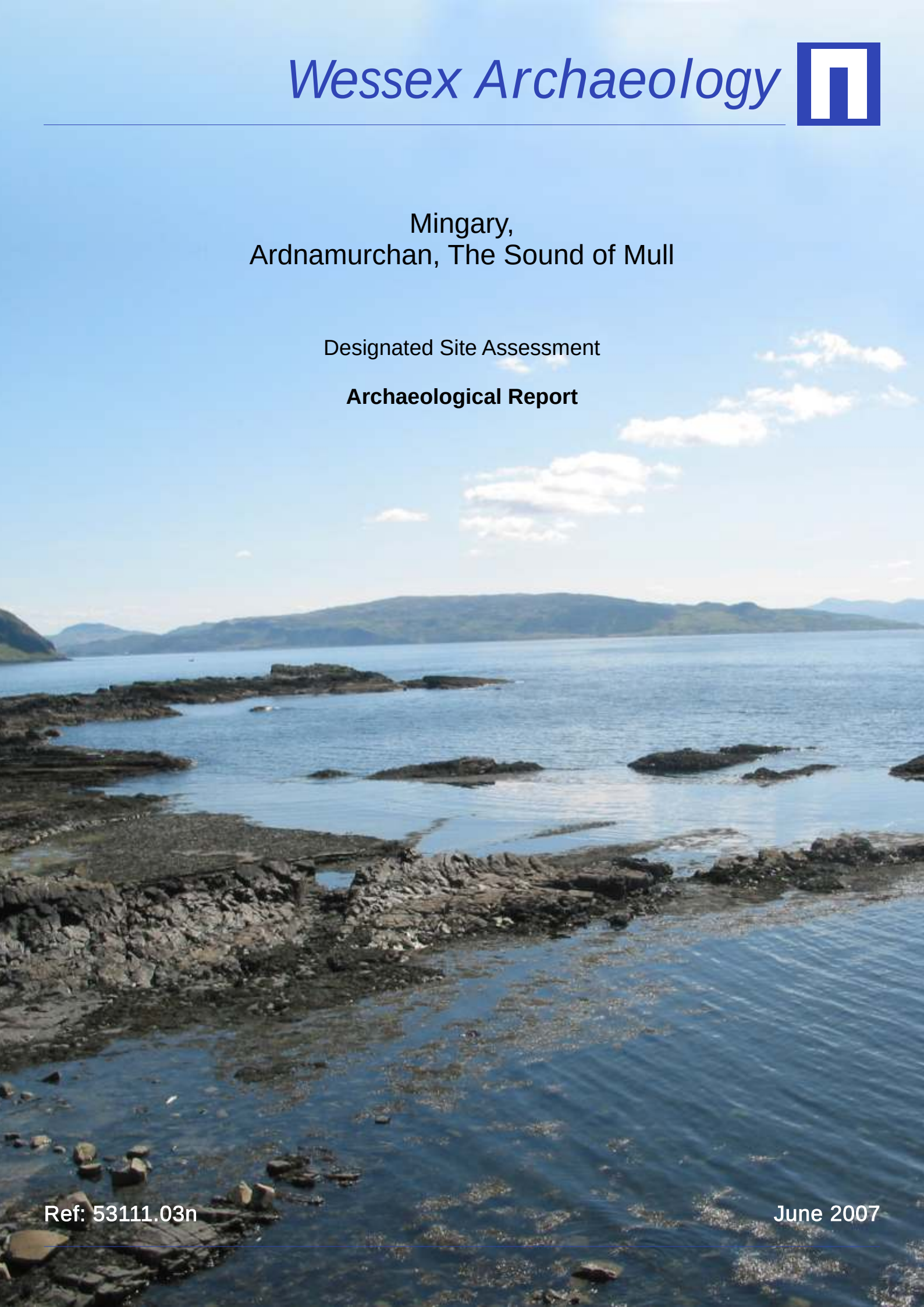
Wessex Archaeology

Mingary,
Ardnamurchan, The Sound of Mull

Designated Site Assessment

Archaeological Report



Ref: 53111.03n

June 2007

ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

MINGARY, ARDNAMURCHAN, SOUND OF MULL

DESIGNATED SITE ASSESSMENT: ARCHAEOLOGICAL REPORT

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July 2007

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Summary

Wessex Archaeology was commissioned by Historic Scotland to conduct a programme of archaeological works on the Mingary designated wreck site that continued investigations begun in 2006. The site lies off the Ardnamurchan peninsula within the Sound of Mull. It lies within an area designated under the Protection of Wrecks Act (1973) and was established on 19th August 2000. Work was undertaken as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973).

The site was first reported in 1999 by diver Phil Richards. It consists of four cast iron cannons lying end to end in an east-west direction across the slope of a reef, with a fifth lying approximately 7m to the north-northwest. A Rhenish stoneware jar and a lead merchant's weight stamped 1636 are among the finds that were recovered from the site in 1999. Following its discovery, the Archaeological Diving Unit undertook a limited undesignated assessment of the site. The site was subsequently designated on the basis that it was likely to be a wreck and may date to the 17th century.

In 2002 diver survey, geophysical surveys and historical research were carried out for a television documentary. Although the results of this work have not been fully published, the historical research carried out did locate a contemporary document which suggests a possible identity for the vessel, a Dutch ship lost in 1644 whilst engaged in the siege of Mingary Castle.

An initial phase of designated site assessment work was carried out for Historic Scotland by Wessex Archaeology in 2006. The main objectives of the work, as set by Historic Scotland, were to define the outer extent of the site and to assess its stability and preservation potential. Diving survey was hampered by dense marine growth; nevertheless the known site and part of the surrounding seabed were subject to metal detector, probe and visual searches. A number of new artefacts were discovered including concretions, a brick and lead sheeting.

The aim of the 2007 operations set by Historic Scotland was to continue the designated assessment of the site by attempting to delineate the extent of the site and to progress the baseline recording recommendations made by Wessex Archaeology in 2006. Diving operations were undertaken between 24th April and 4th May 2007. A total of 18 dives were undertaken accruing a total dive time of 1123 minutes. The core of the site has now been defined and recorded, and an above and below water topographic assessment has been conducted.

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Acknowledgements

This investigation was commissioned by Historic Scotland as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The assistance provided by Philip Robertson of Historic Scotland is gratefully acknowledged.

Wessex Archaeology would also like to thank Phil Richards, Steve Barlow, Donald Houston, Iain Thornber, Garry Momber and Stuart Leather for their assistance and information on the site.

The fieldwork was carried out by Margaret Christie, Niall Callan, Dietlind Paddenberg and Simon Adey-Davies, with Simon Adey-Davies and Mark Lawrence supervising the diving and Margaret Christie supervising the fieldwork. Archaeological assessment of the geophysical data was carried out by Cristina Serra. The report was compiled by Margaret Christie and Graham Scott and was edited by Steve Webster. Kitty Brandon prepared the illustrations and the project was managed for Wessex Archaeology by Steve Webster.

Data Licences

The chart used in **Figure 1** was obtained from the UK Hydrographic Office. The following notice applies:

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Kelp: *Laminaria hyperborea*

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1. BACKGROUND

1.1. INTRODUCTION

1.1.1. This document constitutes a Designated Site Assessment: Archaeological Report for a programme of work undertaken as part of the Contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The document has been prepared by Wessex Archaeology (WA) for Historic Scotland (HS). It comprises an assessment of the wreck off Mingary Castle, Ardnamurchan, Sound of Mull (**Figure 1**).

1.1.2. The work was conducted in accordance with a brief produced by Historic Scotland (HS 2007). Surface supplied diving operations, carried out under the Inshore/Inland ACOP, and took place between 24th April and 4th May 2007 from the diving support vessel *Peregrine*. The site did not experience any noticeable tidal movement during the assessment period and diving was possible throughout the day. A total of 18 dives were possible, achieving a total of 1123 minutes of bottom time.

1.2. DOCUMENT PARAMETERS

1.2.1. This document has been generated from diver-generated data and a limited desk-based study of readily available sources concerning the history of work on the site. WA considers this to be a working document designed to open up debate on the topic in question. Every attempt has been made to ensure that the facts within the report are correct; however errors arising from the preliminary character of the desk-based study may be present.

1.3. EXISTING SITE DATA

General Description Prior to 2007 Operations

1.3.1. The site lies within the western part of Mingary Bay and on the south-east side of Rubh' a' Mhile (Rock of a Thousand), a rocky peninsular that reaches 2m above chart datum (CD) (Chart 2394). The site lies approximately 700m to the south-east of the 14th century Mingary Castle. The known limits of the site lie within an area of gently sloping seabed at between 8m and 11m below CD.

Site Position

1.3.2. The position for the site, as given in the Statutory Instrument (SI) 2000/287, is as follows:

Lat.	56° 41.4930' N
Long.	06° 04.4192' W
WGS84	

Easting	Northing
679213	6286868
WGS84 UTM zone 29	

1.3.3. From the centre point of the SI (given above) the designated area consists of a circle with a radius of 250 metres, excluding any area above high water mark of ordinary spring tides (**Figure 1**). All of the known features lie within the designated area.

UKHO and NMRS Records

1.3.4. The site is recorded under wreck number 58780 as unclassified/live. The surveying details list only the designation (HH272/550/05). The site is (erroneously) recorded as having a general depth of 2m at LAT and the following position is given:

Lat.	56° 41.488’ N
Long.	06° 04.413’ W
OSGB (1936)	

1.3.5. The site is recorded by NMRS under number NM56SW 8001. The relevant local authority is recorded as Highland.

1.4. ARCHAEOLOGICAL HISTORY OF THE SITE

1.4.1. **1999:** The site was discovered in 1999 by diver Phil Richards when he located a group of four smooth bore muzzle-loading cast iron cannons and a small number of artefacts, a fifth gun was found later. Ten finds were recovered from the site and reported to Her Majesty’s Receiver of Wreck at this time (**Appendix I**).

1.4.2. After the initial report by Phil Richards the site was the focus of much attention from local sports divers. However, there is a suggestion that the site was known to local scuba divers since as long ago as the 1980s, and that artefacts have been recovered since that time (Iain Thornber pers. comm.).

1.4.3. **2000:** In 2000 the Archaeological Diving Unit (ADU) visited the site to undertake an undesignated site assessment. They began to undertake a magnetometer survey to establish the position of the guns but were then given the position by ‘the local diving team’ and therefore the survey was not completed (ADU 2000). The ADU subsequently decided not dive the site due to concerns about revealing its location and therefore precipitating the further recovery of artefacts by local scuba divers.

1.4.4. The ADU viewed existing video footage of the site and subsequently reported to the Advisory Committee on Historic Wreck Sites (ACHWS). Based upon their opinion that it was probably a wreck, that it appeared to date from the 17th century and that there was a perceived threat from looters, the site was designated on 19th August 2000.

1.4.5. **2002:** The site was then subject to investigation in 2002 as a result of interest from RDF Media. This investigation comprised geophysical survey, diver survey and historical research. The diver survey focused upon the group of five guns and their immediate vicinity. Six artefacts were recovered during the investigation (**Appendix I**).

1.4.6. As part of the RDF programme, magnetometer and sidescan surveys were undertaken by GSE and swath bathymetry was undertaken by Reson over an area bounded by the slipway on the west of Mingary Bay and the east of Ruba' a' Mhile reef. The interim report refers to these surveys but the results do not appear to have been available at the time (Momber 2003: 4.1). The sidescan and bathymetry surveys are subsequently reported to have suffered in quality due to the heavy kelp growth in the area, whilst the magnetism of the local bedrock affected the magnetometer surveys (Stuart Leather pers. comm.).

1.4.7. The historical research undertaken for the programme located a contemporary document that recorded the loss of an unnamed Dutch ship involved in an attack on Mingary Castle in 1644. An interim report upon the diver survey was subsequently submitted to ACHWS and a television documentary in the RDF produced series 'Wreck Detectives' was broadcast in 2003.

1.4.8. **2006:** No further work was carried out on the site until 2006, when the site was subject to a designated site assessment by WA on behalf of HS. Management and Archaeological Reports for this work were subsequently submitted to HS.

1.4.9. A sixth cannon is reported to have been found to the north-east of the site (Steve Barlow pers. comm.), however this was not found during searches by WA.

2. METHODOLOGY

2.1.1. A four-person diving team using surface supplied diving equipment was deployed from the diving support vessel *Peregrine*. A one-point anchoring system was used on the site.

2.1.2. Archaeological features were acoustically positioned during the survey using a Long Baseline acoustic tracking system. This produced co-ordinates projected in WGS 84 Universal Transverse Mercator (UTM) zone 29.

2.1.3. Digital still photographs were taken using a housed Canon G2 digital camera with a 0.56 wide-angle adapter using an Ikelite strobe. Video images were taken using a hat mounted single chip Colourwatch Digital Inspection Camera, recording onto miniDV videotape.

2.1.4. The metal detector survey was undertaken using a Fisher Pulse 6X, over search areas defined using the diver tracking system.

2.1.5. All data acquired during diving operations, was recorded in real time within an MS Access database, and onto WA context and pro forma archaeological recording sheets.

2.1.6. In 2006 all features on the seabed deemed to be of archaeological interest, including unidentifiable concretions and metal detector hits were allocated a context number from a sequence starting at 2001. Three new features were identified in 2007 and added to this sequence (**2043**, **2044** and **2045**). All five cannons (**2001**, **2001**, **2003**, **2004**, and **2011**) were physically tagged in 2007. A full list of context numbers from both 2006 and 2007 is presented in **Appendix II**.

3. RESULTS

3.1. SEARCHES

3.1.1. Following on from work carried out in 2006, metal detector searches were undertaken around the known remains. In total, an area of over 1000m^2 was covered (**Figure 2**). Searching was made difficult by dense kelp growth and the numerous boulders that form the topography to the north and west of the site. As with 2006 detecting was severely impeded by the magnetism of the local rock. No finds were identified by metal detecting in 2007.

3.1.2. Visual searches were conducted in corridors extending outward from the known site to at least 26m in all directions (**Figure 3**). In addition, 100 percent visual search coverage was undertaken in the area to the north-east of the site in an attempt to locate the sixth cannon reported by Steve Barlow. Mr Barlow undertook one dive with the WA team in an attempt to locate the cannon. Despite his assistance and the intensive searches undertaken by the team the cannon was not located. The position of the cannon as reported by Mr Barlow can bee seen in **Figure 2**.

3.1.3. Multibeam data collected by Reson during the Wreck Detectives program was to be used to focus WA searches. However, at the time of fieldwork WA had not received the data for the area directly over the site, indeed it seems likely that the presence of the nearby rocks limited the search area such that only the known cannons and the area offshore of them was surveyed. Some of the offshore multibeam anomalies were dived on during the course of the Wreck Detectives program, although no archaeological features were found.

3.2. SHOREWARD ACTIVITY

3.2.1. A walk-over assessment of the shore adjacent to the site was carried out at low tide. A visual inspection and targeted metal detector searches were conducted on the small rock outcrop that points towards the site at low water. Nothing was identified through metal detecting but two modern pins were located on the furthest extremity of the outcrop; these may be related to fishing activity but did not look as though they had been in use recently. The pins' position in relation to the site, which is marked by an orange buoy, can be seen in **Plate 1**.

3.2.2. A theory that was first suggested during the Wreck Detectives program was also investigated by WA. It was suggested that the vessel was sheltering from enemy fire behind the rocky outcrop whist unloading cannons to be used against the castle. This can be seen in the cover shot of the site, taken from the ground floor of the castle (note: an even better view would have been possible from the top of the castle wall), and looking from the behind the rock at low tide to the castle in **Plate 2**.

3.2.3. Although the rocky outcrop does afford some protection to a seaward attacker it would be a bad place to unload cannon at it can be swept by fire from the castle. Also, while unloading, the attacking vessel may be subject to fire without being able to use her own guns in reply. As a result of this, being caught on a lee shore in a south-easterly gale and driven onto the rock appears to be the most likely cause of the wrecking.

3.2.4. Discussions with Donald Houston, owner of Mingary Castle and the surrounding land, identified the location of a cannon that was reported by Steve Barlow to have been seen on the beach below the castle. Mr Houston attested to the fact that the cannon had lain on the beach just to the west of the castle for a number of years in the area shown in **Plate 3**. Approximately three years ago Mr Houston moved the cannon to its current position, outside the inland entrance to the castle, as a result of rumours that it was going to be taken by locals.

3.2.5. The cannon is a cast iron muzzle loader, approximately 1.8m long (**Plate 4**). It is badly corroded; the tip of the muzzle has broken off and the cascabel is missing its button. The only visible features are the touch hole and a square indent possibly indicating the original position of a trunnion. There is no evidence to suggest that this cannon is linked to the wreck site; it was found over 600m away and is smaller than the other cannons. It could equally be related to the Spanish attack in 1588, or be a piece of ordnance the originated from within the castle itself.

3.3. RECORDING

3.3.1. All cannons on site were fully recorded; measurements and descriptions are presented in **Appendix III**, and photographs are shown in **Figure 4**. Specific attention was paid to the cascabel end of cannon **2001** where Phil Richards had previously removed a Rhenish stoneware jar; no damage resulting from this was visible (**Figure 4**). The area from which the copper bucket was removed, between cannon **2003** and **2004**, was also examined closely. A hole in the concretion on the side of cannon **2004** was visible; this is likely to have been caused by the removal of the bucket (**Figure 4**). Also included in **Figure 4** are photographs of the three features that were found during the 2006 survey, and seen again this year (**2007**, **2009** and **2042**). To assist with any further investigations that may take place on the site all the cannons were tagged and a float was attached to **2011**.

3.3.2. A topographic survey of the area was carried out by WA. It identified five relatively distinct seabed types: sand, rocks on sand, rocks on rock, boulders and a rock shelf, which lie roughly across the slope of the reef (**Figure 5**). As can be seen in **Figure 5**, four of the five cannons lie across the bottom of this slope as if they have rolled down it. However, while the cannons would have easily rolled over the smaller rocks and sand it seems likely that, if they had initially hit the seabed amongst the boulders, they would have become trapped.

3.3.3. Some hand probing was conducted within the immediate vicinity of the site. Close to cannon **2001** a dark silty-sand (**4002**) was uncovered beneath the thin veneer of modern mobile sand that covers the site, this was also identified in 2006.

3.4. ARCHAEOLOGICAL FEATURES LOCATED IN 2007

3.4.1. Three new artefacts were located in 2007; all three were found lying partially underneath cannon **2001** within silty-sand **4002**. This suggests that there may be more artefacts, as yet undiscovered, within this area. Artefact **2043** (**Plate 5**) is an almost cylindrical piece of wood that tapers slightly to one end, possibly a wedge (Mark Laurence pers. comm.). Timbers **2044** (**Plate 6**) and **2045** may be pieces of planking, however very little of the wood was exposed making identification difficult. All three pieces of timber are likely to be those initially identified by Phil

Richards and mentioned in his 2001 report. The timbers were covered over with sand after WA completed recording, dimensions are presented in **Appendix II**.

4. CONCLUSIONS

4.1. SUMMARY

4.1.1. The overall character of the exposed archaeological material on the seabed can be summarised as follows:

	2006	2007
Area and distribution of surviving ship structure	Finds have been discovered across an area measuring 20m N-S x 15m E-W. A sixth cannon has been reported to WA to exist to the north-east of cannon **2001**, but this was not seen by WA.	The outer extent of the site has not changed since 2006. However, the further searches tend to support the identification of the area delineated in 2006 as the full extent of the site. Extensive searches for the sixth cannon were carried out by WA, assisted by Steve Barlow, but the cannon was not found.
Description of seabed environment	The seabed is dominated by a boulder field made up of basalt, sandstone and lava with pockets of sand up to 0.20m deep.	This has been further refined by the identification of a series of differing seabed types moving outwards from the rock shelf to a uniform sandy bed.
Character of ship structure	Five cannons are known, with a 6th reported. Additional finds identified on site include a brick, lead sheet pieces, a small piece of wood and unidentified iron concretions.	Three additional pieces of timber were located in 2007. This included two possible pieces of planking and a wedge. The pieces were small and very corroded and were not recovered, therefore nothing more of the character of the ship's structure was apparent.
Depth and character of stratigraphy	Surviving stratigraphy appears unlikely if the thin layer of sand indicated by the probe survey is indicative of the actual stratigraphy. The sand exists in pockets between the boulders. Artefacts do seem to survive between and beneath boulders, but as all work undertaken by WA was non-intrusive, the extent to which this is true cannot be fully qualified.	The finds located within silty-sand **4002** suggest an increased potential for the survival of more artefacts in the area. Again all work undertaken by WA was non-intrusive so the extent of any buried remains cannot be quantified.

	2006	2007
Volume and quality of artefactual and environmental evidence, including cargo, ordnance, domestic assemblage, etc.	The main feature of the site is the five cannons. Four of these are visibly rusting and have areas of damage from an unknown source. It has been hypothesised that the cannons were being carried as cargo as they vary greatly in size. The 2002 survey recorded the presence of both bar shot and cannonballs on the site, but these were no longer present on the site in 2006. Although a range of intact artefacts has been recovered from the site, the only surviving artefacts found by WA were fragmentary and cannot add much to our knowledge of the wrecking incident or the ship itself.	The damage noted on the cannons in 2006 was still visible in 2007 and in some cases further deterioration is suggested. Some of the damage can now be attributed to the removal of a Rhenish stoneware jar and the copper bucket. The bar shot and cannon balls located in 2002 were again not seen in 2007. However, three pieces of timber originally located in 2001 and not seen in 2006 were found in 2007. No other new finds were located.
Site formation and transformation processes	Unknown: very little research has been undertaken on the site, and the full extent of the site is not yet known. The distribution of the cannons, the range of artefacts and the seabed environment suggests that very little of the wreck remains intact, although it is possible that numerous smaller artefacts survive across a wide area in amongst the boulder field.	As 2006, although the preservation of some vessel structure now seems possible in the vicinity of **2001**. An assessment of the bathymetry and seabed types suggests that the vessel may have hit the nearby rocky outcrop and come to rest on the seabed at the bottom of the boulder slope. The presence of some timber on the site suggests that subsequently some burial took place, but the extent of this is not known.
Apparent date of ship's construction and/or loss	The cannons and other artefacts suggest a 17th century date, whilst historic records suggest that the wreck may be that of a Dutch ship that was involved in a siege on Mingary Castle in 1644.	The date of 1636 stamped into the lead weight supports the general 17th century date.
Apparent function	Unknown.	A vessel was lost in this area during an assault on the castle in 1644. The type of vessel is not known.
Apparent origin	Unknown.	A Dutch origin is suggested for a vessel lost in this area in 1644.

4.2. DISCUSSION

4.2.1. The presence of a variety of artefacts including cannons and smaller pottery vessels suggests that the site represents part of a wrecking incident rather than the jettisoning of guns. This is further supported with this year's rediscovery of possible ships timbers under cannon **2001**.

4.2.2. The site has not been formally identified but a 17th century date has been suggested for a number of reasons. Two artefacts from the site have clear dates; a lead Merchant's weight is stamped with the date 1636 and a Rhenish stoneware jar has been dated to the period 1640 to 1700 (Dr David Gaimster pers. comm.). Whilst the cannons are heavily concreted Charles Trollope, an expert employed for the Wreck

Detectives programme, suggests a date of no later than 1670. Thus a fairly tight date-range of 1636 to 1670 is suggested.

4.2.3. Written evidence adds further weight to a 17th century date. The site may be related to a wrecking incident recorded in a diary written by John Weir in 1644. Weir was a Puritan imprisoned in Mingary Castle by Major-General Alasdair MacDonald in 1644. He describes a siege of the castle by its former owner and fellow puritan the Lord of Argyll, and a wrecking incident that took place during the attack (extracts are taken from Byrne 1997: 137-139).

4.2.4. The attack began on 7th August 1644 when 'Argyl with 5 ships & mani boats came fornent [opposite] Mingary & shot divers times at it'. There was a call for the garrison to surrender on the 8th, but this must have been ignored because on 12th August 'Captain Turner's ship & the other Dutch ship being taken by Argyles at the Ile of Seale [Seil Island near Oban] came fornent Mingary'.

4.2.5. On the 14th the attackers were still trying to talk the defenders out of the castle, and on 16th August 'The Dutch ship was cast away upon the rocks at Mingary' with still no mention of further conflict. Thereafter the castle was blockaded until 5th October 1644 when the siege was lifted by the arrival of General Alastair McDonald.

4.2.6. Prior to these events, the 'Dutch ship' was captured during July, with the following detail recorded by John Weir. On 17th July 'the frigot persoued a pryz [the frigate pursued a prize]', and on the 19th 'it was chased back by Captain Swanlye [Swanley was a Parliamentarian captain who from 1644 to 1645 flew his flag as Admiral commanding the Irish Guard on the 3rd Rate *Leopard* - 38 guns and a crew of 160 men]'. On 20th July 1644 'they had ane conflict at sea in which ane dutch ship was taken, the other frigot cam under the shelter of the castle, & Captain Turner stood our [*illegible*] that time of the conflict mass was said in the castle.

4.2.7. No other written evidence relating to this wrecking incident has been discovered by WA. There are however a number of other facts that may ultimately contribute to the identification of the vessel. Charles Trollope suggests that the cannons are likely to be English and as a result of their varying sizes are likely to have been carried as cargo. While the latter suggestion is plausible, some vessels during this period, particularly armed merchantmen, carried mismatched guns. The fact that the vessel almost certainly travelled to warmer waters, as evidenced by the holes left in recovered timber by the warm water ship boring worm *Teredo Navalis*, is also worth noting (Colin Martin pers. comm.).

4.2.8. After searches, only three of the artefacts recorded in 2006 were re-located, and none of the concretions previously recorded by Phil Richards were seen. However, Mr Richard's finds may have been covered over by sand since last seen in 1999.

4.2.9. While the WA team in both 2006 and 2007 recorded relatively benign weather conditions during their visits, the treacherous conditions in the Sound of Mull are well documented. It was previously thought that the site lay in a relatively sheltered area of the seabed, however Marine Biologist Craig Burton noted that the plant life on the site was indicative of a very dynamic environment. This may explain the difficulty in re-locating the 2006 finds as they may have been moved or covered over

by sand. This may also be the explanation for the disappearance of the 6th cannon, as even a partial covering of sand and marine life would make identification difficult.

4.2.10. The presence of artefacts within the silty-sand layer **4002** suggests the site contains the potential to produce further significant archaeological data. However, at this stage it is likely that the only way any further data could be revealed is through more intrusive investigations.

4.2.11. The damage to cannon **2004** can be clearly seen in **Figure 4.** When compared with a photograph of the same area last year, a clear difference can be seen, with more of the concretion missing in the 2007 photo. The further damage to **2004** may also be explained by environmental conditions.

5. ARCHIVE

5.1.1. The project archive consisting of a WA Access database and other computer records, together with digital photographs, DV tapes, dive logs and miscellaneous hardcopy photographs are currently stored at WA under project code 53111.

6. REFERENCES

6.1. UNPUBLISHED REPORTS

Archaeological Diving Unit, 2000, 'Mingary Castle, Ardnamurchan, Scotland', Report No. 11/10, Unpublished confidential report for ACHWS.

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Momber, G., 2003, 'Report for Historic Scotland on the Survey of the Mingary Castle Protected Wreck Site during May 2002', Unpublished Report.

Wessex Archaeology, 2006, 'Mingary Designated Site Assessment: Management Report', Unpublished confidential report for HS, ref. 53111.02rr.

Wessex Archaeology, 2007, 'Mingary Designated Site Assessment: Archaeological Report', Unpublished report for HS, ref. 53111.03rr.

6.2. PUBLISHED SOURCES

Byrne, K., 1997, *Colkitto! A celebration of Clan Donald of Colonsay (1570-1647),* House of Lochar.

6.3. OTHER SOURCES

RDF Media, *Wreck Detectives, Mingary Castle*, Video

APPENDIX I: RECOVERED FINDS

Find	Description	Recovered by	Lodged with the National Museums of Scotland?
Rhenish stoneware jar	Dated 1640 to 1700 by Dr David Gaimster at the British Museum. Complete except for break in rim.	Phil Richards	Yes
Lead merchant's weight	Made of lead and iron, in three pieces. Approximate diameter: 55mm. Stamped with a date of 1636	Phil Richards	Yes
Copper bucket	Riveted construction. Whole and in good condition as it was protected from corrosion as the cannon it was attached to acted as an anode.	Phil Richards	Yes
Cannon ball	Approximately 9cm in diameter.	Phil Richards	Unknown
Timber	Possible planking, heavily degraded with evidence of wood boring animals (possibly part of below?).	Phil Richards	Yes
Timber	Possible planking, heavily degraded with evidence of wood boring animals (possibly part of above?).	Phil Richards	Yes
Lead shot (approximately 12)	Two distinct types: smooth and rough. The rough are 14mm in diameter. The smooth are approximately 16-18mm in diameter	Phil Richards	Yes
A roll of lead sheet	No other information available.	Phil Richards	Yes
Copper strip	No other information available.	Phil Richards	Unknown
Metallic concretion	No other information available.	Phil Richards	Unknown
Timber	Heavily degraded with evidence of work and *Teredo Navalis* (Colin Martin pers. comm.).	Wreck Detectives	Yes
Timber	Heavily degraded.	Wreck Detectives	Yes
Timber	Heavily degraded.	Wreck Detectives	Yes
Concretion	Appears to contain an iron bar.	Wreck Detectives	Yes
Lead sheet	Possibly a patch for domestic use e.g. a barrel (Colin Martin pers. comm.).	Wreck Detectives	Yes
Lead sheet	Possibly a patch for domestic use e.g. a barrel (Colin Martin pers. comm.).	Wreck Detectives	Yes
Cannon ball	No other information available.	Steve Barlow	In the process of being lodged

APPENDIX II: CONTEXT NUMBER ALLOCATION

Context No.	UTMz29 Easting	UTMz29 Northing	Object Type	Description
2001	679233	6286710	Cannon	C4 on 2003 site plan.
2002	679230	6286710	Cannon	C3 on 2003 site plan.
2003	679227	6286709	Cannon	C2 on 2003 site plan.
2004	679226	6286709	Cannon	C1 on 2003 site plan.
2005	679228	6286710	Concretion	Concretion 0.3 x 0.1m. Concretion located immediately to the east of the cascabel of cannon **2004** and to the north side of cannon **2003**.
2006	679229	6286710	Concretion	Small concretion north-west of cannon **2002**
2007	679229	6286710	Concretion	Concretion of a round object now missing of internal diameter 0.1m. Internal space is between a quarter and a third of a sphere.
2008	679230	6286711	Possible Geology	Possible artefact, unidentified, porous but heavy. Post-ex: thought to be lava.
2009	679230	6286710	Concretion	Object attached to cascabel end of cannon **2002**.
2010	679232	6286711	Timber	Timber lying under a boulder.
2011	679220	6286716	Cannon	C5 on 2003 site plan.
2012	679229	6286720	Concretion	Metal detector hit. Small pieces of possible concretion?
2013	679228	6286718	Metal Detector hit	Metal detector hit. Nothing visible, possibly buried, only detected on high setting.
2014	679227	6286716	Metal Detector hit	Metal detector hit. Nothing visible, strong signal with high setting, weak signal with medium setting.
2015	679227	6286713	Metal Detector hit	Metal detector hit. Nothing visible, strong signal with high setting, weak signal with medium setting.
2016	679224	6286715	Geological	Metal detector hit which appears to come from a boulder.
2017	679224	6286715	Geological	0.2m long irregular concretion attached to a boulder which was located by metal detector. Post-exc: three types of boulder naturally concreted together.
2019	679223	6286715	Possible Geology	Approximate centre point of high density metallic hits with an approx 2-3m radius.
2020	679229	6286721	Concretion	Rectangular in shape. 0.20 x 0.25 x 0.15m. Attached to a rock.
2021	679223	6286717	Possible Geology	Concretion - half of round disc? 0.3m diameter, 8cm wide, side between boulders.
2022	679220	6286708	Concretion	Irregular concretion, 0.10 x 0.12 x 0.15m.
2024	679219	6286716	Possible Geology	Quarter circle, uncertain material, but shape appears to be unnatural, too flat. 0.6 x 0.4m, Two of these plates stuck together. Post-exc assessment suggests that this is local Moine sequence sedimentary rock.
2025	679219	6286710	Possible Geology	Possible concretion, probably geological. Similar to **2024**. Post-exc assessment suggests that this is local Moine sequence sedimentary rock.
2026	679220	6286716	Metal Detector hit	Metal detector hit does not register at the low setting, nothing visible on seabed in amongst boulders.
2027	679218	6286716	Brick	Brick measuring 0.15 x 0.10 x 0.02m.
2028	679218	6286716	Concretion	Very small concretion attached to a rock, reading on the metal detector.
2029	679219	6286714	Lead	Piece of lead (fragment of lead sheet?), very thin piece, *c*.0.23m long x 0.05m wide max. Roughly rectangular.
2030	679221	6286715	Metal Detector hit	Metal detector hit.

Context No.	UTMz29 Easting	UTMz29 Northing	Object Type	Description
2031	679218	6286711	Lead	Metal detector hit, small piece of lead sheeting, with two small holes oval in shape, approx 0.06m apart. One side more encrusted than the other.
2032	679216	6286711	Geological	Metal detector hit. Large unusual shape boulder giving a high reading on low setting.
2033	679222	6286713	Geological	Metal detector hit. Boulder is giving the high reading.
2034	679219	6286712	Metal detector hit	Faint reading on medium setting.
2035	679219	6286709	Metal detector hit	Metal detector hit.
2036	679221	6286717	Concretion	Possible Concretion. 0.25m in diameter. Two parallel lines appear to be possibly cut through on one side. Lying immediately south-east of the cannon.
2037	679226	6286712	Geological	Metal detector hit. Boulder.
2038	679219	6286718	Lead	Two pieces of lead. Larger one: approx. 0.5m long, 0.085m wide at the widest point, bent over, square holes along the edges, leaf-shaped. Second one is a smaller piece partly buried.
2039	679222	6286714	Geological	Metal detector hit. Boulder.
2040	679220	6286711	Geological	Metal detector hit. Boulder.
2041	679218	6286716	Geological	Metal detector hit. Boulders.
2042	679232	6286710	Concretion	Concretion attached to/under cannon **2001**
2043	679232	6286710.5	Wood	Almost cylindrical piece of wood under cannon **2001** initially found by Phil Richards. Maximum dimensions: 0.25 x 0.07m.
2044	679232	6286710.5	Wood	Possible planking under cannon **2001** originally found by Phil Richards. Maximum dimensions: 0.32 x 0.165x 0.03m.
2045	679232	6286710.5	Wood	Possible planking only partially exposed under cannon **2001**, originally found by Phil Richards. Maximum width: 0.05m.

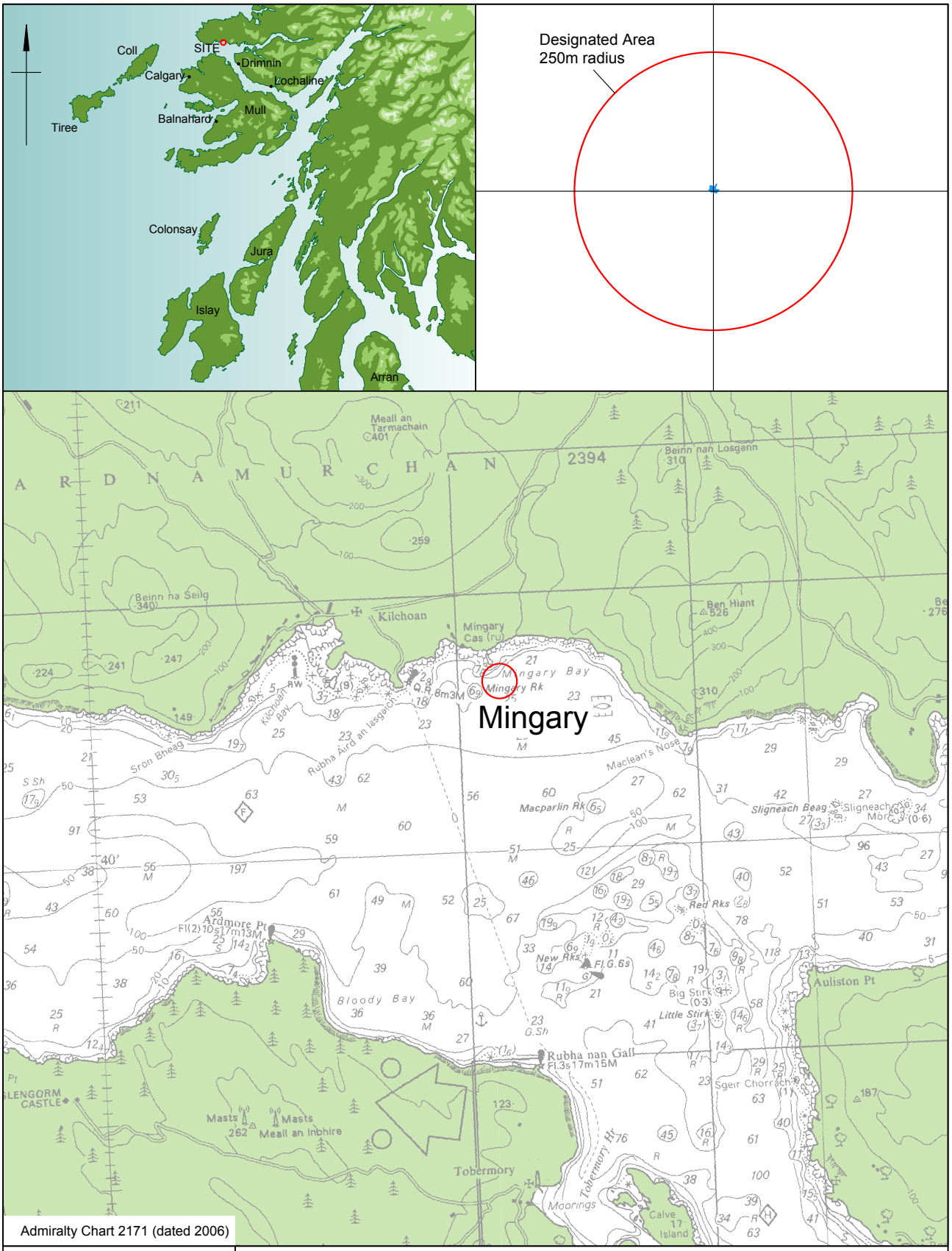
APPENDIX III: CANNON RECORDING

CANNON MEASUREMENTS

	Overall length (cm)	Diameter of base ring (cm)	Circumference of base ring (cm)	Base ring to muzzle face (cm)	Diameter of muzzle (cm)	Trunnion to cascabel (cm)	Trunnion to muzzle (cm)
Cannon 2001	314	45	145	30	29	140	174
Cannon 2002	270	45	135	23	28	123	125
Cannon 2003	299	45	Measurement not possible because of boulders concreted to cannon.	32	28	148	150
Cannon 2004	236	40	Measurement not possible because cannon partially buried in sand.	32	20	120	125
Cannon 2011	210	40	130	20	24	100	110

CANNON DESCRIPTION

	Complete or fractured	Level of concretion	Form of cascabel	Position of trunnions	Muzzle swell	Constructional features and decoration	Bore	Anything underneath the cannon?	Anything attached to cannon?
Cannon 2001	Complete	Heavily concreted	Narrow in the middle and rounded at the end.	Offset	None	None visible	Heavily concreted, not tampioned.	**2042** concreted to underside of cannon in north. Rectangular in section, broken off at one end, break looks recent.	Concreted lumps, a concreted fin and boulders.
Cannon 2002	Complete	Heavily concreted	Narrow in the middle and rounded at the end.	Offset	Muzzle swell visible although heavily concreted at this end.	None visible	Heavily concreted, not tampioned.	**2009** concreted to underside of cannon below cascabel. **2007** lying under cannon.	Three big concreted lumps, a concreted fin and boulders.
Cannon 2003	Complete	Heavily concreted	Fairly straight but heavily concreted.	Dead centre	None	None visible	Heavily concreted, not tampioned.	No	Concreted lumps, a concreted fin and boulders.
Cannon 2004	Complete	Heavily concreted	Straight forming bulb at end.	Offset	None	None visible	Boulder concreted to muzzle obscuring bore.	No	Concreted lumps and a concretion fin.
Cannon 2011	Complete	Heavily concreted	Narrrow in the middle but more square in the end than the others.	Offset	Possible muzzle swell.	None visible	Boulder concreted to muzzle partially obscuring bore, not tampioned.	Boulders concreted to it.	Four large concretions all on top of cannon and a regular shaped object (possibly stone) sticking out under west side of cannon.



Admiralty Chart 2171 (dated 2006)

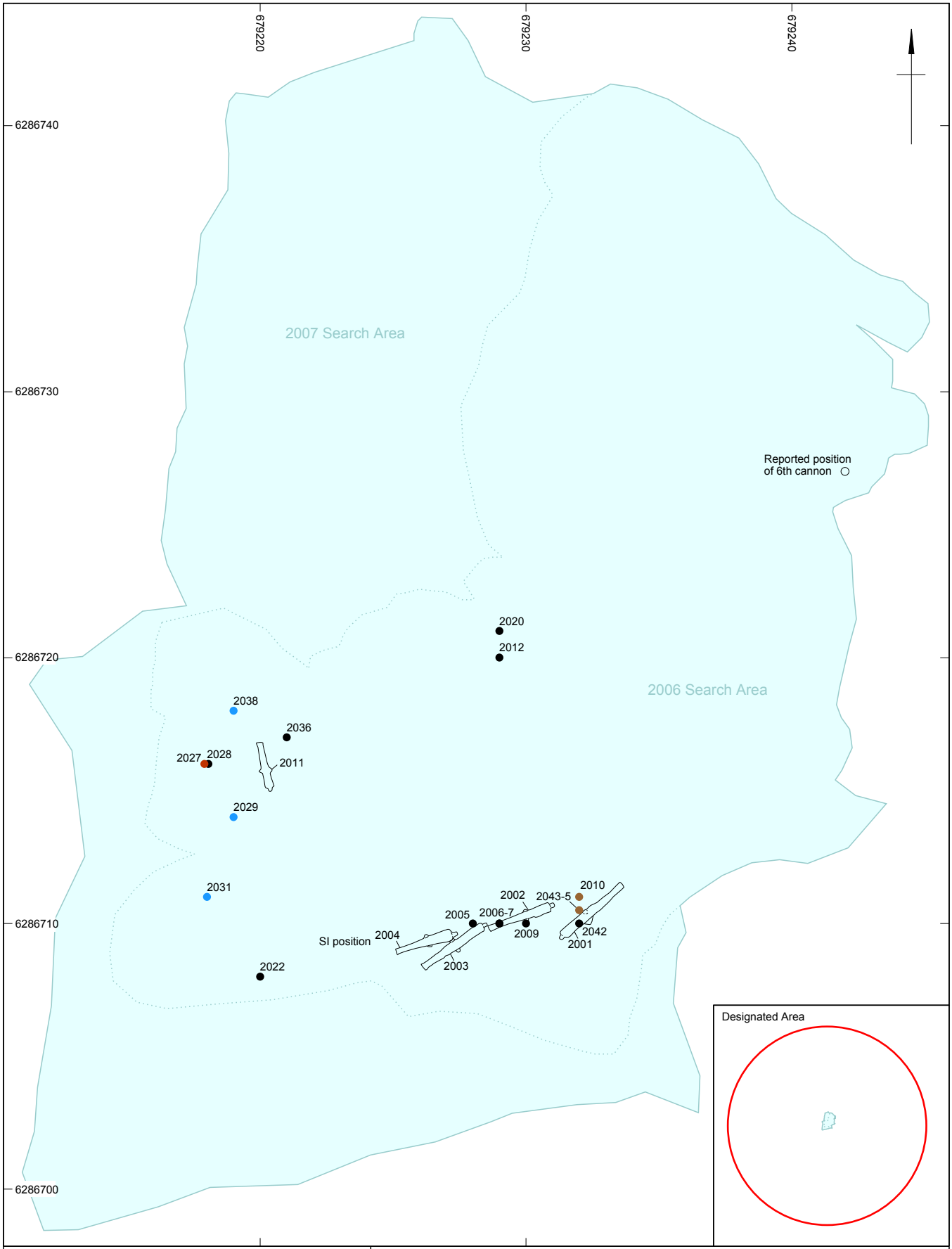
- Site location
  56° 41.4930 N 06° 04.4192 W
  WGS. 84 coordinates

Date:	07/06/07	Revision Number:	0
Scale:	1:100,000	Illustrator:	KJB
Path:	London\U:\Projects\53111\Drawing Office\.Report Figures\2006\z29_Mingary		

Wessex Archaeology

Mingary site location

Figure 1



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Metal detector search area

Figure 2

679200
679210
679220
679230
679240
679250
679260
679270

6286740
6286730
6286720
6286710
6286700
6286690

Reported position of 6th cannon

2020
2012
2038
2036
2027
2028
2011
2029
2031
2002
2043-5
2010
2005
2006-7
2009
2042
SI position
2004
2001
2022
2003

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Visual search area
Metal detector search area
Wood
Concretion
Lead
Brick

0
10m

Drawing projection: UTM WGS84 z29

Revision Number:	0
Illustrator:	KJB
Date:	18/06/07
Scale:	1:250
Path:	U:\PROJECTS\53111\DO\
Report Figs\2007\z29_2007_Mingary\Arch report	

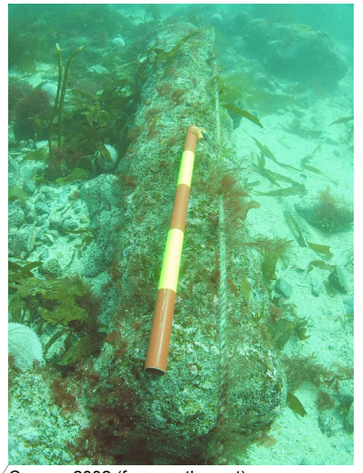
Visual seach area

Figure 3

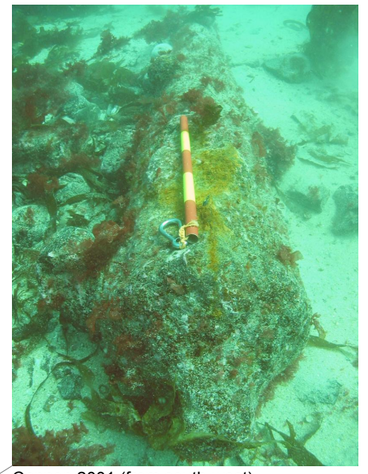
Cannon 2011 (from east)

Cannon 2004 (from east)

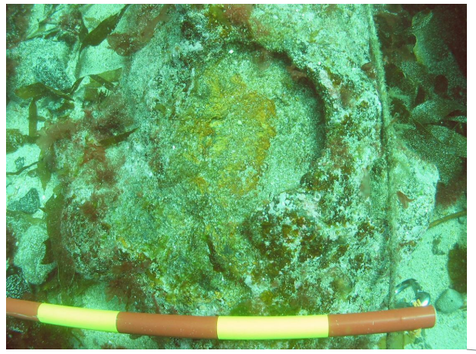
Concretion 2007



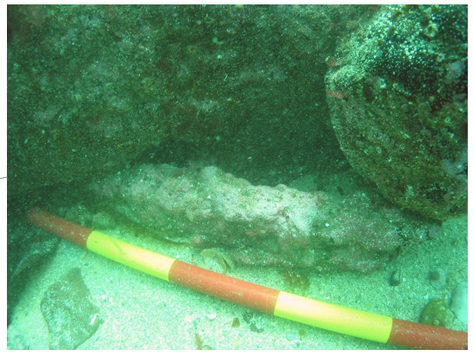
Cannon 2002 (from north-west)



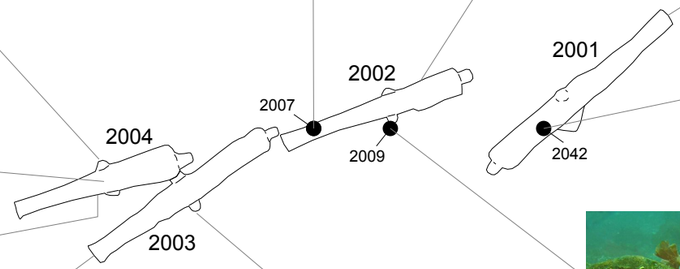
Cannon 2001 (from south-west)

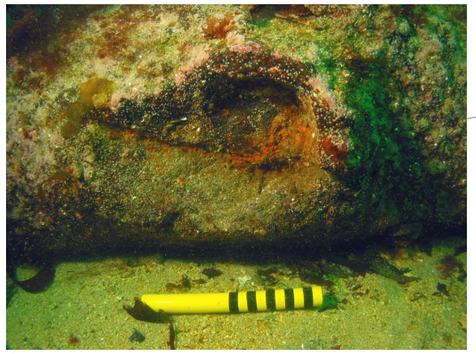


Cannon 2004

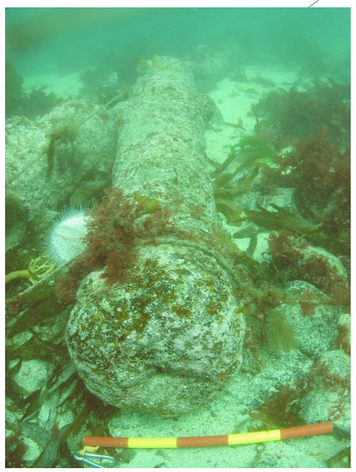


Concretion 2042



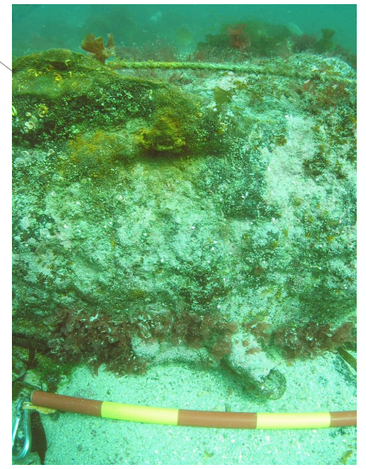


Cannon 2004



Cannon 2003 (from south-west)

Cannon 2003 (from south-east)



Concretion 2009

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● Concretion	Date:	02/07/07	Revision Number:	0
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	Path:	U:\PROJECTS\53111\DO\Report Figures\2007\z29_2007_Mingary\Arch report		

Cannon images

Figure 4

679200
679210
679220
679230
679240
679250
6286760
6286750
6286740
6286730
6286720
6286710
6286700
6286690
6286680
Rock shelf
Rock shelf
Boulders
Rocks on rock
Rocks on sand
Reported position of 6th cannon
Sand
2020
2012
2038
2036
2027
2028
2011
2029
2031
2022
2002
2043-5
2010
2005
2006-7
2009
2042
2001
SI position
2004
2003
Boulders
Sand
Rocks on rock
Rocks on sand
Boulders
0
10m
Drawing projection: UTM WGS84 z29

Date:	18/06/07	Revision Number:	0
Scale:	1:250	Illustrator:	KJB
Path:	U:\PROJECTS\53111\DO\Report Figures\2007\z29_2007_Mingary\Arch report		

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Site topography

Figure 5

Plate 1. Pins in rock with view of site

Plate 2. View of Mingary castle from the rocky outcrop at the site

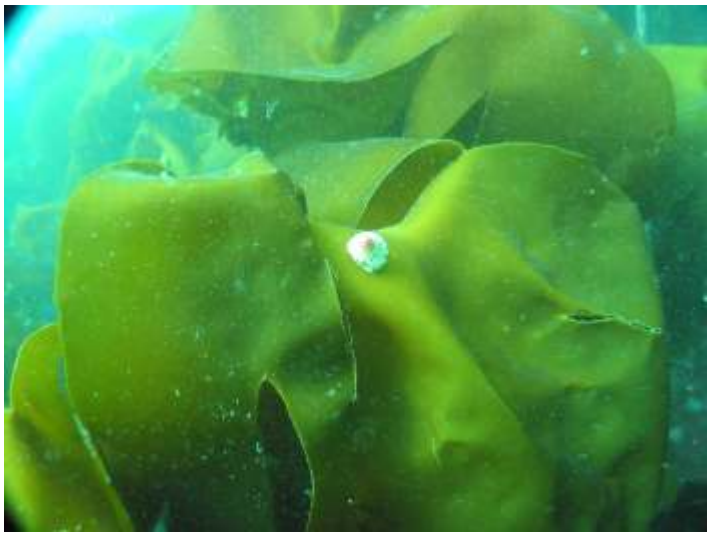
Wessex Archaeology	Date:	03/07/07	Illustrator:	KJB
	Path:	U:\PROJECTS\53111\Drawing Office\Report Figures\2007\z29_2007_Mingary\Archaeological report		

Plate 3. Looking to Mingary Castle in the east from the original location of the cannon, now outside Mingary Castle

Plate 4. Cannon outside Mingary castle

Plate 5. Timber 2043

Plate 6. Timber 2044



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