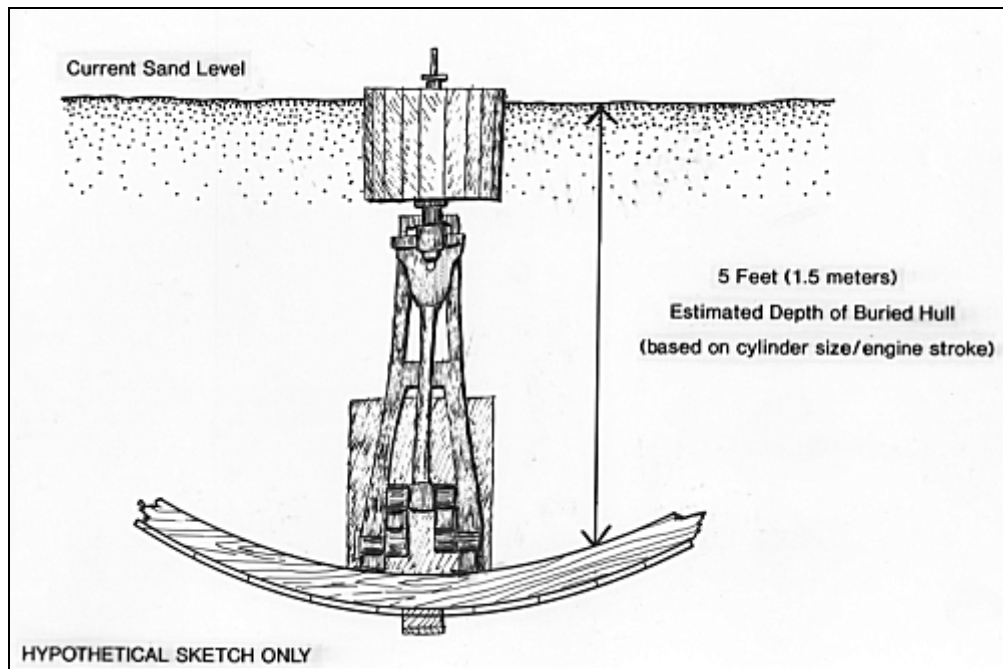


EMU 1874 - 1888

Maritime Archaeological Survey

Report into the exposed shipwreck remains located at Crowdy Bay, NSW.



HERITAGE BRANCH

DEPARTMENT OF PLANNING

SYDNEY, 1994

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Cover: Predictive plan showing the exposed remains and the likely extent of buried structure. Proposed by Mr John Riley. (Drawing by Tim Smith)

Report Prepared: 1994.

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EMU (1874-1888)

WRECK INSPECTION REPORT

INTRODUCTION

This report details a survey of a partially buried shipwreck located on the beach at Crowdy Bay, near Harrington NSW (Figure 1).

The Department of Planning enlisted Manly Hydraulics Laboratory (MHL) to assist in the survey attempting to reveal the extent of the buried remains. Periodically exposed during storm activity, the existence of the wreck has largely been forgotten by the local community.

Much of the buried portion of the wreck site was traced with the aid of a probe survey. While it has not been possible to fully establish the identity of the vessel, the results suggest that the remains most likely correspond to the steamer *Emu* lost in 1888. This attribution is based on archival records which described the original wreck event and location, the configuration of the visible engine and boiler remains, the extent of the wreckage, and the wood species used in its construction.

Several individuals assisted with historical research. They include:

Mr Paul Elger, Lansdowne;
Mr Jim Riley, Richmond River Historical Society, Lismore;
Ms Esme Smith, Researcher;
Mr John Yeager, Descendant of W.T. Yeager of Coraki.

The site inspection was conducted between 4-7 July, 1994 with the following personnel:

D. Nutley, Department of Planning, Maritime Archaeologist (Officer in Charge);
T. Smith, Department of Planning, Assistant Maritime Archaeologist;
C. Browne, Manly Hydraulics Laboratory (technical assistance);
P. Clark, Manly Hydraulics Laboratory (technical assistance).

HISTORICAL CONTEXT

The Department of Planning was notified of the shipwreck remains located on Crowdy Beach by Mr Paul Elger of Lansdowne (requirements of Historic Shipwrecks Act, 1976; Section 17:1). Mr Elger's father had shown him the wreck, the existence of which was known to some residents of the area.

A preliminary examination of available historical records indicated that several coastal vessels have been lost in the Crowdy Bay area. While not always providing specific details, the contemporary records indicated whether the vessels were lost on Crowdy Beach, struck the reef areas, or foundered out in the bay. The following list includes vessels known to have been lost in the Crowdy Bay area:

Table 1: **Steamer wrecks attributed to crowdy beach and north of the Manning River Bar**

| | | | |
|-------------|----------------|------------|--|
| <i>EMU</i> | steamer | 9.10.1888 | Sprung leak, driven ashore Crowdy Bay (165t - Blt NZ). |
| FIRE KING | paddle steamer | 30.4.1873 | Swamped at Manning Bar, driven onto north beach, wrecked (221 t - Blt NSW). |
| IRON CHIEF | steel steamer | 1.4.1928 | Total loss in shallows near Diamond Head. (2686 tons, Blt 1916). |
| JUNO | paddle steamer | 24.10.1853 | Leak at sea. Driven ashore about 1 mile north of Manning River (621 t - Blt Greenock). |
| KOOROONGABA | paddle steamer | -1.1972 | Foundered off Crowdy Head, an obsolete Newcastle ferry (542t - Blt 1921). |
| SAMSON | paddle steamer | 24.12.1908 | Foundered after being abandoned off Crowdy Head (101 t - Blt NSW). |
| SHELBOURNE | ketch (w) | 14.2.1885 | Foundered 5 miles off Crowdy Head (Blt as a wooden steamship, 61t - Blt NSW) |
| ULMARRA | paddle steamer | 10.10.1872 | Driven ashore on North Beach, Manning River (50t - Blt NSW) |

Table 2: Sailing vessel wrecks attributed to crowdy beach and north of the Manning River Bar

| | | | |
|-----------|--------------|------------|---|
| ABBEY | schooner (w) | 14.2.1868 | Wrecked 2 miles north of Crowdy Head (90 t - Blt UK) |
| ATLANTA | schooner (w) | 28.7.1882 | Wrecked north Head of Manning Bar (56 t - Blt NSW) |
| AMY | ketch (w) | 21.9.1879 | Capsised at Manning River Bar, total wreck on beach imm. nth (26 t - Blt NSW?). |
| BARWON | brigantine | 15.2.1868 | Disappeared near Crowdy Head in gale (56 t - Blt NSW). |
| BROTHERS | schooner (w) | -8.1848 | Wrecked ashore at Crowdy Bay (10t - Blt NSW) |
| CHEETAH | schooner | 16.2.1868 | Wrecked 3 miles north of Crowdy Head (119t - Blt UK) |
| EMILY ANN | schooner (w) | 27.11.1864 | Capsised Manning Bar, wrecked Crowdy Head (39t - Blt NSW). |
| GO-A-HEAD | ketch (w) | 9.3.1875) | Wrecked on Nth spit, Manning Bar (29 t - Blt NSW) |
| ISABEL | schooner | 6.5.1898 | Wrecked Crowdy Bay (69t) |
| OCTOROON | schooner | 22.2.1878 | Abandoned off Crowdy Head with leak (52 t - Blt QLD). |
| RAVEN | brigantine | 15.2.1868 | Wrecked 2 miles south of Crowdy Head (1148t - Blt USA). |
| RESOLUTE | ? | 24.6.1879 | Driven ashore, Crowdy Bay (65t - Blt NSW). |
| SUSANNAH | schooner | 16.6.1868 | Driven ashore Crowdy Bay (43t - Blt NSW) |
| TRUSTY | schooner (w) | 8.5.1885 | Total wreck imm. nth of Manning Bar (61 t - Blt ?). |



Figure 1: Painting of SS Emu by William Forster. Courtesy Mr John Yeager and Ms Esme Smith.

As these Tables show, several vessels were known to have been wrecked between the Manning River Bar and Crowdy Bay. All sailing vessels were immediately discounted (due to the presence of engines at the Crowdy Bay site). From the list of known steamer losses, only the Emu was recorded as lost ashore at the southern end of the Bay. The majority of vessels foundered out in deeper water and many constituted paddle steamers, vessels with engines not consistent with those visible on-site.

It was therefore considered likely that the remains constituted those of the *Emu*, this view was strengthened with the results of the wreck inspection (below).

Historical details

The *Emu*, a wooden single screw steamship of 165 tons gross, was built in Shortland (Auckland) New Zealand by Robert Stone in 1874 (1). The vessel had a vertical compound steam engine generating 90 horsepower, built by Fraser & Tinne of Auckland. With an overall length of 120.8 feet, breadth of 22.3 feet and depth of 7.8 feet, the vessel was schooner rigged.

The original owner of the *Emu* was C.J. Stone and the vessel was registered in Auckland (2). By 1879, ownership changed to T. Cowlinshaw and the steamer became registered in Sydney. Transferred again to F.W. Cook in 1885, the *Emu* was finally sold to W.T. Yeager in 1885, and again registered in Sydney.

William Tudor Yeager was an immigrant from the U.S.A (born Lubeck, Canada in 1839) and introduced the first steam drogher to the Richmond River (3). Expanding into timber milling and other spheres in the region, he later entered the Sydney-Richmond river passenger trade (c.1890). The *Emu* joined his early fleet which comprised the schooner Neptune (221 t), the steamer Amphitrite (120 t) and the tug Vesta (42 t) (4).

A fine wooden vessel with a "clipper bow" (Figure 1, 2), the *Emu* was employed in the coastal trade under command of Norbert James Ivaney. At the time of loss in 1888, the steamer was on a voyage from the Richmond River laden with timber for Sydney (5). With nine hands onboard, the voyage went well until near Seal Rocks when a sleety gale set in. The heavy south-east weather caused the vessel to spring a leak, lose all sail and seek safety in Crowdy Bay. While riding at anchor with 60 fathoms (110 meters) of cable out, it parted at 9.30 a.m., sending the *Emu* ashore to become a total wreck. When beached, the sides of the vessel rapidly broke open, partly due to the heavy load of timber onboard (6). The *Emu* was said to be lying "one mile north of Crowdy Head, on the beach, and full of water". There was no loss of life (7). A Marine Board inquiry into the disaster found no fault in the captain (8).

NOTES:

- (1) British Register of Ships, 21 of 1879. ANMM Library.
Register of Australian And New Zealand Shipping (ANZ),
Merchant Shipping and Underwriters Association Ltd.

- Melbourne (Mitchell Library).
- (2) Parsons, R., 1973, Australian Shipowners and Their Fleets, vol 2. p.160.
 - (3) Parsons, R., 1973, Australian Shipowners and Their Fleets, vol 2. p.163.
 - (4) S. Denig., nd, A History of Shipping on the Richmond River (unpublished). Richmond River Historical Society. p. 7.
 - (5) Sydney Morning Herald, 10 October, 1888.
Loney, Australian Shipwrecks. Vol 3, 1982. p.186.
 - (6) The Richmond River Herald, 9 October, 1888.
 - (7) Sydney Morning Herald, 10 October, 1888.
 - (8) The Richmond River Herald, 23 October, 1888.



Figure 2: Original photograph of the SS Emu taken in front of W.T. Yeager's home "Oakland House". Courtesy Mr John Yeager and Ms Esme Smith.

Emu Wreck - Construction Details.

Official number: ON 70183

Built: 20 April, 1874

Where Built: Shortland, Auckland, New Zealand

Builders: Robert Stone

Owner: William T. Yeager (Coraki, Richmond River).

Construction: Wooden hull and framework, one deck, three masts, schooner rigged.

Dimensions: Length: 120.8, Breadth: 22.3, Depth: 7.8 feet

Tonnage: 165 gross, 131 net

Figurehead: Shield

Wrecked: 9 October, 1888.

OBJECTIVES

General

To develop baseline data on the wreck site in relation to its environmental and archaeological characteristics; to develop site interpretation and an assessment of archaeological potential.

Specific

1. To re-locate the wreck site and record an accurate position for the remains.
2. To carry out a general survey of the site to ascertain the extent and nature of the archaeological remains; to complete detailed site drawings (where possible) by which to graphically illustrate the above and, to assess the surviving extent of the buried structure.

METHODOLOGY

The shipwreck remains were known to local resident Paul Elger who notified the Department of Planning in March, 1994. Mr Elger provided photographs of the site and a location map by which to re-locate the area. The Department undertook a preliminary investigation of the site in July, 1994.

There was no secure identification of the remains prior to the inspection. The presence of an engine and cylindrical boiler was known to local residents and beach users. There was not, however, widespread knowledge as to what the remains represented.

Prior to the site inspection, the Department compiled a list of known shipwreck losses in the area (above). Several vessels were known to have been wrecked between the Manning River Bar and Crowdy Bay. All sailing vessels were immediately discounted (due to the presence of engines on-site). Several steamers were known to have been wrecked in Crowdy Bay, however only the *Emu* was recorded as being lost on the southern end of the Bay, the majority foundering out in deeper water.

The *Emu's* register details indicated that the vessel was fitted with a vertical compound engine. An analysis of the exposed portion of the engine in Crowdy Bay, confirmed that it was also representative of this type. Therefore, prior to the survey there was a strong likelihood that the remains belonged to the coastal steamer *Emu*.

The current survey was conducted over two days (4-5 July, 1994).

It was important to establish the extent of the buried portions of the wreck site and to confirm the materials used in the hull's construction. If the hull was found

to be timber, it would further point to the wreck being the *Emu*. A probe survey was therefore employed. This had the benefit of minimal intrusion on the wreck remains and being able to detect wood as opposed to metal refusals. The 3 meter probe could be manually handled with water intake via a hand held compressor. A theodolite enabled all probes to be plotted and tied into the Australian mapping grid.



Figure 3: Tim Smith operating water pump for probe survey



Figure 4: Extracting core sample of timber from inside aluminium pipe

Available information on the wreck site was forwarded to shipwreck specialist, Mr John Riley, prior to the site visit. Mr Riley confirmed that the visible engine was a vertical compound type consistent with that of the *Emu*.

Further, it was evident that the boiler had moved from its original position forward of the high pressure cylinder to a position aft of the low pressure cylinder (assuming a rear engined vessel - Figure 1,2). Mr Riley believed that the engine was still attached to the hull (due to remaining in an upright position) and that the buried portion of the hull probable runs on an axis through the line of the engine. Apparent damage to the low pressure cylinder of the engine appeared reminiscent of explosives, perhaps used during salvage work on the wreck. The cylinder head cover is missing and the cylinder wall is damaged to the rear.

Mr Riley predicted that the buried hull remains would be located some 5 feet below the upper level of the cylinder casing (Figure 6). This figure was based on the calculation of the length of the engine's stroke.

It was also intended that a wood sample be removed from the buried hull to assist with the identification of the site. If the timber could be established as a New Zealand species, it would help to confirm that the vessel was indeed the *Emu*. If however, the hull was constructed from Australian or foreign timbers, the identification might need to be considered further.

Wreck Site Location

The engine and boiler remains were found to lie in the shallow surf zone of Crowdy Beach at high tide, and exposed dry at extreme low tide (Figure 3, 7), (E 31° 50' 02.78" S 152° 44' 09.72" in WGS84 datum). A white painted wooden peg marks the location of the wreck. It can be found located against the vegetation line of the dunal area opposite the site, and approximately 1.3 kilometres north along the beach from the Crowdy Head Surf Life Saving Club.

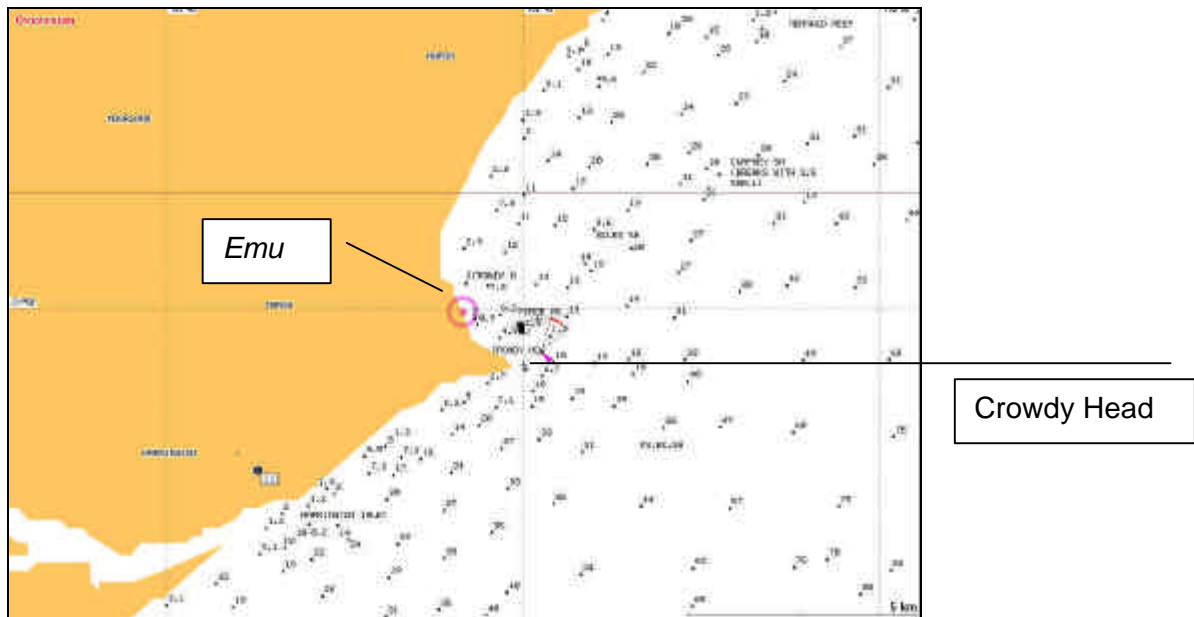


Figure 5: Location map (sources: Manly Hydraulics Laboratory)

Wreck Inspection

Two star pickets were placed to delimit the main search area (comprising approximately 100 x 50 meters). This search area was obtained by mapping out the known length and breadth of the *Emu* in relation to the orientation of the engine and boiler. Working on the proviso that the vessel was of engine aft design, this placed the majority of the wreck out from the beach, into the water.

The pickets served as a quick reference mark during the survey. Colin Browne (MHL) undertook a preliminary probe survey (hand probe) to delimit buried structure in the immediate vicinity of the engine remains. With the survey area defined, the three meter probe survey was initiated. With one person operating the probe, one controlling the pump and another the water intake and recording, a large area of sand around the exposed remains was inspected. All probes registering a refusal were plotted using an EDM theodolite. Most hit timber at approximately 1.5 - 2 meters depth. Some 96 individual probes were completed, covering an area of approximately 40 x 20 meters.

A timber sample was removed from the site with the aid of a powered drill. The sample was taken forward of the engine after timbers were encountered using the 3 meter probe. A metal caisson was lowered through the sand and onto the buried timber. With the tube jettted free of sand, the drill was employed to remove a c. 2.5 centimetre square sample of timber. This sample was forwarded to CSIRO in Melbourne for species identification.

ENVIRONMENTAL DESCRIPTION

Wreck Site Description

Apart from the vertical compound steam engine and scotch boiler, barely exposed above the current sand levels, there is nothing to indicate the presence of a shipwreck.

The probe survey however, confirmed that there is more to the shipwreck remains than those visible. A number of probes met a solid refusal at approximately 1.5 - 2 meter depth. These refusals were compatible with the probe striking timber remains. The majority of refusal were clustered around the engine. This was predicted earlier, as the upright nature of the engine suggested that it was still attached to a solid base. Timbers were encountered for a distance roughly equal on either side of the engine suggesting that the engine was attached centrally within the hull. Approximately 4 meters of the buried hull survives on the port side of the engine, and approximately 2-3 meters on the starboard side. The majority of the timber refusals were found to run in a line consistent with the orientation of the engine. The bulk of refusals were detected around the engine and aft of it (back towards the beach) that is, towards the stern of the vessel (Figure 7).

These findings suggest that the bulk of the hull lying forward of the engine room (towards the bow and ocean - some 60-70 feet), has disappeared. This would not come as a surprise, the section of hull directed out towards the deeper water being more prone to direct wave and storm action. With continual buffeting subsequent to the wreck event, this portion of the vessel would have been more likely to quickly break up. The timber and other structure would have been easily carried away by natural forces.

The weight of the engine and boiler would have aided the retention of the wooden hull lying under these features. It can be noted that wave action has carried the large boiler and re-located it aft of the engine remains.

Upon completion of the survey, the timber sample was forwarded to the CSIRO's

Division of Forest Products in Melbourne. The sample was analysed and found to be New Zealand Kauri Pine, a timber well used in shipbuilding. This finding adds strength to the argument that the inspected remains are those of the steamer *Emu*, a wooden vessel built in New Zealand in 1874.

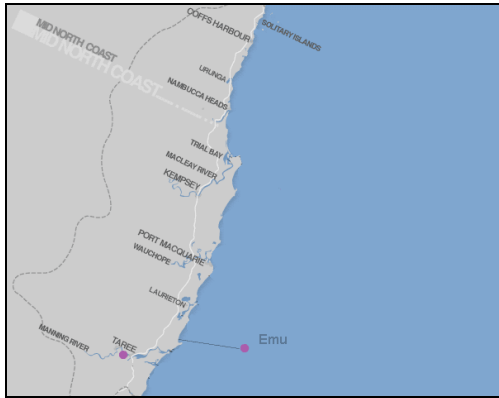


Figure 6: Location map showing the position of wreck remains located on Crowdy Beach. (Map: <http://maritime.heritage.nsw.gov.au>)



Figure 8: Photograph of exposed boiler



Figure 7: Photograph of exposed engine

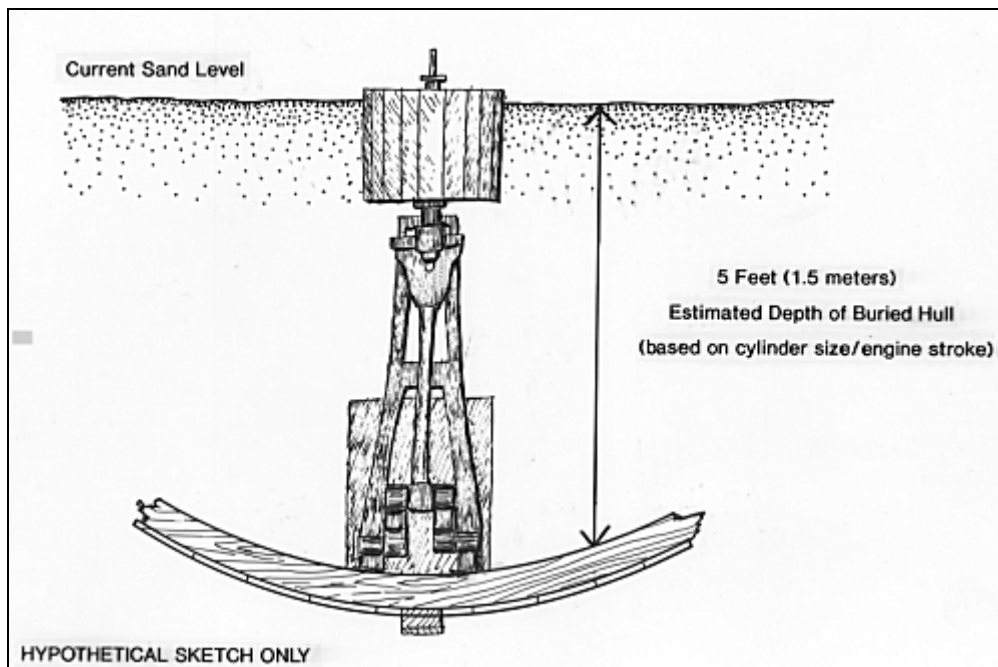


Figure 9: Predictive plan showing the exposed remains and the likely extent of buried structure. Proposed by Mr John Riley.

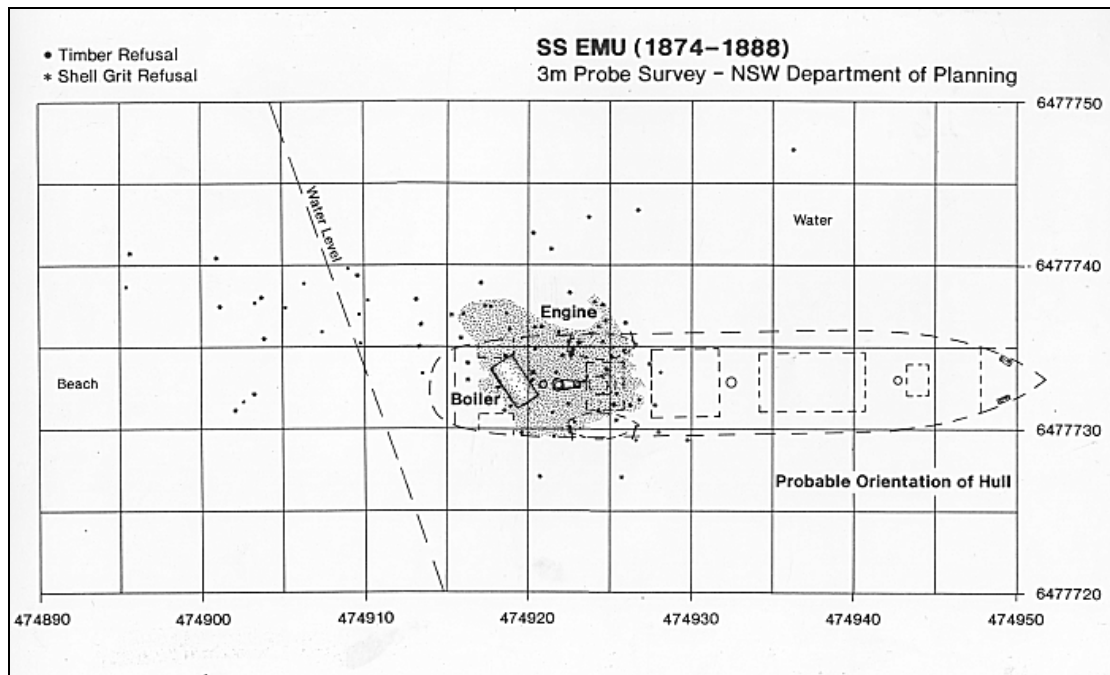


Figure 10: Results of probe survey, showing all probe refusals within the surveyed area.

ASSESSMENT OF SIGNIFICANCE

Significance has been assessed in accordance with the nature and degree of significance of the site's primary attributes. These include attributes related to historical, social, archaeological, scientific and interpretative significance.

Historical (Concerned with range of context)

Examination of the sites historical significance presumes that the site is that of the *Emu*, 1888.

The *Emu* is representative of the coastal traders employed in New Zealand and New South Wales in the latter part of the nineteenth century. Workhorses of the coastal fleets, these vessels were often poorly recorded due to their common occurrence.

Archaeological (Concerned with research potential through investigation of material remains)

The archaeological potential of the wreck site has been reduced by the local environmental conditions. The surviving remains are badly broken up within the survey area.

The portion of wooden hull located is unlikely to be of significant archaeological potential, however it retains the ability to contribute knowledge on New Zealand wooden shipbuilding technology during the later nineteenth century.

STATEMENT OF SIGNIFICANCE

The limited nature of the remains do not currently provide enough information by which to positively identify the vessel. The site inspection however, has provided information to strongly link the wreck remains with the *Emu* lost in 1888.

Representative of the coastal steamer trade of New Zealand and New South Wales, the *Emu* played a common but important role in the trans-shipment of produce and goods between the developing coastal ports.

The provisions of the Commonwealth's Historic Shipwrecks Act, 1976 continue to apply to the remains which are protected as an historic shipwreck.

RECOMMENDATIONS

As a result of the historical research, wreck site inspection and subsequent assessment of significance, it is recommended that:

1. the Department of Planning undertake no further inspection of the site until such time as the remains largely buried on Crowdy Beach are again exposed. A detailed inspection of these remains may aid the current inspection of the shipwreck relics.
2. interested groups or individuals be encouraged, where possible, to undertake research into known vessel losses in the Crowdy Bay/Manning River area, in an attempt to further identify this site and other shipwreck remains.