned to each marker to reflect the priority status of the site based on archaeological significance and physical vulnerability (see section 3.4).

3.3. Field survey

We target coasts identified as being susceptible to erosion for walkover surveys, which are undertaken three hours either side of low tide to gain the most visible exposure of the intertidal zone. We generally walk along the coast edge with good views over the intertidal zone and hinterland, deviating to visit known sites and to check features and anomalies. The SCAPE Coastal Archaeology Recording App is our primary recording tool. We also document the field evidence for coastline change and condition in general.

3.4. Moderation of records

After each walkover, survey records are submitted to the website and moderated by SCAPE officers. Moderation ensures that site types and descriptions are consistent and meet the

standard required by historic environment records. During moderation, the significance, condition, and vulnerability of each site is also assessed, and each site is given a priority based upon site significance and threat from erosion. We apply a colour code to denote priority for action. Yellow indicates no action and is applied to sites of either low archaeological significance, and/or sites generally not threatened by erosion. Orange indicates monitor and is applied to sites of medium to high significance, or potential significance, under potential threat from coastal erosion. Red denotes action required and is applied to sites of high archaeological significance or potential significance which are observed as being impacted by coastal erosion (Hambly 2017, p. 11). These categories are not fixed and updated information, either not available during the survey, or as a result of monitoring or further investigation may result in the priority status of a site changing. Moderated sites are then published on the SCAPE Sites at Risk web map. Sites not visited in the surveys retain their green marker and are visible only to registered users.

4. Results

4.1. RESULTS: Coastal Change

4.1.1. Summary of coastal change

This interim report summarises coastal change only in the areas walked during the survey of Stromsay in August 2023. Overall, we found the most notable examples of recent historical erosion and coastal retreat are occurring on low-lying coasts where superficial deposits of glacial till directly overlies the island's sandstone geology. Sandy beaches backed by dunes were generally characterised by dynamic equilibrium, i.e., cycles of erosion and recovery. The presence of archaeological settlement remains along sandy stretches shows that the long-term trajectory of these areas is one of net erosion, however, in the shorter term, these coastlines are susceptible to erosion and consequent loss of heritage, but they recover, and there is little perceivable difference between the position of the coast edge today compared with the position on the Six Inch second edition Ordnance Survey surveyed in 1900.

4.1.2. Notable areas of erosion

Links Ness and Sands of Odie

The desk-based coastal vulnerability modelling suggested that Links Ness and Sands of Odie contained areas of coastline susceptible to erosion and the walkover survey confirmed that erosion is occurring here with variable levels of coastal retreat when compared to historic 1900 mapping. To the west of Links Ness, the subsoils and glacial deposits which overlie the sandstone bedrock are actively eroding. Figure 4A shows a field boundary fence that has been completely undermined, leaving fence posts dangling in front of the eroded coastal exposure. This section of coastline has eroded by approximately 12m since 1900 (Figure 4B).

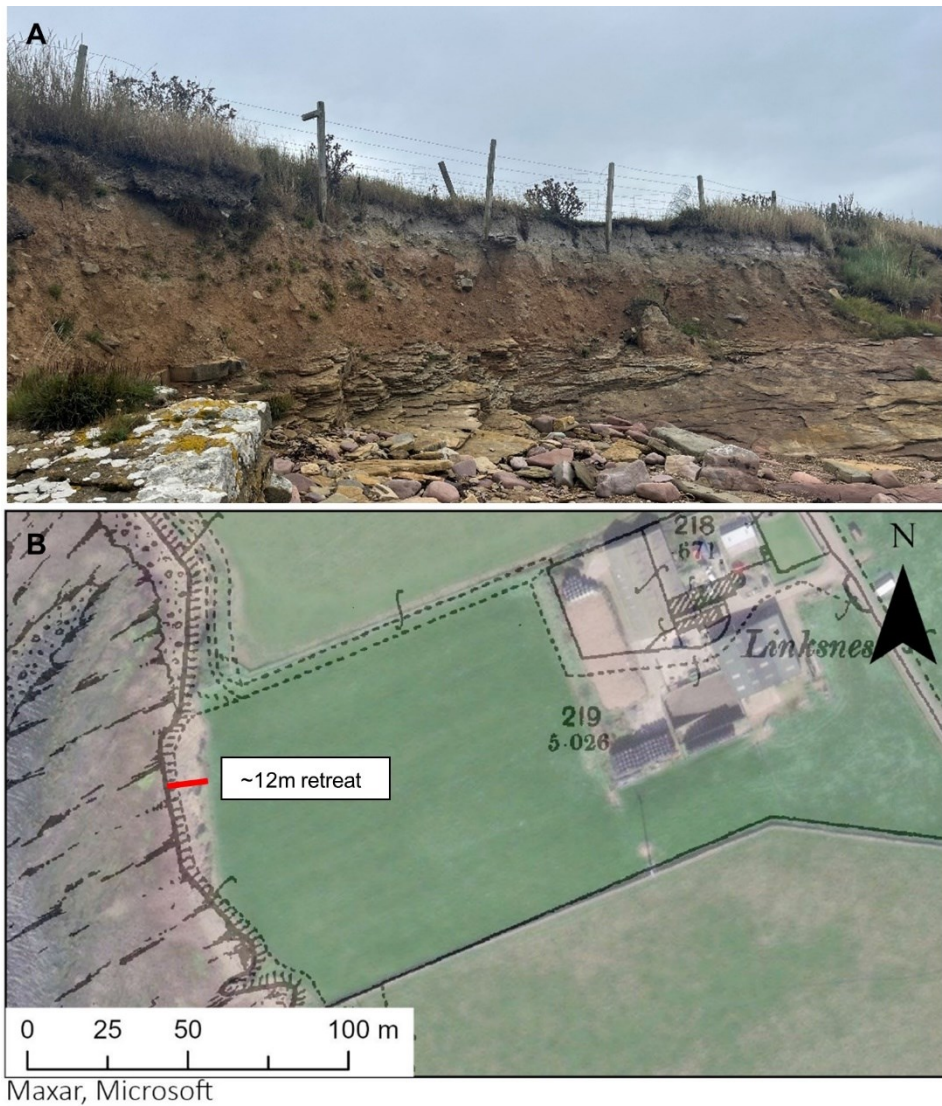


Figure 4A. Erosion of coast edge, undermining a fence and leaving posts freely hanging, Linksnes. Figure 4B. Comparison of coast edge using modern satellite imagery and 1900 historic mapping (1:2500 County Series 1st Revision [TIFF geospatial data], Scale 1:2500. Tiles: orkn-hy6229-2.tif, Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded 2023-10-09).

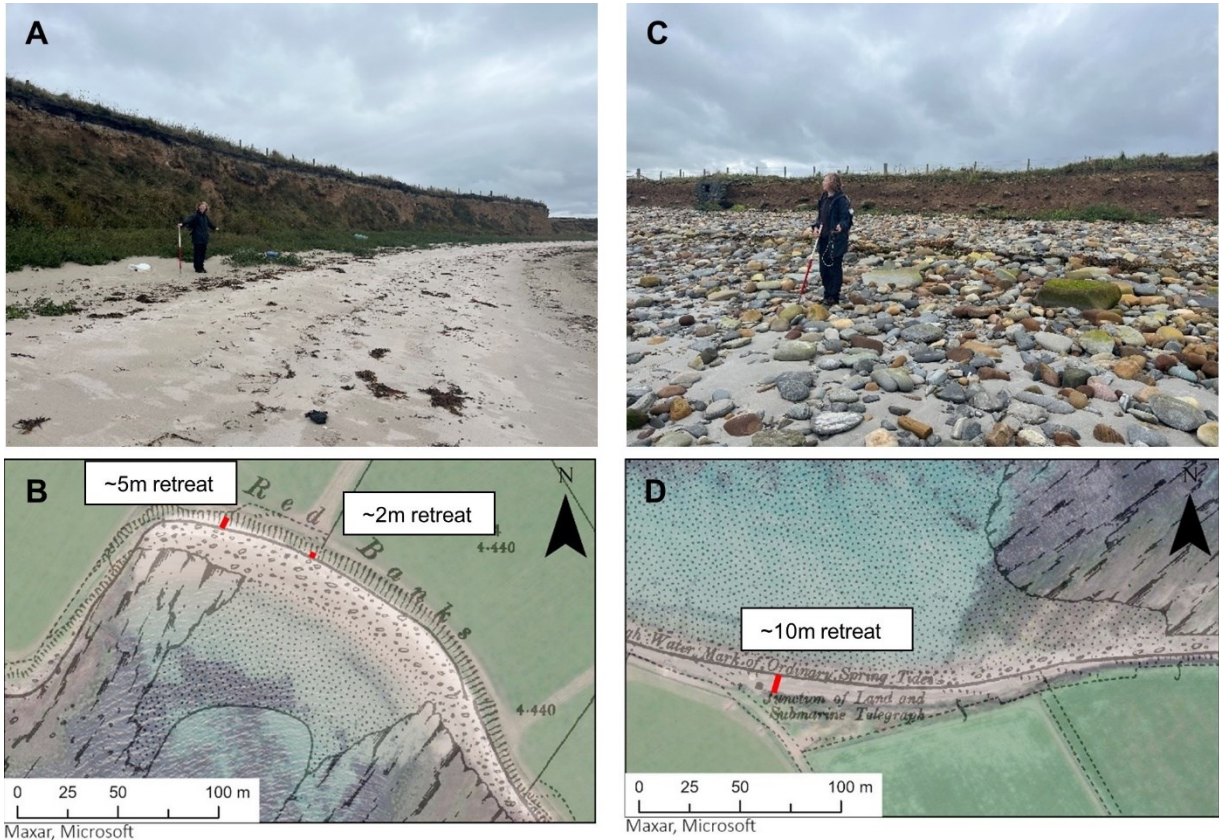


Figure 5. Showing varying amounts of erosion around the Links Ness headland. A&B. Photograph of SCAPE officer standing on the 1900 coast edge at Red Banks and the comparison of modern and historic mapping. The coastline is eroding but the retreat since 1900 is only a couple of metres. C&D. Photograph of SCAPE officer standing on the 1900 coast edge on northern coast of Links Ness and the comparison of modern and historic mapping. The coastline here has retreated by ~10 metres. (1:2500 County Series 1st Revision [TIFF geospatial data], Scale 1:2500. Tiles: orkn-hy6229-2.tif, orkn-hy6129-2.tif, Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded 2023-10-09).

Walking clockwise around the Links Ness headland, freshly eroded exposures of glacial till are commonplace. At Red Banks, although the coast edge appears to be freshly eroding, the approximate change from the 1900s position is only around 2-5m (Figure 5A,B), whereas on the eastern side of Links Ness, the coastline retreat since 1900 reaches up to 10m in places (Figure 5C,D). Further to the east, at Sands of Odie up to 18m of coastal retreat has occurred in places since 1900 (Figure 6). The exposed cable of a now redundant mains electricity cable, installed between Stronsay and Sanday c.1970, is a visual example of the extent of erosion here over the last 50 years.



Figure 6A. Submarine mains electricity cable exposed from eroding coast edge, Sands of Odie. Figure 6B. Comparison of coast edge using modern satellite imagery and 1900 historic mapping (1:2500 County Series 1st Revision [TIFF geospatial data], Scale 1:2500. Tiles: orkn-hy6229-2.tif, Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded 2023-10-09).

Grice Ness

Erosion of superficial deposits is occurring along the north and southwest sides of the Grice Ness promontory; the overall change from 1900 to present most notable on the north with around 14m retreat occurring in some places (Figure 7). Numerous kelp walls and kelp burning pits are situated all around the coast edge of Grice Ness and the erosion is encroaching on some of these sites (Figure 8, SCAPE ID: 16185).



Figure 7A. Erosion of coast edge on northern side of Grice Ness. Figure 7B. Comparison of coast edge using modern satellite imagery and 1900 historic mapping (1:2500 County Series 1st Revision [TIFF geospatial data], Scale 1:2500. Tiles: orkn-hy6728-2.tif, Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded 2023-10-09).



Figure 8. Kelp burning pit eroding out of coast edge, Grice Ness.

Mill Bay

Mill Bay is a long sandy beach backed by a cliff of shelly glacial till, designated a Site of Special Scientific Interest (SSSI) for its Quaternary geological importance. No archaeological remains have been recorded on the coast edge here, although significant Mesolithic activity is known across the hinterland of Mill Bay ([Canmore ID 300439](#)). In the August 2023 survey, due to deteriorating weather conditions, only the southern portion of the bay was walked. The soft till is actively eroding and at the time of the survey recent slumping was observed (Figure 9A). When compared to historic mapping the coast edge has retreated by up to approximately 15m (Figure 9B).

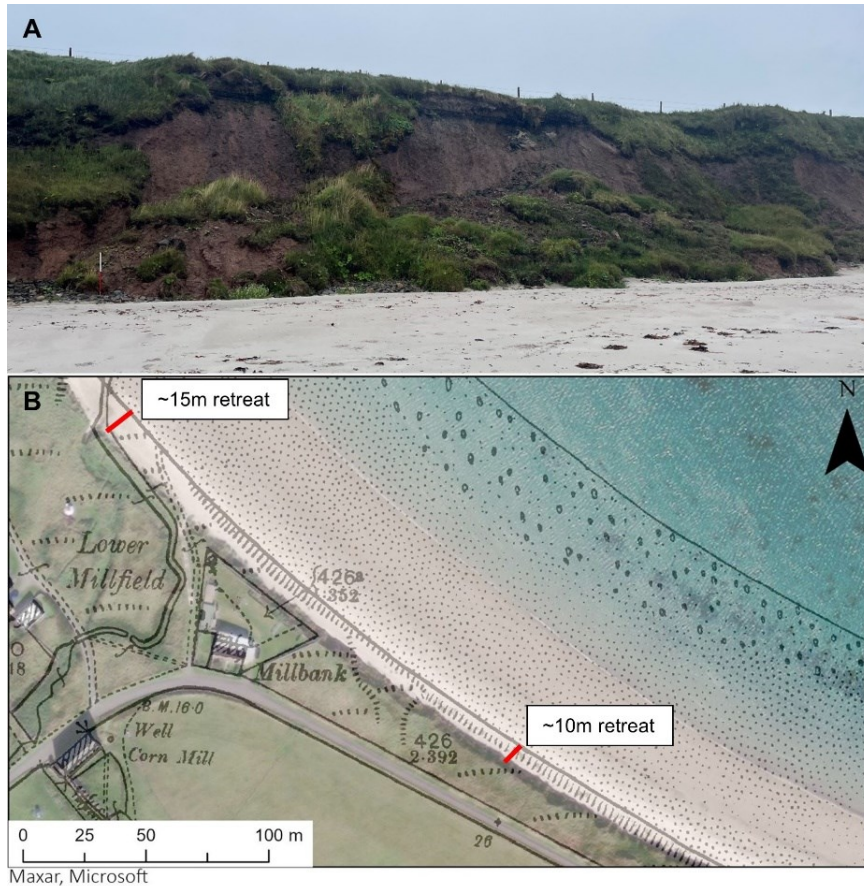


Figure 9A. Recent slumping of coast edge composed of glacial till, Mill Bay. Figure 9B. Comparison of coast edge using modern satellite imagery and 1900 historic mapping (1:2500 County Series 1st Revision [TIFF geospatial data], Scale 1:2500. Tiles: orkn-hy6625-2.tif, Updated: 30 November 2010, Historic, Using: EDINA Historic Digimap Service, <https://digimap.edina.ac.uk>, Downloaded 2023-10-09).

Bight of Doonatown

The area of the Bight of Doonatown, to the west of Sands of Rothiesholm, shows localised erosion mainly affecting the low lying glacial till over bedrock coast edge (Figure 10).



Figure 10. Erosion of coast edge, Bight of Doonatown, Sands of Rothiesholm.

Coastal Defences

Nuisance erosion is obviously an historic and continuing issue for properties located close to the coast edge on Stronsay. Examples of defences observed during the survey ranged from ad-hoc arrangements, such as that observed at Furrewend, on the west side of the Bay of Holland (Figure 11), a patchwork of repaired stone walling protecting a farm at Banks (Figure 12) and much more substantial structures such as the reinforced concrete defence at Housebay Farm (Figure 13).



Figure 11. Ad-hoc coastal defences protecting farm buildings at Furrewend



Figure 12. Multi-phase coastal defence at Banks.



Figure 13. large concrete and stone built coastal defence for Houseby Farm.

4.1.3. Notable areas of dynamic equilibrium and recovery

Sands of Rothiesholm

The Sands of Rothiesholm stretching across the north of Holland Bay is a long expanse of white sand beach backed by vegetated dunes (Figure 14). Storminess in 1993 caused severe erosion and exposed extensive settlement remains at the Sands of Rothiesholm. A report by Moore and Wilson (1995) described the exposed archaeology over a distance of 110m, including stone walls, midden, and two eroding mound structures ([SCAPE ID: 16122](#)). When visited in August 2023 Sands of Rothiesholm was stable and vegetated with no visible archaeological deposits or structures. Comparing the position of the coast edge between the 1900 historic mapping and modern satellite imagery, shows very little net change.



Figure 14. Currently stable coastline of Sands of Rothiesholm.

Dishes

Erosion in the 1990s also severely affected the sandy coast edge at Dishes exposing ~55m of archaeological deposits and structures at a site known as Banks the Waspy and the Navsy ([SCAPE ID: 16012](#)). This included midden material containing animal and fish bone, burnt stone, clay lumps and charcoal, walling, a stone drain, stone lined pits, and slabs which could represent a trough or hearth. Artefacts including a steatite bowl have been recovered from the site (Moore and Wilson, 1995).



Figure 15. Currently vegetated coastedge with modern dumping, Dishes

At the time of the August 2023 survey, the coast edge along dynamic sandy beaches was generally vegetated and stable with little sign of the archaeological structures or deposits recorded previously. Local information also suggests that these areas have been stable for many years. However, the cycles of erosion that typify these coastlines cause the incremental loss of archaeological sites even though the coast edge itself recovers and so the archaeological resource continues to be at risk from erosion.

4.2. RESULTS: Built heritage and archaeology

Sites were categorised into broad site types to aid discussion (Table 2) and a breakdown of the percentage of each site type recorded during the survey is provided (Figure 16). An overview of the main findings is given below followed by a short section highlighting notable sites and recommendations.

Site Type	Definition
Maritime Fishing	Fixed sites or objects with a direct link to fishing industry e.g. fish traps, fishing stations, bothies, boat houses, icehouses, winches.
Maritime Craft	Craft, ballast mounds, components of crafts such as timbers, boilers, capstans.
Maritime Harbours & Landing Places	Formal harbour structures associated with and serving settlements, e.g., built harbours, piers, jetties, breakwaters, docks. Informal and small-scale, landing areas or structures, e.g. cleared slipways, piers, jetties, breakwaters.
Maritime Safety and Navigation	Infrastructure related to navigation e.g. lighthouses, beacons and maritime safety e.g. rocket apparatus sites
Industry Processes and Works	Industry not directly related to fishing, e.g. rope works, brick works, tide mills, lime kilns, salt pans.
Industry Extractive	Extractive industries, e.g. coal mining, quarrying.
Transport, Infrastructure & Engineering	Railways, tracks, bridges, embankments, drainage.
Settlement & Agriculture Domestic	Buildings related to settlements
Settlement & Agriculture Agricultural	Buildings related to agriculture
Settlement & Agriculture Boundaries	Boundary stones, fences and walls demarking property or land boundaries.
Landscapes of resource exploitation & repeated human activity	Middens, shell middens, artefact scatters, lithic scatters, burnt stone, buried anthropogenic soils/ ground surfaces
Religious, Ritual & Funerary	Churches, burial sites, holy wells, crosses.
Defended Buildings, Castles and Forts	Remains of brochs, duns, castles and promontory forts.
Military WW2	Military sites constructed as part of Second World War coastal defences e.g. pillboxes, observation posts, gun emplacements, anti-tank cubes, anti-glider posts or roadblocks.
Military Other	Military sites which are not solely Second World War, e.g. Napoleonic or WW1 targets and rifle ranges or military bases and airfields.
Natural Features	Geologic or geomorphologic features e.g. sea stacks, mounds, intertidal peat, unmodified caves, unmodified springs.
Miscellaneous	Sites out with the outlined site types.

Table 2. Site type categories and definitions

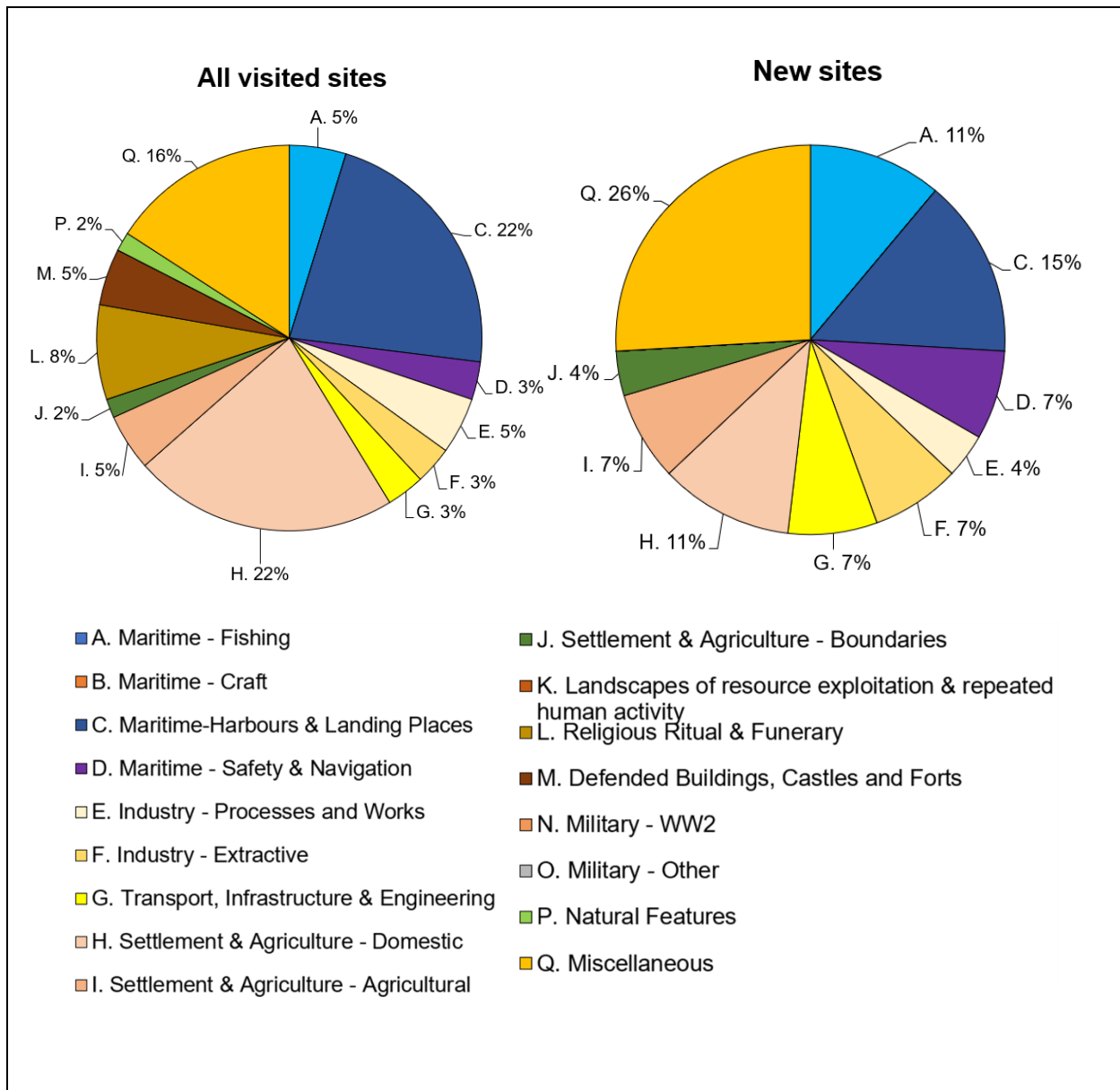


Figure 16. (A) All Stronsay sites updated during survey, arranged by category (n=63); (B) New sites recorded during the Stronsay survey, arranged by category (n=27).

4.2.1. Maritime

Fishing

Many of the buildings in Whitehall village and Lower Whitehall have associations with the booming herring fishing industry in Stronsay during the late 19th and early 20th centuries (Figure 17). Three sites associated with the herring fishery have been added to the record. Situated right on the coast edge close to Whitehall’s west pier is the former customs house which was built to deal with the large volumes of cargo coming and going from Stronsay ([SCAPE ID: 16197](#), Figure 17A). On the eastern side of Whitehall, beside the Whitehall pier and ferry terminal, is the former fishmart ([SCAPE ID: 16198](#), Figure 17C). Inland from the coast is the imposing structure of a large stone built salt store, which was initially used by the herring fishery and later repurposed as a coal store ([SCAPE ID: 16199](#), Figure 17B).



Figure 17A. Former custom house built for herring industry, now a bank branch (<https://scapetrust.org/sites-at-risk/site/16197>).



Figure 17B. Former salt store used for the herring industry and subsequently used as a coal store (<https://scapetrust.org/sites-at-risk/site/16199>).



Figure 17C. Former Fishmart, now used as a café, hostel and public toilets. Situated on coast edge by ferry terminal (<https://scapetrust.org/sites-at-risk/site/16198>).

Harbours and Landing Places

Whitehall Village is home to two large concrete piers, The Whitehall Pier, built in 1833, is the main pier now used by the ferry service to Stronsay. The pier was later raised and extended in 1880, extended again in the early 1900s, and underwent a final extension and fitted with the ferry roll on, roll off facility in 1989-1990. The western pier was built in 1910 to serve the herring fishing industry. It is now used primarily by fishing boats (SCAPE ID: 16148).

On the east side of Lower Whitehall at The Station is a stone jetty, known locally as the Station Pier. Immediately adjacent to the pier is a concrete slipway (Figure 18). The Station Pier was built in the late 1800s for the herring fishing industry. The concrete slipway is a more recent construction by the Monks living on Papa Stronsay as a landing place for their small craft. The pier has a cobbled stone top between the pier edge and slipway, a concrete end as well as areas of concrete patching. Several timber bollards line the length of the pier (SCAPE ID: 16084).



Figure 18. The Station Pier, and an adjacent concrete slipway. The Station Pier was built in the late 1800s for the herring fishing industry and the concrete slipway was built by the Monks living on Papa Stronsay as a landing place for their small craft (<https://scapetrust.org/sites-at-risk/site/16084>).

Thirty metres to the east of The Station Pier is the remains of a prefabricated, raised, concrete, slipway (SCAPE ID: 16203, Figure 19). The slipway was built in 1911 and originally terminated in a wooden shed which housed the lifeboat, the John Ryburn, for three years until 1915, when the lifeboat station was closed. The structure is currently fenced off and is deteriorating. Stronsay was once again home to a lifeboat from 1950-1972, however it was stationed in front of Whitehall Village, between the two piers. As far as is known, the concrete slipway was last used in 1915.



Figure 19. The Station concrete lifeboat slipway, built in 1911 (<https://scapetrust.org/sites-at-risk/site/16203>).

Also related to the lifeboat on the shoreline at Lower Whitehall are the remains of a small stone jetty and cleared slipway which was used by the lifeboat tender when the lifeboat was anchored offshore (SCAPE ID: 16206, Figure 20). The slipway and the stone jetty are tangible links to the history of the Stronsay lifeboat and the social history associated with it.



Figure 20. Small stone jetty and cleared slipway (<https://scapetrust.org/sites-at-risk/site/16206>).

In the southeast of the island is a site known as The Dane’s Pier (SCAPE ID: 16136). The feature is composed of a large spit of cobbles and boulders, extending out westwards into the Bay of Houseby and arcing to the south (Figure 21). On the historic Ordnance Survey, the feature is annotated in antiquarian lettering as a pier and harbour. The 1845 Statistical Account, refers to the formation as the remains of an ancient pier but notes that it is not mentioned in historical records:

“...there are the remains of an ancient pier, formed, as is supposed by some, for the protection of vessels. It is now in such a state of dilapidation, that it is impossible to say when it was made....It may be observed, that this ancient pier has been scarcely, if at all, mentioned by former writers. And tradition says nothing as to which of the ancient proprietors of these islands it is to be referred to.”

Stronsay and Eday, County of Orkney, NSA, Vol. XV, 1845

It is more likely this is a natural feature but historically may have been used by seacraft for shelter from time to time.



Figure 21. The Dane’s Pier (<https://scapetrust.org/sites-at-risk/site/16136>).

Safety and Navigation

At The Station, Lower Whitehall, is a rocket pole, which served as the ship's mast during practise drills with a rocket apparatus by the coastguard. The wooden post is approximately 4m tall with footholds on either side. It is set into a concrete plinth (SCAPE ID: 16201). Two iron fixings are located a few metres to the NE and SE of the post, also set into concrete: possibly for securing the pole. The post has been erroneously described on modern OS maps as a Lookout Pole or an Observation Post. Local knowledge suggests that the pole was originally erected c.1945 near Mill Bay. It was then relocated to near the farm of Kirbuster in the southeast of the island, before being moved to its location at The Station, c. the early 1950s. It was last used for Coastguard training in the mid-1970s.

The rocket apparatus was developed in the early 19th century by Henry Trengrouse. A rocket carrying a thin line was fired to a ship in distress, and then used to set up a zip line and harness (breeches buoy) from ship to shore to rescue the crew. The apparatus could be taken to the scene of a wreck on a cart. Figure 22B shows historic photographs from Habbisburgh depicting a rocket pole and tripod being used in practice in 1940. We know of one other example of in situ remains of rocket apparatus in Scotland at Cairnbulg Point, Inverallochy (SCAPE ID: 15670). At Cairnbulg Point, there are the extant remains of a tripod leg and securing pin for the zip line as well as the rocket pole itself, however the pole has been painted and relocated to act as a marker for a memorial. As we have only come across one other example of a rocket pole on our surveys, the rocket pole at The Station is significant as a rare survival of coastguard history.





Figure 22. A. Rocket pole on concrete mount at The Station, Lower Whitehall (<https://scapetrust.org/sites-at-risk/site/16201>); B. Rocket apparatus in use in practise in Happisburgh, Norfolk in 1940. The rocket fires a line to the ship's mast (the pole) and a breeches buoy is set up to rescue the crew. © Imperial War Museum.

4.2.2. Industry

Processes and Works

Seaweed based industry has been historically important in Stronsay. In the 18th to the early 20th century seaweed was burned and transformed into kelp for chemicals and the glass industry. Later in the 20th century tangle was harvested for the alginate industry. The Grice Ness promontory is home to countless drying walls and shallow stone-lined kelp burning pits spread along the coast edge (Figure 23A, SCAPE ID: 16185). The drystone walls occur singly, in pairs and in groups and are generally 4m x 1m in size (Figure 23B, C). The kelp burning pits are shallow, stone-lined, circular depressions generally around 3m in diameter (Figure 23D). The workings start on the north side of Grice Ness circa 350m east of the lifeboat slipway and continue, almost uninterrupted around the point to the south of the promontory, circa 300m east of Crooks Ness. Kelp burning pits are generally located just behind (inland of) the drying walls, but a handful are exposed in cross section in the coast edge. In places the drying walls are so thickly concentrated that they appear to merge to create temporary shelters or windbreaks (Figure 23B). These have the appearance of building foundations but are unlikely to be so. According to local information, kelping at Grice Ness continued into the 1920s. In the 1950s to the 1980s, tangle was once again harvested and dried (but not burnt). Each of the kelp walls were owned by individuals and households. Some of the more intact drying walls (or beeks) at the northwest end may date from these later periods.

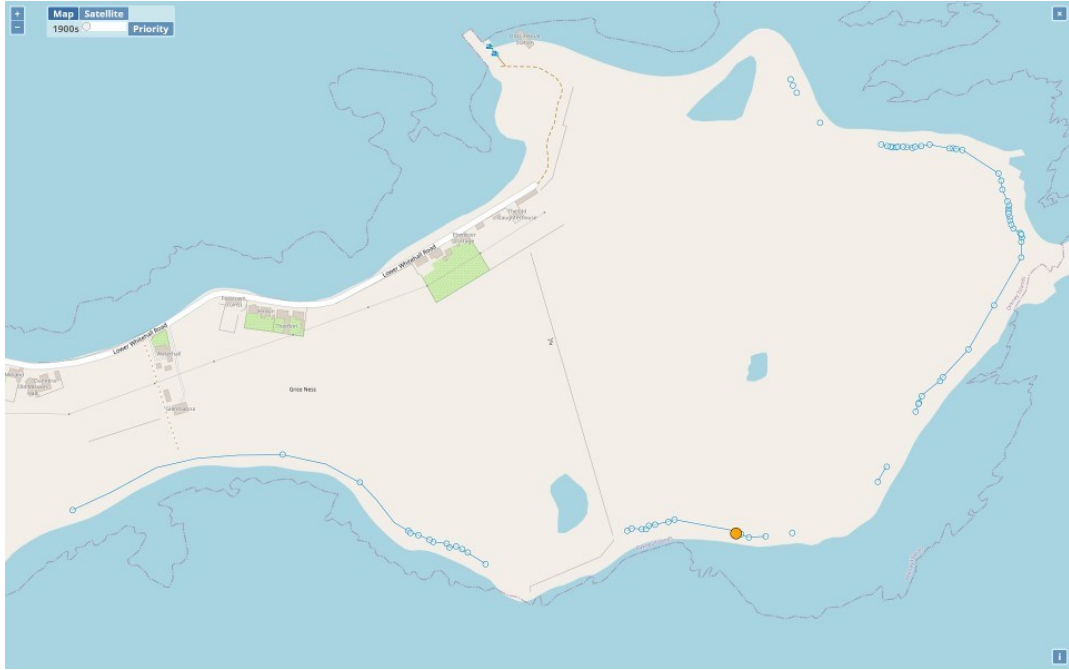


Figure 23A. Screenshot of distribution of main kelping features around Grice Ness – blue circles denote walls, lines denote concentrated walls and burning pits (<https://scapetrust.org/sites-at-risk/site/16185>)



23B. Concentrated kelp walls almost appear structural on south side of Grice Ness

23C. 20th century? Kelp walls on the north side of Grice Ness

Figure 23D. Circular kelp burning pits along south side of Grice Ness

Kelping sites have also been recorded at Latan, Rothiesholm, in the southwest of the island on the western shore of Bay of Holland (SCAPE ID: 16071). A free-standing kelp kiln was visited at Latan in November 2023 (Figure 24). The structure is much engulfed by grass growth, and the east side is tumbled, however, the condition has not changed significantly since the photograph taken in 1979 on the Canmore record (182729).



Figure 24A. Free-standing kelp kiln, Latan. Looking south (<https://scapetrust.org/sites-at-risk/site/16070>). Photo credit: Ian Cooper.



Figure 24B. View inside kiln, with tumbled east side. Looking northwest. Photo credit: Ian Cooper.

Extractive

Thanks to local information, two new sites document the locations of former coastal quarries. The bedrock geology of Stromsay is predominantly that of Devonian Old Red Sandstone, prevalent across the Orkney islands. Both quarry sites are composed of sandstone belonging to the Eday and Lower Eday Flagstone Formation (BGS Geology Viewer, 2023). Linksness, Pier of Skerra (SCAPE ID: 16184) was once the site of a quarry which was active in the mid-late 19th century. The track which led down from the coast edge to the quarry is now eroded away however quarry evidence can still be observed in the form of angular quarried stone scattered on the foreshore (Figure 25A). A second potential quarry site was identified at Mervar, to the west of the Bay of Holland (SCAPE ID: 16188). Here, two tracks providing access to the rocky foreshore were noted leading down from the vegetated coast edge. Additionally, large blocks of quarried stone were observed nearby.



Figure 25A. Linksness, Pier of Skerra, looking SE. (<https://scapetrust.org/sites-at-risk/site/16184>)



Figure 25B. Example of quarried stone left at coast edge, with quarry tool marks visible. Photo credit: Ian Cooper

4.2.3. Transport, Infrastructure and Engineering

Two new sites recorded during the survey are nice examples of 19th and early 20th century infrastructure and engineering. The water pump on the sea front in Whitehall village (SCAPE ID: 16195, Figure 26A) predates the introduction of a mains water supply which came to Stromsay in 1911. The pump has recently been restored through the North Isles Landscape Partnership. Exposed on the sandy beach at Sands of Rothiesholm are the remains of a massive stone drain, now replaced by a concrete pipe protected by cassie stone walling (SCAPE ID: 16182, Figure 26B). This is a sluice for the Bu Loch, situated just inland of the coast edge at Rothiesholm. The sluice is marked on an estate plan dated 1869.



Figure 26A. Village pump, Whitehall
(<https://scapetrust.org/sites-at-risk/site/16195>)



Figure 26B. Sluice for Bu Loch, Sands of Rothiesholm
(<https://scapetrust.org/sites-at-risk/site/16182>).

4.2.4. Settlement and Agriculture – Domestic

Fourteen (22%) of sites visited are the archaeological remains of settlements. Isostatic subsidence and relative sea level rise over the last 10,000 years explains why so many prehistoric settlements are found at the shoreline across the Orkney archipelago. Extensive exposures of eroding settlements of prehistoric and Norse periods are known on Stromsay, but most of these were not visible at the time of the survey due to the stable and vegetated condition of sandy coast edges. Notable examples of known, but currently not visible, settlement are located at Sands of Rothiesholm and Dishes - Banks the Waspy and the Navy.

Below a derelict farmstead at Lower Dishes (SCAPE ID: 16080) we observed a settlement site which is actively eroding from the coast edge. The coastal exposure reveals building foundations, buried dry stone walling and paved floors. The period of these building remains is unknown, however, it is clearly a site which has seen multiple phases of occupation.



Figure 27. Structures eroding out of coastal section, Lower Dishes (<https://scapetrust.org/sites-at-risk/site/16080>).

At Runthall, between Links Ness and Sand of Odie, in the northwest of the island, is another example of a settlement site eroding out of the coast edge (SCAPE ID: 16119, Figure 28). The site consists of walling and horizontally laid slabs. What look like stone drains are also visible and a possible hearth with layers of peat at the west end of the section. Medieval pottery has been recovered from this eroding site in the past.



Figure 28. Settlement site in eroding coastal section, Runthall (<https://scapetrust.org/sites-at-risk/site/16119>).

Classified as 'miscellaneous' because there is not yet enough information to assign a category are three new sites which are all located near to previously documented archaeological settlement.

At Grobister, two new exposures of drystone walling, horizontal slabs and fire-cracked stone separated by circa 30m of slumped vegetation (SCAPE ID: 16178, Figure 29A) were recorded along the same stretch of coastline as Banks the Waspy and the Navsy. A very large sherd of coarse prehistoric pottery was also noted with a fragment recovered for identification (Figure 29B). The most likely interpretation of the site is a burnt mound or settlement site.



Figure 29A. Coastal exposure of wall and fire cracked stone at Grobister Figure 29B. Close up view of pottery sherd within exposure (<https://scapetrust.org/sites-at-risk/site/16178>).

A new site at Huip consists of a lens of *in situ* burning approximately 1m wide and 0.5m, deep cut into the subsoil. Peat ash, charcoal, and rare fragments of cremated bone were observed in the section as well as a large slab of burnt stone over the burnt area and unburnt stone above (SCAPE ID: 16183, Figure 30A). The location near to Green Hill Broch indicates it could be a hearth linked with the broch and associated settlement (Moore and Wilson, 1995; SCAPE ID: 16037). A cremation site is also a possible interpretation.

At Housebay Farm, immediately south of the farm mound occupied by the present farm is an area of *in situ* burning directly upon the underlying glacial till. The burning is not more than 20cm thick, with evidence of red scorching, ash, and charcoal all of which suggests this could be the remains of a hearth. A few limpet shells nearby may represent a possible midden spread (SCAPE ID: 16200, Figure 30B).



Figure 30A. Possible hearth or cremation site, Huip (<https://scapetrust.org/sites-at-risk/site/16183>).

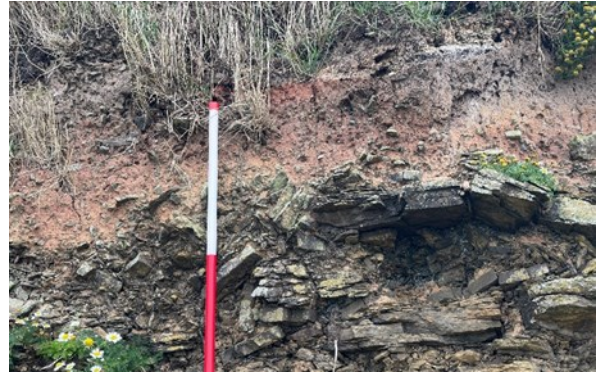


Figure 30B. Possible hearth, Houseby (<https://scapetrust.org/sites-at-risk/site/16200>).

A completely different, and unique site which falls into the settlement category is the former wash house and coal store created from an upturned wooden boat hull on the waterfront in Whitehall village (Figure 31). The boat is a lifeboat from the *Athenia*, which was torpedoed in 1939 at the start of WW2. The building was restored in 2022 through the North Isles Landscape Partnership.



Figure 31. Wash house with roof made from lifeboat (<https://scapetrust.org/sites-at-risk/site/16192>).

4.2.5. Defended Buildings, Castles and Forts

Three brochs were visited during the surveys, all of which are scheduled monuments; Benni Cuml, situated on the coast edge at Bay of Houseby (SCAPE ID: 16013, SM1242), Lamb Head, situated on a promontory to the east of Bay of Houseby (SCAPE ID: 16068, SM5631), and Greenhill, North End, which is situated at Huip to the east of Sands of Odie (SCAPE ID: 16037, SM1443). Benni Cuml is a laterally extensive site with a prominent large grassy mound. The site is close to the storm beach shoreline, but the coast edge is currently well vegetated and appears to be stable. Due to its location on the coast edge, the site could be at risk of future coastal erosion after a large storm event. Lamb Head broch is not located directly on the coast edge but is situated close to high cliffs on its east side. The site is also marked by a prominent grassy mound and rubble and has two openings looking down through the roofs of guard chambers. Although not immediately vulnerable to coastal erosion, this site could be affected by structural collapse.

The third broch site visited during the surveys was at Greenhill, Huip, with fresh exposures extending along the coast edge for at least 20m. Archaeological monitoring carried out in 1995, noted several sections of tumbled masonry and a hearth which was in imminent danger of loss (Moore and Wilson, 1995). The surveyors also noted flat flagstones and masonry in front of the broch which were interpreted as outbuildings related to the broch and additionally the remains of a wall, hearth, burnt deposits and midden material. During the August 2023 survey it was difficult to identify individual structures described in the 1995 report as the coast edge described twenty years ago has eroded, however, structures such as tumbled walling and horizontal flat stones were observed in the section (Figure 32).



Figure 32A. Photograph of full length of site exposed along coast edge. Figure 32B. Closer view of tumbled walling within section, Greenhill (<https://scapetrust.org/sites-at-risk/site/16037>).

4.2.6. Religious, Ritual and Funerary

Two scheduled neolithic chambered cairns were visited during the surveys. On the eastern side of Grice Ness, approximately 50m inland from the coast is the chambered cairn of Cutter's Tuo (SCAPE ID: 16040, SM:1391). The conical shape of the mound topped with stone can be seen from many directions when looking across Grice Ness. The cairn is surrounded by a circular platform, the geometry of which can be seen clearly on modern lidar image (Figure 33). It is not at risk from coastal erosion.



Figure 33A. Grice Ness, Cutter's Tuo chambered cairn (<https://scapetrust.org/sites-at-risk/site/16040>). Figure 33B. LiDAR image of the cairn, clearly showing the cairn and surrounding circular platform (LiDAR DTM 50cm-1m-Eng, Scot, Wales. ©Environment Agency copyright 2022, ©Natural Resources Wales and Database Right, Crown copyright Scottish Government, SEPA, Fugro and Scottish Water (2012-2021). With thanks to Richard Pearson).

The second chambered cairn is that of the Ward of Houseby (SCAPE ID: 16142, SM1411). The mound itself is vegetated and appears to be largely stable. Investigation of the coast edge directly below the mound revealed a small section of archaeological deposits containing animal bone, peat ash and limpets (Figure 34). A piece of struck flint was also noted.

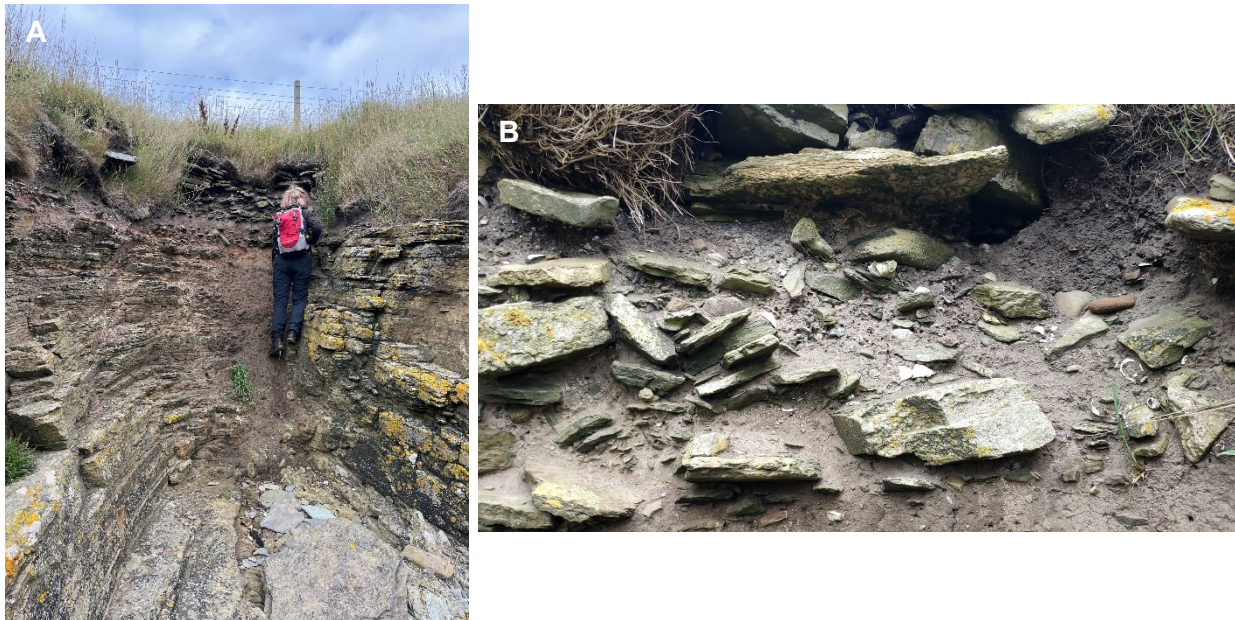


Figure 34A. General view of exposed section with midden material situated below the Ward of Houseby, 34B. Detail of deposits including animal bone, shells and peat ash (<https://scapetrust.org/sites-at-risk/site/16142>).

Situated between a small loch and the coast is the walled graveyard of St Peter's Church (SCAPE ID: 16131 and Figure 35). The graveyard is thought to have been last used in the 1930s. The northern wall of the graveyard is situated right on the coast edge and vulnerable to coastal processes.



Figure 35. View of St Peter's Chapel graveyard looking towards the northwest (<https://scapetrust.org/sites-at-risk/site/16131>).

4.2.7. Miscellaneous

Burnt mounds are enigmatic sites which are difficult to categorise due to the uncertainty of their original purpose and so fall into miscellaneous. One known burnt mound site was visited during the surveys at Lodge Farm (SCAPE ID: 16078). The site is located at the edge of a farmed field adjacent to the coast. Local knowledge suggests that many fire-cracked stones were ploughed up in the vicinity, however at time of survey there was nothing visible on the ground except for a slight slope of a mound in the corner of the field.

Also falling within the category of miscellaneous is a small stone built tidal toilet located on the coast edge at Whitehall village (SCAPE ID: 16193). Built for, and used by, workers in the herring fishery, this building is an interesting and rare sight on the foreshore. It is one of only two remaining in Orkney and has recently been restored by Stromsøy Community Council and North Isles Landscape Partnership.



Figure 36. Small stone built tidal toilet located on the coast edge. Built for, and used by, workers in the herring industry (<https://scapetrust.org/sites-at-risk/site/16193>).

An unusual find of a suspected lump of bog iron ore was spotted at the base of the coastal section at Grobister, below Fairhill. According to local information, similar lumps of bog iron are known to have been ploughed up from nearby fields.



Figure 37. Boulder-sized lump of bog iron at base of coast edge, Grobister (<https://scapetrust.org/sites-at-risk/site/16186>).

5. Priority sites and recommendations

Fifteen sites have been assigned a priority status based upon their vulnerability to coastal erosion and potential archaeological significance (Figure 37 and Table 3). Nine of these have existing Canmore or HER records associated with them. Five are new sites.

The rocket pole [Site 16201] at The Station is a very rare survival of a little-known piece of coastguard history. We have assigned a priority 2 status to this site which reflects its rarity and historic value and to support a recommendation for conservation. Nearby, the early 20th century prefabricated concrete lifeboat slipway [Site 16203] is also rare and of high local historic interest. An assessment of its condition and significance would help inform conservation and management options. Both sites are elements of a range of historic structures and buildings at The Station, Lower Whitehall associated with the coastguard and the herring fishery, which together tell important stories of Stronsay's past and are very accessible from Whitehall.

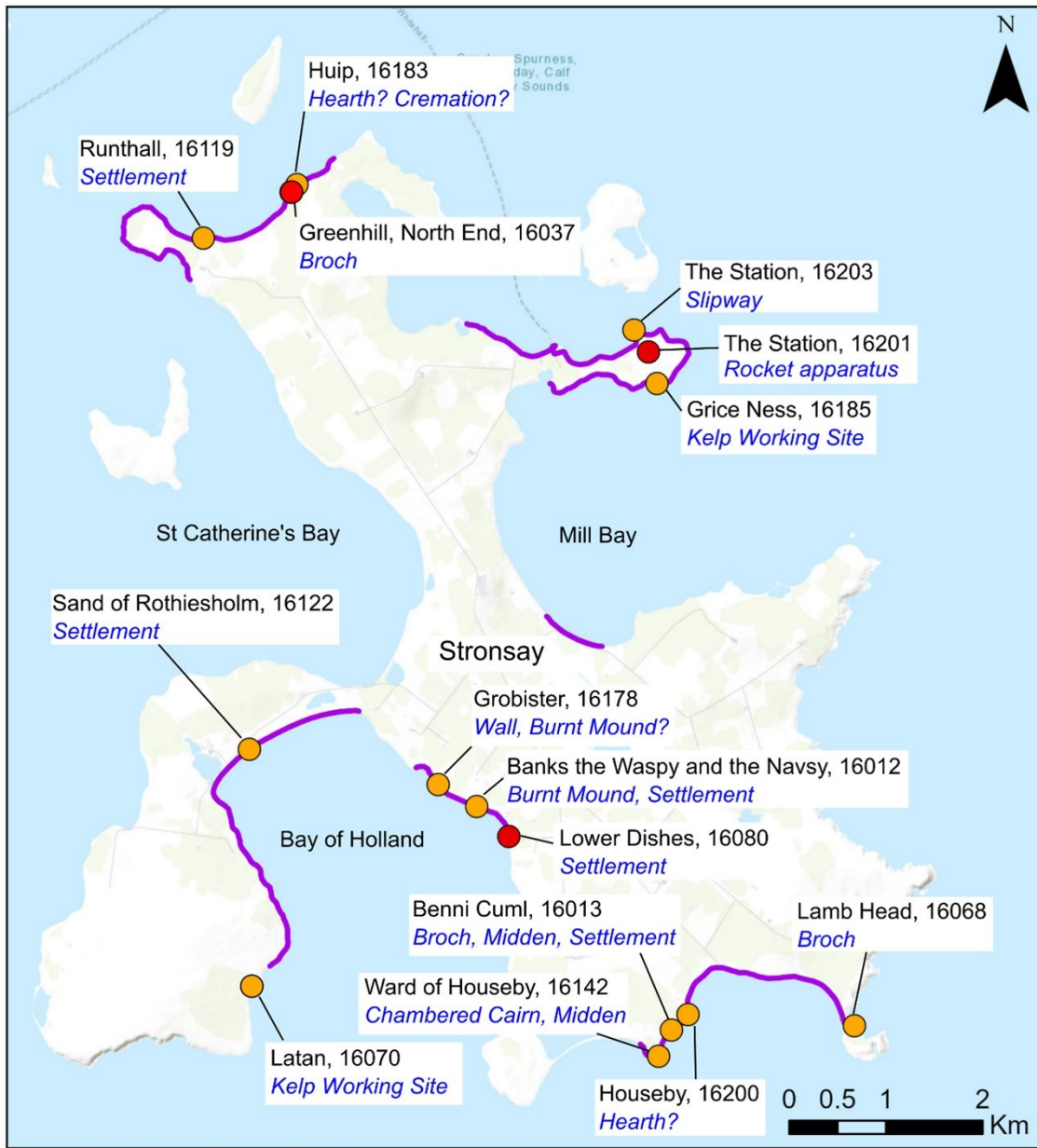
A short walk from The Station, thickly clustered around the edge of Grice Ness promontory are the visible remnants of countless kelp and tangle drying walls and kelp burning pits which may span the history of kelping in Stronsay from the 18th to the 20th centuries [Site 16185]. These are unusual in their concentration and visibility, and a detailed survey would be a useful and timely contribution to preserving knowledge of this once important industry for the Island. At Latan, a free standing circular kelp kiln [Site 16070] is a rare survival of an 'improved' kelp burning kiln. A more complex example on the adjacent island of Papa Stronsay is designated as a scheduled monument ([SM 9289](#)).

Most of the rest of priority sites comprise exposures of archaeological deposits in the coast edge. It is recommended that these are monitored at three-to-five-year intervals or following extreme weather events. Extensive exposures of settlement archaeology previously documented along dynamic sandy beaches at Rothiesholm [Site 16122] and Dishes [Site 16012] around the Bay of

Holland are not currently visible because the coast edge has stabilised and is vegetated. However, they continue to be vulnerable to loss during extreme weather and in the longer term from an acceleration of coastal processes, including erosion, because of climate change impacts. Due to this, both the Sands of Rothiesholm and Dishes settlement sites have a priority 3 status for monitoring.

We have assigned a priority 2 status to one settlement site at Lower Dishes (Site 16080) because even in well-vegetated summer conditions, a number of structures were exposed in the coastal cliff and it would be useful to record the section to better understand the stratigraphy and character of the archaeology that is present here. Settlement remains associated with Greenhill Broch on the edge of the airfield near Huip have also been assigned a priority 2 status. Extensive exposures of archaeological deposits were documented here in 1995 and there is evidence of relatively fresh erosion in places.

New sites documented at Grobister [Site 16178], Housebay [Site 16200] and Huip [16183] are too limited in visibility to characterise with any confidence, but they are all in very close proximity to existing archaeological sites and should be regularly monitored for further information.



Esri UK, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA

Figure 38. Fifteen priority sites, three priority-2 sites (red) and twelve priority-3 sites (orange).

A summary of vulnerability and recommended action for each site is given below.

Scape ID	Canmore ID	Site Name	Site Type	Summary of vulnerability	Priority	Recommended Action
<i>Maritime – Harbours & Landing Places</i>						
16203	-	The Station	Slipway	Coastal erosion and structural deterioration	3	Assess for significance and conservation feasibility
<i>Maritime – Safety & Navigation</i>						
16201	-	The Stations	Rocket apparatus, gun throwing site	Structural deterioration	2	Conserve
<i>Industry – Processes & Works</i>						
16185	3300	Stromsøy, Grice Ness	Kelp Working Sites	Coastal erosion, stock damage	3	Survey, monitor

Scape ID	Canmore ID	Site Name	Site Type	Summary of vulnerability	Priority	Recommended Action
16070	3394	Stronsay, Latan	Kelp Working Site	Structural deterioration	3	Survey, monitor
<i>Settlement & Agriculture – Domestic</i>						
16012	3378	Stronsay, Banks the Waspy and the Navvy	Burnt Mound, Settlement	Coastal erosion	3	Monitor – could be exposed again after storm
16080	3358	Stronsay, Lower Dishes	Settlement	Coastal erosion	2	Record what is visible in the section. Monitor
16119	3331	Stronsay, Runthall	Settlement	Coastal erosion	3	Monitor for further erosion and more structure revealed
16122	3389	Stronsay, Sand of Rothiesholm	Settlement	Coastal erosion	3	Monitor – could be exposed again after storm
<i>Religious, Ritual & Funerary</i>						
16142	3353	Stronsay, Ward of Houseby	Chambered Cairn, Midden	Coastal erosion	3	Monitor
<i>Defended Buildings, Castles and Forts</i>						
16013	3352	Stronsay, Benni Cuml	Broch, Midden, Settlement	Coastal erosion	3	Monitor – could be exposed again after storm
16037	3459	Stronsay, Greenhill, North End	Broch	Coastal erosion	2	Monitor for further erosion and more structure revealed
16068	3350	Stronsay, Lamb Head	Broch	Structural instability	3	Monitor
<i>Miscellaneous</i>						
16178	-	Grobister	Wall, Burnt Mound?	Coastal erosion	3	Monitor for further erosion and more structure revealed
16183	-	Huip	Hearth? Cremation?	Coastal erosion	3	Monitor for further erosion and more structure revealed
16200	-	Housebay	Hearth?	Coastal erosion	3	Monitor for further erosion and more structure revealed

Table 3. Summary of priority sites and recommended actions.

6. Acknowledgements

Special thanks to volunteers who made the surveys so enjoyable and informative. We thank members of the Stronsay Heritage Group for sharing their very considerable knowledge about the history of Stronsay which made our visits immensely productive and greatly improved the records. Much of the information about Whitehall and the surviving buildings and structures related to the herring fishery was provided by the Stronsay Heritage Group who kindly shared with us a draft of their excellent Whitehall Village Heritage Walk. We would specifically like to thank Rosalind Neville-Smith and Ian Cooper for their invaluable contribution to the planning and logistics of our surveys and for sharing a wealth of knowledge on Stronsay's landscape and heritage.

We are grateful to Peter McKeague, Historic Environment Scotland who provided heritage data for the survey area and to Paul Sharman, Orkney Archaeology Service, who provided additional reports for Stronsay, as well as valuable advice and information.

The survey was funded by Historic Environment Scotland through their Partnership Fund.

7. References

BGS Geology Viewer. 2023. *Geology Viewer*. Available online at: <https://geologyviewer.bgs.ac.uk/> [Accessed 31 Oct 2023].

Fitton, J. M., Hansom, J. D. and Rennie, A. F. 2016. A national coastal erosion susceptibility model for Scotland. *Ocean & Coastal Management*, **132**, 80-89.

Hambly, J. 2017. *A review of heritage at risk from coastal processes in Scotland: Results from the Scotland's Coastal Heritage at Risk Project 2012-2016*. Available online at: <https://scapetrust.org/wp-content/uploads/reports/A%20Review%20of%20Coastal%20Heritage%20at%20Risk%20in%20Scotland%202017.pdf> [Accessed 18 Oct 2023].

Hurst, M. D., Muir, F. M. E., Rennie, A. F. and Hansom, J. D. 2021. Dynamic Coast: Future Coastal Erosion. *CRW2017_08. Scotland's Centre of Expertise for Waters (CREW)*. Available online at: <https://www.dynamiccoast.com/reports> [Accessed 18 Oct 2023].

Moore, H. and Wilson, G. 1995. Report on Sites Visited on Stronsay and Eday, Orkney, February 1995. *Environmental and Archaeological Services Edinburgh (EASE)*.

Appendix 1. Known sites visited on 2023 survey

SCAPE ID	Site name	Site type	Periods	Easting	Northing	Canmore ID
<i>Maritime – Harbours & Landing Places</i>						
16084	Stronsay, Lower Whitehall, Pier and Slipway	Pier, Slipway	Post-Medieval	366730	1028650	105355
16099	Stronsay, Nousty Geo	Naust(s)	Period Unknown	367980	1021960	3373
16104	Stronsay, Pier of Stursy	Jetty	Period Unknown	362100	1029100	3326
16108	Stronsay, Red Banks, Jetty	Jetty	Period Unknown	361910	1029410	3327
16111	Stronsay, Rothiesholm	Naust, Settlement	Period Unknown	362550	1023700	3384
16136	Stronsay, "The Danes Pier"	Harbour, Natural Feature, Pier	Period Unknown	368760	1021420	3382
16145	Stronsay, Whitehall Pier, Crane	Crane	Post-Medieval	365900	1028550	3299
16147	Stronsay, Whitehall Village, Piers	Pier	Post-Medieval	365940	1028500	156767
16148	Stronsay, Whitehall Village, Piers	Pier(s)	Modern	365660	1028480	105354
16151	Whitehall Village, Stronsay, Harbour Office and Weighbridge	Office, Weighbridge	Modern	365910	1028470	156772
<i>Industry – Processes & Works</i>						
16070	Stronsay, Latan	Kelp Working Site	Post-Medieval	362797	1021830	3394
16185	Stronsay, Grice Ness	Kelp Working Site	Modern	367000	1028100	3300
<i>Settlement & Agriculture - Domestic</i>						
16012	Stronsay, Banks the Wasy and the Navsy	Burnt Mound, Settlement	Multi-Period	365140	1023730	3378
16036	Stronsay, Green Hill, North End	Settlement	Period Unknown	362920	1029680	3324
16052	Stronsay, Huip	Settlement	Period Unknown	363650	1030400	3476
16071	Stronsay, Latan	Structure	Period Unknown	363010	1022130	182729
16080	Stronsay, Lower Dishes	Settlement	Period Unknown	365470	1023420	3358
16083	Stronsay, Lower Whitehall, General	Village	Period Unknown	366400	1028300	105353

SCAPE ID	Site name	Site type	Periods	Easting	Northing	Canmore ID
16116	Stronsay, Rothiesholm, Cutkelday	Farmstead	Period Unknown	362530	1023240	182724
16117	Stronsay, Rothiesholm, Furrowend	Farmstead	Period Unknown	362670	1023360	182723
16119	Stronsay, Runthall	Settlement	Period Unknown	362313	1029606	3331
16122	Stronsay, Sand of Rothiesholm	Settlement	Period Unknown	362788	1024321	3389
16146	Stronsay, Whitehall Village, General	Village	Period Unknown	365790	1028390	104918
<i>Settlement & Agriculture - Agricultural</i>						
16016	Stronsay, Blight of Doonatown	Enclosure	Period Unknown	362460	1023770	182728
<i>Religious, Ritual & Funerary</i>						
16023	Stronsay, Chapel of Houseby	Burial Ground, Chapel	Period Unknown	367280	1021760	3355
16040	Stronsay, Grice Ness, Cutter's Tuo	Chambered Cairn	Neolithic	367250	1028470	3297
16092	Stronsay, Mill Bay	Site	Period Unknown	366000	1028000	3301
16131	Stronsay, St Peter's Church and Burial-Ground	Burial Ground, Church	Medieval	365010	1028720	3311
16142	Stronsay, Ward of Houseby	Chambered Cairn, Midden	Period Unknown	367020	1021150	3353
<i>Defended Buildings, Castles, and Forts</i>						
16013	Stronsay, Benni Cuml	Broch, Midden, Settlement	Period Unknown	367150	1021420	3352
16037	Stronsay, Greenhill, North End	Broch	Iron Age	363220	1030080	3459
16068	Stronsay, Lamb Head	Broch	Iron Age	369040	1021460	3350
<i>Natural Features</i>						
16035	Stronsay, Grassy Castle	Natural Feature	Nil Antiquity	368470	1025000	3305
<i>Miscellaneous</i>						
16078	Stronsay, Lodge Farm	Burnt Mound	Prehistoric	364596	1024164	3388
16123	Stronsay, Sand of the Crook	Settlement	Period Unknown	366860	1021240	3367
16133	Stronsay, Stronsay Golf Club	Golf Course	Post-Medieval	363124	1024588	351317

Appendix 2. New sites visited on 2023 survey

SCAPE ID	Site name	Site type	Periods	Easting	Northing
<i>Maritime - Fishing</i>					
16198	Whitehall	Fishmart	Modern	365897	1028442
16199	Whitehall	Salt Store	Post-Medieval, Modern	365946	1028406
16208	Whitehall	Curing Yard	Modern	365950	1028416
<i>Maritime – Harbours & Landing Places</i>					
16180	Lodge	Naust?	Period Unknown	364660	1024073
16203	The Station	Slipway	Modern	366765	1028653
16206	The Station	Jetty, Cleared Slipway	Modern	366433	1028381
16210	Bight of Doonatown	Cleared slipway, natural slipway	Period Unknown	362625	1023504
<i>Maritime – Safety & Navigation</i>					
16191	Whitehall, Braes of Howar	Beacon Stance	Modern	365247	1028627
16201	The Station	Rocket apparatus, gun throwing site	Post-Medieval, Modern	366911	1028429
<i>Industry – Processes & Works</i>					
16209	Whitehall	Kelp Store	Post-Medieval	365933	1028472
<i>Industry - Extractive</i>					
16184	Linksness, Pier of Skerra	Quarry	Post-Medieval	362144	1029204
16188	Mervar	Tracks, quarries?	Period Unknown	363020	1022803
<i>Transport, Infrastructure & Engineering</i>					
16182	Sands of Rothiesholme, Bu Loch	Sluice	Post-Medieval	362715	1024244
16195	Whitehall	Pump	Modern	365788	1028397
<i>Settlement & Agriculture - Domestic</i>					
16192	Whitehall, Woods Curing Yard	Building, Wash House	Modern	365500	1028490
16194	Whitehall	Building	Modern	365624	1028392
16197	Whitehall	Customs House	Modern	365638	1028402
<i>Settlement & Agriculture - Agricultural</i>					

SCAPE ID	Site name	Site type	Periods	Easting	Northing
16181	Quoyollie, Bu Loch	Planticrub, Enclosure	Post-Medieval	362468	1024016
16187	Links Ness	Sheepfold, Building	Post-Medieval	361727	1029915
<i>Settlement & Agriculture - Boundaries</i>					
16190	Whitehall, Wheeldi Croos	Wall	Period Unknown	365141	1028708
<i>Miscellaneous</i>					
16178	Grobister	Coastal exposure	Prehistoric	364741	1023955
16183	Huip	Hearth? Cremation?	Period Unknown	363279	1030159
16186	Grobister, Fairhill	Findspot, Bog Iron Ore?	Nil Antiquity	365004	1023786
16193	Whitehall	Toilet, tidal	Post-Medieval	365510	1028486
16200	Housebay	Hearth?	Period Unknown	367320	1021578
16207	Sty Taing	Wall	Period Unknown	361489	1029585
16216	Sands of Rothiesholm, Mount Pleasant	Wall	Period Unknown	363729	1024756