



HISTORIC  
ENVIRONMENT  
SCOTLAND

ÀRAINNEACHD  
EACHDRAIDHEIL  
ALBA

Property in Care (PIC) ID:	PIC280
Designations:	Scheduled Monument (SM90054)
Taken into State care:	1885 (Guardianship); 1939 (Ownership)
Last Reviewed:	2018 (2025 update to include Empire connections)

## STATEMENT OF SIGNIFICANCE

# CALANAIS STANDING STONES



We continually revise our Statements of Significance, so they may vary in length, format and level of detail. While every effort is made to keep them up to date, they should not be considered a definitive or final assessment of our properties.



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# HISTORIC ENVIRONMENT SCOTLAND STATEMENT OF SIGNIFICANCE

## CALANAIS STANDING STONES

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# I. SUMMARY

## 1.1 Introduction

The Property in Care known as Calanais Standing Stones is situated on the ridge of a promontory extending into Loch Roag, beside the township of Calanais on the west side of Lewis, and 13 miles west of Stornoway.

It consists of a circle of large, erect stones enclosing a much larger central stone, with short projecting rows of similarly large stones on its South, West and East axes. Two, much longer, rows of large stones form an avenue running towards the North-East from the circle. There are 49 stones standing erect on site. The monument dates from around 2900BC and was constructed in several phases. It remained in use until around 1500BC. From around 1000BC it became buried in a build-up of peat until it began to re-emerge after 1000AD, finally being deliberately stripped of peat in 1857. Thereafter it was valued as a monument, being taken into State care in 1885. The site was scheduled as an Ancient Monument in 1882<sup>1</sup> and was re-scheduled to enclose a larger area in 2002.

Outwith this monument and beyond the in-care boundary are numerous other circles, stone alignments standing stones and other features which together make up an important archaeological landscape.

Beside the site is the Calanais Visitor Centre, operated independently by Urras nan Tursachan. The Calanais Trust are a Partnership Site Organisation. Historic Environment Scotland (HES) pay an annual fee and in return they check the site and provide visitor amenities (car parking, toilets, café, interpretation, etc.) at the nearby visitor centre.

The site is open all year, seven days a week, and attracts roughly 45,000 visitors per year.

## 1.2 Statement of Significance

Calanais Standing Stones is one of Scotland's most remarkable and impressive monuments. It ranks very highly across a number of heritage values for its archaeological importance, its aesthetic appeal and undoubted visual impact. Recent research has improved our understanding of the site, yet there is still much we do not know and, like many prehistoric sites, Calanais is likely to remain something of an enigma. Some key aspects of the significance of Calanais Standing Stones are:

- The in-care monument represents the largest, most complex and, probably, the central component within a very extensive, integrated

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<sup>1</sup> The site was scheduled (as the term was originally understood), being named on the Schedule to the Ancient Monuments Protection Act which was passed on 18 August 1882.

ritual landscape. Calanais and its satellite monuments represents a catalogue of standing stone architecture that express a complex, probably cosmological, belief system that dates back some 5000 years. Its early date and long period of use means it compares favourably with the most significant sites in Europe.

- The scale of the monument and its relationship to other sites demonstrate very clearly the degree of social organisation, creativity and engineering skill of prehistoric peoples. While we can never know their exact intentions, continued study allows each generation to develop and refine interpretations which often underline the sophistication of such monuments.
- Although classified as a Stone Circle, Calanais' almost unique ground plan and the other features associated with it (for example, the Central Monolith, the Cairn, Cnoc an Tursa, etc.) place it at the upper end of the spectrum of complexity within this monument type. While accepting that not all elements of the monument are perfectly preserved, it remains comparatively intact and complete, with very high potential to yield further evidence of its history, use and development through further archaeological study.
- The longevity of the monument is remarkable. This theme ties together both its 1000+ year use by prehistoric peoples and its history of preservation and celebration in the modern era. The ongoing public fascination with the site is evidenced by actual and virtual visitor traffic and the site remains a prime focus of academic research.
- The visual drama of the site and the contrast with its setting makes an immediate impact upon visitors. The image of the site, in various dramatic weather and lighting effects, is very well known, popular and provides an appealing icon for Scotland's archaeological sites.
- The monument has a long history of preservation and conservation. The archive of visual and documentary sources pertaining to the site form an important aspect of its significance, and one which requires further research.

The above bullet points set out the key aspects of the significance of Calanais Standing Stones. A fuller assessment of values is given below.

## 2. ASSESSMENT OF VALUES

### 2.1 Background

The understanding of the site expressed in this Statement is largely based on various recent archaeological studies; Appendix 1 summarises the

sources more fully. Principal among these studies is that published by P J Ashmore (Ashmore) in 2016, which provides the most comprehensive history of the site and results from excavations in the 1980s. Other key studies are C Richards' (Richards') study of Cnoc an Tursa, 2000; and the work of Margaret and Gerald Ponting and Ron Curtis (Ponting, Ponting and Curtis) examining the relationship of Calanais 1 to the wider landscape and to archaeoastronomy.

### Description of the site and its geographical context

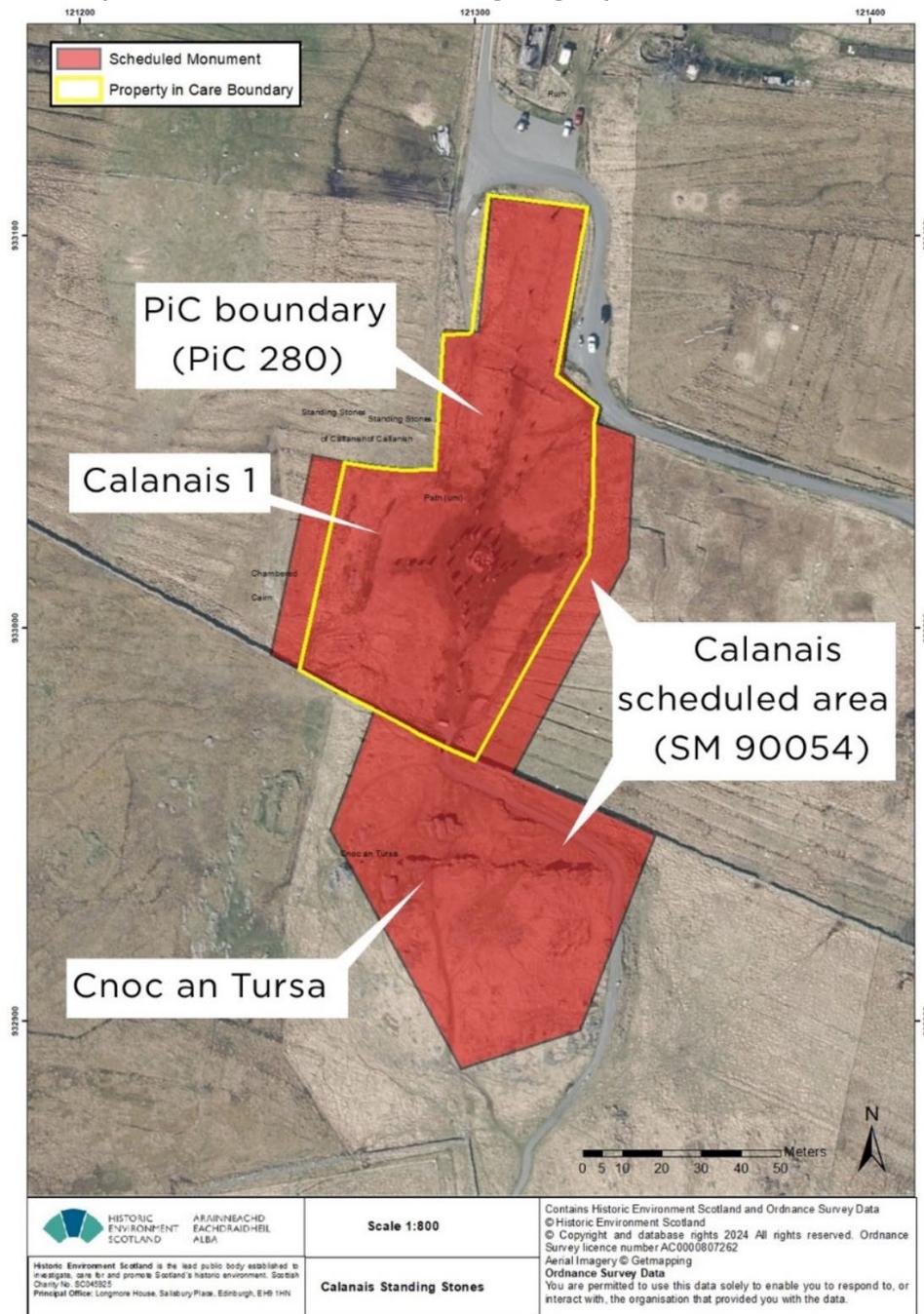


Figure 1: Scheduled area and Property in Care boundary of Calanais Standing Stones as well as Cnoc an Tursa which is not part of the Property in Care. For illustrative purposes only.

This document focusses upon that part of the Calanais landscape which is in State care. It also includes discussion of the wider landscape as this relationship is important to the developing understanding of the site and therefore its significance. As these areas and boundaries overlap, in an attempt to avoid confusion the following terms are applied:

- *Calanais 1* denotes specifically the area in care
- *Calanais Scheduled Area* is used to indicate the scheduled area that encompasses Calanais 1 but extends beyond the area in-care
- *Calanais wider landscape* is used to indicate the wider prehistoric landscape the boundary of which is not defined and is understood as relating to Calanais1 visually and conceptually

Calanais 1 covers an area of 0.6 hectares (ha.) all of which is Scheduled; viewed from above the monument's groundplan is roughly that of a ring-cross. A long avenue of 19 standing stones terminates in a circle of 13 standing stones, from which extend on either side a cross row of four stones and beyond it a shorter avenue of six stones. Within the circle is the massive Central Monolith and a small chambered tomb lying to one side. In the South-West part of the site are the foundations of a 19th-century house and a corn-drying kiln. A 19th-century track crosses the area and there are remains of agricultural 'lazy beds'.

Beyond the southern boundary of Calanais 1, but within the foot-print of the Scheduled Monument (SM90054), there is a substantial, archaeologically significant, bedrock outcrop, known as Cnoc an Tursa. This should be seen as integral to the monument because there is credible archaeological evidence for religious or ritual practices enacted on and around the outcrop that were contemporary to those enacted in and around the stones. Close by, but beyond the scheduled area lie other sites (for example, probable quarries for the erect stones) and there is a high probability for remains to be uncovered wherever the ground surface is penetrated.

Calanais 1 is well-placed, on a low ridge enclosed by low hills to the North-East, East and South-East, it is a prominent sky-line feature visible from almost every vantage point in the area. At least 11 stone circles, possible circles or groups of stones, as well as many single standing stones, exist within a few miles of Calanais 1 and are mostly visible from the monument. While this wider landscape remains to be fully researched, it seems likely that Calanais 1 and the many surrounding prehistoric monuments were constructed, perceived and used as constituent parts of a single continuous ritual arena. There is however no precise boundary for the "Calanais wider landscape" defined in this document as the current state of knowledge does not allow this.

## Chronological overview

The main phases of development at Calanais 1 are outlined below:

Approximate date	Event
6500 BC - 3500 BC	Evidence for occasional woodland clearances, presumed to be associated with hunter-gatherers activity in the vicinity
3500 BC	Cereal cultivation appears along with circumstantial evidence for tillage and these are assumed to be associated settled farming communities in the area. Sherds of Neolithic pottery found on site
After 3000BC	A sequence of poorly preserved circular structures were built just to the east of position later occupied by the Circle and it is likely that the <b>Central Monolith</b> was erected
After 2900 BC	The <b>Circle</b> , the <b>Avenue</b> and the <b>Rows</b> were erected; it remains to be established whether these represent a single phase or separate, successive phases of construction.
2900 BC - 2400BC	Slight archaeological traces indicate the construction and use of insubstantial (temporary?) buildings within and around the Circle. Discoveries of "Grooved Ware" pottery on site is taken to indicate links to people along the Atlantic seaboard
2500 BC	Within the above sequence of building, the chambered <b>Cairn</b> is built
Around 2500BC	<b>Stone 30</b> in the <b>East Row</b> (and closest to the Circle) is erected. It is not yet possible to determine whether Stone 30 is the first stone of the East Row to be erected
2500 - 1500BC	Traces of insubstantial buildings or enclosures, of human cremations, and some artefacts are interpreted as the continued ritual use of the Circle throughout this long period
After 1500BC	Traces of cultivation become the only signal for human activity within the vicinity. It is assumed ritual use of the site ceases after this time.
About 1000BC	Peat is starting to accumulate, but it is clear that cultivation continues in the vicinity of the site to at least AD 500

AD 500 - AD 1500	No traces of human activity have been detected within the vicinity of the site and it seems likely that this was when the peat achieved its maximum depth; up to 1m above the level of the stones.
15th and 16th century AD	First description of the site by Ian mac Mhurch'c Ailean c 1686 (known in English as "John Morison of Brager) and the first schematic plan published by Martin Martin in 1703; indicates that much of the monument was visible above the peat by this time.
AD 1857	Sir James Matheson orders systematic removal of peat from around the monument. Small scale repairs undertaken including repair and rebuilding parts of the cairn, removal of loose stones; importation of soil to turf the area.
AD 1882	Calanais 1 is scheduled (as the term was originally understood), being named on the Schedule to the Ancient Monuments Protection Act which was passed on 18 August 1882. The site was officially taken into State care in 1885. Further small scale repairs undertaken.
AD 1939	The site was disposed by Carloway Estates Limited to the Commissioners of His Majesty's Works and Public Buildings in 1939 and, therefore, came into Scottish Ministers ownership. Scottish Ministers purchased an additional area of ground in 1983 to ensure that a further stone was taken in ownership.
Late 20th century AD	Major archaeological investigations (see Appendix 1 for more detail) and research undertaken
AD 1995	A local community trust Urras nan Tursachan (the standing stones trust) opens a new visitor centre south outwith the Property in Care boundary.

## 2.2 Evidential values

The scale and complexity of Calanais 1 means that it has long been the subject of scholarly study and it is clear from the 1979-88 archaeological project that there is still more to be learned about the site which may lead us to a better understanding of its nature. The importance of Calanais 1 as an evidential resource can be summarised as:

- The completeness and integrity of the site

- The value of the cumulative research and observation made regarding the site
- The growing understanding of its relationship to its wider landscape setting including the potential links to archaeoastronomy
- The very high potential for further evidence to be uncovered by ongoing research (particularly as techniques improve) to refine understanding
- The contribution such understanding could make to understanding other prehistoric sites in Scotland and Europe

### **Completeness and integrity**

It is generally accepted that the surviving ritual architecture was erected circa 2900 BC and functioned until circa 1500BC. Although gaps exist in the Avenues that may represent now lost standing stones, the general absence of evidence for deliberate damage is remarkable and is not wholly explained by the protection afforded by the later accumulation of deep peat. Subsequent peat retreat/removal fully revealed the site by 1857.

The original total number of stones erected is not known but one estimate places the number at 80; this is based on various surveys and on gaps between extant stones.. However, the 1979 – 88 excavations only confirmed the existence one empty stone socket and revealed the collapsed stone (Stone 33a) from that socket. Thus the actual number of stones that comprise the monument remains a matter for conjecture.

Currently a total of 49 stones stand erect on site and there has not been widespread re-construction/re-erection of these as part of the conservation process.<sup>2</sup> Calanais 1 was scheduled in 1882<sup>3</sup> and taken into care in 1885;<sup>4</sup> therefore there has been a greater measure of recording<sup>5</sup> of the condition of the site and interventions to it than for most other sites. There is also a relatively good record of the site by way of early descriptions and illustrations.

An indication of the archaeological richness of the site is given by the 1979-88 excavations which investigated approximately 4% of the footprint of the Calanais 1.

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<sup>2</sup> Note parts of the cairn were reconstructed shortly after peat-removal in 1857 and again as part of the 1980 excavation project. See appendix 3

<sup>3</sup> The site was scheduled (as the term was originally understood), being named on the Schedule to the Ancient Monuments Protection Act which was passed on 18 August 1882.

<sup>4</sup> The monument came into Care through a Deed of Appointment from Dame Mary Jane Matheson to the Commissioners of Her Majesty's Works and Public Buildings.

<sup>5</sup> That is not to say recording of interventions has at all times been exemplary. There is still much work to be done to establish the extent of earlier repairs and actions at Calanais 1, for instance some stones have cement patching which seems not to have been recorded.

These produced approximately 3 kg of prehistoric pottery, some later medieval and post-medieval pottery and glass.

The only other prehistoric artefact type recovered during these excavations was a relatively small assemblage of worked stone tools (74% quartz, 14% flint and 11% mylonite).

Almost all of the artefacts were found within or close to the Circle, especially around the entrance to the cairn's chamber.

Almost all of the pottery dated to either the middle and later Neolithic or the early Bronze Age; most was almost certainly made in the area but many pieces displayed styles that were then current throughout Scotland, especially northern Scotland. This is taken as evidence for actual contact and close cultural affinities between the builder society at Calanais and societies in the northern Isles, especially Orkney.

The prehistoric pottery assemblage is remarkable because almost every one of the 1100 sherds of prehistoric pottery represented an individual pot. Most sherds were abraded and small. For such a small excavation to produce so many sherds and representing so many pots is highly significant.

As well as a place of ritual or religious observance, the circle and/or the Cairn may also have been a place of human burial. Cremated bone was found within the Cairn's chamber in 1857. Scatters of burnt bone were found within the Circle in Ashmore's excavations, however these samples were not scientifically identifiable or datable by the technology available in 1980s. Further scientific examination may be possible as techniques improve, see appendix 6.

Other small excavations within and outwith the area of the Scheduled Monument have added significantly to our understanding. There is, as yet, no definitive published data on the finds recovered from the excavations around Cnoc an Tursa in the early 1990s, so there is potential for access to significant evidence in the future.

In terms of the preservation of evidence within Calanais 1, while blanket peat had some positive benefits for the upstanding elements, the associated acidic conditions have caused a visible bleaching of the surface of the lower portions of most of stones. The removal of the peat and the subsequent pressure of visitors and the management of those visitors, over the last 120 years, will have changed the conditions of the soils (through compaction and drainage improvement) and thus may have had a profound impact on the future analysis of the remaining archaeological sediments.

### **Relationship to wider landscape and archaeoastronomy**

As stated throughout this document, Calanais 1 is increasingly understood as one part, probably the central part, of a much wider archaeological

landscape. Therefore applying concepts such as completeness and integrity to this site is complicated. We do not know where the “boundaries” of Calanais 1 lie in terms of how the people who built and used it (over its active life) understood this concept. Within its natural landscape, sea level change (on-going since the end of the last ice age) will have altered the appearance and place of the coastline and will thus have changed the nature of the ritual landscape as we perceive it today.

There is a growing body of evidence that sites such as Calanais 1 were associated with or designed with astronomical observation in mind. The report on the 1980-1 excavations places a heavy emphasis on understanding the evidence for the possibilities of the use of the site as a place from which observation and recording (and thus prediction) of stellar, lunar and solar events. Coupled to the evidence gathered over many decades by Margaret Ponting and Gerald Ponting and Margaret Curtiss and Ron Curtis, the balance of evidence is very much in support of such a hypothesis. What remains uncertain, and largely unknown, is who made these observations and why.

### **Ongoing and cumulative research potential**

The 1980-81 excavations focussed primarily on establishing the date and sequence of architectural elements within the monument and to test for surviving but buried elements of that sequence. The works established a 6000 year history of site use; it dated the ritual architecture from approximately 2900 BC to 1500 BC and it obtained good evidence for the sequence of major elements of the architectural development of the monument. It also re-located one fallen stone.

Subsequent archaeological work has presented credible evidence for the quarrying of the erected stones within a few hundred meters of the monument and a credible hypothesis that Cnoc an Tursa was a key, albeit natural, element within the ritual architecture of the site. Richards draws attention to the mouth-like fissure in this outcrop upon which the South Row aligns and suggests that it served this ritual space much in the manner of the entrance to a chambered tomb. These two, as yet untested, interpretations serve to remind us that the true extent and nature of the monument has yet to be determined.

There is significant potential for further study of the site, environs and re-assessment of finds to improve understanding. Based on the relatively small physical area of excavation thus far, the potential to add to knowledge remains substantial and highlights the need for very sensitive site management. Solar, lunar and stellar observations and sightings suggest that the ritual landscape associated with the monument extends out widely over many kilometres.

There is potential to build up a better picture of the history and changes to the site over the last two hundred years by re-assessing information from known archival sources such as the lists of early surveys, drawings and

photographs compiled by Ashmore and Ponting. Other archives, such as photographic collections, (for example the 19th century Valentine photographic collection in the University of Aberdeen special collections) still hold some potential for lines of enquiry that would build on Ashmore's work. Further evidence may be contained within old Ministry of Works files.

Recent publications, such as Richards 2013 and Ashmore 2016, show that the origins and design of Calanais 1 cannot be discussed without reference to similar, broadly contemporary monuments in other parts of Scotland, especially Orkney. And although differences exist (for example, the presence of preceding wooden circles at some sites or the locations of quarries for stone) any intervention at Calanais 1 should be seen as having the potential to enhance our understanding of sites further afield.

### **2.3 Historical values**

The historical values of Calanais 1 settle primarily upon its ability to illustrate past ways of life, particularly:

- The evidence it represents for this prehistoric society's ability to conceive, design, execute and develop such an impressive site (and network of sites).
- The importance of the ritual/religious practices which we assume led to the creation of Calanais 1 and its related sites.
- The longevity and phases of development of the site, spanning more than a millennium, are key to the above values.
- The scale, drama and unique atmosphere of the place are powerful immediate experiences for the viewer (both on site and virtually) and research unlocks some, but by no means all, of the meanings of the site.
- A subsidiary historical value is the site's association with some key figures in the archaeology world and the long history of state preservation.

#### **Historical illustrative values**

Calanais 1 shows us a society (or an elite) willing to commit significant resources to this site over many generations. Proving that this interest was religious - however that behaviour is defined - is extremely difficult, but the site does seem to address human needs that were well beyond subsistence. It is reasonable, given the layout of the site, to argue that behind the design lay complex intellectual concepts which again point to concerns which went far beyond day-to-day survival.

From design and layout, through the procurement of the stones to their erection and subsequent maintenance and elaboration, stone circles

demonstrate the presence of proficient architectural, engineering and project management skills. Stone circles represent some of the earliest and most durable examples of these practices in the British Isles, and Calanais 1 is a prime Scottish example.

Research published in 2016, based on survey and statistical analysis, has suggested that Calanais was one of two fore-runner sites (the other being the Stones of Stenness Circle and Henge) for all other standing stone monuments in Britain and marks the launch-point for a ritual practice, based on cosmological observation, that lasted for almost two millennia (Higgingbottom and Clay 2016). While this interpretation has yet to be critically debated – and is controversial – it nonetheless adds to the historical value of the monument.

Ashmore demonstrated that the cairn was built against the upright monolith. He also demonstrated that all of the pottery from the area dated to about 2500 BC or later (that is much later than the Ring). And, although he was unable to recover samples that would provide unambiguous radiocarbon dates, there is no evidence that might suggest this cairn was built earlier than approximately 2500 BC. It seems, therefore, to represent a re-use of the monument some 500 years after the stones were originally erected.

The purpose of the cairn has been assumed to be for human burial but Ashmore was unable to confirm this function, instead the excavation of the cairn in 1980-81 showed that much of the exterior had suffered from disturbance and rebuilding in the 19th century. Scatters of highly fragmented, burnt human bone were found in the vicinity (the soils are too acidic to allow unburnt bone to survive) so burial may have been the one or the main activity within this structure. Ashmore also identified that the cairn went through several phases of neglect and reconstruction, with a final repair occurring at around 1500 BC. He also detected the slight remains of insubstantial, timber and earthen structures that preceded and succeeded the cairn construction. These observations remain very important as the exterior of an Early Bronze Age cairn is still very rarely examined.

In a recent lecture,<sup>6</sup> Alison Sheridan has remarked on the position of the cairn within the monument. Approaching the Circle from the north through the Avenue, she noted that the rows of standing stones seem to converge upon the cairn. It is possible that function - especially within the context of ritual performance - of the whole monument was shifted in the Bronze Age. If so then the term “chambered cairn” is not helpful as it implies some continuation of the traditions of the large megalithic chambered tombs of the Neolithic with practices involving multiple burials. The retention of the skeletal remains of some selected dead within the domestic lives of the community in the early Bronze Age and of long, multi-generational use of

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<sup>6</sup> At the Uist Archeology Conference in August 2017.

those remains in that community's ritual life is being recognised at many sites in Scotland, especially in the Western Isles (for example, Cladh Hallan in South Uist and Cnip in Lewis).

The period of use for Calanais 1 extends over a millennium which underlines the importance of the site for ongoing ritual practices. Despite the apparent- but not proven – loss of some standing stones, the retention of so many stones as erect strongly suggests that the monument did not suffer the kind of systematic damage visible, for example, at the nearby Na Dromenan (Calanais X) stone circle. This seeming absence of any evidence of use or destruction after the site was abandoned for peat sometime after 1000 BC is also highly significant. Even though the site was no longer the focus of activities, the absence of evidence for damage indicates a continuing reverence, tolerance or fear, for what the monument represented.

### **Historical associative values**

The monument documents almost the entire history of private and state intervention to preserve, protect and present ancient monuments in Scotland: the documented history spans some 400 years. Information in private and state archives including private and publicly held archives, associated government files, documents, images, correspondence and research can all shed light on the history of curatorial practice in Scotland. On this aspect alone, there is a considerable need for research that will inform future decision making and practice.

### **British Empire connections**

Recent research into the relationships between the Properties in Care of Scottish Ministers and the British Empire<sup>7</sup> has highlighted that Calanais Standing Stones have 'cultural' empire connections.<sup>8</sup>

The Humberston Mackenzies acquired the Seaforth estate in 1780, purchasing it from a cousin. The estate was heavily in debt in the 1780s and was ultimately kept afloat by the East India Company settling Thomas Fredrick's (d.1783) Indian estate for £23,000 in 1789. His brother Francis (from 1797 Lord Seaforth) had inherited the estate and invested in local infrastructure. However, he does not appear to have taken much direct interest in the monuments on the island. Although he had Empire connections through estates in the Caribbean and South America, where

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<sup>7</sup> Full report can be downloaded from HES website: [Surveying and Analysing Connections between Properties in Care and the British Empire, c. 1600-1997 \(historicenvironment.scot\)](#)

<sup>8</sup> 'Cultural' connection describes a connection that denotes the ways in which an empire influence, often in the form of wealth and associated prestige, enabled owners or those acting on their behalf, either through action or inaction, to shape the condition, fabric or representation of a PIC. See Mullen *et al* 2024, 30-31 for a full definition of typology.

he owned enslaved people, the wealth from this does not appear to have been invested directly in ancient monuments in any way.<sup>9</sup>

Sir James Nicolas Sutherland Matheson, 1st Baronet (1796–1878) purchased Lewis in 1844. He had made money through a lucrative career in India, the China trades and Hong Kong. In 1832 he co-founded Jardine, Matheson and Company which became a leading company in the opium trade. Unlike his predecessors, the Mackenzies, Matheson carried out significant tenant Clearances from the Lewis estates and spent considerable sums on ‘improvements’, including the development of roads. These were funded by empire-derived wealth.<sup>10</sup>

This wealth also directly facilitated excavations and investigations at Calanais in the 1840s and 1850s, linking its preservation and antiquarian knowledge production directly to Empire. Imperial wealth and status helped to advance knowledge and enabled Matheson to become a published antiquarian. Matheson and his wife helped establish Calanais as a site of special interest and in 1882, Dame Mary Jane, his widow, nominated Calanais to be taken into state care, ensuring its continued preservation.<sup>11</sup>

### **Links to myth or folklore**

With the exception of the often quoted origin myth (that the stones represent petrified giants, Na Fir Bhrèige) the site is not well-represented within historic or contemporary folklore. There are a handful of local anecdotes relating to the perceived supernatural qualities of the site historically, but overall there are few tales considering the scale and antiquity of the site.

Many stone circles are associated with traditions relating to pre-Christian religions and many of these traditions indicate an origin and function for such monuments within Iron Age society. These histories thus represent traditions that post-date, by millennia, the actual date of construction and thus can only be interpreted as reflecting a cultural milieu far distant in time from that original construction.

## **2.4 Architectural and artistic values: formal/design values**

### **Introduction to stone circles**

Stone circles comprise a true or slightly irregular circle of erect tall stones, set earthfast in sockets or settings. Most monumental circular monuments in Britain were erected between about 3000 BC and about 2000 BC. There are often single outlier stones, set some distance from the circle and sometimes single larger stones or groups of stones within the circle. There is limited but reliable evidence that some stone circles are located where a

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<sup>9</sup> Mullen *et al* 2024, 56-57.

<sup>10</sup> Mullen *et al* 2024, 57.

<sup>11</sup> Mullen *et al* 2024, 58.

circle of, often massive, wooden posts previously stood. The Ashmore excavations did not provide any evidence for a wooden post precursor monument to the Circle at Calanais 1.

Most stone circles are now incomplete. There is good evidence for stones falling not long after erection and also for many stones in many circles being toppled, defaced, broken and removed within the Christian era. This process seems to have intensified in the course of agricultural improvement in the 18th and 19th centuries AD.

The original purpose and later developments of these monuments will probably always be subject to speculation, but generally some ritual/religious function is ascribed. There is also strongly held belief amongst many archaeologists and others, with some supportive evidence, that the design of stone circles was influenced by an observation-based, and possibly mathematical, knowledge of the contemporary geography of stars and the cycle of Sun and Moon movements.<sup>12</sup> There are certainly many coincidental alignments - of stones, of landscape features with solar, lunar or stellar events.<sup>13</sup> However, there is, as yet, no means of objectively testing whether these apparent links were in any way an influence on the design or erection of the circles.

### **Calanais 1**

The 1980-81 excavations demonstrated that Calanais 1 developed over a period of perhaps 1500 years. It was built within a landscape with an existing long tradition of agriculture. As summarized in 2.1 Chronological Overview, the current understanding is that the monument began at around 3000BC with the erection of the central monolith, followed by the circle and then the cairn and avenues, all probably complete by around 2500 BC. While not the oldest in Britain, it is one of the earliest (Stenness before 3000BC and the Stonehenge circle of Sarsen stones at approximately 2500 BC).

We do not, of course, know if key elements such as the central monolith, circle and avenues were conceived of as an entity from the outset, or if the monument evolved more organically in response to changing ideas and requirements. Additionally several other less substantial structures and features were erected during and after the main period of construction at Calanais 1 until approx. 1500 BC.

Probably the nearest comparanda in terms of date and type to Calanais 1 are the Stones of Stenness, Orkney, and Machrie Moor, Arran but these lack

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<sup>12</sup> See: Ruggles, C. 1997 "Astronomy and Stonehenge", Proc. British Academy, 92, 203-220. Ruggles C 2017 Heritage Sites of Astronomy and Archaeoastronomy in the context of UNESCO World Heritage Council, Thematic Study, No 2, ICOMOS e-book, ICOMOS-IAU;

<sup>13</sup> Ponting, G and Ponting, M 1977 The Standing Stones of Callanish, Isle of Lewis: self-published.

the cruciform layout of Rows and Avenue and the insertion of the much later Cairn.

### **Groundplan**

The extraordinary ground plan of the Circle, Rows and Avenue, and the other features associated with it (for example, the Central Monolith, the Cairn, Cnoc an Tursa, and so on) place it at the upper end of the spectrum of complexity within this monument type.

However, despite appearances of regularity, the detailed ground plan at Calanais 1, as at many similar monuments, reveals a considerable degree of irregularity. The Stone Circle is not circular, the central monolith is not exactly central. While the South, West and East rows are laid out virtually on their respective correct cardinal alignment, the Avenue rows are neither parallel nor are they aligned on North, and instead point to the North-North-East. This irregularity is not understood but this serves to emphasise just how much unreleased knowledge is entangled within the monument and is yet to be understood. This “locked-in” information presents challenges for conservation works on the monument as it is susceptible to unbidden change with unclear consequences for future research.

### **Individual stones**

All the stones are of local Lewisian Gneiss and some research has been done on possible quarry sites (discussed below). The massive central monolith stands to a height of 4.8m (with possibly over 1 m below ground level) and is estimated to weigh 4.5 tonnes. The heights above ground and estimates of the weight of each of the other stones was not investigated for this analysis. In 1982, Stone 33a was set back into Feature 211, which Ashmore probably correctly identified as the original socket. Ashmore does not provide measurements for the stone but does say that he could move it; it was probably about 1.5 m long. The socket was formed by a shallow depression in the subsoil (perhaps no more than 300mm deep). The topsoil measured about 300mm deep. If this latter dimension in any way matches the original soil depth then it is possible to argue that the stones within the East Row were set in relatively deep sockets. In the case of Stone 33A, the socket was packed with large angular stones.

Many of the 49 erect stones have a tapered, or shouldered profile. On others, the uppermost edge is formed by a clean diagonal break. It is not certain whether these shapes represent a desired and designed outline or are an accident of their original discovery or quarrying. They display a very heterogeneous lithology; their surfaces are highly and beautifully varied with pleasing (at least to the modern eye) swirls amidst a contorted, glinting rock surface. It is not known whether these traits were preferentially sought or even noticed by the original designers and builders. To the modern eye (again) these variations give a strong sense of personality to individual stones and a sense of heterogeneity to the

ensemble. It is easy to see how this individuality could link to the local tradition that the erect stones are the petrified remains of giants.

### **Possible quarry sites**

Richards' excavations on and around the outcrop of Cnoc an Tursa - located south of the South Row - suggest that this natural feature may have been an integral element of the design of the Stone Circle and may have been the ritual focus of the whole monument. Fieldwork in 2005, identified several possible source outcrops for some of the stones, one 350 m to the west. It is not impossible that many places in the immediate vicinity provided standing stones and such quarry sites may have been imbued with as much ritual significance as the stone circle.

Taken as a whole, the sheer scale and grandeur of Calanais 1 in its "final" complex form is an outstanding achievement in design terms and the prolonged effort and commitment to this place required to see it to conclusion ranks alongside the effort necessary to create the great cathedrals of Europe. Added to this is the wider landscape of other contemporary monuments; these serve to heighten the complexity and importance of Calanais 1, especially if we assume it to be a/the conceptual and physical focus of a group of sites in a wider ritual/cultural landscape.

The two nearest and best-preserved of the other stone circles in the area (Cnoc A' Gharraidh and Cnoc Fillibhir, Calanais 2 and 3, have greater diameters than the Circle at Calanais 1 but neither is as complex, as complete and neither occupies such a dramatic setting as Calanais 1. None of the other stone circles in the vicinity survive to the same degree as Calanais 1, 2 or 3 and none occupies such a physically commanding location as Calanais 1.

## **2.5 Landscape and aesthetic values**

### **Historic setting and aesthetic**

(See also section 2.3 and 2.4 of this document.) As already stated, in its prehistoric context Calanais 1 is understood to have related to a much wider landscape of sites and natural features which are likely to have held great meaning for the people of those times. The placing of Calanais 1 upon its lochside ridge, albeit with a sea level different from today's, was doubtless deeply considered and designed to achieve a considerable visual impact - whether seen at night or day or whether winter or summer - upon the visitor.

Eleven other stone circles lie within a 10 km radius of Calanais and there are numerous single standing stones. These, along with natural landscape features, are likely to have been understood in association with Calanais 1; it is reasonable therefore that our understanding of its cultural significance

should extend out at least to the limits of the land and sea which is visible from the Circle.

### **Present day aesthetic**

The form, layout and landscape setting of Calanais 1 and the form and character of the individual stones combine to create a monument that is visually exciting and memorable to most visitors. These characteristics also appeal beyond barriers of geography and language creating an international interest in the monument and the area and are shared with those who “experience” the site virtually through various media. Although no ethnographic research has been analysed in the preparation of this statement, it is clear from on-site visitor behaviour and on-line imagery and comments that the site enthralled a wide section of the population.

The stark, almost glacial, landscape of hardy grasses and polished, sparkling Gneiss outcropping domes and placid sea inlets provide a backdrop to the monument that seems - despite modern houses, communication wires, and tarmac surfaces - almost untouched by human hands since the erection of the stones. This sense of being an ancient and rugged land is echoed in the geology of the stones themselves and in the vast skies and cloudscapes against which so many photographic images of Calanais 1 are reproduced. The effects of weather, sunlight and moonlight all add to the particular and celebrated atmosphere of the place.

For some visitors, there must be the possibility that the most recent developments around the monument (for example, the fence lines, the signage, the modern road and the visitor centre) do not enhance their aesthetic experience of the site, however much the services on offer ease the practicality of the actual visit.

## **2.6 Natural heritage values**

### **Natural landform**

The low North-South ridge, with the Circle, Avenue and Rows straddling its southern flank, provides fine views in all directions and by return view, from any vantage point. This lends to the Stone Circle a sense of centrality within a vast land- and skyscape which is certainly integral to our modern perception of the monument, and probably even more so to its prehistoric builders.

### **Important habitats or species**

This aspect of the monument has not yet been fully assessed. There are otters in the vicinity.

## 2.7 Contemporary/use values

Calanais 1 is a truly iconic monument. It is exceptionally photogenic and the widespread reproduction of its image makes it particularly well-recognised and well-loved. It has many values and importances to people today though this aspect of its significance has not been systematically analysed. Until a more systematic analysis is possible, some of its more obvious contemporary values include:

- Profile and identity
- Inspiration and spirituality
- Visitor attraction and economic contribution
- Research and Educational resource

### Profile and identity

Images and mention of the standing stones feature in many places within the Comhairle nan Eilean Siar's and Visit Scotland's websites to advertise, for instance, commercial film-making opportunities. Similarly, Calanais 1 features in the advertising texts and images employed by Caledonian MacBrayne Ferries and Logan Air to promote travel to the Western Isles.

To judge from the on-line profile of the monument, Calanais 1 holds a very high level of interest among the professional and non-professional archaeological world. There is an avid interest in the site amongst people for whom Calanais 1 offers an aspirational location for viewing the night sky at different seasons, the solstice sun rises and settings and other stellar events.

### Inspiration and spirituality

While many online groups celebrate and discuss this place (for example, re the midwinter solstice) people do gather on site to observe, to celebrate and to participate in various performances. Such gatherings are of immense significance to these participants and some of the values evoked include spiritual, inspirational and emotional connectedness.

The landscape, the experience it gives of "deep time", the connection to very distant generations and the majesty of the monument itself evoke feelings of spirituality, awe and wonder in many visitors.

As well as the already mentioned solstice celebrations, many artists and writers have been inspired by the monument and its landscape. That said, the monument has not featured in any great work of art, however defined, but it does appear in countless painted and photographic images created by visitors to the monument. On-line there are numerous images, many with accompanying texts (of fact and fantasy) and these attest to a vibrant inspirational presence amongst many people, especially outwith the professional archaeological or conservation communities.

In 2012, the fantasy, computer-animation film *Brave* was released by Disney Pixar Pictures. Set in the Scottish Highlands, the film uses the Calanais Stones as the setting for one of the key scenes. The producer for *Brave*, Katherine Sarafian said the monument was “a very powerful setting for the kind of things we want to have happen in the story”.

### **Tourist draw and economic generator**

Calanais 1 is an undoubted tourist draw and the site attracts around 45,000 visits annually. Its impact on the local economy has not been assessed, but its contribution must be substantial.

The research values of Calanais are discussed at 2.2 above.

## **3. MAJOR GAPS IN UNDERSTANDING**

Currently we lack knowledge on the following:

- we do not yet know the precise date of erection of each component of the monument;
- consequently, we do not know whether the monument arose from a single or an evolving design over time;
- consequently, also, we do not yet know the relationship of Calanais to the other erected stone monuments in the area;
- we do not yet know the extent to which Ashmore’s 4% sample of the Property in Care would be replicated within whole Property area;
- we cannot yet be certain that Cnoc an Tursa was, as Edinburgh University’s project seems to suggest, an integral part of the monument;
- while we have to assume that the monument is much greater in extent than the Property in Care boundary, based on the Edinburgh results and Richards’ identifications of possible quarry sites for the erect stones, we do not yet know the actual extent of the monument;
- we do not yet know whether the soil analyses conducted by Ashmore’s team fully describe the extent of information contained by the archaeological sediments within and around the monument (in other words, would modern soil science tell us more);
- as a consequence we know almost nothing about the potential for the site to retain information about the practices and behaviours of the Stone Circle builders and users;
- we know little about the processes by which the monument went out of use and when it went out of use;

- and we know little about the intimately related questions of the date for and processes of the onset of peat formation over the site;
- as a consequence, we know very little about the nature and extent of positive and negative impacts arising from the visitor footprint and from the, related, site management.

## 4. ASSOCIATED PROPERTIES

*Other locally related sites:* – Cnoc Ceann a’ Ghàrraidh (stone ring with cairn - Calanais II); Cnoc Fhillibhir Bheag (stone ring – Calanais II); Ceann Thulabhaig (stone ring with cairn – Calanais III); Airigh nam Bidearan (standing stones); Cùl a’ Chleit (standing stones); Leitir (standing stones); Druim nam Bidearan (stones); Na Dromannan (stone circle?); Airigh na Beinne Bige (standing stone); Stonefield (standing stone), and, further north, **Steinacleit** (prehistoric enclosure).

Eleven other standing stones or stone circles are Properties in Care. While these will differ from Calanais 1 in date and design they should be regarded as components of the same cultural milieu and each expresses variant forms of a common ritual identity:

**Torhouse Stone Circle; Easter Aquhorthies Stone Circle; Tomnaverie Stone Circle; Cullerlie Stone Circle; Lagganarn Standing Stones; Loanhead Stone Circle; Drumtroddan Standing Stones; Machrie Moor Standing Stones; Ring of Brodgar Stone Circle and Henge; Stones of Stenness Circle and Henge; Kilmartin Glen, Temple Wood Stone Circle**

## 5. KEYWORDS

Stone circle; chambered tomb/cairn; stone settings; stone avenue; Neolithic; Bronze Age; ritual; burial; astronomical significance; radiocarbon dating

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## APPENDICES

### APPENDIX I: BASIS OF UNDERSTANDING AND SUMMARY OF ARCHAEOLOGICAL RESEARCH

#### Overview of research

Almost all the publicly available information on Calanais is accessible via *Calanais Survey and Excavation 1979-88* PJ Ashmore's exhaustive and authoritative account of his 1980-81 excavations finally published in 2016. This well-illustrated report details all earlier research and is available on the HES website: [Calanais Survey and Excavation, 1979-88 \(historicenvironment.scot\)](https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=e192ea9f-0d7e-4745-b499-b0fb010a167a)

Complementary to Ashmore's report is the Prof Colin Richard's Great Stone Circle Project which takes inspiration from the identification of quarries for standing stones. In the context of Calanais, Prof. Richards provides new insights into the cultural milieu of the stone circle builders and users.

Two important pieces of research still await publication. Since the mid-1970s Margaret and Gerald Ponting and then Margaret and her second husband, Ron Curtis accumulated a vast archive of observations of the landscape around Calanais and the solar, lunar and stellar settings of stone circles and standing stones in and around Calanais. To judge from their numerous interim publications much of the Ponting's and Curtis' interpretations will remain very difficult to test but their deep insights into this landscape represent a very valuable body of knowledge. This archive represents a huge future task of analysis, criticism and interpretation and

without that process our understanding of Calanais 1 its landscape setting will remain impoverished.

The other unpublished corpus comes from the work of the Edinburgh University excavations of the early 1990s which hold the potential to examine the ritual extent of the monument and also to reveal the nature and extent of contemporary settlement and land-use.

### List of key studies

Date	Event
1846	Danish archaeologist, J.J.A. Worsaae, on a commission from the King of Denmark opened at least two holes or trenches on the eastern side of the Circle; the precise locations are now unknown
1857	(but not reported until 1880s) - human cremated bone found in the chamber of the central cairn when the peat was cut away
1974	Edinburgh University team undertook a measured topographic survey of the monument and of the wider landscape
1978	Glasgow University team undertook a full geophysical survey (resistivity) of the monument
1980 - 81	Patrick Ashmore of Historic Scotland led a multi-disciplinary team excavating 5 areas in around the Circle, the avenue and the South Row.
1988	GUARD (the fieldwork division within Glasgow University's Archaeology Department) undertook small scale work in advance of maintenance work by HS
1993 - 1995	CFA Archaeology (then part of Edinburgh University's Archaeology Department) undertook excavations on and around Cnoc an Tursa
2000	Prof Colin Richards, of Manchester University, excavated two trenches on possible quarry sites close to Cnoc an Tursa.
2016	the report of the 1980-81 excavations, written by P.J. Ashmore, published on-line by HES

## Limits to current understanding

Despite great care in excavation, on-site recording and post-excavation analysis the nature of human activity in the area prior to the erection of the stones and of the subsequent use(s) of the stones all remain ill-defined. The surviving evidence - in the form of archaeological sediments - is discontinuous, poorly preserved and highly susceptible to the pressures arising from visitor impacts. Nonetheless, it is likely that what is now seen as unreachable information will become more precisely “readable” with the development and application of scientific techniques.

## APPENDIX 2: DISCUSSION OF NUMBER OF STONES AND SITE ‘BOUNDARIES’ AT CALANAIS I

Currently a total of 49 stones stand erect on site. 19th century plans - some contradictory and of variable reliability - depict as many as 12 additional fallen stones or vacant stone holes. Geophysical survey in 1979, identified many possible sub-surface features but few have been investigated and confirmed. In both the 1980-81 and the 1991-93 excavations sockets for fallen or removed stones were identified leaving the untested possibility that sockets for lost stones and buried fallen stones may exist within the Property in Care, within the wider area of the Scheduled Monument and beyond.

At least one stone was re-erected soon after the peat removal in the 1850s: Stone 35 is set in concrete. Stone 33a was discovered by probing in the 1970s and revealed in the 1980 excavation; it re-erected in 1982.

Patches of brown and of grey-white cement are present on some standing stones. These are interpreted as representing separate phases of repair of unknown date.

Excavation in 1980-81 revealed that several slabs within the chambered tomb had fallen and had been replaced after the peat was removed in 1857. Some elements of the cairn were built or rebuilt soon after the 1857 peat removal. Following the 1980-81 excavations, the cairn was again reconstructed for display.

Further ground breaking works have continued, under archaeological supervision, within the context of repeated repairs to the ground surface and to drainage to counter the heavy, footfall impact from visitors.

### Issues around defining ‘boundaries’ for the site

The recorded “boundaries” of the site have changed three times in the site’s recent history. Firstly the extent of the ground plan, the heights of the stones and the numbers of the stones changed significantly with the

removal of the peat in 1857. Secondly two surveys in the late 1970s, one topographic and the second geophysical, established the extent and precise locations of the principal components of the standing stone complex. Finally, from 1993 to 1995, excavation around Cnoc an Tursa - the Gneiss outcrop south of the South Row of Calanais 1 - identified a large stone hole on the same alignment as the South Row, possible quarry sites for standing stones and various strands of evidence suggesting that the outcrop was integral to, and possible the focal point for, Calanais 1.

Beyond the hard evidential basis for understanding the extent of the monument, two strands of more circumstantial evidence lead to further interpretations of extent. Both lines of thought take as their starting points the 12 whole, fragmentary or peat-covered stone circles within an area measuring approximately 11 km (North-South) by 10 km (East-West). By far the greatest amount of research has been into the interrelationship of these circles, and the many isolated standing stones, with natural landscape features and significant cyclical stellar, lunar or solar events. The second line of thought, developed in the last decade or so, sees evidence for a series of routes through the landscape focussing on Calanais 1. In effect, both hypotheses perceive Calanais 1 as the focal point of a large landscape arena of ritual or religious practice.

### APPENDIX 3: CHANGES TO THE SITE DURING THE MODERN ERA (POST 1857)

During the second half of the 19th century, dwellings and a corn kiln were cleared from near the Circle, a path was laid to the Circle from the south and (if Mackintosh is to be believed) the use of the Circle as a toilet by the local community was prohibited, all at Lady Matheson's behest.

After 1857, when the then owner, Sir James Matheson, commissioned the clearance of remaining peat from amongst the stones. Before 1885 when guardianship passed to the State, many small-scale repairs and maintenance works were undertaken, including:

- the re-capping of the north side of the cairn with turf occurred;
- small trenches dug into the south side of the cairn, these pits were then back-filled and the cairn rebuilt;
- repairs made to the chamber walls;
- removal of loose stones from the site, possibly re-used as the founds for Lady Matheson's path;
- introduction of soil to landscape the site and it was either re-turfed or re-seeded throughout.

After guardianship of the site passed to the State in 1885, it is likely that maintenance and repair works of similar scale continued. However, no research has been undertaken into this aspect of the history of the monument.

In 1882 the site was scheduled (as the term was originally understood), being named on the Schedule to the Ancient Monuments Protection Act which was passed on 18 August 1882. Under this regime, regular small-scale care, maintenance and repair works would have been undertaken in response to damage from natural forces and in response to the regular and increasing visitor impacts.

More recently, several relatively modern features have intruded upon and altered the original setting of the monuments:

- pathway forth south (Lady Matheson's path);
- the metalled road and parking area to the north of the site;
- the continuation of that road to the east of the site;
- the modern housing of Callanish village to the north and the private dwelling;
- the Urras an Tursachan (the Callanish Visitor Centre) to the south;
- the field fences around the monument;
- the abrupt change in grass type at the boundary of the property;
- the extensive areas of East-West trending "lazy bed" rigs of the later 19th century farming regime.

In his account of the 1980-81 excavations, Ashmore (page 1081) makes passing reference to late 19th century photographs in the Valentine collection at St Andrews University. The two images from this collection available on-line show a remarkable amount of rounded stone seemingly forming a bank around the Circle. Ashmore also refers to the pathway to viewing platform overlooking the cairn which was built at the same time as the path. The following gaps in knowledge currently exist:

- the exact date and position of the Lady Matheson path and viewing platform;
- whether the work that saw their construction also included the importation of the rounded stones onto site;
- the positions of the houses that were removed in or after 1857 (Ashmore 2016, 7);
- the nature and extent of the impacts of the pre-1857 landuse on the site;

- and, the nature and extent of the changes that Lady Matheson sponsored and their impacts on the archaeological remains (Ashmore reports in detail on these impacts within the confines of his small trenches but, even here, a coherent account is lacking).

The 1870s and 1880s witnessed considerable unrest within Lewis and in the Calanais area. The estate, under the ownership of Lady Matheson, was not managed with the interests of the tenants as a priority, as perhaps is demonstrated by her investment in the site's ancient heritage rather than its modern amenity. In this context, more should be known about:

- local religious attitudes to the Circle during the 19th century, especially how it featured in local religious thought, for instance, during the time of the Lewis revival movement, which was active after 1822;
- local political attitudes to the site, for instance, during the periods of social deprivation and emigration in the 19th century;
- and whether any adverse opinions manifested in physical impacts on the site.

At least 11 stone circles, possible circles, or groups of stones, as well as many single standing stones, exist within a few miles of - and are visible from the monument. It therefore seems to have had a central and primary function within a wide monumental and ritual landscape.

## APPENDIX 4: CLIMATE CHANGE, PEAT AND LAND-USE

The landscape setting of the stones has changed since the time when the stones were first erected. From above, Calanais 1 lies within a U-shaped bowl of low rounded, mostly linear, hills; the bowl's northern end opens to the sea, some 5km distant, through Loch Roag. Today, Calanais 1 lies on the southern flank of a low hill protruding into Loch Roag from the east; at the time of use (approximately 2900 BC to 2600 BC), it is likely - with slightly lower sea levels - that this promontory would have formed the southern shore of the sea loch.

Changes in land use and climate since about 1000 BC have combined to produce conditions that favoured acid peat accumulation. Arable land use will impede peat accumulation and such deep accumulations denote the complete end to arable and possibly pasture use of the surrounding area and an end of the ritual use of the site by human societies. As well as burying the monument to a depth of over 1m, peat accumulation also caused the acid bleaching of the lower portions of most of stones.

## APPENDIX 5: ADDITIONAL INFORMATION ON NEARBY STONE CIRCLES

The stone circle known as Na Dromenan or Calanais X lies approximately 1.5 km east of Calanais 1. It belongs within an “upland” sub-group of the Calanais stone circles. The 2005 excavation (by Colin Richards of Manchester University) showed that each of the fallen standing stones had been set up on exposed bedrock within or buttressed by a pile of stones and boulders rather than in sockets. Dr Richards asserts that all of the “upland Calanais stone circles are similarly constructed and most of the stones have fallen, some quite soon after erection. Contrasting this with the relatively good preservation of standing stones on the “lowland” circles, he argues that upland circles were not intended to be long-lasting. He suggests that the significance of such sites to their builders was embedded in the actual building process and some use immediately thereafter rather than in any subsequent use down through generations.

## APPENDIX 6: HUMAN BURIAL AT CALANAIS I

In Ashmore’s report, several references are made to possible human burials. Small fragments of burnt bone were recovered during sample analyses from contexts that pre-dated, or were contemporary to or post-dated the Circle. None of the same are from unambiguous contexts and some were from disturbed contexts. The samples were not submitted to specialist analysis because of the then problems of dating such small pieces of burnt bone.

At the time of writing this significance statement, dating techniques have advanced and it may well be possible to obtain radiocarbon dates from Ashmore’s samples. Radiocarbon dates should not be pursued, however, unless a clear research protocol has been developed.

## APPENDIX 7: ARCHAEOASTRONOMICAL INTERPRETATIONS OF THE MEANING OF THE SITE

In their recent journal article, Higgingbottom and Clay (2016) conclude that the design and construction of Calanais 1 occurred at the start of a major cultural shift in Scotland in which the observation of the changing solar and lunar skies through standing stones linked the “...local landscape and the orderly arrangement of the Universe”. They thus imply that there was shift in how humans regarded themselves relative to the universe; presumably prior to this horizon humans had no measure of their relationship to the universe and once set up, the erected stones enhanced or reduced human self-regard by being the measure of that relationship.

Higgingbottom and Clay's hypothesis is rigorously argued but it is not clear whether it is only the rigour of their marshalled evidence that separates them from the many sincere believers in the observational intent behind the design and erection of stone circles (for example, [Stones of Wonder](#) website or [Julian Copes' \*The Modern Antiquarian\*](#) website). And while there is no doubting the profundity of the belief, it remains hard to imagine how one would test the interpretations of any of these advocates and one is therefore forced to rely on the power of the coincidence (for example, of the midwinter moon position on a horizontal landform).