

Civil Engineering and Development Department (CEDD)

Assignment No. HKI2/4/54 RM(A) (1/15)

**Preliminary Archaeological Impact Assessment for Wan Chai Development
Phase II**

FINAL REPORT

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Prepared by

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1. Assignment Background

Dredging works have been undertaken to support the Wan Chai Development Phase II to provide land for a proposed trunk road along the northern shore of Hong Kong island. The roughly 12.7 hectares of reclaimed land incidental to the construction of the trunk road will be put to public use.

During the dredging works in the vicinity of the ex-Wan Chai ferry pier, an unknown metal Object was discovered on the seabed at about 12m below Hong Kong Principal Datum (PD) and about 6.5 metres below the seabed. The assignment was issued to SDA Marine Limited to undertake a preliminary archaeological impact assessment of the metal Object.

2. Scope of work for the Preliminary Archaeological Impact Assessment (PAIA)

This preliminary archaeological impact assessment (PAIA) is intended to determine the nature and archaeological value of the metal Object. The PAIA also includes a number of recommended options that might be considered as appropriate follow-up measures as part of a Marine Archaeological Action Plan (MAAP).

The PAIA has been implemented according to the requirements specified in the latest Antiquities and Monuments Office (AMO) Guidelines for Marine Archaeological Investigation, Guidelines for Archaeological Report and Guidelines for Handling of Archaeological Finds and Archives, where applicable.

3. Assignment Objective

- a) Review relevant information, inspect and study the nature of the Object.
- b) Assess the archaeological potential of the Object.
- c) Recommend appropriate follow up actions, including MAAP if necessary.

4. Methodology of the PAIA

- a) Desk based assessment comprising: review of previous marine archaeological investigations in the study area (see 6.1), historical background and development of Wan Chai (see 6.2), and review of marine charts and UK Hydrographic Office records (see 6.3);
- b) Review of progress (see 7.1) and preliminary results (artefacts, photographs and video) of investigation of the Object (see 7.2 and 7.3);
- c) Assessment of Object's archaeological potential and possible identification (see 8);
- d) Assessment of potential impacts caused by the project (see 9);
- e) Provision of Marine Archaeological Action Plan including technical advice on the air lifting works and subsequent procedures for the Object (see 10);
- f) Submit a draft and final report on the PAIA containing all findings as above.

5. Deliverables

This Final Preliminary Archaeological Impact Assessment Report is the only deliverable under the agreement.

6. Desk Based Assessment

At this stage the research included unpublished papers, charts, records, archival and historical documents held in local libraries and other government departments. The aim was to examine all possible options for the identification of the object.

6.1 Previous Marine Archaeological Investigations

In 2001, the AMO commissioned SDA Marine to carry out Marine Archaeological Investigation (MAI) for Wan Chai Reclamation Phase II and Central Reclamation Phase III. The metal Object is located within the study area for Wan Chai Reclamation Phase II and so the results are relevant to the current study. In accordance with AMO Guidelines the MAI comprised a Baseline Review, Geophysical Survey and Underwater Inspection. The Baseline Review established high archaeological potential based on historical activity in Wan Chai. The geophysical survey located six seabed anomalies and these were inspected and found to be modern debris. There was a very significant volume of construction debris and other waste on the seabed that negatively impacted the geophysical survey as they masked the sediments beneath. NB: An extract of the 1960 chart BA 1459, reproduced in part in Figure 4a below, was included in the 2001 report where it was mistakenly dated to 1916, which is the date of creation of the chart's original 'copper' master, whereas the chart revision date was in fact 1960.

6.2 Historical Background and Development of Wan Chai

6.2.1 General Background

The presence of an excellent natural harbour in Hong Kong is the main reason the British colonial authorities were so keen to acquire it for use as a regional trading base and it has remained a commercial shipping hub ever since. Victoria Harbour has been the focus of intense shipping activity and the concentration of reclamation and development along the foreshore is probably unparalleled anywhere else in the world.

In pre-colonial times, Wan Chai (meaning "small bay" in Cantonese) began as a small Chinese fishing settlement around the present Tai Wong Temple on Queen's Road East. For generations, it was also known as Ha Wan, or Lower Bay. The development of modern Wan Chai began in the 1840s with the intention of creating a high-class residential and commercial centre. The major foreign firms all had substantial commercial buildings in the area facing the sea, and included godowns and wharves. The waterfront would have been a crowded anchorage for trading vessels and busy with local junks and sampans. This area, known as Spring Gardens, was located around the present-day Spring Garden Lane.

Due to a sharp population rise in the 1850s, demand for land increased. The Government responded by developing the Wan Chai area around Stone Nullah Lane and the southern side of Hospital Hill for Chinese residence. This area is now Wan Chai Road and the eastern side of Spring Gardens. The first formal praya reclamation scheme was partly carried out in 1851, when a creek in the Bonham Strand area was in-filled. By 1886 an 8km long near continuous strip of land—the only major break being the section adjacent to the naval and military areas—averaging 100m wide was formed between Kennedy Town and North Point. The associated seawalls provided much needed access for handling marine cargo. In 1887, further reclamation was recommended to alleviate the overcrowding in the city (Guilford, 1998).

As a result, the Praya Reclamation Ordinance was gazetted in 1890. A year later Paul Chater initiated a strip of reclamation totalling 26 hectares and extending 3km westward from Murray Road along the northern foreshore of the Island. This was completed in 1904, partly with filling material obtained from Chinese territory. The limits of these two reclamations are marked by Des Voeux Road and Connaught Road respectively. The tramway opened in 1904 along that section of the waterfront known as the eastern Praya (now Johnston and Hennessy Roads). During the next thirty years reclamation work continued in the area.



Figure 1: View from the peak c.1900 on completion of the reclamation works when new buildings were erected on the praya.

Industrial and commercial enterprises were active in Wan Chai from the mid-19th century onwards. Godowns were established and businesses related to shipping such as small dockyards, timber, coal and metal works were set up. Wan Chai was also a major distribution centre for rattan goods, a precursor of the many rattan shops still found in the area, especially along Queen's Road East. Soyabean processing works were set up in the area around Stone Nullah Lane. One of the major factories set up in the area was the Oriental Sugar Refinery, established in 1876, for which most of the raw sugar came from Java. By the 1930s, other large-scale operations were the Nanyang Brothers

Tobacco Co. Ltd. factory near Canal Road and the British-American Tobacco Co. Ltd. works at Gloucester Road.

Following the Pacific War a further phase of reclamation in the 1950s-1970s pushed the Wan Chai coastline to the line shown in the 1990 map in Figure 8.

6.2.2 Naval History

In addition to the busy commercial maritime scene, there would have been many European, American and Japanese naval vessels anchored nearby due to the proximity of the naval dockyard. A foundation stone for the new Royal Naval Dockyard was laid on 15th January 1902, and the dockyard was finally completed in 1905. There was an extensive British Royal Navy presence in the surrounding area from 1841 until 1994, when the remaining naval contingent moved to new purpose-built facilities at Stonecutter's Island.

The Commander-in-Chief, China was a senior officer position of the British Royal Navy. The officer in this position was in charge of the Navy's vessels and shore establishments in China from 1865 to 1941. He thus directed a naval formation, which was often known, even in official documents, as the China Station. From 1831-1865, the East Indies Station and the China Station were a single command known as the East Indies and China Station. The China Station, established in 1865, had as its area of responsibility the coasts of China and its navigable rivers, the western part of the Pacific Ocean, and the waters around the Dutch East Indies.

The formation had bases at Singapore (Singapore Naval Base), Hong Kong (HMS *Tamar* 1865–1941 and 1945–1997) and Wei Hai (1898–1930). The China Station complement usually consisted of several older light cruisers and destroyers, and a flotilla of shallow-draught gunboats for river patrol. Vessels on this station usually had a distinctive livery of white hull and superstructure and dark funnels. The presence of naval shipping would have been particularly dense during WW1 (1914-18) and WW2 (1939-1945), during which in December 1941 in response to increased Japanese threats, the China Station was merged with the East Indies Station to form the Eastern Fleet. Another busy period in Hong Kong's naval history occurred during the Korean War.

Prior to the invasion of Hong Kong in December 1941 it is estimated that approximately 60 vessels, including HMS *Tamar*, were deliberately sunk (scuttled) to prevent their capture by the enemy. The dockyard was extensively damaged by the Japanese during their December 1941 invasion of Hong Kong, and was further damaged during American air-raids over Hong Kong in 1944 and 1945. An especially heavy raid on 16th January 1945 by US Navy carrier borne aircraft largely incapacitated the dockyard until the end of the Pacific War and damaged and sank Japanese shipping. In total around 230 British, Japanese and other vessels had been sunk in Hong Kong waters during the Pacific War, with 50-60 of them in Victoria Harbour and 19 of that number being large vessels.

The wreck at the centre of this report is thought to be one of the above, but there now follows a review of pre- and post-1941 charts and other information sources in order to establish whether there are any earlier or later records of shipwrecks in the area of interest to the north of Wan Chai.

6.3 Marine Chart and UK Hydrographic Office data review

6.3.1 Marine Charts

According to British Admiralty Chart number 1459, *Hong Kong Harbour* dated 1888 there was no wreck in the general area of interest at that date.

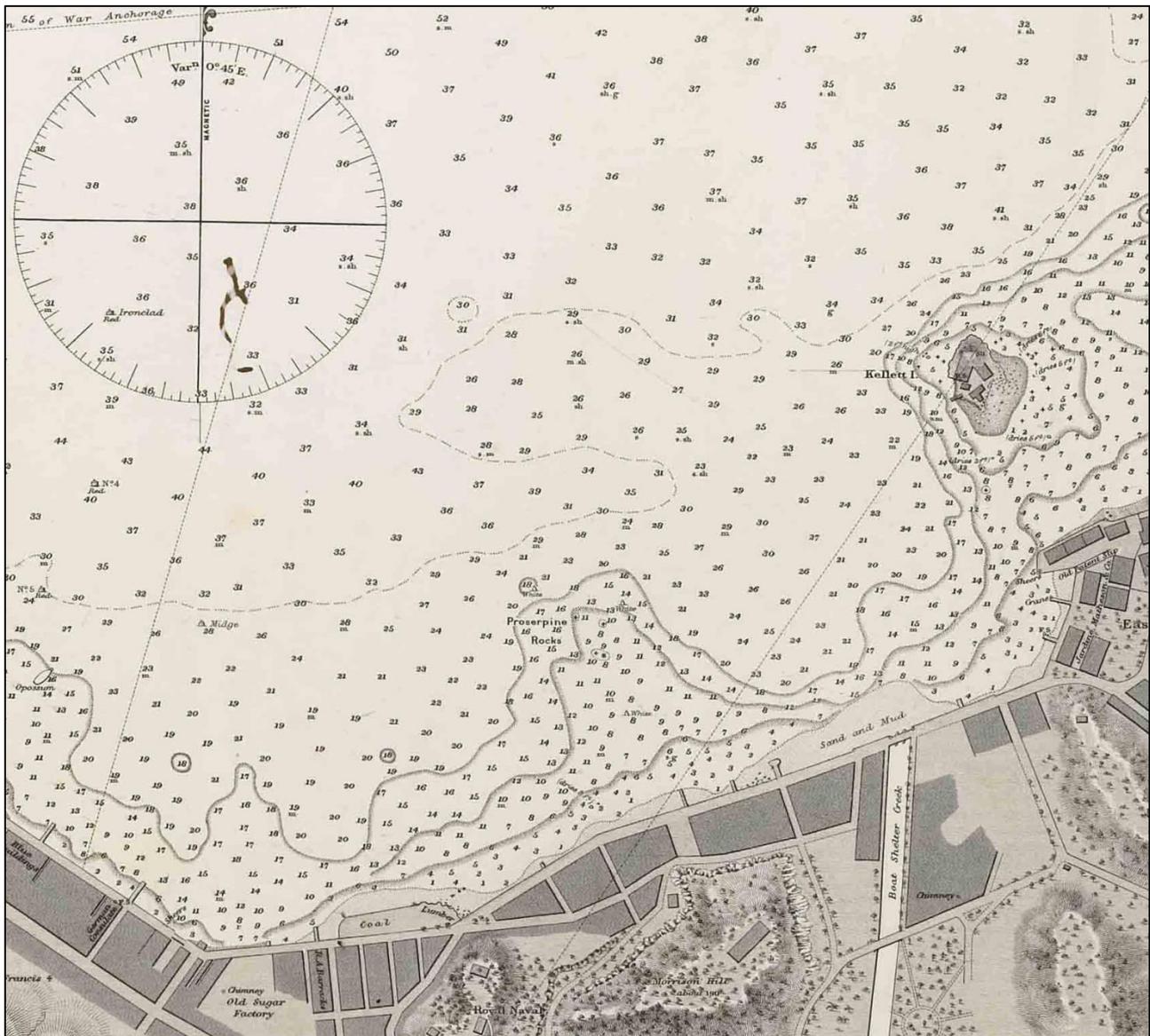


Figure 2: Detail from BA1459 Hong Kong Harbour year 1888. No wreck present at Object location.

According to a composite chart created in 1921 by the Port Engineer, Mr John Duncan, from BA3279. *Hong Kong Waters East* and BA3280 *Hong Kong Waters West*, there is no wreck in the general location in that year either. This strongly indicates the wreck in question was sunk post 1922.

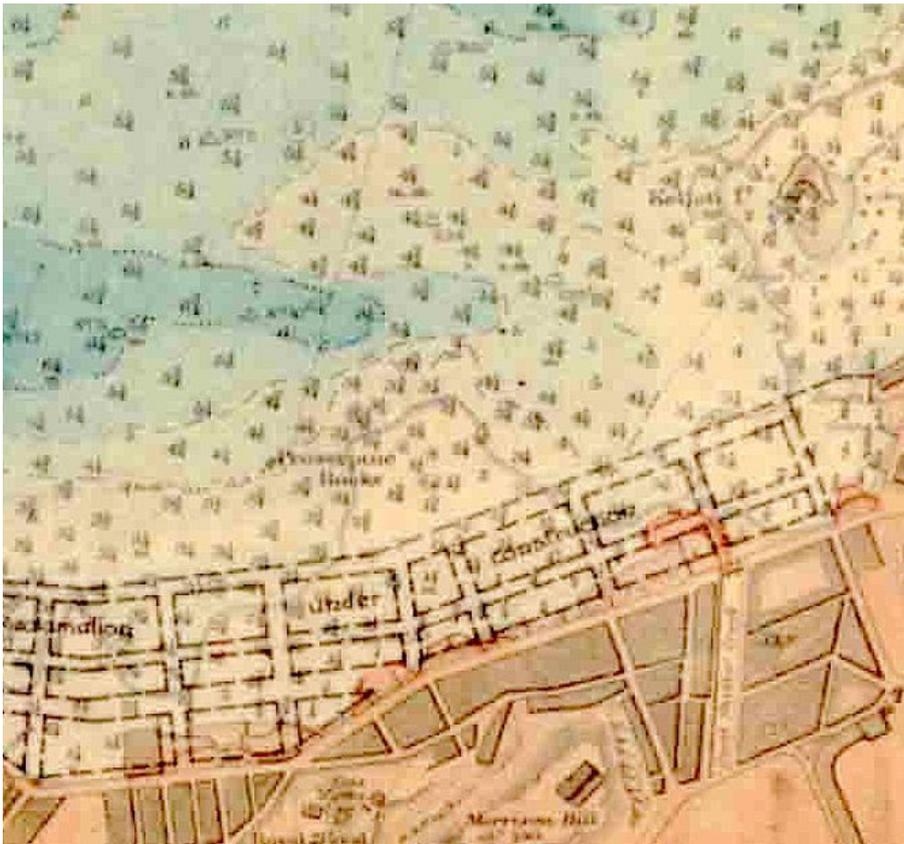


Figure 3: 1921 Chart: Detail from BA3279 Hong Kong Waters. No wreck shown but line of moorings is indicated to the East

In fact a thorough review of newspapers, *Reports of the Harbour Master* and *Reports of the Marine Department* suggested that no wrecks were reported in the immediate environs of the Object up to the beginning of the Pacific War in 1941, but as noted above many ships were sunk between then and 1945. As a precursor to the big post-war clean-up process, between October and November 1945 an emergency survey was conducted by HMS *Challenger* captained by Commander C.W. Sabine RN, which identified the positions of all wrecks in Victoria Harbour. The resulting survey chart (E7734) shows the positions of over 200 wrecks including five in the vicinity of Wan Chai. The wreck of HMS *Tamar* is clearly marked on the 1945 survey chart (Figure 4).

A commercial contract was subsequently issued to salvage and clear the harbour of wrecks as they presented a hazard to navigation. The majority were cleared in 1946-7, initially by the combined efforts of the Royal Navy and a local civilian salvage team under Mr Leung Man Kwong, then later as a solely civilian operation. According to the *China Mail* newspaper of 20th December 1947, by then just two wrecks remained in the Naval Anchorage off Wan Chai: one being a Norwegian freighter, the *Halldor*, the other HMS *Tamar*, which in order to hasten its salvage was dynamited and “blown into several portions to facilitate the lifting of the wreck” (China Mail 20.12.47). The latter explosions would probably also push the lower hull deeper into the soft mud of the seabed. However, despite such salvage efforts, wrecks are still shown in both locations in 1960 on a revised version of chart BA1459 (Figure 4a), which indicates that instead of being fully cleared both were in fact left in situ, but had been reduced to a level that was safe for shipping. Indeed a 1952 written exchange

between the Hong Kong Director of Marine and the UK Hydrographic Office (UKHO), which discussed the need for the above revision of chart BA1459, led to a minute from the UKHO stating that that for *Tamar* the swept wire depth and wreck symbol “should remain as it was obtained by a survey by “*Dampier*” this year” (HKHO 1952). HMS *Dampier* was the Royal Navy’s Pacific Fleet survey vessel. In the case of *Tamar*, that significant reduction in height was also reflected in an apparently dramatic shrinkage in the area—or footprint—of the wreck as a result of the 1946-7 salvage operation and subsequent wire sweep. Shortly afterwards, the *Halldor* was buried within the 1960s-70s North Wan Chai Reclamation, leaving HMS *Tamar* as the only *recorded* wreck in the current study area of interest.

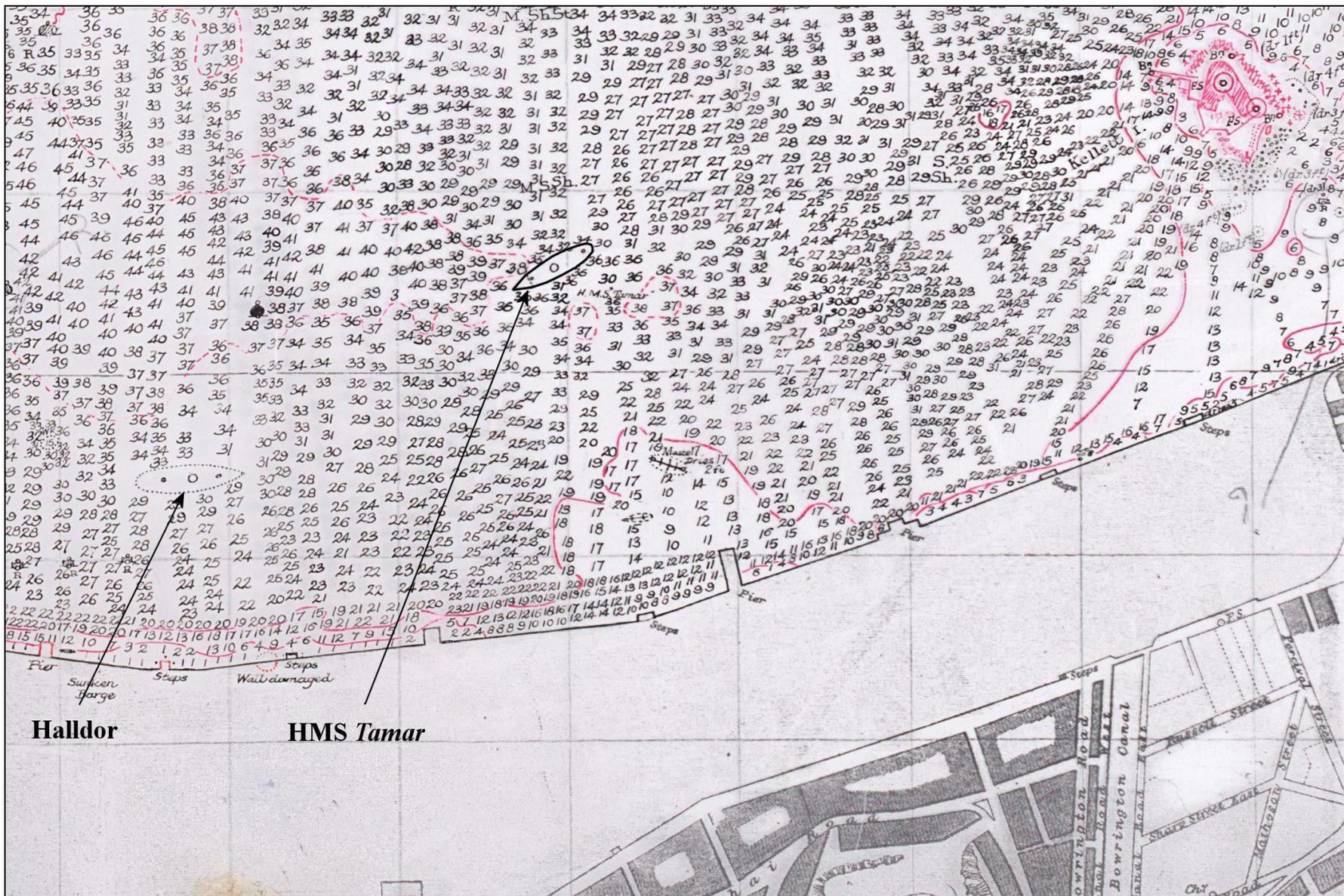


Figure 4: Emergency survey, Hong Kong Harbour, Commander C.W. Sabine RN, HMS Challenger, October-November 1945 (Ref. E7734). Wrecks of HMS Tamar and Halldor both arrowed (note original chart label of “HMS Tamar” to right of wreck). (Chart: HKMM)

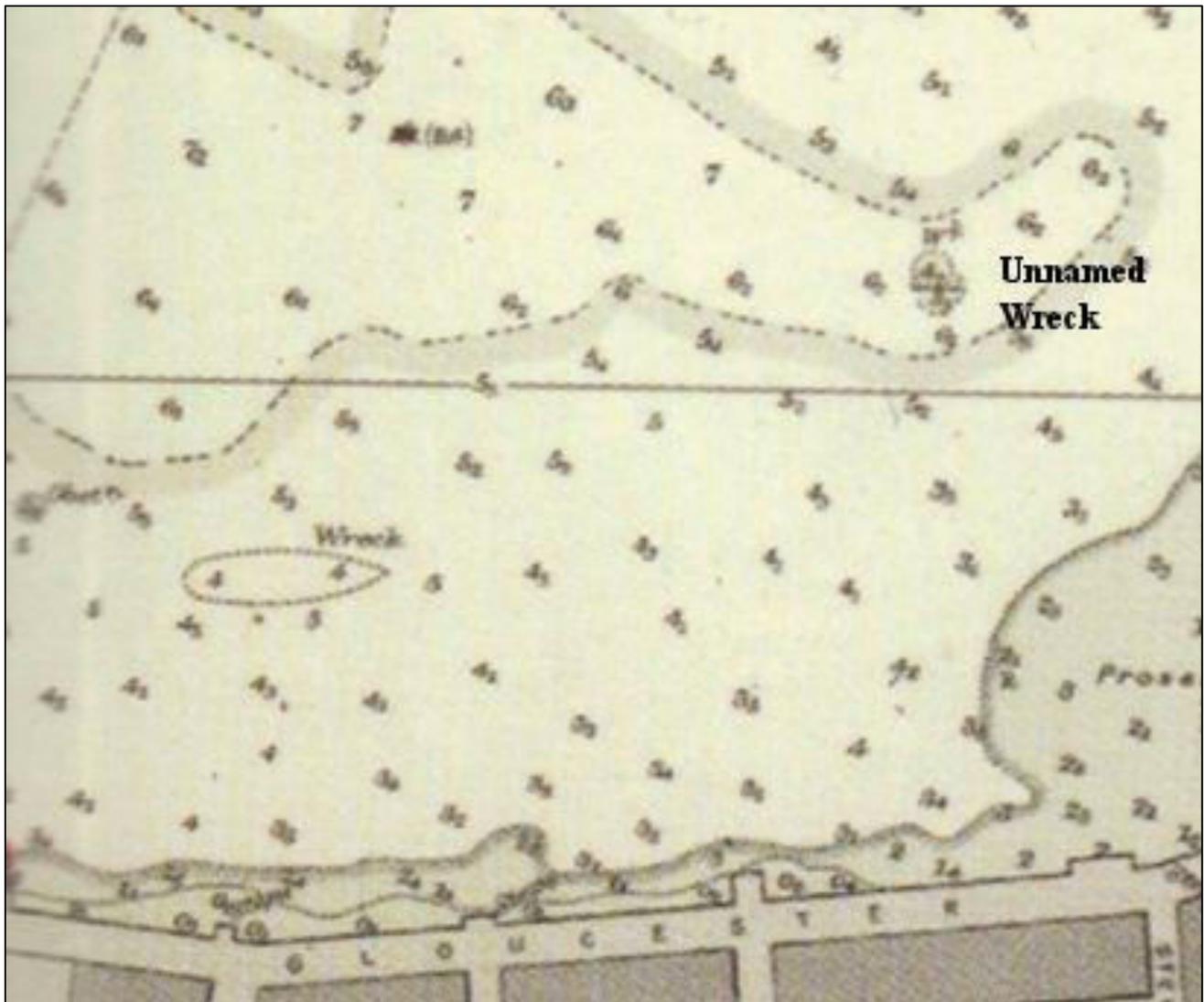


Figure 4a: Chart BA1459, *Hong Kong Harbour*, (1960 edition) still showing the *Halldor* marked “Wreck” and a much reduced—but unnamed—wreck outline (abbreviated to “Wk”) in the general area where the *Tamar* was charted in 1945. Nevertheless, this 1960 Chart did not contain further information to confirm unequivocally the unnamed wreck the remains of HMS *Tamar*.

6.3.2 UK Hydrographic Office (UKHO) wreck database and records.

The database revealed one wreck within the study area: HMS *Tamar*. Full details of the database record for the wreck are presented in Appendix 2. The record documents the loss of HMS *Tamar* and also that it was wire cleared, which means everything protruding above the seabed would have been removed.

7. Review of progress and preliminary results (artefacts, photographs and video) of investigation of the Object

7.1 Overview

7.1.1 Introduction

This section presents a brief summary of progress and findings made in relation to the discovery and subsequent investigation of a substantial NE-SW orientated metal object measuring approximately

40m long by 11m wide—clearly the remains of large sunken ship—initially identified during recent dredging works immediately west of Wan Chai New Ferry Pier (Figure 5).

Information contained in this section has been obtained from the CEDD dive team plus a one day inspection by an SDA Marine dive team who confirmed and validated the results of the original team who continue to work on site.

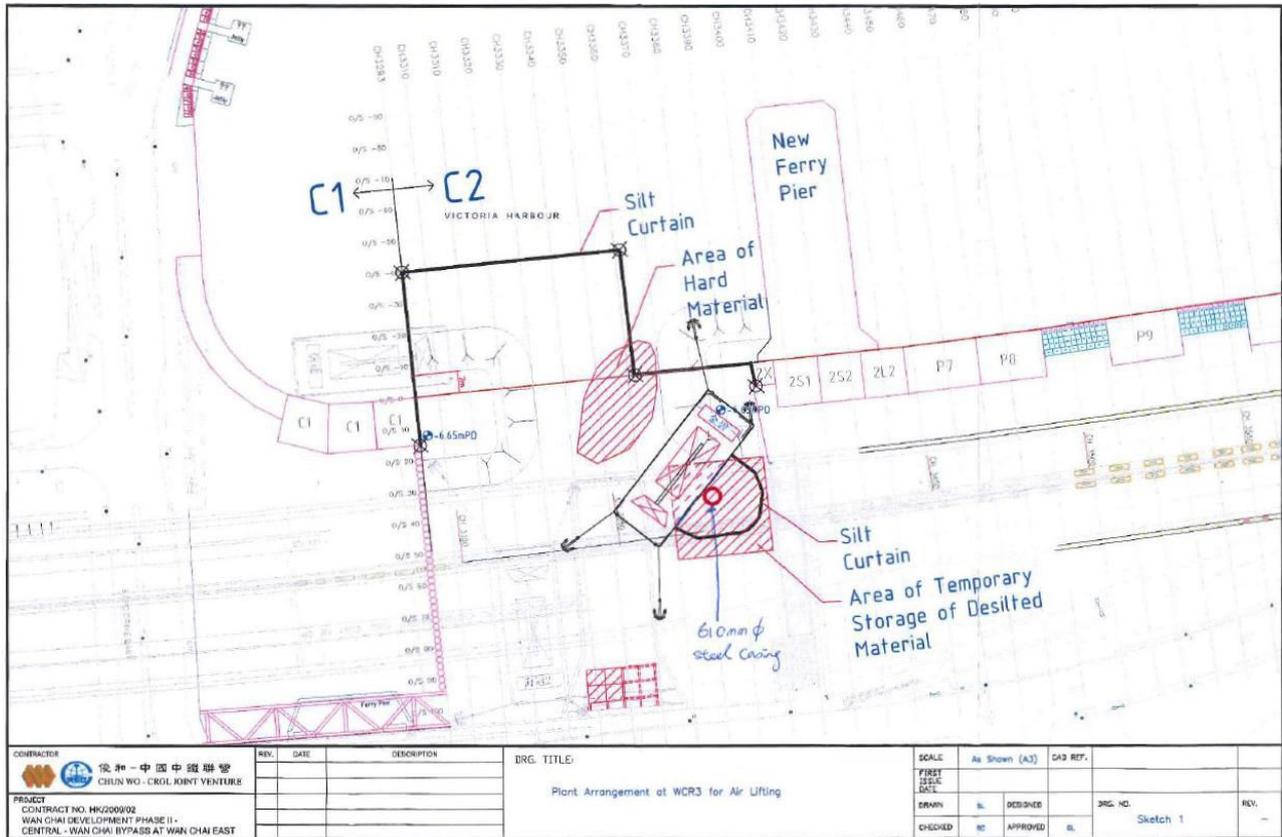


Figure 5: General arrangement for air lifting works on site (reproduced by kind permission of AECOM)

7.1.2 Progress to Date

During removal of up to 8m of marine sediment by dredger, to a level of -14mPD, eleven large fragments of riveted wrought ironwork were recovered, one with large wooden beams attached. Then since 25th December 2014 a team of divers has been working with an ‘air lift’ to systematically remove the remaining sediment from over the ‘bottle-shaped’ structure lying on the seabed at around -13 to -14m PD (Figure 6).

As Figure 6 shows, as at 30th April air lifting work had so far investigated the entire periphery of the site, fourteen linear transects across the width of the site, and a rectangular block at the north-eastern end. In the roughly 17 weeks of air lifting work so far conducted an estimated 60% of the total site area has thus far been investigated down the level of the hull or iron kentledge-concrete ballast.

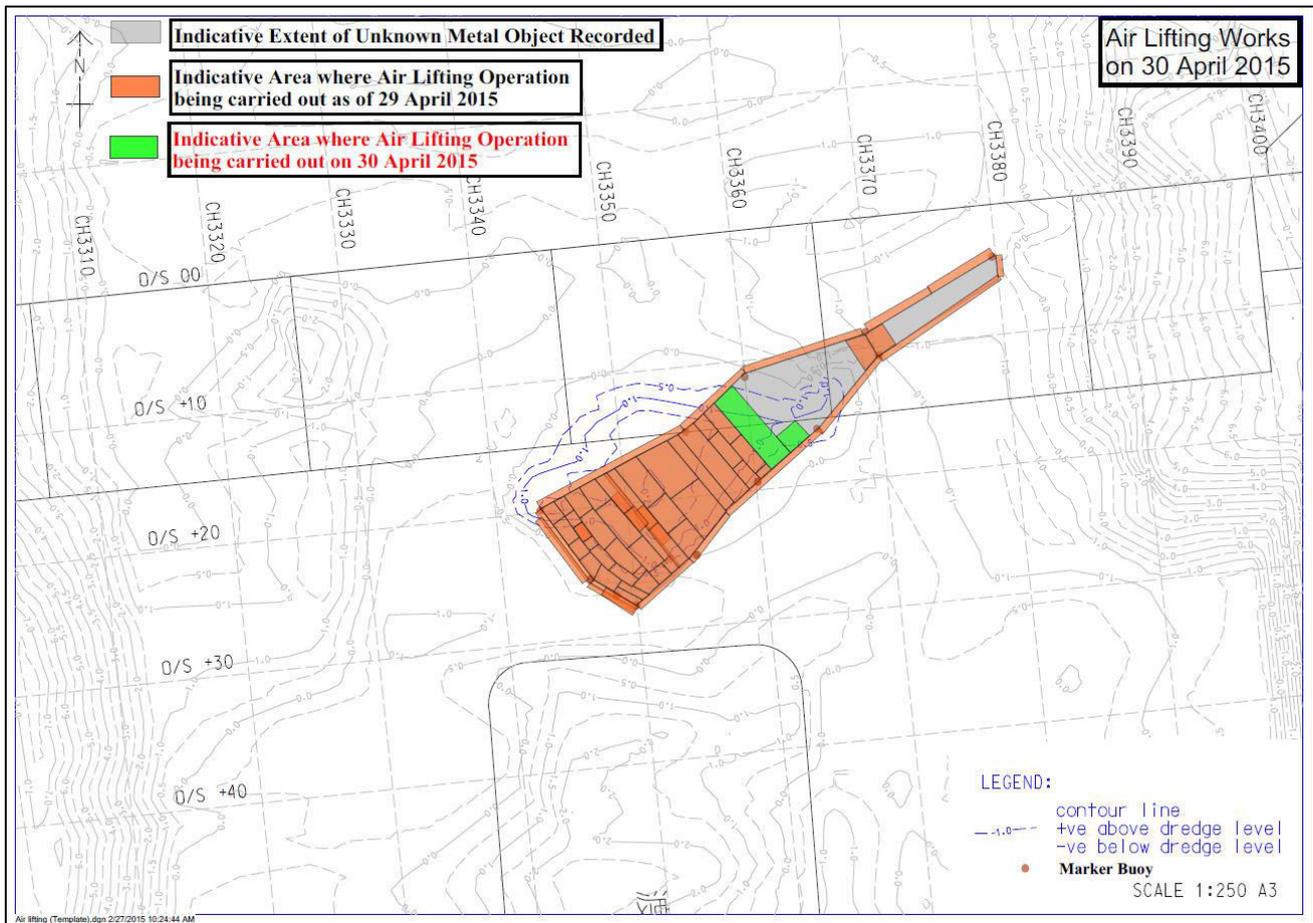


Figure 6: Plan showing air lifting progress as at 30th April 2015: orange = completed, green = ongoing and grey = still to do (reproduced by kind permission of AECOM)

By the 30th April cut-off date for this report, the air lifting operation had yielded 777 artefacts, of which 238 are scrap iron ballast known as ‘kentledge’—found to have been sealed by concrete—while the other 539 ‘Special Finds’, which are mostly manufactured items, comprise the following: 63% copper alloy items; 23% iron objects; 5% ceramic tiles, electrical insulators and sanitary wares; 5% pottery vessels; while the other 4% consists of items made of wood, glass, lead and even leather.

7.2 Structural Remains and Ballast

7.2.1 Structural remains

The eleven large pieces of riveted wrought ironwork, including one with part of a substantial squared timber structure bolted on to it, were found scattered across almost the entire footprint of the wreck site. The latter items appear to be structural fragments from the hull and/or superstructure of the ship. On some larger elements there are traces of white paint over red lead, typical of Royal Navy vessels finished in so-called ‘tropical’ white. In addition, two pieces have holes apparently caused by explosive impact, perhaps the result of shellfire.

7.2.2 Ballast

Further investigation in the area near what is presumed to be the ‘deadwood’—the housing for the propeller shaft at the stern (back) of the ship—produced the aforementioned collection of 238 pieces of iron kentledge ballast together with fragments of concrete capping. Kentledge is the term used for scrap iron used as ballast at the base of a ship’s hull in the bilges. In addition, concrete or cement was sometimes poured over the kentledge to prevent it shifting in heavy seas. In addition, several blocks of granite were found with cement-concrete attached, which may also indicate their use as ballast.

7.3 Special Finds

7.3.1 Wooden Objects

Several pieces of wood have been recovered including four with brass fittings still in place: one of which appears to be a desk or bureau lid with a brass hinge attached, while the other has a brass knob and plate attached with four screws and may be a cupboard door.

7.3.2 Pottery & Glass

As yet pottery has been a relatively minor category of finds (5%), with a few fragments of thick-walled white or cream salt-glazed sherds probably from jars of tankards. The lower wall and base of one such item bears a very clear stamp of the “Fulham Pottery” (Figure 7.1), which operated in London until around 1928, although according to the Museum of London, salt-glazed stonewares were only rarely produced after 1918. Also present are a few sherds of glossy brown glazed stonewares of probable Guangdong manufacture, which are also a common feature of local terrestrial archaeological sites of late Qing-early 20th-century date. A white plate has on its underside an underglaze green stamp reading “EIRR H. Aynsley & Co. Ltd., 1957”.



Figure 7.1: Item No.78: Fulham Pottery salt-glazed stoneware sherd

Very few glass objects were noted but three bottles were recovered comprising an octagonal-shaped “Yu Kwen Yick” chilli sauce bottle, whose ‘oil-on-water’ colouration and presence of bubbles trapped in the glass may suggest a date early in the company’s 93-year history (Figure 7.2a), a 7-UP bottle probably manufactured in 1977(7.2b), and a Schweppes soda bottle.



Figure 7.2a: Item No.156: Yu Kwen Yick Sauce bottle



Figure 7.2b: Item No.37: 7-UP Bottle

7.3.3 Ceramic: Electrical Wares, Building Materials & Sanitary Wares

The domestic component of the finds assemblage—in other words the items that reflect the day to day needs of the people who used the vessel at the centre of the investigation—is also reflected in finds of floor or wall tiles and various fragments of white or off-white sanitary wares of the types typically occurring in the bathrooms, shower areas and toilets one might expect to find on an accommodation vessel. A number ceramic insulator fragments were also recovered such as the ‘Kantark’ Brand example in Figure 7.3.



Figure 7.3: Item No.105: ‘Kantark’ Brand Ceramic 500V Electrical Insulator

7.3.4 Animal Bone

A rather surprising find was a very well-preserved bone which, on examination against published comparanda (Hillson 1996), appears to be the femur (rear leg thigh bone) of an adult pig. As such it may also be connected with the domestic needs of the people using the vessel as an item of food.

7.3.5 Iron Objects

Altogether around 120 iron objects have been recovered, among which rivets provide the largest group followed by threaded fasteners in the form of screws and bolts. There are also a number of plate fragments—perhaps resulting from salvage works or earlier military impact—as well as a few undiagnostic ‘lumps’. Among the more interesting iron objects found was a well-preserved cast iron flat-iron (Figure 7.4), of a size most likely used for ironing clothes, and a lifting hook with forged eye still linked to a U-sectioned ring, which would originally have held a rope. Also found was a heavy duty door bolt and a rectangular solid block of iron ‘keyed ballast’ with a perforation through the middle.



Figure 7.4: Item No.57: Cast Iron Flat Iron (for ironing clothes)

7.3.6 Copper Alloy Objects

Copper alloy artefacts—many apparently made from brass, although other copper alloys are probably present—are particularly well-preserved within the wreck site and account for around two-thirds of the items recovered. Particularly large quantities of screws, light switches and sockets, door furniture including doorknobs, hinges and locks, as well as a wide variety of ship’s fixtures and fittings are present. A copper alloy Macau 10 Avos coin dated 1975 was also found (Figure 7.5a).



Figure 7.5a: Item No.159: Macau 10 Avos Coin dated 1975

A very well-preserved door hook and pad-eye was of the kind used to secure sliding doors or to tie back hinged doors in the open position. The purpose of a small copper alloy token bearing three stars at 120 degrees to one another and perhaps a bird in the centre requires further research. A stamped brass ashtray has no obvious markings but is in a standard Royal Navy pattern. A circular electrical light switch with stepped profile has the appearance of something originally used in a quite smart accommodation area of the vessel, perhaps a wardroom or mess. The remains of several brass door locks are present, including one lock plate bearing a clear “British Made” stamp and another with the British maker’s mark “Henry Harrison Ltd” (Figure 7.5b).



Figure 7.5b: Item No.95: Copper Alloy Lock bearing maker’s mark “Henry Harrison Ltd.”

Another brass plate—probably also from a lock—carries the distinctive War Department broad arrow stamp used to identify items as British military property, which is a mark that also appears on a door-hook, screws, brackets, and a brass pad-eye (Figure 7.6).



Figure 7.6: Item No.14: Copper Alloy Pad-Eye with War Department Arrow stamp (left centre)

The same stamp is also on a large copper alloy and lead fire hose nozzle found during the project. Several stamped plates—probably from doors or covers—were recovered including the following: a rectangular plate stamped “Steam to Derrick Engine”; a long rectangular brass ‘tag’ with the words “Lantern Store”, and a small example stamped “Entrance Door No.=2 Cabin”. One item with an obvious military connection was a bullet, although the calibre could not be accurately checked prior to its removal for checking by the police. A brass Royal Marines cap badge and six brass buttons have been found including examples identified as being from the uniforms of members of the Royal Marines, Royal Navy and Royal Marines Light Infantry (Figures 7.7a, 7.7b & 7.7c respectively).



Figure 7.7a, 7.7b & 7.7c: Buttons (left to right): Item No.277: Royal Marines; Item No.171: Royal Navy; Item No.170: Royal Marines Light Infantry

Commodore's Pennant

One of the most significant discoveries is a copper alloy replica of a Royal Navy Commodore's pennant (flag) (Figure 7.8). The five fixing holes suggest it was originally bolted or screwed onto the ship or perhaps more likely one of the smaller launches it carried. The Hong Kong naval base was historically under the command of a commodore—for example in 1934 Commodore Frank Elliot R.N. was the man in charge—whose headquarters and flagship until the Pacific War was HMS *Tamar* (Greystone nd.). This object is therefore a highly significant find.



Figure 7.8: Item No.172: A Royal Navy Commodore's Pennant (flag)

Name Plate or 'Tingle'

Another highly significant find, which, due to it bearing the name and service number of a particular Royal Marine, can be firmly placed in an early 20th-century British naval context in Hong Kong, is a name plate or 'tingle' (Figure 7.9). This is a 22cm long by 7.6cm wide oval plate made of 4mm sheet, which has copper rivets suggesting it was originally attached to a 3mm thick substrate of perhaps leather or canvas, perhaps a trunk or case of some sort. It bears the following inscription reading clockwise from the left-hand side: "PLY 11217 E Goodman 7.13". Research in the British National Archives (file reference ADM159/79) revealed that the service number 11217 belonged to Edgar Charles Goodman, who enlisted in the Plymouth Division of the Royal Marine Light Infantry on 22nd October 1901.



Figure 7.9: Item No.1: Name Plate of Royal Marine Light Infantryman Edgar Charles Goodman

From his service record Corporal Goodman reached Hong Kong during 1914, where between March and August he served on a gunboat named HMS *Thistle*. However, in August the crew of the *Thistle* was transferred to HMS *Triumph*, which was then in dry dock in Kowloon undergoing a refit in readiness for active service in WWI. At that time Hong Kong's naval base had no land-based barracks and *Tamar* served as both the Navy's administrative HQ and its barracks (accommodation for Royal Marines and Naval servicemen based in Hong Kong or whose ships were undergoing refit or repairs in dry-dock). For naval personnel—including Royal Marines—who were transferred off one ship but unable to join their new vessel due to it being in dock, the normal routine would involve their being temporarily accommodated with their kit in the local depot or accommodation ship, which in Hong Kong was HMS *Tamar*. At present there is no historical record confirming Goodman's presence on board *Tamar*, but if normal naval protocols were followed, it seems probable that he and his kit spent some time on *Tamar* before *Triumph's* eventual departure from Hong Kong to join the Gallipoli campaign on 12th January 1915. In May 1915 *Triumph* was sunk off Gallipoli but Goodman survived the war to eventually retire on 21st October 1922, aged 39.

7.4 Date range suggested by recovered diagnostic materials

The materials recovered span a wide date range, indeed several items were made by companies that are still operating today, while some objects are modern 'intrusions' into the wreck site. The main datable items are arranged in 'timeline' format in Table 1 below. Three types of dating evidence were used: firstly, where objects could be identified to a particular manufacturer, Grace's Guide (an historical list of all companies established in the UK) was consulted and the 'Company Lifespan' is shown in the table; secondly, some artefacts actually carried a date so 'Date on Artefact' is therefore the criterion used; while thirdly, the military 'Service Record' of individuals or branches of the British Armed Services can also provide a third strand of dating evidence. For example, in the case of Item No.170 (Royal Marines Light Infantry (RMLI) button), the manufacturer began operating in 1875 and the RMLI was absorbed within the Royal Marines in 1923, giving a date range of 1875-1923 for the artefact.

There is a particularly significant clustering of manufactured objects made by companies that ceased production in the pre-Pacific War era, most notably: Item No.78 the 'Fulham Pot' (manufactured no later than 1928), Item No.155 the 'Gladwin Ltd., Fork' (manufactured no later than 1936); and Item No.393 the 'Keith & Blackman Co. Ltd., Fan' (made between 1900 and 1937). In addition there are several British military artefacts that can also be more closely dated to that same pre-war period, most notably Item No.1 'Goodman Name Plate' (1914-1915), Item No.132 'M.E. Co. Buckle' (stamped "1916"), Item No.170 the 'Royal Marines Light Infantry Button' (from a branch of the British Armed Services that ceased to exist in 1923), and Item No.520—another 'Royal Marines Button'—that can be dated from its manufacturer to between the 1840s and 1910.

There are also some items of much more recent date which, given the much older character of the majority of materials coming from the wreck, from an archaeological perspective can reasonably be considered modern 'intrusions'. These include Item No.37 '7-UP Bottle' (carries a moulded "77", which probably indicates 1977), Item No.159 'Macau 10 Avos Coin (with 1975 date), and Item No.324 'Wallet with HKID' dating to the early 1990s. It is somewhat surprising that such items were found at a depth similar to that of the older materials, but then there is a strong possibility of disturbance of more modern materials from higher levels in the marine sediment sequence during dredging works.

Despite such modern intrusions, the overall finds assemblage is dominated by a copper alloy artefact assemblage reflecting the range of equipment, machinery, fixtures and fittings, and personal kit one might expect to recover from the shipwreck of an earlier 20th-century British Royal Navy vessel.

Item No	Artefact Description	Dating Basis	Pre-Iron Ships	1840s	1850s	1860s	1870s	1880s	1890s	1900s	1910s	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s		
1	L Goodman Name Plate	Service Record									1914-1915												
37	7-UP Bottle ("77 Y 19")	Date on artefact															1977?						
80	Pot (The Fulham Pottery)	Company Lifespan	1672	-----										1928									
95	Lock (Henry Harrison Ltd)	Company Lifespan									1919	-----										1994	
105	Kantark' Brand Electrical Insulator (M.E.M Co.)	Company Lifespan								1908	-----												
132	Buckle (M.E. Co) ("1916")	Date on Artefact									1916?												
134	Fork (Mappin & Webb)	Company Lifespan	1775	-----																			
155	Fork (Gladwin Ltd.)	Company Lifespan										1921-1936											
156	Yu Kwen Yick Sauce Bottle	Company Lifespan										1922	-----										
159	Macau 10 Avos Coin ("1975")	Date on artefact															1975						
164	Fork (Cooper Bros)	Company Lifespan				1867	-----										1964						
170	RMLI Button (Firmin & Sons)	Company & RMLI L'span			1875	-----										1923							
171	Royal Navy Button (B'ham Buttons)	Company Lifespan								1907	-----										1970s		
277	RM Button (Firmin London)	Company Lifespan			1875	-----																	
324	Wallet with HKID	Date on artefacts																		1990s			
393	Fan ID Plate (Keith & Blackman Co. Ltd.)	Company Lifespan								1900	-----										1937		
394	Electric Motor ID (Verity's Ltd.)	Company Lifespan	1819	-----																		1959	
414	QE2 Plate (H. Aynsley & Co. Ltd) ("1957")	Date on Artefact														1957							
510	RM Button (Smith & Wright, Birmingham)	Company Lifespan			1855	-----										1910							
524	RM Button (Smith & Wright, Birmingham)	Company Lifespan			1855	-----										1910							

Table 1: Timeline suggested by datable artefacts

8. Assessment of the Object's archaeological potential and possible identification

This assessment of archaeological potential draws on a wide range of historical and archaeological evidence. This has included the detailed study of historical documents, maps and charts held both locally in Hong Kong and in the UK's National Archives, UK Hydrographic Office and various military archives, as well as study of the wreck's structural and artefactual remains.

A number of features of the wreck site suggest a clear connection with the Royal Navy and support a tentative identification as the Hong Kong Depot Ship HMS *Tamar*. Firstly there is the location of the Object which, based on a comprehensive review of the charts, closely matches the position of the only recorded wreck in that precise position, namely HMS *Tamar* (Chart E7734 1945). Secondly, there are the structural remains of the vessel itself: its sheer size, riveted wrought iron construction with large timber elements bolted on, white over red lead paint finish, and possible evidence for artillery or explosives damage, which all fit with *Tamar*'s design specification, recorded sinking and partial salvage (see Appendix 1). Thirdly, there are the diagnostically British and military artefacts, some bearing War Department broad arrow stamps, one in fact connected to a particular Royal Marine based in Hong Kong, who in August 1914 probably spent some time living on HMS *Tamar*. More generally, with reference to Table 1, the artefacts with more closely defined date ranges cluster before WWII and suggest a main period of use for the vessel in the later 19th and earlier 20th century.

One final and compelling test of the Object's probability of being the wreck of HMS *Tamar* is presented in Figure 8 below. This uses the 1990 map of Wan Chai as a base map with the 1945 chart showing WWII shipwrecks (E7734) as a semi-transparent overlay. The accurate co-alignment of the two maps was achieved using a series of georeferencing controls—features that appear on both maps—comprising Kellett Island, the line of Gloucester Road (which was the 1945 seafront), and the old street blocks of Wan Chai. When the 1945 chart is resized so that the control features line up, the wreck of HMS *Tamar* is located precisely where the Object was discovered. This finding, which has also been verified by others, clearly adds significant further weight to the argument that the Object may well be the much reduced remnants of the wreck of HMS *Tamar*.

However, it must also be acknowledged that beyond those favouring a *Tamar* identification, a number of Hong Kong-based historians have raised the possibility that the wreck is one of the many Japanese vessels sunk by the Allies in WWII, such as the tanker *Otowan Maru* (Oriental Daily News 28.03.15). However, the 1945 chart evidence, historical records, and overwhelmingly British military character of diagnostic materials so far recovered suggest that the wreck is that of a Royal Navy ship. Moreover, as the *Tamar* was intact on the seabed from 12th December 1941 until after the war's end in 1945, there could not be another WWII shipwreck occupying that exact position and alignment.

Although the various strands of evidence do point toward HMS *Tamar*, without the ship's bell, nameplate or other unique identifier, definitive identification may have to wait until the distinctive keel construction shown in the *Tamar*'s design 'blueprints', which are being forwarded to Hong Kong by the UK's National Maritime Museum, can be compared with the remains on the seabed.

9. Assessment of potential impacts caused by the project.

The engineering requirements of Wan Chai Development Phase II require the wreck is removed from the seabed as it lies in the only section of the coastal reclamation still outstanding. It therefore affects the progress of the entire project. The divers are continuing to provide information about the condition of the wreck. This data will be used to develop options such as safely moving the wreck in one piece to an adjacent location for continued excavation.

10. Marine Archaeological Action Plan (MAAP)

The current situation is exceptional as the metal object was an unplanned discovery during a dredging operation. Emergency practical measures were taken to remove some loose fragments of the wreck's structure. Since December 25th 2014, a team of divers was employed to complete a preliminary assessment and remove sediment from the site in order to gain a better understanding of the nature and condition of the wreck. Marine mud has been removed down to -14mPD in the area surrounding the wreck while, as detailed in Section 7 above, while as of 30th April air lifting works had removed around 60% of sediment within the hull and recovered a total of 777 artefacts. Although carried out in a 'rescue' context, the work has been methodical, a high recovery rate has been demonstrated, and the 3D coordinates of artefacts have been systematically recorded. Elementary on site conservation has also been carried out. The emergency measures so far completed have been carried out to a good standard and no damage to the object has resulted.

The UNESCO 2001 Convention sets out guidelines for Underwater Cultural Heritage. They have been used as the basis for the MAAP to ensure that work complies with international standards. While the MAAP provides a general framework for action while current work is in progress it is anticipated that a *Methodology for Marine Archaeological Investigation* (MAI) will be prepared by a marine archaeologist in consultation with the AMO for the complete investigation of the shipwreck. The MAI will comply with all relevant AMO Guidelines as set out in Appendix 4.

With respect to the MAAP, the following general actions are recommended:

1. Application for Licence to Excavate and Search for Antiquities to ensure all site work is conducted with the approval of AMO. Developing the methodology for the MAI.
2. Continue research and air lift excavation with the purpose of adequately exposing the wreck to facilitate accurate condition and establish extent of the wreck to provide data upon which other key decisions can then be made. Such work has thus far been conducted at a steady rate and objects are being retrieved undamaged. It is therefore proposed that work continues using this method. Underwater video has been used for additional information and recording.
3. In the course of air lifting, should any items of interest be retrieved these will be recorded in detail on site and a conservation plan suggested. Since air lifting began the equipment has been modified with the addition of a wire mesh which ensures a high rate of artefact retention.
4. The air lifting is being carried out by divers under contract to CEDD. Their work has been consistently to a good standard. Since April 1st an archaeologist has been on site to monitor the objects being raised, identify, record them and log them into a project database.
5. It is recommended that a High Resolution Multi-Beam Survey is completed to delineate the dimensions and form of the object. The resulting 3-D visualisation would provide very useful data for communicating to the public the nature of the wreck site.

6. Temporary conservation has been carried out but there is a need to develop a practical long term solution. A part time conservator has been on site since April 1st who is providing temporary protection and storage.
7. Documentation and archive programme. All artefact recording and reporting must comply with AMO standards and guidelines. On completion of the fieldwork, post-excavation processing, analysis and report writing, the final report will be placed at the Heritage Discovery Centre and made available for public consultation, while all relevant paper, digital and material archives will be deposited with the AMO Repository.

Appendix 1: HMS Tamar summary

1. Specification

HMS *Tamar* was built as a barque-rigged, three-masted sail and steam powered troopship by Samuda Brothers of Cubitt Town, London in 1863. Her displacement (weight) was 4,650 tons and she measured 320 ft (98 m) long and had a beam (width) of 45 ft (14 m). Her propulsion consisted of a 500 hp steam plant (engine) driving a single propeller, which gave her a maximum speed of 12 knots or 22km/h. As a troopship her armament was light, consisting as it did of just three guns.

2. History

The HMS *Tamar* visited Hong Kong twice (1878, 1886) during her days as a troopship, carrying troops and supplies to Hong Kong. She arrived for the last time on 6th September 1895 and was taken to Kowloon Docks to be converted to an accommodation ship for the Royal Navy in Hong Kong. The reason for this was Section 67 of the *Naval Discipline Act* 1866, which stated that all shore establishments of the Royal Navy must have what was called a ‘nominal depot ship’ that served as the commissioned vessel to which all personnel were attached. Soon after her conversion to that new role, re-ballasting was necessary to reduce her excessive roll, and the *Tamar* was finally commissioned as the Royal Navy’s nominal depot ship on 1st October 1897.

Until 1913 the *Tamar* was moored to a buoy off the Naval Dockyard, but five years after the dockyard extension was completed (1902-1908), she was moved from her buoy to a permanent berth on the west wall of the new basin. She remained there, with an occasional move to Kowloon Dockyard for docking and painting, until the moment the Japanese invaded Hong Kong on 8th December 1941. Almost immediately she was moved from the West Wall out to a mooring off the Wan Chai waterfront. When it was clear that the battle had swung decisively against the British with the fall of the Shing Mun Redoubt on 11th December, and the decision to evacuate the New Territories was taken, it was decided to scuttle (sink) all ships not of use in the battle. Accordingly a small team was sent onto the *Tamar* to open her seacocks to let in seawater. Although she settled, she did not sink because air was trapped under the upper deck and, above all, under the large, fixed metal awning covering her. Accordingly the Royal Artillery manning guns ashore were called upon to shell the upper works until she sank (Stemson nd.). In 1947 the wreck was demolished by explosives allowing the salvage of all elements then protruding above the seabed (*China Mail* 20th Dec 1947). There were further clearance operations to ensure that the area was clear for navigation.

3. Historical Significance

When attempting to assess the historical significance of the wreck of HMS *Tamar* one has to take into account the fact that there is *Tamar* the ship and *Tamar* the onshore naval base, which like ‘Admiralty’ eventually gave its name to an area of Hong Kong. While the name ‘Tamar’ has a deeper non-military significance as a result of its perpetuation in the post-colonial era as an area of Admiralty now associated with the governance of the SAR.

The Ship ‘Tamar’

The ship itself has historical significance as a technologically interesting ‘hybrid’ vessel built in an era of multiple technological transitions, namely: the shift from sail to steam (*Tamar* was one of a class of vessels which had both), the move from paddle to propeller propulsion (*Tamar* is a quite early example of propeller use), and from ironclad wooden warships to vessels like *Tamar* with hulls constructed entirely of riveted wrought iron. The heyday of wrought iron hulled vessels was short-lived as before the end of the 19th century steel became the shipbuilding material of choice. So *Tamar* has broader historical significance in terms of global developments in shipbuilding and maritime technology, and more local significance in terms of the late 19th-mid-20th-century operation

of the Royal Navy's so-called China Station, and its role in the colonial history of Hong Kong up to WWII. Moreover, although the vessel was explosively dismantled and salvaged, the surviving remains can reveal important structural details of late 19th-century wrought iron shipbuilding, while the artefactual remains can provide rich socio-historical insights into the ship's interior fittings and appearance, and the life of the men on board.

The Name 'Tamar'

The name 'Tamar' resonates in Hong Kong's history. The ship appears in every photograph of the Central harbour area taken during the early years of photography in Hong Kong. As *Tamar* had served so long as Hong Kong's nominal depot ship—44 years in total—the name became synonymous with the naval base. With *Tamar* sunk, when the Royal Navy returned in 1945 they decided to keep the name, and for the first 8 months renamed the River Class frigate HMS *Aire* as HMS *Tamar*. When in 1946 the Royal Navy acquired Wellington Barracks from the Army, they made it what in naval language is termed a 'stone frigate' (a bricks and mortar ship) which was promptly named HMS *Tamar*.

The site of stone frigate, which was the 6th naval establishment to bear the name, now lies beneath the headquarters buildings of both the Hong Kong SAR Government and the People's Liberation Army.

The name *Tamar* (Tim Ma (添馬) in Cantonese) has also left its mark in popular speech and in local place-names such as Tamar Park and Tamar Street in Admiralty, and it is also punned on in Tim Mei and Tim Wah Avenues. Today we also refer to the 'Tamar Development' and the 'Tamar Site' as the locations for the new Central Government Offices and the Legislative Council. The 'Tamar' name is therefore very familiar to Hong Kong people—whether Chinese or foreigners—and reflects a unique part of Hong Kong's colonial *and* post-colonial history.

Water Depth : 10 m

Depth Method : Swept by wire-drag

Depth Quality : Least depth known

Height : --

Drying Height : --

Vertical Datum

Wrecksite

Water Level Effect : Always under water/submerged

Bottom Texture : Mud

Sonar Signal Strength --

Sensor

Original Sensor : --

Last Sensor : --

Conspicuous

Conspic Visual : NO

Conspic Radar : NO

Contact

Non-Sub Contact : NO

Contact Description : --

Name

HMS TAMAR

Type

IRON STEAM TROOPSHIP

Flag

BRITISH

Dimensions

Length = 97,5 m

Beam = 13,7 m

Draught = --

Tonnage 4650 Gross

Cargo

Date Sunk 12/12/1941

Detection

Original Detection Year : --

Last Detection Year : --

Source

Original Source : --

Last Source : --

Sonar Dimensions

Sonar Length = --

Sonar Width = --

Shadow Height = --

Orientation 45°

Magnetic Anomaly --

Debris Field --

Scour

Scour Depth = --

Scour Length = --

Scour Orientation = --

Markers --

General Comments --

Circumstances of Loss

BUILT 1863 BY SAMUDA, POPULAR. SCUTTLED AT HONG KONG. (SHIPS OF THE ROYAL NAVY)

APPENDIX 3: A theoretical preliminary statement on Heritage Protection and Significance if the object is proved to be HMS *Tamar*:

Across the world, heritage on land and at sea is increasingly being protected and managed on the basis of its significance. For wreck sites, it is helpful to consider the significance of a wreck in terms of the overall biography of the vessel and its wrecking, encompassing its build, use, loss, survival on the seabed, and investigation. This basic structure is used below to set out some initial considerations about the significance of HMS *Tamar*.

The potential benefits that could arise from investigation of HMS *Tamar* can be derived in different ways, depending on what solution is adopted for the physical remains; but these remains can be combined with a range of innovative technologies to ensure that the wreck becomes accessible to a very wide range of people, both in Hong Kong and abroad.

A formal ‘Statement of Significance’ has not been attempted because it would require a degree of research and further information not available within the timescale of this preliminary statement.

Build	HMS <i>Tamar</i> was built in 1863 during a very important period for the adoption of iron, of steam, and of screw propulsion. These innovations were important both in the Royal Navy and in the commercial sphere; the relation between the two is also important and represented by HMS <i>Tamar</i> , as it was built for the RN in a private yard. This importance is international because innovations occurring in the UK at this time had an important influence on the overall development of military and commercial shipping worldwide. The importance of this period and these themes is reflected in the very high regard now afforded to surviving vessels such as the SS <i>Great Britain</i> (1843) in Bristol, HMS <i>Warrior</i> (1860) in Portsmouth and HMS <i>Gannet</i> (1878) in Chatham.
Use	HMS <i>Tamar</i> had a very long and interesting career that might be considered in two phases: as a troopship between 1863 and 1897; and as depot ship for Hong Kong from 1897 to 1941. In both phases HMS <i>Tamar</i> reflected and took part in both the day-to-day running of a major colonial empire, and in specific historical events of international significance. There are very few physical remains so clearly associated with the distinctly maritime character of the British Empire and its impact on populations across the world.
Loss	The wreck of HMS <i>Tamar</i> , which was the RN base depot from 1897 until 12 th December 1941, has a symbolic importance as a relic of the Battle for Hong Kong in December 1941, invoking not only the battle itself but the occupation that followed.
Survival	Initial investigations suggest that less than 50% of the original ship remains due to two attempts to destroy her. The first attempt was made by the RN in 1941 when, as the Japanese were invading, she was scuttled to stop the enemy making use of the ship. The second was in 1947 when a contractor was tasked with removing the shipwreck completely. The salvage, however, was never completed, perhaps due to the very tough wrought iron construction of the hull. Further attempts at salvage were carried out to clear the seabed of debris.

Investigation	As there has been no previous investigation of the wreck, the significance arises from the massive potential for its study to contribute to scientific understanding of HMS <i>Tamar</i> in terms of its technological, military-naval and socio-historical context, covering the points indicated above and more.
Historical Significance	When attempting to assess the historical significance of the wreck of HMS <i>Tamar</i> one has to take into account the fact that there is <i>Tamar</i> the ship and <i>Tamar</i> the onshore naval base, which like ‘Admiralty’ eventually gave its name to an area of Hong Kong. While the name ‘Tamar’ has a deeper non-military significance as a result of its perpetuation in the post-colonial era as an area of Admiralty now associated with the governance of the SAR.
Educational Value	<p>There is great potential for public appreciation and engagement with the wreck and the history of Hong Kong embedded within it. This in itself has many facets: for domestic and international tourism; for education in schools; and as a major contribution to the heritage landscape of Hong Kong as a whole.</p> <p>Marine archaeology is still a new area of study in Hong Kong and the investigation of this wreck could be a springboard for the development of a programme of archaeology-related educational initiatives across the HKSAR.</p>
Conservation Value	The conservation value cannot be definitively established until the investigation is complete and all the above values have been fully assessed. Initially, there must be a detailed assessment of the wreck’s condition and structure, which cannot be done until all the surrounding sediment and at least key areas of internal ballast materials have been removed. On completion of the archaeological and historical investigations, a conservation plan will need to be prepared suggesting possible alternatives for the wreck’s future conservation.

Appendix 4: Standards and Guidelines

The excavation will generally be conducted in line with internationally accepted standards of archaeological practice and specifically in accordance with relevant AMO guidelines governing site work and the preparation of archaeological sites and archives. **NB:** The AMO should be informed immediately if significant archaeological deposit is identified. A brief report on the discoveries with preliminary assessment, plans, photographs and drawings should be prepared upon request by the AMO.

Appendix 4.1: Guidelines for Archaeological Reports (as at April 2011)

I. General

1. All reports should be written in a clear, concise and logical style.
2. All the constituent parts (text, figures, photos and specialist reports (if any) should provide full cross-reference. Readers should be able to find their way around the report without difficulty.
3. The reports should be submitted in A4 size and accompanying drawings of convenient sizes.
4. Draft reports should be submitted to the Antiquities and Monuments Office (AMO) for comments within two months after completion of archaeological work unless otherwise approved by AMO.
5. The draft reports should be revised as required by AMO and relevant parties. The revised reports should be submitted to AMO within three weeks after receiving comments from AMO and relevant parties.
6. At least 5 hard copies of the final reports should be submitted to AMO for record purpose.
7. At least 2 digital copies of the final reports in both Microsoft Word format and Acrobat (.PDF) format without loss of data and change of appearance compared with the corresponding hard copy should be submitted to AMO. The digital copies should be saved in a convenient medium, such as compact discs with clear label on the surface and kept in protective pockets.
8. Errors are the responsibilities of the author(s) and should so far as possible be identified and rectified before submission to AMO.
9. The guidelines which will be revised by the AMO of the Leisure and Cultural Services Department from time to time, where appropriate, and when required should be followed in the interest of professional practice.

II. Suggested Format of Reports

1. Front page:
 - Project/Site name
 - Nature of the report e.g.
(Draft/Final)
Archaeological Investigation/Survey Report
Archaeological Impact Assessment Report
Watching Brief Report
Rescue Excavation Report
Post-excavation Report

- Organization
- Date of report

2. Contents list
Page number of each section should be given.
3. Non-technical summary (both in English and Chinese with approximate 150 – 300 words each)
This should outline in plain, non-technical language, the principal reasons for the archaeological work, its aims and main results, and should include reference to authorship and commissioning body.
4. Introduction
This should set out background leading to the commission of the reports. The location, area, scope and date of conducting the archaeological work must be given. The location of archaeological work should be shown on maps in appropriate scales and with proper legends.
5. Aims of archaeological work
These should reflect the aims set in the project design.
6. Archaeological, historical, geological and topographical background of the site
Supporting aerial photos and maps (both old and present) in appropriate scales, with proper legends and with the site locations clearly marked on should be provided.
7. Methodology
The methods used including any variation to the agreed project design should be set out clearly and explained as appropriate.
8. Results
 - The results should outline the findings, known and potential archaeological interests by period and/or type. Their significance and value with reference/inclusion of supporting evidence should be indicated. If more than one interpretation is possible, the alternatives should also be presented, at least in summary.
 - The results should be amplified by the use of drawings and photographs.
 - Tables summarizing features and artefacts by trench/grid/test pit together with their interpretation should be included.
 - The method, sampling details, results and interpretation as well as appropriate supporting data of the analysis for the environmental materials, e.g. ecofacts identified and/or collected during the fieldwork should be included.
 - For impact assessment, the likely effect of the proposed development on the known or potential archaeological resource should be outlined.
9. Conclusion
This should include summarization and interpretation of the result.
10. Recommendation

Recommendations on further work and the responsible party as well as a brief planning framework should be outlined.

11. Reference and bibliography

A list of all primary and secondary sources including electronic sources used should be given in full detail, including the title of the relevant material, its author(s), publisher, publication place and date.

12. Archaeological team

The director and members of the archaeological team and the author(s) of the report should be clearly specified.

13. Copyright and dissemination

The copyright of the report should be clearly identified. To facilitate future research studies, please specify that the report can be made available to the public in the Reference Library of the Heritage Discovery Centre.

14. Supporting illustrations

They should be clearly numbered and easily referenced to the text. They should be scanned and saved in TIFF or JPEG formats.

A. Maps

A location plan of the project site should be included. Archaeological work locations, such as auger hole and test pit locations (with relevant coordinates certified by a qualified land surveyor), should be clearly shown on maps in appropriate scales, with proper legends, grid references (in 8 digits) and captions.

B. Drawings of test pits, archaeological features, special finds¹, selected representative samples from general finds

Drawings of all excavated test pits (at least one cross section of each test pit), all excavated archaeological features (both plan and cross section of each archaeological feature), all special finds identified in the excavation and selected representative samples from general finds (at least front view and section of each finds) should be included. All drawings should be clearly numbered and easily referenced to the text. The drawing scales stipulated below should be followed:

Cross section and profile drawings of test pits	1:20
Archaeological feature drawings	1:10
Finds drawings	1:1

If drawings of the above stated scales are not appropriate to be incorporated into the report under certain occasions, reduced copy of the drawings with the same scales are acceptable. Proper captions, legends and indication of reduced size should be given.

¹ Special finds are sometimes known as small finds (小件) in Chinese or registered finds. Drawings and photos of the special/small/registered finds should be included in the archaeological report.

- C. Photos of project site and the surrounding area, test pits, archaeological features, special finds, selected representative samples from general finds

Photos of project site and the surrounding area, all excavated test pits (at least one cross section of each test pit), all excavated archaeological features (both plan and cross section of each archaeological feature), all special finds identified in the excavation and selected representative samples from general finds (at least front view of each of the finds) should be included. All photos should be at least in 3R size with proper captions and scales. They should be clearly numbered and easily referenced to the text. They should be scanned and saved in TIFF or JPEG formats.

15. Supporting data in appendices

These should consist of essential technical details to support the result. These may include stratigraphic record of test pits and auger holes, records of general and special finds as well as ecofacts discovered with description, quantity and context number/stratigraphic sequence, result of laboratory testing, index of field archives.

16. Other professional views/comments

This can reflect any issues/ difficulties regarding the archaeological project observed/ encountered by the archaeological team.

17. Comment and response

All comments and responses from AMO and relevant parties should be attached in full.

III Green Measures

1. All reports should be of single line spacing and printed on both sides of the paper.
2. Excessive page margins should be avoided. A top/bottom margin of 2 cm and left/right margin of 2.5 cm are sufficient.
3. Use of blank paper should be avoided as far as possible.
4. Suitable font type of font size 12 should be used generally in balancing legibility and waste reduction objective.

Appendix 4.2: Guidelines for Handling of Archaeological Finds and Archives (as at 28th November 2011)

I. General Remark

1. The guidelines which will be revised by the Antiquities and Monuments Office (AMO) of the Leisure and Cultural Services Department from time to time, where appropriate, and when required should be followed in the interest of professional practice.
2. Please use the site code (_____)** for the archaeological project, namely . Licensee must use this unique site code for the whole project.

** If an archaeological project covers more than one archaeological site/location, licensee should contact the Central Archaeological Repository (CAR) at 2384 5446 or aciamoar@lcsd.gov.hk to obtain relevant site codes.

3. Licensee should contact the CAR at 2384 5446 or aciamoar@lcsd.gov.hk regarding the handover of archaeological finds and archives when post-excavation research and excavation report have been completed and accepted by the AMO.
4. If a huge quantity of similar general finds was discovered from a single archaeological project, licensee is advised to consult the AMO regarding the collecting strategy as early as possible.
5. For the preparation of archaeological finds and archives for long-term curation by the CAR, the guidelines as set out below should be followed.
6. If the licensee does not handle the finds and archives in accordance with this guidelines, the AMO may inform the project proponent to revise the relevant data. The arrangement of handover may subsequently be deferred.

II. Archaeological Finds

7. Cleaning

The excavated finds should be properly cleaned with water, except: (i) the finds are identified for scientific analysis; (ii) metal & organic objects (e.g. bone, wood, leather, textile objects and etc.) should not be cleaned with water. Licensee is advised to consult the AMO if in doubt.

8. Marking

- The excavated finds should be cleaned before marking object number.
- “Sandwich” technique¹ should be adopted for marking permanent object number.

¹ Steps for “Sandwich” technique

1. First of all, the find number should be marked in appropriate area and size that does not impact important diagnostic or aesthetic parts of the find.
2. Clean the area to be marked.
3. Apply a thin coat of clear reversible lacquer on the area. Use white lacquer if the object is dark in colour. Let the base coat dry completely.
4. Use a permanent water-based ink to write the find number on top of the base coat. Let ink dry completely.

- Each special find should be marked with site code, context number and SF number, etc.
 - Any representative samples selected from the general finds for discussion on the excavation report should be marked with site code, context number, sample number and bagged separately.
 - The general finds should be marked with site code and context number.
 - For the finds which are too small, organic objects (e.g. bone, wood, leather, textile objects and etc.) or have unstable surface, object number should not be marked on the object directly. These finds should be bagged separately and attached with a label containing information about the site code, context number, find number and description of find.
9. Labelling and bagging
- Two labels should be provided for each bag which contains finds, one is adhered on the surface of the bag while the other is kept inside the bag for easy reference.
 - The label inside the bag should be kept separately with a smaller plastic bag so that the label can be kept much longer.
 - Information about the site code, context number, test-pit number, object number (or bag number) and description of finds should be written clearly on the label.
 - Finds under the same context should be bagged together. If those finds, however, have been categorized according to their typology, materials or characteristics, separate bagging is required.
10. Conservation
- To refit and reconstruct pottery vessels with appropriate adhesive. A heat and waterproof adhesive, e.g. product of H. Marcel Guest Ltd., is recommended.
 - Any adhesives which are not reversible or would damage the finds should not be applied on the finds. Archaeologist is advised to consult the AMO if in doubt.
11. Finds register
- A standard finds register, for both special finds and general finds, with information about the find's number, name, description, quantity, type, weight, dimensions and field data should be duly filled in. Licensee should contact the CAR at 2384 5446 or aciamoar@lcsd.gov.hk to obtain the standard finds register (in Excel format). Special finds and general finds should be inputted in individual register. Both hard & soft copies (in Excel format) of the duly completed register should be handed over.
12. Sample register of eco-facts
- A clear sample register with information about the description of the sample, quantity, type and weight should be prepared for handover.

III. Field Records and Finds Processing Records

13. Field records include field diary, site record for individual test pit/trench/square, context recording sheet, special finds recording sheet, soil sample & eco-facts sample recording sheet, map, survey sheet, photograph/ audio-visual records, etc.

5. Apply a top coat of clear varnish.
6. Let the clear varnish dry completely before packing.

14. Finds processing records include conservation record, measured drawings and photographs, laboratory reports, etc.
15. Measured drawing, both hard & soft copies (in pdf format), and photograph (in jpg format) of each special find should be handed over.
16. All the aforesaid records stated in paragraphs 12 to 14 should be handed over to the CAR when post-excavation research and excavation report have been completed. Please note:
 - all the field records should be submitted together with indexes.
 - the video footage should be submitted together with index describing the content of the video footage.
 - all the slides, colour/ black & white negatives or digital photographs should be submitted together with photo register.

IV. Handover of Finds

17. Packing
 - Each special find should be packed and protected with tissue paper, bubble sheet or P.E. foam to avoid shocking when transporting to the repository. No packing material other than the aforesaid items should be used.
 - The general finds should be protected with bubble sheet or P.E. foam and packed in heavy duty plastic container.
 - The heavy duty plastic container, e.g. product of the Star Industrial Co., Ltd. (No. 1849 or 1852), is recommended.
 - For oversized finds, prior advice on packing method should be sought from the AMO.
18. Handover procedure
 - The licensee should make an appointment with the CAR for the handover and arrange to transport the finds and archives to the repository.
 - Prior to handover, licensee is required to supply with the aforesaid finds register, field records register and associated records to the CAR for checking at least three working days in advance. Exact date of handover will be arranged subsequently.
 - Handover forms for finds and archives should be signed by the representatives of the licensee and the AMO.

References

- Banham, T. 2005. *Not the slightest chance: the defence of Hong Kong, 1941*, Hong Kong: Hong Kong University Press
http://www.royalnavyresearcharchive.org.uk/HMS_Tamar.htm#.VRJYwEIVrZI (accessed on 24.03.2015)
- China Underwater Cultural Heritage (CUCH) nd. China National Conservation Center for Underwater Cultural Heritage. Beijing: CUCH.
[http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/CUCH_brochure_en%20\(2\)_02.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/CUCH_brochure_en%20(2)_02.pdf)
- Coates, A. 1977. *A Mountain of Light*. Hong Kong: Heinemann Educational Books (Asia) Ltd.
- Coates, A. 1980. *Whampoa: Ships on the Shore*. Hong Kong: South China Morning Post Ltd.
- Collis, M. 1946. *Foreign Mud. An Account of the Opium War*. London: Faber and Faber Ltd.
- de Rome F.J. & Evans, N. 1921. *Notes on the Harbour of Hong Kong*, Hong Kong: The Printerie.
- Dromgoole, S. 2013. *Underwater Cultural Heritage and International Law*. Cambridge: Cambridge University Press.
- Empson, H. 1992. *Mapping Hong Kong: A Historical Atlas*, Hong Kong: Government Information Services.
- Endacott, G. B. 1964. *Government and People in Hong Kong, 1841-1962: A Constitutional History, Hong Kong*. Hong Kong: Hong Kong University Press.
- Endacott, G.B. 1993. *A History of Hong Kong*. Hong Kong: Oxford University Press.
- England, V. 1998. *The Quest of Noel Croucher. Hong Kong's Quiet Philanthropist*. Hong Kong: Hong Kong University Press.
- Gallagher, S. nd. 'Protecting the Underwater Cultural Heritage in the waters surrounding Hong Kong'. The Museum of Underwater Archaeology
<http://www.themua.org/collections/files/original/dbb657c349cdd196d7dbdc8be4e03ea1.pdf>.
- Grace's Guide (nd.). *British Industrial History* (website). (http://www.gracesguide.co.uk/Main_Page)
- Graystone, R (nd.) 'HMS Tamar and the China Fleet Club', on *The Gun Plot: Royal Australian Navy* website. <http://www.gunplot.net/chinafleetclub/chinafleetclub.html>
- Guildford, C.M. 1998. 'A Look Back: Civil Engineering in Hong Kong, 1841-1941'. *Journal of the Hong Kong Branch of the Royal Asiatic Society*, **37**: 81-103.
- Hillson, Simon. 1996. *Mammal Bones and Teeth: An Introductory Guide to Methods of Identification*. London: UCL
- Hoe, S. & Roebuck, D. 1999. *The Taking of Hong Kong. Charles and Clara Elliot in China Waters*. Richmond: Curzon Press.

- British Academy/ Honor Frost Foundation. 2014. Key facts about the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage.
(<http://honorfrostfoundation.org/wp/wp-content/uploads/2015/02/Key-Facts-about-the-2001-UNESCO-Convention-February-2015.pdf>.)
- Langford, R.L., James, J.W.C., Shaw, R., Campbell, S.D.G., Kirk, P.A. and Sewell, R.J. 1995. *Geology of Lantau Island*. Hong Kong Geological Survey Memoir No.6. Hong Kong: Government Printer.
- Melson, P.J. (ed). 1997. *White Ensign - Red Dragon. The History of the Royal Navy in Hong Kong 1841-1997*. Hong Kong: Edinburgh Financial Publishing (Asia) Ltd.
- MoD/DCMS, 2014. Protection and Management of Historic Military Wrecks outside UK Territorial Waters. April 2014. London: Department for Culture, Media and Sport & Ministry of Defence.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307962/Protection_and_Management_of_Historic_Military_Wrecks_outside_UK_Territorial_Waters_April_2014.docx
- Museum of London (nd.). ‘Ceramics and Glass: Fulham (1672-1928)’. (website accessed 02.04.15)
http://archive.museumoflondon.org.uk/ceramics/pages/subsubcategory.asp?subsubcat_id=716&subsubcat_name=Fulham&page=1
- Sayer, G. R. 1980. *Hong Kong 1841-1862. Birth, Adolescence and Coming of Age*. Hong Kong: Hong Kong University Press.
- Sayer, G. R. 1975. *Hong Kong 1862-1919*. Hong Kong: Hong Kong University Press.
- Stemson, Michael (nd.). ‘H.M.S. Tamar R.N. Base Hong Kong’. From the Royal Navy Research Archive (accessed 02.04.15)
http://www.royalnavyresearcharchive.org.uk/HMS_Tamar.htm#.VR1ibOF5JtF
- Strange, P.J. & Shaw, R. 1986. *Geology of Hong Kong Island and Kowloon*. Hong Kong Geological Survey Memoir, No. 2. Hong Kong: Geotechnical Control Office
- UK Hydrographic Office. 1952. H5215 Minute Sheet
- UN 1982. *UN Convention on the Law of the Sea*. New York: UN.
- UNESCO 2001. *Convention on the Protection of the Underwater Cultural Heritage*. Paris: UNESCO.
- United States Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region. 1991. *Requirements for Archaeological Resource Field Surveys*.
- Wright, A.(ed.).1990. *Twentieth Century Impressions of Hong Kong, Shanghai and the Treaty Ports*. (first published 1908) Singapore: Graham Brash (Pte) Ltd.