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

INVINCIBLE, SOLENT, HAMPSHIRE

DESIGNATED SITE ASSESSMENT: FULL REPORT

Prepared by:

Wessex Archaeology
Portway House
Old Sarum Park
Salisbury
WILTSHIRE
SP4 6EB

Prepared for:

English Heritage
Fort Cumberland
Fort Cumberland Road
Eastney
Portsmouth
PO4 9LD

December 2003

Ref: 53111.03g

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

INVINCIBLE, SOLENT, HAMPSHIRE

DESIGNATED SITE ASSESSMENT: FULL REPORT

Ref: 53111.03g

Summary

Wessex Archaeology was commissioned by English Heritage to undertake a Designated Site Assessment of the *Invincible*: a designated wreck site located within the Solent, Hampshire. The work was undertaken as part of the contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973).

The *Invincible* (a 3rd Rate 74 gun warship) was built at Rochefort, France in 1744, captured by the British at the first battle of Finisterre in 1747 and lost in 1758 when the rudder jammed resulting in the vessel failing to clear Horse Tail sandbank (Bingeman 1985).

The wreck site was discovered in 1979 when a local fisherman Arthur Mack fouled his fishing gear and brought up some timber. The snag was investigated by divers, who discovered the remains of a large wooden warship. This was later identified as the *Invincible* by the discovery of a wooden tally attached to a spare sail with the words *Invincible, Flying jib 26x26 No6* (Bingeman 1985).

In 1980 the site was designated under the Protection of Wrecks Act (1980 No.21980/1307) The licensee John Bingeman was issued with an excavation licence. A programme of excavation and survey has followed since the designation. The wreck is presently in a mostly buried state

Diving operations took place between 8th and 12th September 2003. A Brief and corresponding Written Scheme of Investigation required Wessex Archaeology to undertake survey of the wreck to Levels 3a and 3b. Partial survey to Levels 3a and 3b was achieved. In the northern area of the site, comparison between the 1990 site plan and a multibeam survey carried out by Wessex Archaeology in 2003 suggests alterations to the level of exposure within this area. Additionally the diver tracking and multibeam data suggested that there might be some inaccuracies in the site plan in this area.

To the south of the main site the 'South Eastern Anomaly' was surveyed along with a number of outlying concretions. Although it clearly represents the partial remains of a wooden shipwreck further work is required in order to establish the extent and significance of this debris.

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

INVINCIBLE, SOLENT, HAMPSHIRE

DESIGNATED SITE ASSESSMENT: FULL REPORT

Ref: 53111.03g

Acknowledgements

This investigation was commissioned by English Heritage as part of the contract for Services in Relation to the Protection of Wrecks Act (1973). The assistance provided by Ian Oxley and Annabel Lawrence of the English Heritage Maritime Team is gratefully acknowledged.

Wessex Archaeology would also like to thank the following people:

- Licensee John Bingeman, site archaeologist Margaret Rule and Arthur Mack for their invaluable assistance during this survey.

The fieldwork was carried out by Graham Scott, Simon Adey-Davies, Jenny Black and Frank Mallon. The report was compiled by Jenny Black, and Kitty Brandon prepared the illustrations. The project was managed for Wessex Archaeology by Steve Webster.

Data Licences

The material derived from the UKHO is subject to licence 820/020220/11 and the conditions on End-Users and Third Parties contained therein. The following charts and wreck requests have been added to Schedule 1 Annex A:

- Digital use of Chart 2045

A copy of the report will be sent to UKHO.

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

INVINCIBLE, SOLENT, HAMPSHIRE

DESIGNATED SITE ASSESSMENT: FULL REPORT

Ref: 53111.03g

Contents

Figures

Plates

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

INVINCIBLE, SOLENT, HAMPSHIRE

DESIGNATED SITE ASSESSMENT: FULL REPORT

Ref: 53111.03g

1. INTRODUCTION

1.1.1. This document constitutes a Designated Site Assessment: Full Report for a programme of archaeological 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 English Heritage (EH). It comprises an assessment of the *Invincible*, a designated wreck site located within the western mouth of the Solent (**Figure 1**).

1.1.2. The work was conducted in accordance with a Written Scheme of Investigation (WSI) prepared by WA, which was in turn produced as a response to a brief provided by EH. Diving commenced on the 8th September and finished on the 12th September 2003. All diving took place off the diving support vessel *Xplorer*. The field team personnel were WA archaeologists Graham Scott, Simon Adey-Davies, Jenny Black, Frank Mallon and vessel skipper Dave Burden.

2. OBJECTIVES

2.1.1. The overall objective for the site as defined in the WSI was for recording to Level 3a and 3b.

2.1.2. This was further defined in the WSI, specifying the following tasks:

- Carry out a general inspection of the site;
- Identify the anomaly to the south-east of the main site, and appropriately survey. Also attempt to determine where the anomaly may have originated;
- Locate and assess a large trawl intruding into the southern edge of the main site;
- Provide co-ordinates and database entries for those elements of the site that lie to the north of the main body of the wreck;
- Attempt to establish the extent to which the licensee's site plan reflects current exposure within the northern part of the site;
- Attempt to establish whether the site is currently subject to erosion or deposition;
- Establish monitoring points within the site and plan a regime whereby sediment movement over time can be assessed;

- Produce a scheme of investigation for subsequent investigations on the site.

3. EXISTING SITE DATA

3.1.1. The position of the designated area as given in the brief was as follows:

Lat.	**50º 44' 20.4" N**
Long.	**001º 02' 13.8" E**
OSGB 36	

3.1.2. The Statutory Instrument number is 1307, and from the centre point (defined above) the designated area covers a radius of 100 metres. The current licensee is Mr. John Bingeman and the nominated archaeologist is Ms. Margaret Rule.

3.1.3. Other information available prior to and during the assessment comprised:

- The UK Hydrographic Office record for the site;
- The National Monument Record entry for the site;
- ADU Reports for years 1992, 1995, 1996, 1998 and 2001;
- Various books and web sites (see bibliography);
- Hard copy of the 2002 ADU multibeam survey of the site;
- The licensee's site plans (1984-7 and 1981-90).

3.1.4. In 2003 WA conducted a multibeam survey of the *Invincible* as part of a variation on an Aggregate Levy Sustainability Fund project. This data was available in digital form during both the fieldwork and post-excavation phases of this survey.

4. METHODOLOGY

4.1.1. The survey methods used during the *Invincible* assessment were diver survey (video), diver survey (object positioning), diver survey (area search) and diver survey (stills photography). Survey data was recorded in real time using the WA diver recording system. This methodology was discussed with the licensee prior to the commencement of diving operations to assess practicality and possible amendments and suggestions.

4.1.2. Details of the methodologies used during the 2003 PWA survey are detailed in a separate document (WA 2003b).

5. RESULTS

5.1. SITE POSITION 2003

Lat.	**50º 44.367' N**
Long.	**01º 02.312' W**
WGS84	

5.1.1. The above position is for an area of framing within the northern area of the site (labelled A on **Figure 1**). The position-fix was obtained by tracked diver survey using a ROV-track positioning system. The reading was converted from OSGB36 (Cartesian) to WGS84 (degrees and decimal minutes) using Grid Inquest 6.0.7

Lat.	**50º 44. 340' N**
Long.	**01º 02.246' W**
WGS84	

5.1.2. The above position is the processed mean position for WA 2003 Datum 1, located at the south-western end of the South Eastern Anomaly (labelled 1 on **Figure 1**). The position was converted from OSGB36 (Cartesian) to WGS84 (degrees and decimal minutes) using Grid Inquest 6.0.7

Lat.	**50º 44.341' N**
Long.	**01º 02.244' W**
WGS84	

5.1.3. The above position is the processed mean position for WA 2003 Datum 2, located at the north eastern end of the South Eastern Anomaly (labelled 2 on **Figure 1**). The position was converted from OSGB36 (Cartesian) to WGS84 (degrees and decimal minutes) using Grid Inquest 6.0.7

5.1.4. The position on Datum 1 was checked on two separate dives and the position on Datum 2 was checked on two separate dives with a total of three Observation points on the datum's position. The above position-fixes represent an average reading for the two datums.

5.2. TASKS UNDERTAKEN

5.2.1. The diver tracks generated during the 2003 investigation are shown in **Figure 2**. Observation points, together with error margins, are also illustrated in **Figure 2** and listed in **Appendix II**.

5.2.2. The northern area of main body of the *Invincible* site (hereafter the 'main site') was subject to a swim-over survey in order to monitor the site for significant recent change. Position-fixes and database entries were recorded for all 'large' artefacts (cannons, etc.) and areas of exposed ship timbers. The licensee's site plan and the

2003 WA multibeam data were used for reference during this survey (**Figures 3, 4** and **5**).

5.2.3. To the south of the main site work was conducted within the area of an anomaly (hereafter the 'South Eastern Anomaly') that was seen on the ADU 2002 and WA 2003 multibeam data. The anomaly was located by means of a tracked diver search using the multibeam data as a reference for the search, and further recorded with video and photo mosaic survey (**Figure 6**). Two new datum's (WA 2003 / 01 and WA 2003 / 02) were placed at either end of the anomaly, and position-fixes were obtained for these points (see 5.1. above and **Figure 6**).

5.2.4. A new area of concretions, not seen on the multibeam data was located to the south of the South Eastern Anomaly. Unfortunately one of the ROV-trak survey beacons was interfered with (possibly dragged by a fishing vessel) near the end of the survey, with the result that the positions obtained in this area are unreliable.

5.2.5. Insufficient time was available within the period of the investigation to inspect the trawl debris in the southern area of the main site. Also no formal environmental monitoring points were established, however depth readings were taken at known points during the course of the diver survey and these may serve as a basis for any future monitoring.

5.3. DIVING CONDITIONS

5.3.1. Historically, visibility on the *Invincible* site is very poor, however during the WA survey the visibility ranged from two to five metres. It is thought that this may be due to the exceptionally dry summer, which meant that less river-borne sediment was being deposited into the Solent. The good visibility allowed for digital stills and video survey of the site to a level not anticipated prior to the assessment.

5.3.2. The Solent is subject to strong tidal currents, particularly during spring tides at which time the slacks are shorter and less predictable. As a result of this bottom time was restricted by the availability of slack or near slack water conditions during daylight hours. A total of six dives were conducted in water depths ranging from 7 to 9.5 metres, with a total of 307 minutes bottom time. Further details are given in **Appendix III**.

5.4. GEOLOGY, TOPOGRAPHY AND FLORA

5.4.1. The seabed within the main site consisted of a mainly flat sandy bottom. Occasional small rocks and shells were encountered throughout the site. During the course of the survey highly mobile seaweed swept through the whole site often catching on upstanding features and temporarily obscuring them from view.

5.4.2. The seabed surrounding the South Eastern Anomaly was also a featureless, flat and sandy with occasional small rocks and shells on the surface. The anomaly was located within a small, approximately one metre deep scour.

5.4.3. The archaeological features in both areas were all covered with soft and hard marine growth.

5.5. ARCHAEOLOGICAL FEATURES

Main Site

5.5.1. The main part of the *Invincible* wreck site covers an area approximately 50 metres long and (at the northern end) 40 metres wide (measurements taken from 2003 WA multibeam). Prior to the fieldwork the licensee's site plan (**Figure 3**) was overlain onto the 2003 WA multibeam data (**Figure 3**) and the resultant image was used as a base-map within Arcpad in order to guide the diver around the site (**Figures 4** and **5**). There was a strong correlation between the plan and the multibeam within the southern (excavated) section of the site, however within the northern area there were several noticeable discrepancies (**Figure 5**). These discrepancies are discussed further in section 6.

5.5.2. The section of the northern part of the main site surveyed by WA in 2003 measured approximately 20 by 25 metres. In spite of the extensive excavations, the seabed around the main site is still covered by a large number of features and artefacts. This is particularly true of the northern part of the site, which was not subject to excavation during the 1980s. Survey in this area was undertaken in a roughly anti-clockwise direction. All the features described by the diver are tabulated in **Appendix II**, and the positional data is illustrated in **Figures 2, 4** and **5**. The main features encountered during the survey of the main site were as follows:

5.5.3. The first timbers that were encountered (at **Obs. 512-515**) were part of the northernmost end of the excavated area – i.e. the bow of the vessel (**Figure 5**). The exposed lengths of the four timbers (frames) all lie flush with the seabed, each with an exposed length of approximately 0.5 metres and a width of approximately 0.3 metres. All the timbers have (ceiling?) planking running transversely across the top of them. One of the timbers (at **Obs. 515)** has a seam running down it that was packed with caulking. Approximately four metres to the east of these timbers a series of concretions were recorded at **Obs. 540, 541** and **543** (**Figure 5**).

5.5.4. The timbers at **Obs. 513-5** all correspond with features on both the plan and the multibeam image. The concretions (at **Obs. 540, 541** and **543**) corresponded with a series of timbers recorded on the site plan; if they do represent this area of wreckage then there must have been some degree of seabed accretion within this area. The position of **Obs. 512** (i.e. away from the main line) is assumed to be the result of a poor position-fix, though this is not proven.

5.5.5. Approximately five metres to the north east of **Obs. 515** (at **Obs. 516-518** and **539**) there was a cluster of concretions of varying sizes and a possible knee (**Figure 5**). The feature at **Obs. 539** appeared to be an iron knee attached to timber and with an iron bolt protruding at a 90-degree angle (**Plate 3**). There is a large concretion next to the knee, both of which are sitting upon large timbers approximately 0.5 metres wide. The largest concretion stands one metre high and is 0.9 metres wide.

5.5.6. The area covered by the concretions measures three by five metres, and all concretions had timber visible beneath them. Alongside the concretions (at **Obs. 519**) there was a substantial beam orientated in a north - south direction, and a piece of scaffolding pole (at **Obs. 520**) - probably left over from the excavations on the site. This area is visible on the multibeam image but does not appear to correspond with anything drawn on the site plan (see **Figure 5**).

5.5.7. Approximately 10 metres to the east of **Obs. 520** (at **Obs. 521–525**) there are a variety of concretions and partially exposed timbers. To the north of these concretions there is an area of substantial framing orientated in a north - south direction (at **Obs. 526** to **527**). This articulated section of the wreck was approximately 10.1 metres long and contained 19 frames and sections of (ceiling?) planking.

5.5.8. At the northern end of the these timbers there was a further area of articulated timber wreckage (at **Obs. 528-533**) that was probably attached to the timbers at **Obs. 526** to **527**. These timbers all lie flush with the seabed and range from 4 to 0.15 metres in exposed length (**Figure 5** and **Plate 1**). All of the features recorded at **Obs. 520-533** appear to correspond with features on the multibeam image, however they also appear to correspond with a drawn section of wreckage on the site plan (section B on **Figure 5**).

5.5.9. To the south west of the above timbers there was a further detached area of wreckage (at **Obs. 534-537**) and an isolated iron knee (at **Obs. 538**) (**Figure 5**). Copper fastening / staples were observed in two timbers (at **Obs. 537**). The fastenings were 'U-shaped' and were observed in a line of three along one of the timbers (**Plate 2**). All of these features appeared to correspond with anomalies noted on the multibeam image but, if section B of the site plan is re-positioned (see 5.5.8 above and section 6) then they may not correspond with a previously drawn element of the site.

5.5.10. There was some discussion with the licensee with regard to how stable the site was, and whether it was in the process of being covered over. Within the northern area of the site there is some evidence that the timbers do appear to be covering over (see **Plate 1**), although this may not be the case for the whole site. In contrast the multibeam image seems to suggests that there has been some further uncovering at the northern end of the site since the site plan was drawn (**Figure 5**).

South Eastern Anomaly

5.5.11. The 2002 ADU multibeam identified a 'new' anomaly to the south east of the main *Invincible* wreck site, and the same feature was visible in the 2003 WA multibeam data (**Figure 4**). It was thought that, due to its location, the feature could be part of the *Invincible* site. It may even be a portion of the wreck ripped off when a vessel grounded on the site in the winter of 1997 (Fenwick and Gale 1998:136). The main thrust of the 2003 diver survey was concerned with finding and identifying this anomaly.

5.5.12. The anomaly appears to be a rectangular concretion measuring approximately 4 metres long and 1.5 metres wide. It was a composite of wood and iron, and had no clearly identifiable form, though all of the components were consistent with the remains of a wooden vessel (**Figure 6**).

5.5.13. Close inspection revealed that the anomaly consisted of layers of wood, iron concretion and unidentified organic material. Treenails, iron fastenings and a scarf joint (**Figure 6**) were observed in various timbers – most of which were only visible where they projected out from under the iron concretion. The exposed timber was badly gribbled but just underneath the sand the timber was smooth and solid. Previous exposure/disturbance is evidenced by the presence of a coke can wedged well into the feature.

5.5.14. Two WA datums (Datums 01 and 02 on **Figure 6**) were placed at either end of the anomaly to assist with the video and photographic survey - which were the main survey tools used. This was supplemented with position-fixes and database entries (at **Obs. 545-568**). Following this, a circular search (see **Obs. 569-576**) was conducted around the anomaly from Datum 1, in order to ascertain whether it was an isolated structure.

5.5.15. A series of concretions were identified approximately 10 metres south of the anomaly (at **Obs. 579-588**) (**Figure 4** and **Plate 4**). These were discovered on a drift dive back towards the shot (the dive had been aborted due to strong currents) and therefore the position-fixes may be inaccurate. The position-fixes from a further attempt to record these features may also be inaccurate, as one of the survey beacons had apparently moved.

5.5.16. One of the concretions (at **Obs. 578)** was a circular ring with six legs coming down from it disappearing into the seabed (**Plate 4**). The concretion stands 0.1 metres proud of the seabed and has a diameter of 0.8 metres, the thickness of the lip at its widest point was 0.08 metres. The other concretions were small and amorphous.

6. CONCLUSIONS

6.1.1. The two main achievements of the 2003 fieldwork were an assessment of the accuracy of the site plan of the northern part of the site (and the condition of these timbers) and the identification and preliminary recording of the 'new' South Eastern Anomaly.

6.1.2. Within the northern area of the main site there were some clear discrepancies between the site plan and the multibeam anomalies. The site plan matched the multibeam image very well within the southern, excavated part of the site, but not within the northern area. Also the multibeam image appeared to shown more wreckage than was drawn (**Figure 5**). The tracked diver survey appeared to support the multibeam in that the features recorded by the diver matched anomalies visible on the multibeam image.

6.1.3. Discussions with the licensee on these points have not yet been undertaken, however one possible explanation is that then manner of locating the drawn northern elements of the site relative to the excavated southern section may have resulted in some small shift and rotational errors. As can be seen on **Figure 5**, sections A and C match the multibeam image, and sections D and E require small two to three metre shifts to the east. However, section B is more problematic. The tracked diver survey suggests that the multibeam anomaly that represents this section is to the north east of its drawn position, but the anomaly to the south west is both closer and more representative of the shape of the anomaly.

6.1.4. The variation in the degree of the 'match' from section to section suggests that individual sections of wreckage were drawn and georeferenced independently. Discussion with the licensee indicated that this was indeed the case, and that each section had been positioned by trilateration (Bingeman pers. comm.). There are also clearly more anomalies than drawn elements of the site, for example the section D

extends to the east by approximately 7.5 metres and is joined to section E, and around section B there are three anomalies where the drawing only shows one.

6.1.5. There is conflicting evidence for whether or not the site is eroding. Within the southern, excavated part of the site there has clearly been a high degree of in-filling of the excavated area. However, at the northern end of the site the multibeam suggests increased exposure, whereas in the same area individual elements are clearly covering up. One possible explanation for the apparent erosion at the northern end is that sediment has migrated southwards into the former excavation trench.

6.1.6. The 2003 WA multibeam and diver surveys have highlighted the need for an up to date plan of the site. This would serve to bring the record for the unexcavated part of the site up to Level 3b. A revised plan of the northern area would also provide the basis for future monitoring of sand levels on the site.

6.1.7. Most of the survey work during the 2003 season was concentrated on the anomaly to the south east of the main site. A position-fix was obtained for this feature and it was photographed and summarily described. Whereas the remains were consistent with those expected from a wooden sailing vessel further work would be required before it could be confidently ascribed to the *Invincible*. It should be noted that there was no clear evidence to suggest whether or not it had recently been moved from the main site (see 5.5.11 above).

6.1.8. The principle discovery of the diver survey in this area was that, contrary to the impression from the multibeam image, the anomaly was not an isolated feature, as evidenced by the fact that further concretions were recorded to the south. As such the South Eastern Anomaly may be part of a separate shipwreck or, if it is part of the *Invincible* the it may provide some insight into both the wrecking and site-formation processes present on the site.

7. BIBLIOGRAPHY

Anon, 1998, *Invincible (1744 – 1758): Research Design*, unpublished report.

Bingeman, J., 1981a, *Solent: HMS Invincible 1758 wreck site,* IJNA No. 10.2

Bingeman, J., 1981b, *Interim Report Excavations*, unpublished report.

Bingeman, J., and Broomhead, J., 1983, *Interim Report Excavations*, unpublished report.

Bingeman, J., 1985, *Interim report on artefacts recovered from Invincible (1758) between 1974 and 1984,* IJNA No. 14.3.

Fenwick, V., and Gale, A., 1998, *Historic Shipwrecks, Discovered, Protected and Investigated*, Tempus.

Lavery, B., 1988, *The Royal Navy's First Invincible 1744-1758 The Ship the Wreck the Recovery*, Portsmouth.

Quinn, R, Adams, J. R., Dix, J. K. and Bull, J. M., 1998, *The Invincible 1758 site an integrated geophysical assessment,* IJNA No. 27.2.

Wessex Archaeology, 2003a, *Archaeological Services in Relation to the Protection of Wrecks Act (1973): Written Scheme of Investigation*, Report Ref: 53111.01g

Wessex Archaeology, 2003b, *Archaeological Services in Relation to the Protection of Wrecks Act (1973): Recording Methodologies*, Report Ref: 53111.04a.

8. APPENDIX I: NOTE ON THE *INVINCIBLE*

The *Invincible* was launched from Rochefort in 1744 when it was a new design of a 74-gun warship. The *Invincible* had a longer hull than previous 3rd rates, which allowed the guns to be arranged along two decks: twenty eight 36 pounders on the lower; thirty 18-pounders on the upper; and sixteen 8-pounders on the forecastle and quarter deck. This made the vessel powerful but stable, principally because of her low hull (Fenwick and Gale 1998:136).

The *Invincible* was also faster than any of her British counterparts at that time. Her speed was in excess of 13 knots while the British ships could only manage 11-12 knots (Bingeman 1985).

The *Invincible* was captured by the English Fleet under Admiral Anson at the first battle of Finisterre in 1747. Consequent study of her design produced the very successful '*Invincible* class' of 74-Gun 3rd Rates used by the Royal Navy during the latter 18th and early 19th centuries (Bingeman 1985).

The *Invincible* was lost in 1758 when her rudder jammed and the vessel failed to clear Horse Tail sandbank and grounded within the eastern mouth of the Solent. She was letting in water for three days and cannons were thrown overboard to try and lighten the vessel. Finally two pumps broke and the vessel rolled on to her port side and sank (Fenwick and Gale 1998:137).

A local fisherman, Arthur Mack, discovered the wreck in 1979 when he fouled his fishing gear and brought up timber. The snag was investigated by divers who discovered the remains of a large wooden warship. This was later identified as the *Invincible* by the discovery of a wooden tally attached to a spare sail with the words *Invincible, Flying jib 26x26 No6* (Bingeman 1985).

The site was designated in 1980 since when a series of surveys and excavations have taken place with Margaret Rule acting as the nominated archaeologist. In 1988 the Licensee John Bingeman and his associates set up *Invincible Conservation 1744-1758 Ltd* and began selling artefacts to raise capital for further work. It is noted in the ADU reports of 2001 "that artefacts from the Invincible were reported as being in a neglected state and apparently abandoned in a store in HM Dockyard at Portsmouth" (ADU Report 2001).

In recent years work on the site has been limited with occasional visits by the licensee to assess sand levels and general site stability.

9. APPENDIX II: ARCHAEOLOGICAL OBSERVATION LOG

Obs. No.	Associated Obs. Nos.	Easting	Northing	Obs. Type	Description	Video Log
512		467936.429	93754.629	Timber	3-4 large timbers, which lie flush with the seabed and have a large chain attached. They could be frames one of which is partially covered.	
513		467939.462	93756.521	Timber	Timber Number 1 is 50 x 30 cm and lies flush with the seabed. There is planking lying on top that runs the length of the frames.	
514		467939.570	93757.264	Timber	Timber Number 2 is 32 x 50cm and lies flush with the seabed. The gap between frame one and frame two is 3cm.	
515		467939.791	93758.379	Timber	This is longitudinal planking 0.5m x 0.3 metres partially exposed. There is possible evidence of a seam with possible caulking.	14
516		467942.564	93762.124	Concretion	An upstanding concretion by approx. 1 metre. It is heavily covered in marine growth and 0.9 metres across located on top of timbers. It is possible it is an iron knee	18
517		467943.962	93763.254	Concretion	This concretion lies next to at Obs. 516 and has planking running underneath it and is almost square in shape.	
518		467944.675	93762.707	Concretion	This is the centre point of a cluster of 4 concretions. The dimensions of two of the concretions are 0.12m and 0.2 metres. The area covered is 0.3 x 0.5 metres square.	
519		467945.733	93762.721	Timber	A beam orientated in a north south direction approx. 4-5 metres in length.	
520		467948.450	93761.830	pipe	An iron pipe possible modern lying with 2.5 metres exposed before disappearing into the sand.	
521		467951.610	93762.983	Concretion	A concretion upstanding by 1 metre (0.5 x 0.2 metres) and is orientated in a east west direction.	
522		467952.340	93761.137	Concretion	Possible bad position as ROV Trak spiked. A timber also runs parallel to this concretion.	
523		467955.037	93761.728	Timber	A planking running parallel to previous at Obs. 522. The plank is thin 0.1 metre wide and 0.8 metres partially exposed. Part of the timber has a U shaped carved out of it.	
524		467954.910	93762.470	Concretion	A concretion located on top of planking. It is 0.9m long by 0.04 metres wide at the minimum and 0.1 metres wide at its maximum and 0.13 metres upstanding.	
525		467955.578	93765.444	Concretion	The concretion is 0.3 x 0.1 x and 0.2 metres upstanding.	
526		467954.504	93766.542	Timber	Position represents the start of s series of framing	
527		467953.731	93771.722	Timber	The position represents the end of a series of framing (at Obs. 526 being the start point). The series contains 19 frames, which run in a north south orientation, with a approximately 10.10 metres exposed length.	
528		467951.024	93771.872	Timber	An end of a substantial timber 0.4 metres wide and 4 metres exposed length.	
529		467951.603	93772.621	Timber	The other end of timber at Obs. 528. At a depth of 6.5 metres	1hr 6min
530		467951.473	93773.546	Timber	A broken end of a timber 0.15 metres wide and 0.5 metres long.	

Obs. No.	Associated Obs. Nos.	Easting	Northing	Obs. Type	Description	Video Log
531		467951.355	93773.544	Timber	A timber with an exposed length of 0.7 metres and width of 0.15 metres. Lying 20cm from previous timber at Obs. 530.	
532		467950.772	93773.166	Timber	A timber with an exposed length of 0.9 metres and 0.2 metres wide. Lying 1 metre from timber at Obs. 531	
533		467949.726	93772.226	Timber	A timber with an exposed length of 0.6 metres and 0.3 metres wide. Lying 0.7 metres from timber at Obs. 532	
534		467948.709	93769.061	Iron Knee	A possible iron knee with timber running underneath. It is upstanding by 0.6 metres with a broken arm measuring 0.7 metres long and another arm measuring 1 metre long. It is heavily concreted with a possible diagonal bracing bar on the knee.	
535		467948.135	93767.942	Concretion	Start of line of timbers	
536		467947.895	93768.310	Timber	Position near the start of the timber with the chain links.	
537		467947.662	93768.121	Timber	A position on timbers with copper stables in them	
538		467943.924	93766.219	Iron Knee	Iron knee	
539		467942.337	93761.565	Concretion	A large concretion 0.8 metres upstanding with a bolt coming out of the side. It is possible a composite of concretion sandwiching wood. Lying on large beams with a width of 0.5 at the bottom and 0.2 at the top.	1 hr 31 mins
540		467943.330	93757.498	Concretion	The centre of the concretion	
541		467943.100	93757.125	Concretion	The centre of the concretion	
543		467943.707	93755.650	Concretion	The centre of the concretion	
545		468017.579	93710.086	Concretion	This point is one end of a concretion that is upstanding by 0.1 metres and partially buried at an angle and heavily gribbled. It sits upon wooden frames and the southern half of the concretion is covered in marine growth.	10.2
546		468018.287	93709.909	Concretion	Concretion (repeat of above at Obs. 545??)	16
547		468019.691	93710.484	Concretion	The concretion is oval shaped 3.9 metres long and 1.5 metres wide.	
550		468018.515	93710.468	video mosaic	Start of a video mosaic run over the site	6.02
551		468019.203	93711.775	Anomaly	Eastern end of the anomaly	9.04
552		468017.341	93710.268	Anomaly	Western end of the anomaly	10.14
553	564, 567	468019.764	93710.856	WA Datum 2003 02	Error ellipses would be less without Obs. 567, which is over 3 metres out. At the north east edge of the site	
554	568	468017.711	93708.975	WA Datum 2003 01	Datum 01 is at the south west edge of the site.	
555		468017.831	93708.791	photograph mosaic	First photograph in a profile mosaic of the anomaly	22.56
556		468019.561	93711.409	video mosaic	Start of a video mosaic run over the site (practice sweep)	33.45
557		468019.564	93711.223	video mosaic	Start of a video mosaic run over the site (starting at WA Datum 002)	35.02

Obs. No.	Associated Obs. Nos.	Easting	Northing	Obs. Type	Description	Video Log
558		468017.949	93708.793	video mosaic	Start of a video mosaic run over the site (starting at WA Datum 001 with the baseline in the right hand side of the frame).	37.26
559		468017.344	93710.083	Fastenings	A small concretion lining a cut out groove it has a dark residue of iron and two treenail fastenings.	40.33
560		468016.648	93709.332	Fastenings	Iron pins protruding from a concretion.	36.44
561		468017.459	93710.269	sediment profile	A sediment layer description; 0.15 metres indent with concreted material on surface depth of 0.45 metres upstanding approx. 0.07 metres concretion. The second layer is 7cm down from the surface concretion. The remaining 3 cm are wood with an organic layer in the middle which appears to be weed.	49.5
562		468018.515	93710.468	sediment profile	The top layer is concretion then a layer of wood that disappears into the seabed. Diver can feel a possible curve. 2 metres to the north running parallel is a large timber.	53.23
563		468015.923	93710.805	Timber	The timber is located near Datum 1. One end of the timber is buried it lies flush with the seabed, it is 0.4 metres wide the first 3-4cm of the wood is gribbled but is then firm and smooth.	1.03
569		468018.064	93708.980	Search Data	Start of circular search	10.18
570		468017.701	93709.716	Search Data	Start of circular search first swing at 2 metres out on the baseline tape. The sand is firm at the start of the sweep.	12.09
571		468018.145	93711.761	Search Data	The circular sweep crosses a timber at 2.6 metres on the baseline tape.	14.17
572		468016.969	93711.746	Search Data	The circular sweep crosses a timber	14.5
573		468016.410	93709.514	Search Data	End of the feature and the end of the first sweep.	15.51
574		468015.609	93707.836	Search Data	Start of the second sweep at 7 metres out along the baseline tape.	17.05
575		468015.470	93709.502	Seabed Description	Rise in the seabed	
576		468024.510	93710.732	Search Data	End of the second sweep.	19.32
579	587	468022.891	93699.589	Circular concretion	It has 6 legs that come down off the circle into the seabed. It is upstanding by 10cm with a diameter of 0.8 metres. The thickness of the lip at its widest point is 8cm.	Dive 60 08.16 & Dive 61 36.30
580		468022.682	93697.547	Concretion	concretion	
581		468019.032	93697.870	Concretion	concretion	
582		468016.327	93697.835	Concretion	concretion	
585		468021.662	93703.652	Concretion	the concretion is 10cm across and 8-9cm long upstanding by 9cm and is covered in marine growth	
588		468021.707	93700.129	Concretion	concretion (noted as being previously described)	45.05

10. APPENDIX III: DIVE DETAILS

Dive No.	Date	Diver	Duration (mins.)	Depth (metres)	Current	Visibility
56	09/08/03	Frank Mallon	101	7	slight to negligible	5 metres
57	09/08/03	Jenny Black	33	9.5	picks up throughout dive	5 metres plus
58	09/09/03	Simon Adey-Davies	82	7	slack	2 metres
59	09/11/03	Frank Mallon	22	8.5	slight / picking up	2 metres
60	09/11/03	Simon Adey-Davies	14	8	strong	3 metres
61	09/12/03	Simon Adey-Davies	55	7	slight	2 metres