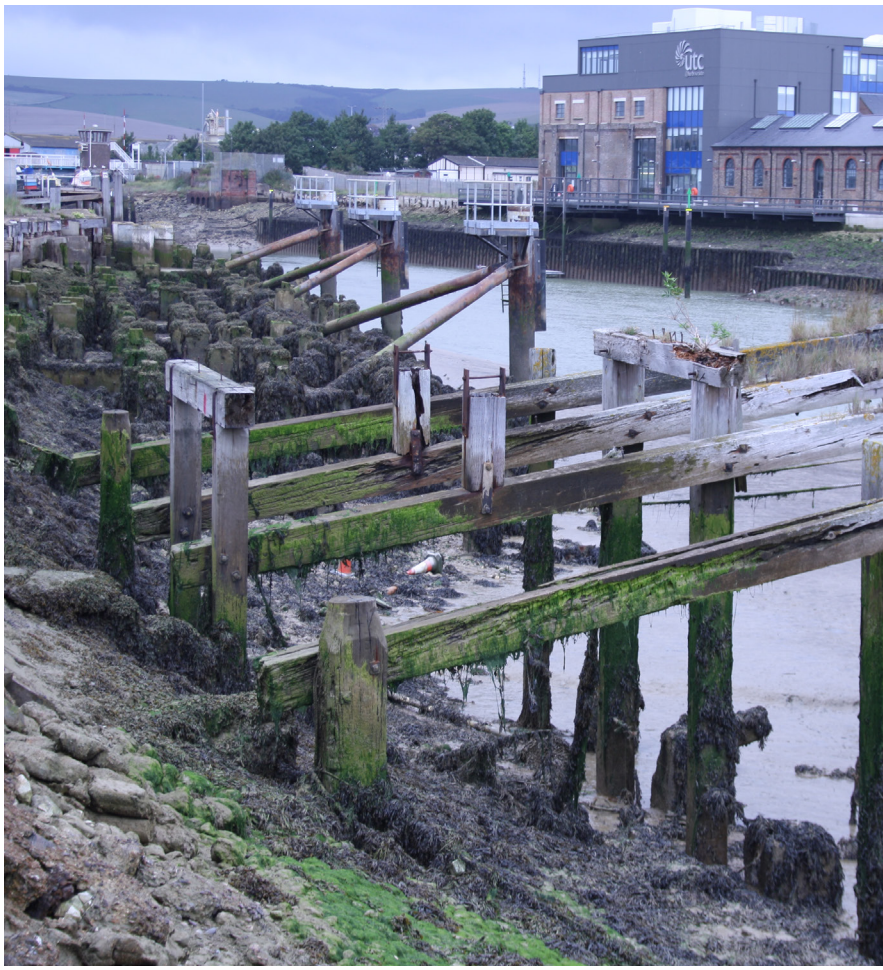
Forgotten Wrecks of the First World War

South Coast Ports & Harbours

Southampton, Shoreham, Newhaven, Folkestone & Dover



Maritime Archaeology Trust

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FIRST WORLD WAR CENTENARY

LED BY IWM

2018

FORGOTTEN WRECKS OF THE FIRST WORLD WAR

Ports and Harbours on the South Coast during the First World War: Southampton, Shoreham, Newhaven, Folkestone and Dover

Supported by The National Lottery® through the Heritage Lottery Fund
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Contents

i. Acknowledgements

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The Maritime Archaeology Trust would particularly like to thank Alastair Higton for his detailed desk based research and assessment of the harbours using aerial photographs, Andrew Daw for his research on the role of the ports in supplying logistics for the war and Richard Wyatt for his work on images and contributions to research. We are also indebted to the volunteers who helped with field survey at Newhaven Port.

Contributions to reporting by: Alastair Higton, Andrew Daw and Julie Satchell.

ii. Copyright Statement

iii. List of Figures

1. Project and Report Background

Forgotten Wrecks of the First World War is a Heritage Lottery Funded project dedicated to raising the profile of a currently under-represented aspect of the First World War. While attention is often focused on the Western Front and major naval battles like Jutland, historic remains from the war lie, largely forgotten, in and around our seas, rivers and estuaries.

With over 1,100 wartime wrecks and dozens of coastal sites along England's south coast alone, the conflict has left a rich heritage legacy and many associated stories of bravery and sacrifice. The underwater memorials represent the vestiges of a vital, yet little known, struggle that took place on a daily basis, just off our shores. The study and promotion of these archaeological sites presents a unique opportunity to better interpret them and improve physical and virtual access.

The project focuses on underwater and coastal sites from the Isle of Thanet in Kent, to beyond the Isles of Scilly, and over half way into the English Channel. The sites include merchant and naval ships, passenger, troop and hospital ships, U-boats, ports, wharfs, buildings and foreshore hulks. These sites, under water and on the foreshore, have been degrading and deteriorating due to natural and human processes for approximately 100 years and, as a result, are extremely fragile. In many cases, this project represents a final opportunity to record what remains on the seabed and foreshore before it is lost forever.

The project aimed to characterise the nature and extent of the maritime First World War archaeological resource surviving on the south coast's seabed and around the coast. This will enable an understanding of the record of maritime activity created during the conflict and provide a window onto some of the surviving sites. While it was not be possible to visit and record every site dating to the First World War along the south coast of England, a representative sample of sites have been selected for more detailed study, analysis and interpretation.

With particular regard to coastal, rather than fully submerged archaeological remains, it has been noted in wider commentaries on England's coastal heritage (Murphy, 2014: 94) that there are relatively few surviving sites because of subsequent reuse and/or destruction during or following the Second World War. As a result, from the perspective of identifying coastal research priorities an emphasis has been placed (Murphy, 2014: 119) on the need to differentiate First World War sites from those of the Second World War. With all of this in mind, the following report addresses some of the key south coast ports in use during the First World War for supplying and supporting activity on the Front – Southampton, Shoreham, Newhaven, Folkestone and Dover (Figure 1). Their position in the south east of England made them strategically placed for cross channel supply roles.

This report presents a brief historical background to the ports during the war and the potential for surviving physical remains from this date as determined from the comparison of historical maps and charts with modern aerial photography. This work was contributed to by volunteers; Alastair Higton reviewed online aerial photography and researched documents and publications in The National Archives, libraries and online to assess potential survival of remains while Andrew Daw undertook extended research on the historical background to the ports and their role in supplying the front. Research on the physical form of the ports has used maps and charts of a date as close to the war as possible. This research was used to help target a field visit to Newhaven port, the results of which are included within this report.

There were many other ports active during the First World War within the study area, particularly the large military ports of Portsmouth, Devonport and Portland (for more detail see separate Forgotten Wrecks report on research and survey at Portland), Richborough port built specifically for the war effort, and other ports playing a role through building and repair of vessels, hosting patrols, mine

related craft or seaplane bases (for more detail see: *First World War Seaplane Stations of the South Coast of England* http://forgottenwrecks.maritimearchaeologytrust.org/uploads/images/Articles/Site%20Reports/FWFWW_Seaplane_Stations_Report_2018.pdf), and maintaining the vital shipping of goods in the general support of the country. While these ports are not featured within this report, their role is no less significant and there is much potential for further research and study at these sites.

Figure 1: Location of south coast ports included within this study

2. The Role of Ports during the First World War

A key component in any military capability is logistics; support to the personnel engaged, the equipment used and the replenishment of stores. During the First World War, there were limited numbers of motor vehicles, an embryonic road network, and air transport was novel and unreliable, this meant that logistics was the domain of the railway networks, ports and harbours. For the British Expeditionary Forces (BEF), there existed the added complication of the English Channel, which required a sea passage for any deployment or provision of support.

The combination of maritime and railway transportation systems existed on both sides of the Channel. Stores and personnel travelled between factory and barrack to warehouse and front line via train, canal barge, ferry or ship and then back to trains and barges. Returning soldiers, the wounded and refugees traversed the route in reverse utilising the same infrastructure and facilities.

Whitmore (2018) highlights that "Maintaining these huge forces in the field - up to 2 million men were serving on the Western Front - required vast amounts of supplies. Every bullet, blanket, bandage, artillery battery or tin of bully beef had to be manufactured and transported where and when it was required. By 1918 each Division of about 12,000 men needed about 1,000 tons of supplies every day - equivalent to two supply trains each of 50 wagons. When an offensive was being planned, even larger quantities of material had to be concentrated in preparation for the operations that might last for months". Transport on mainland Europe including operational inputs was also facilitated by a huge number of horses and mules together with their foodstuff, also requiring maritime transport.

The key points of departure for men and supplies from the UK were the Channel ports, often facilities were both extended and developed from scratch at convenient locations along the coast. The primary ports and their main roles were: Southampton, Folkestone, Dublin, Glasgow, Queenstown, Belfast, and Jersey: troops and horses; Newhaven: stores; Liverpool: mechanical transport and frozen meat; Avonmouth: mechanical transport and petrol; London: stevedores; Devonport: Siege Brigade; Dover: Naval Brigade and troops. Portsmouth was used for ship building, repairs and refit, as were a number of smaller ports.

A major harbour was constructed at Richborough whose purpose was to provide the B.E.F. with its heavy equipment - tanks, guns, railway locomotives, ammunition, horses and fuel. Here, the first use of specially designed sea-going Roll On / Roll Off ferries began in 1918, this complemented and extended the existing barge services (which continued throughout the war).

Ports west of Southampton also contributed to the transport and deployment of men and material but due to longer journey times they were not as extensively used. As an example, Plymouth/ Devonport became a major landing port for US troops deployed from the continental US prior to embarking for France.

Volumes of Shipping During Six Weeks of 1914

Hurd (1924) gives a detailed account of the scale of sea transport required from the numbers recorded as embarking at English and Irish ports over a six week period between August 9th and September 21st – 1914. During this six week period, a minimum of 93,364 tons of ammunition, stores, food, forage, petrol, vehicles, etc., were carried in addition to personnel and horses. Numbers of personnel and horses included:

Port	Officers	Other Ranks	Horses	Nurses and Civilians
Southampton	5,028	171,708	51,434	1,389
Newhaven	66	409	-	9
Avonmouth	58	4,547	-	-
Liverpool	16	1,741	-	-
Devonport	30	844	421	-
Belfast, Dublin & Queenstown	826	25,921	10,184	-
Totals	6,024	205,040	62,039	1,398

3. Southampton

The Port of Southampton has been an important harbour since Roman times and has played a significant role in Britain's military history for centuries. It has had a role in naval shipbuilding and has been a departure point for several military expeditions including for Henry V's Agincourt campaign, the Crimean War, Boer War and both World Wars (Eddleston 2014:1). Southampton also has the dubious honour of being the port of sailing for the *Titanic*. Southampton's docks had been expanded significantly in the late nineteenth and early twentieth centuries and were owned by the London & South Western Railway at the time of the First World War.

The modern Port annually handles 1.7 million cruise passengers, 820,000 vehicles (freight and transportation), and 14 million tonnes of cargo. As well as cruise and cross-Solent ferry services, Southampton is also the UK's second largest container terminal, is home to a five hectare bulk terminal, an export grain-silo terminal, specialist fruit-landing facilities and has a crude oil terminal (Associated British Ports).

The Eastern Docks cover over 60 acres and provide nearly 3 miles of quayside. Most of Southampton's traffic passed through here until 1934 when the Western Docks opened. As the Eastern docks were the main facilities during the First World War research has focused on this area of the Port.

3.1 Southampton Port during World War One

In order to ferry men and materials to the Western Front and other theatres of war, Southampton docks were taken over by the Government in August 1914 and in line with pre-war planning became the No.1 Military Embarkation Port. The Port was primarily used to transport troops and horses.

Traffic was not one way: many war casualties, prisoners of war, refugees and on-leave servicemen passed through Southampton. For example, during the July 1916 Somme Offensive Dover and Southampton shared 118,496 casualty arrivals who were distributed to hospitals by train. At Netley on the north-east shore of Southampton Water a Crimean War-era hospital was used, with significant additional capacity provided by tents and a Red Cross hutted hospital at the rear of the site (Fairman, 1984:7). Many refugees and Imperial troops also disembarked at Southampton (BBC World War One at Home).

Over 8 million soldiers, 386, 194 horses and mules, 15,000 artillery pieces and 180,000 vehicles passed through Southampton during the War. In the first six weeks alone, 176,736 officers and men, 51,434 horses and 1389 civilians and nurses war transported to France (Hurd 1924). Good railway connections made the port accessible from many areas of England, on the 22 August 1914, 73 BEF trains passed through Southampton on their way to the docks.

At the peak of mobilisation up to eight troop trains were arriving at the docks every hour and up to 18 ships a day sailed across the Channel. At the same time, Imperial garrisons were arriving from places like India and Egypt to join the fighting, and wounded soldiers and refugees poured in from the start of the war (BBC First World War at Home).

Conventional ships were loaded with all sorts of heavy and bulky war material and then unloaded after the comparatively short journey by sea. Roll-on roll-off train ferries were seen as a way to speed up loading and unloading and were designed to be used from the new Military Port of Richborough in Kent but started service between Southampton and Dieppe as Richborough was not complete.

In 1919 the Embarkation Commandant of 'Port Number One', Brigadier General Alfred Balfour, thanked Southampton for its "magnificent service" to the nation. The only memorial to that service is a small plaque on Admiralty House near Dock Gate 4.

3.2 Overview of Port Structures

Figure 2 shows a detail view of an Admiralty Plan of Southampton Docks held within the United Kingdom Hydrographic Office collection. It was originally published on 19 June 1914 however this version is dated 16 June 1922 and incorporates changes made to the docks during and immediately after the war. The plan does however state it is created from a London and South Western Railway Company plan made in 1919, although the soundings are from 1921. Figure 3 shows the Eastern Docks as they are today.

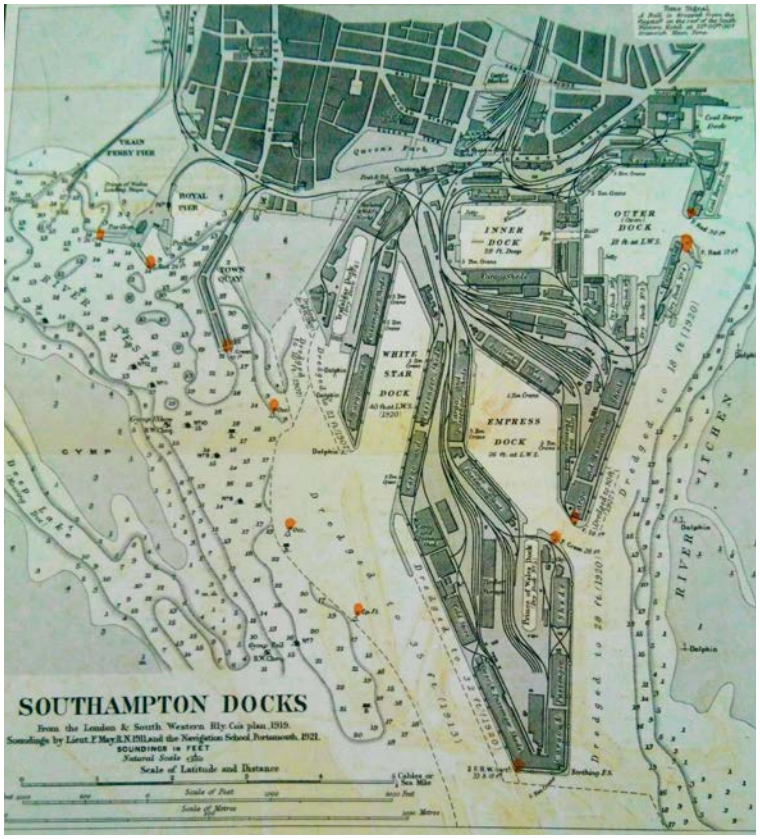

Figure 2: Admiralty Plan of Southampton Dock


Figure 3: Southampton Eastern Docks (CCO 2016)

3.3 Review of Surviving Remains from the First World War

High resolution modern aerial imaging available from the Channel Coastal Observatory was used to review the areas of the docks utilised during the First World War with the following presented below:

- Town quay
- Buildings around Trafalgar Dock (Dry Dock no. 6) and White Star Dock
- Dock 'promontory'
- Empress Dock
- Frontage between entrance to Empress Dock and Dry Dock No.4
- Outer Dock and Dry Docks 1, 2 and 3
- Inner Dock
- Coal Barge Dock

3.3.1 Town Quay

Comparing the modern image of Town Quay (Figure 4) to the 1922 plan shows that the Royal Pier itself is derelict and in poor condition with parts of it missing and the Pavilion no longer exists. The 1922 plan shows no other buildings there at the time. Red Funnel Ferries now occupy the berthing between the Royal Pier and Town Quay. The 1922 plans show no buildings in this area.

The width of Town Quay appears to have been widened and there are modern building situated on the eastern side of the quay, with car parking occupying the far end of the quay. There do not appear to be any remains of specific First World War buildings surviving, and no evidence of remaining railway/trackways remain from the 1922 plans on Town Quay. The Royal Pier and Harbour House at the head of Town Quay are both Listed Buildings at Grade II.

Figure 4: Town Quay, Southampton 2016 (CCO)

3.3.2 Buildings around Trafalgar Dock (Dry Dock no. 6) and White Star Dock

All buildings and railway/trackway around the Trafalgar Dock shown on the 1922 plans, including the Harland and Wolfe Works, no longer exist (Figure 5). The dock itself, although a Listed Building (Grade II), has been partially filled in and claimed for car parking, however, the footprint of the dock is visible and elements of the lock may remain. Also, the waterfront on the western edge of the dock is undeveloped so may retain some wartime features.

The Post and Telephone Office and other buildings on Platform Road and Canute Road do remain, but not the Customs House which has been replaced with a 1960s-70s office block. The cargo and passenger sheds serving the White Star Dock have been replaced on the western side, by the modern Ocean Cruise Terminal. Railway/ trackway, or imprints of it survive on either side of the dock, and as there are no new buildings on the eastern side of the dock First World War material may survive.

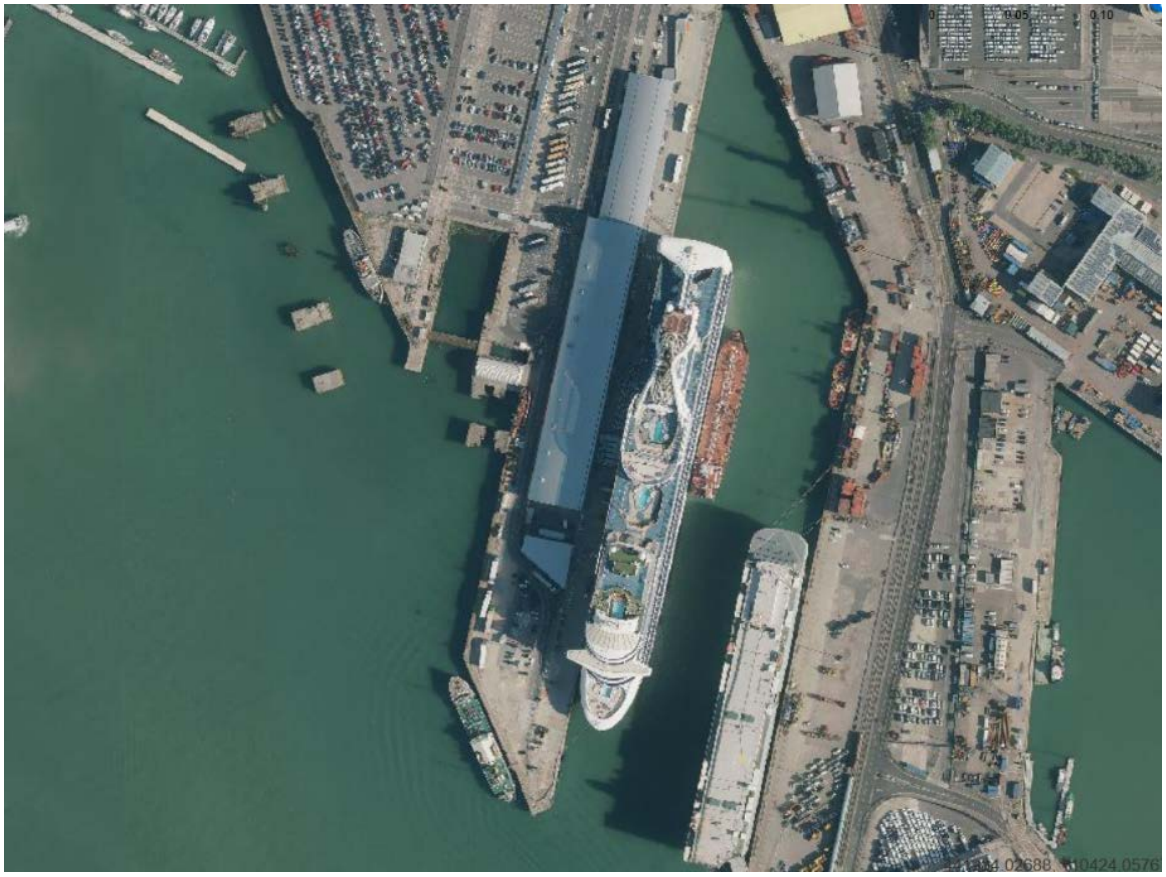

Figure 5: Buildings around Trafalgar Dock (Dry Dock no. 6) and White Star Dock (CCO)

3.3.3 Dock 'Promontory'

This area is now primarily used for disembarking imported motor vehicles, and on the south eastern tip is a grain terminal. It appears that every building from the 1922 plan is now demolished (Figure 6). Clarkson Port Services occupy a large building on the south western side of the promontory however its footprint does not match the 1922 plans and images of the building suggest a much more recent construction.

Railway/trackway, or its imprint, remains around the waterfront of much of the promontory. The Timber Storage building has been replaced with multi-storey car parks for imported vehicles and the centre of the promontory is largely used for this purpose. The Prince of Wales Dock has been completely filled in and is now also car storage.

Figure 6: Dock 'Promontory' in 2016 (CCO)

3.3.4 Empress Dock

No buildings from the 1922 plan remain. Passenger and cargo sheds have given way to a lorry park, sundry buildings and sheds and storage of materials. There may be some traces left of the passenger and cargo sheds, but a visual survey on the ground would be required to confirm this. On the northern waterfront, stretching back to cover marshalling yards between the Empress and Inner Docks is the National Oceanography Centre (Figure 7).

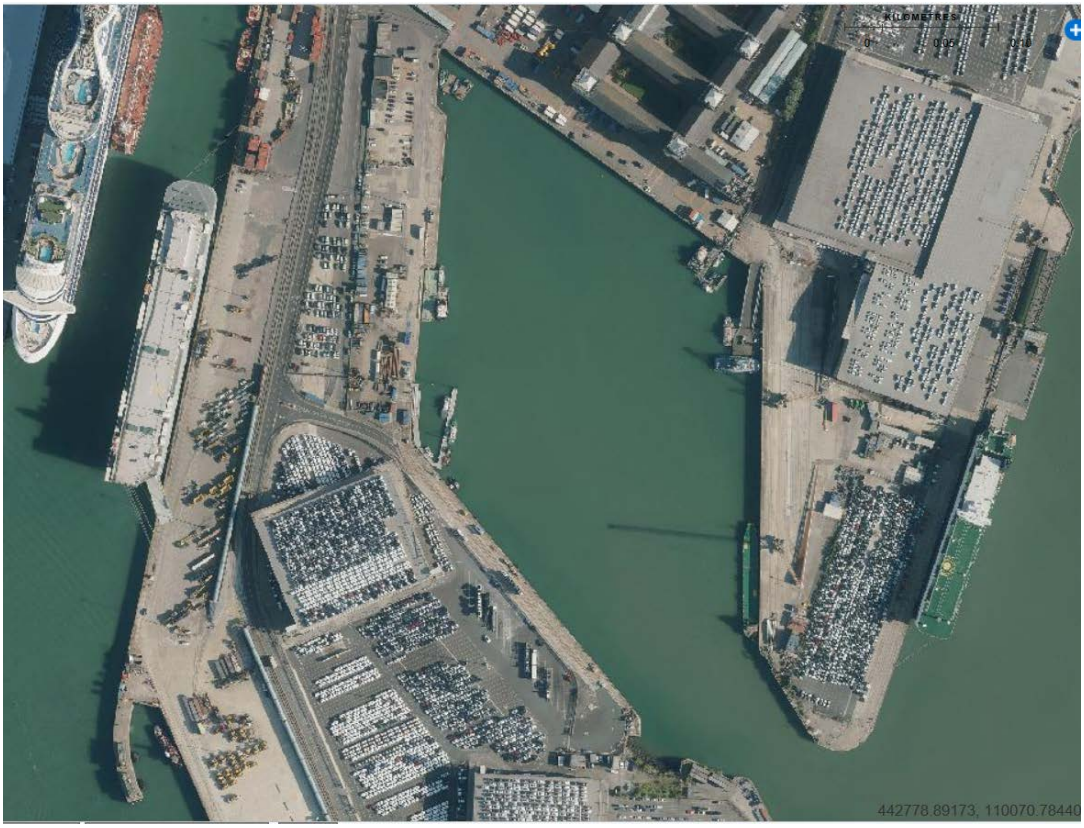

Figure 7: Empress Dock in 2016 (CCO)

3.3.5 Frontage between entrance to Empress Dock and Dry Dock No.4

More storage for vehicle imports covers this site: a multi-storey car park and tarmac standing (Figure 8). The passenger and cargo sheds have been demolished. Railway/trackway, or their imprints, are present at the tip of this area but they are more abundant than shown on the 1922 plans so are likely to be a later development. At this 'tip' there is also some undeveloped land which could still provide evidence of the cargo shed shown on the 1922 plans. Dry Dock number 4 has been filled in, and is now residential housing.

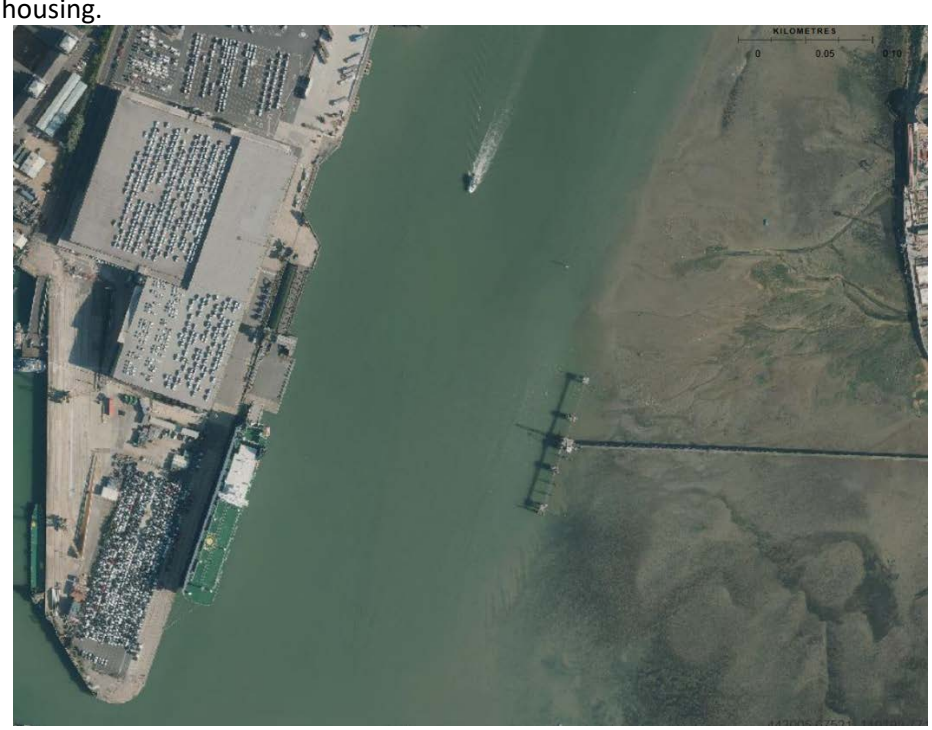

Figure 8: Frontage between entrance to Empress Dock and Dry Dock No. 4 (CCO 2016)

3.3.6 Outer Dock and Dry Docks 1, 2 and 3

As with Dry Dock 4, these docks have also been reclaimed and repurposed for residential housing (Figure 9). The Outer Dock is now a marina with mixed waterfront development. Whilst a small amount of railway/trackway evidence is visible on the northern edge of the marina, otherwise is seems that nothing from the 1922 plans remain other than the overall footprint of the dock. The walls of 'Outer Dock' or Princess Alexandra Dock are Listed Buildings at Grade II.

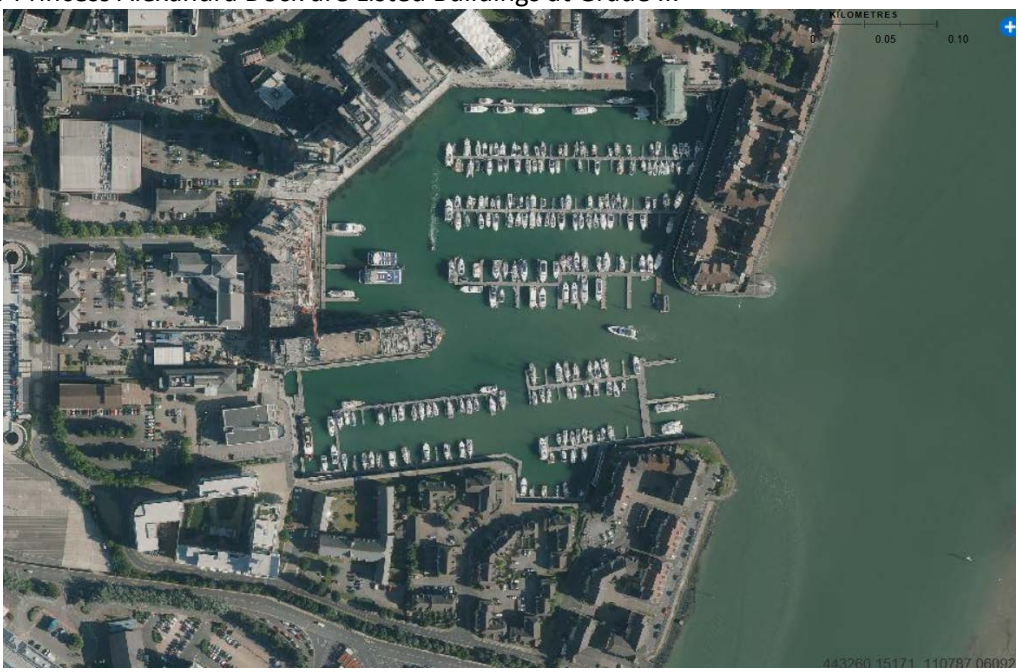

Figure 9: Outer Dock and Dry Docks 1, 2 and 3 (CCO 2016)

3.3.7 Inner Dock

The Inner Dock no longer exists, having been entirely reclaimed. The sheds, warehouses and supporting infrastructure have also disappeared. The site is largely used for car parking and light industrial buildings (Figure 10).

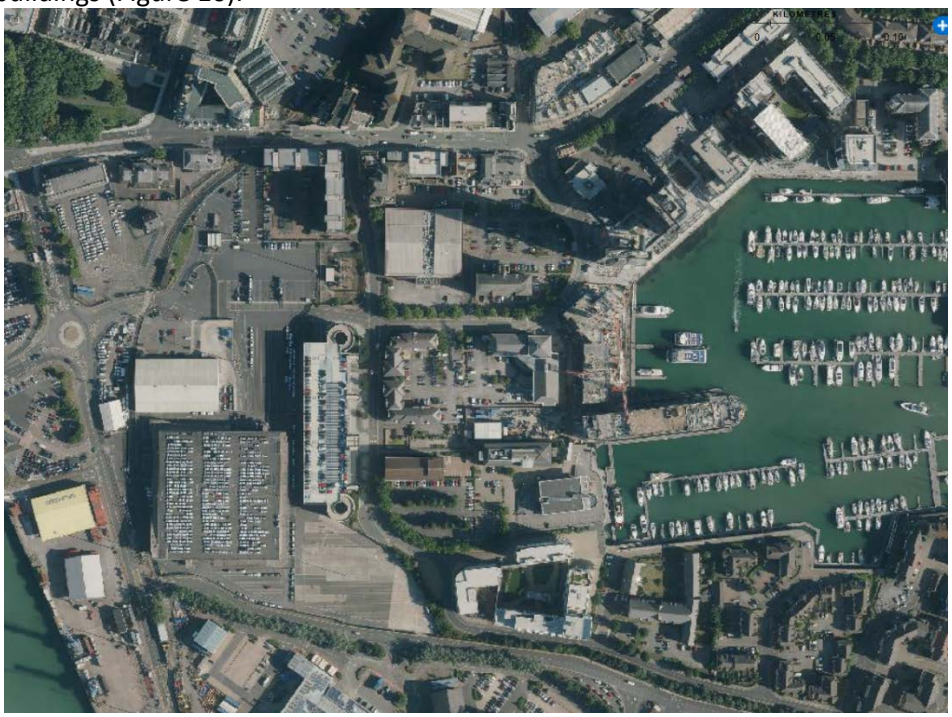

Figure 10: Inner Dock (CCO 2016)

3.3.8 Coal Barge Dock

The smaller Coal Barge Dock has been removed along with the outer quay. The large dock has been reclaimed for residential housing. Structures behind the dock are also residential housing, with some light industrial and leisure units (Figure 11). There appear to be no visible remains from the 1922 plan.

Figure 11: Coal Barge Dock (CCO 2016)

3.3.9 Summary

Although much of the area of Southampton Port used during the First World War has undergone significant changes, there are still opportunities to locate and record traces of the features and buildings. Despite the massive volumes of troops that passed through Southampton, the physical evidence of the waterside facilities that made this happen is still relatively little known.

4. Shoreham

Shoreham-by-Sea, like the other ports examined within this report, has a long history of human settlement, evidenced by an Iron-Age hillfort in nearby Thundersbarrow and several Roman villas (Norman 2017). Development of the port in the late 19th Century advanced the port significantly, including a power station completed in 1897 and a gas works between the canal and the sea in 1870. Coal for both was landed at nearby wharves (Shoreham Port).

The harbour is now used for commercial, maritime and leisure services and facilities including cargo handling, storage, warehousing and fishing.

4.1 Shoreham Port During the First World War

Because Shoreham has a railhead, seaport and aerodrome it was considered strategically valuable for movement of troops and heavy equipment. In 1914 a training camp was set up on Oxen Field to the north of Mill Lane. Known as Mill Hill Camp it soon became overwhelmed by recruits. In the winter of 1914-15 tents were replaced with wooden billets and a second camp, for advanced training was set up on Slonk Hill (ShorehamBySea).

Although specific troop numbers appear unavailable a large number of were posted to the camp for training and then on to the Western Front. In total, five divisions were trained at these camps (Ibid). In 1917 Shoreham was chosen as a site for one of 12 'Mystery Towers' to be sunk into Varne Shoal between Dungeness and Cap Gris Nez as siting points for anti-U-boat steel booms (Mystery Towers), one of these, the 'Nab Tower' lies in the Eastern Solent approaches.

4.2 Overview of Port Structures

Maps contemporary to the First World War have not been found, however a map made just before the war allows a limited assessment to be made, however it only shows the east arm of the harbour and was also drawn before the beginning of the war, in 1912 (Ordnance Survey 1912) (Figure 12). This map can be compared to the present day port using aerial photographs (Channel Coastal Observatory) (Figure 13).

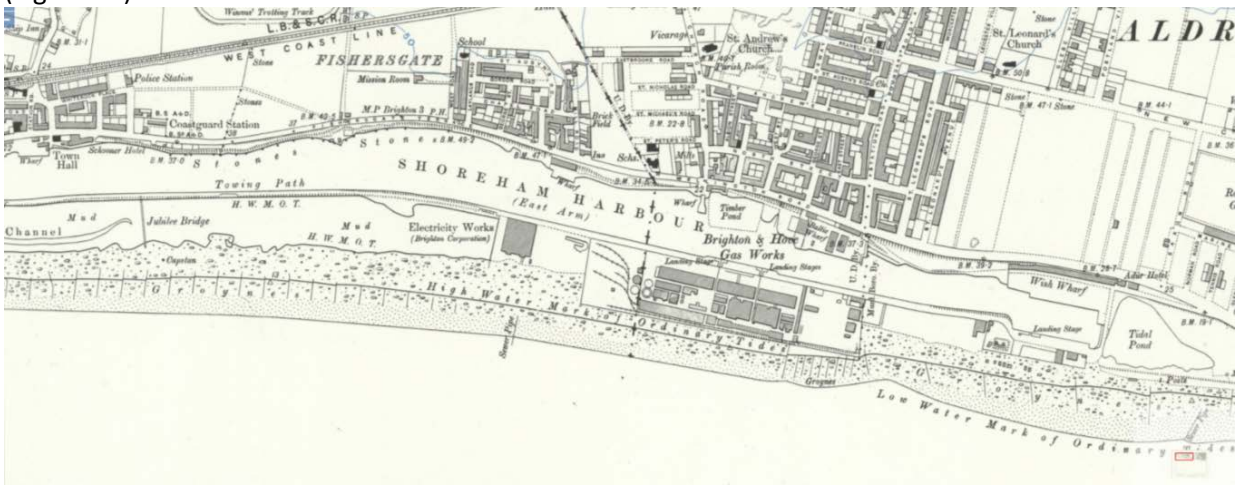

Figure 12: Detail of Shoreham Harbour, c.1912 (Ordnance Survey)

Figure 13: Present day Shoreham Port (CCO 2016)

4.3 Review of Surviving Remains from the First World War

The harbour has been extensively developed since the pre-war plan was drawn. Quaysides, reclamation of land and embankments have altered the shape of the harbour. The tidal pond remains but has been reshaped and is now in use for water sports (Figure 14). Further documentary and map based research and a field visit would be required to help determine whether any stretches of waterfront used during the War survive along with any infrastructure features.

Figure 14: Eastern end of Shoreham Harbour (CCO 2016)

5. Newhaven

Situated at the mouth of the River Ouse, Newhaven as a port became established after the construction of a breakwater in the 1790s that reduced the movement of shingle which had impacted the relationship of the river mouth with the coast. The opening of a railway line to Lewes in 1847 saw investment in the port by the railway companies who established a wharf and a station, to provide links directly to cross channel ferry and freight services.

Before the outbreak of the First World War, Newhaven was a key point in travel between Britain and Europe. Billed as being the fastest way to reach France, Newhaven was the departure port for the railway and steamship link from London to Dieppe. Passengers could ride the train down from London before boarding one of the twice daily steamships that would cross the channel in just under three hours. As a result, it was a key port for tourism and travel.

5.1 Newhaven during the First World War

During the First World War, the British Army in France needed to be regularly supplied with food, ammunition and equipment in order to continue fighting. The port of Newhaven was at the forefront of this supply effort (The First World War East Sussex). Newhaven was designated as the principal port for the movement of men and material to the continent, and was taken over by the military authorities and the ferries requisitioned for the duration of the war. Between 22 September 1916 and 2 December 1918, the port and town of Newhaven were designated a 'Special Military Area' under the 'Defence of the Realm Regulations', and the Harbour station was closed to the public. The port and harbour facilities, rail sidings and warehousing were greatly enlarged at this time and electric lighting installed to allow for 24-hour operation. Some 17,000 crossings of the Channel took place and over six million tons of supplies were carried to the French coastal ports. Eleven of the ships operating from Newhaven were lost to enemy attacks from mines, submarines, aeroplanes or destroyers and about a hundred of the seamen, who had become well known to the local townspeople, were killed. Many survivors of the ships were brought back to the port (Port of Newhaven).

5.1.1 Supplying the Army

During 1914 and the early part of 1915, Britain was operating under a system often referred to as ‘Business as usual.’ Whilst the country may have been at war, the government was keen for the conflict not to have too great an effect on the day to day running of the nation on the home front. The hope was that the war would be swiftly won without overly disrupting trade and commerce.

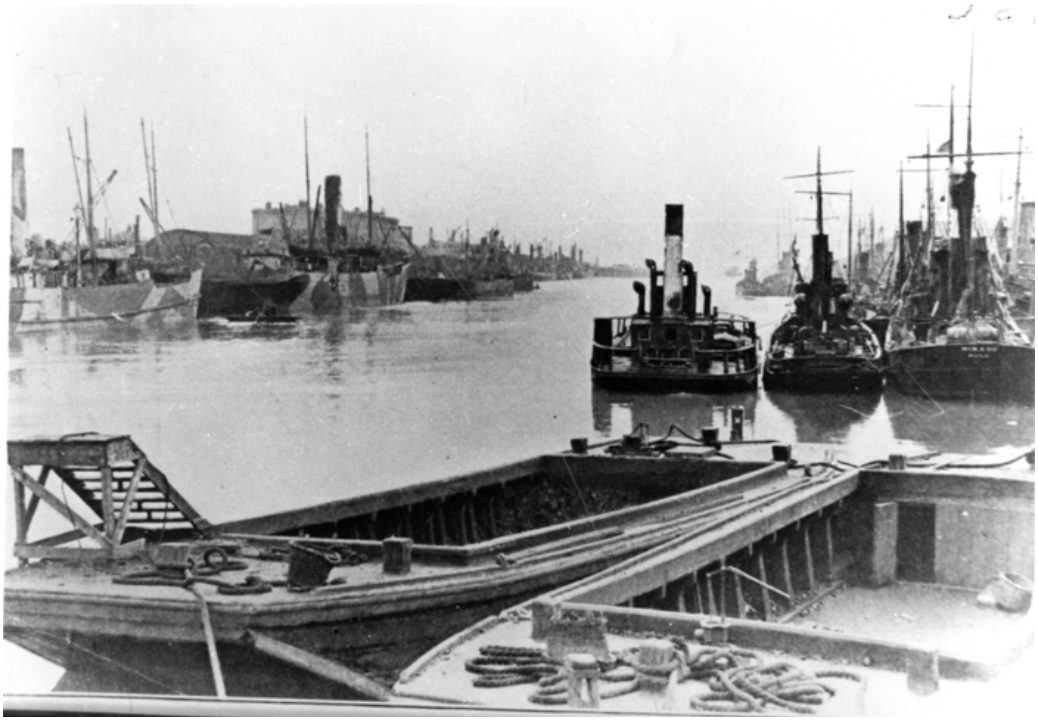

Figure 15: Transports loading and drifters at Newhaven Port in the First World War (Courtesy of Newhaven Museum)

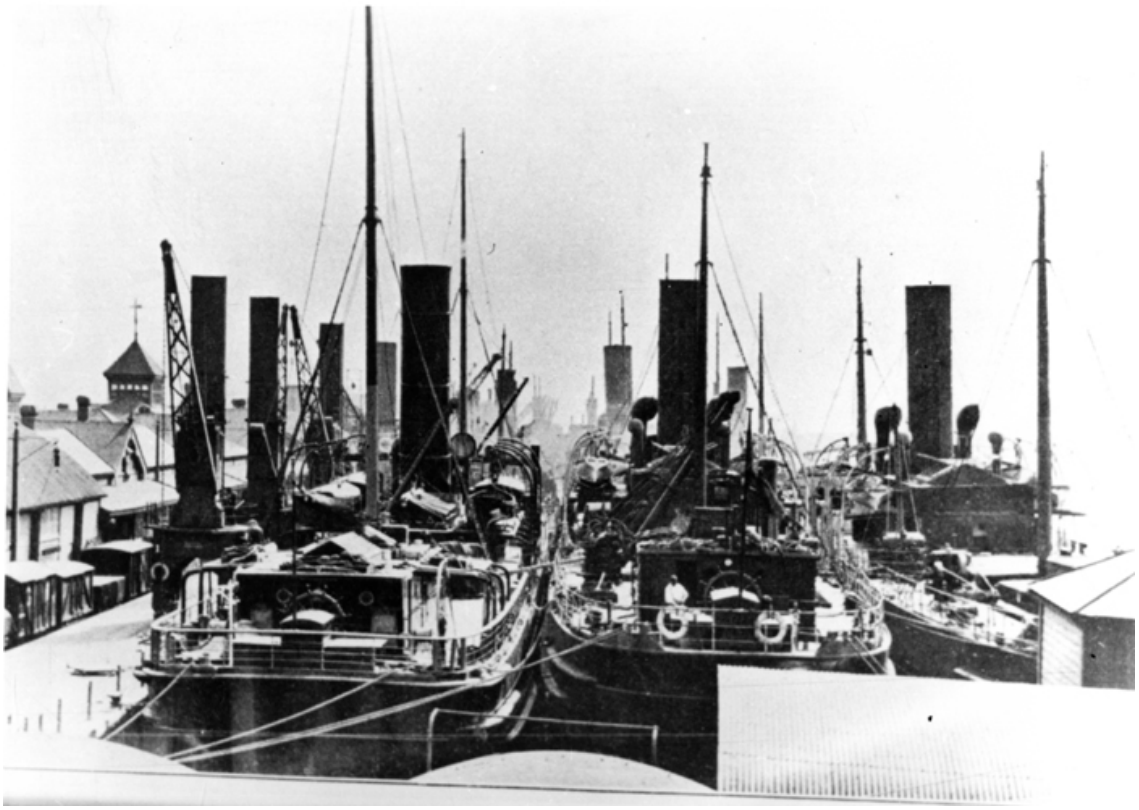

Figure 16: Transports loading at Newhaven during the First World War (Courtesy of Newhaven Museum)

The requisitioning of the port at Newhaven was at odds with this plan as it completely closed the area to all commercial shipping. Many private shipping companies were keen for military supplies to be moved from Newhaven to either Liverpool or Plymouth in order to reopen the East Sussex port to them. The Divisional Naval Transport Office (DNTO) stationed at Newhaven blankly refused this request. Instead of 'Business as usual,' the requisitioning of the port at Newhaven provided an early

insight into what would be known as 'Total War' where the government would be empowered to utilise any public or private industry to support the war effort for the duration of the conflict.

Following the decision to take control of Newhaven's harbour, steamships were also requisitioned for the transportation of supplies across the channel. These supplies included ammunition, clothing, food, and horses. The return journeys from France would often include hospital ships returning wounded men to Britain.

By October 1915, 45 transport vessels were engaged in the cross-channel supply effort. Around 6,000 tons of supplies were being delivered to France by these ships every day and this number would rise considerably as the war progressed. In order to maintain the regularity of shipping, additional workers were sought to load ships at the quayside. Newly employed Chinese labourers were used at Newhaven Harbour after 1917. Similarly, by February 1918, 100 women were employed to work the docks. Within a month this number had risen to over 400.

5.1.2 Defending the Docks

Because of the nature of the ammunition supplies passing through Newhaven, the dock was under the control of the military. Newhaven Fort was garrisoned throughout the conflict to provide an armed overwatch of the port and surrounding coastline.

Figure 17: Transports loading in Newhaven during the First World War (Courtesy of Newhaven Museum)

The greatest fear regarding Newhaven, however, was the effect an attack on the town might cause. Alongside the guards at Newhaven Fort, the DNTO also obtained the services of eight boy scouts who kept watch from the clifftops from 6am until 10pm every day and also acted as messengers. Patrolling above them were seaplanes from the nearby station and airships from Polegate (For further information on the seaplane base see *First World War Seaplane Stations of the South Coast of England:* http://forgottenwrecks.maritimearchaeologytrust.org/uploads/images/Articles/Site%20Reports/FWFWW_Seaplane_Stations_Report_2018.pdf). These were tasked with the location of any German U-

Boats that might be active in the channel and also identifying and potentially intercepting any incoming German planes and bombers. Further support was provided by a wireless stations located close to the entrance to the port, see *First World War Wireless Stations of the South Coast of England*, http://forgottenwrecks.maritimearchaeologytrust.org/uploads/images/Articles/Site%20Reports/FWFWW_SiteReport_Wireless_Stations.pdf.

Commander P.B. Garrett from the Naval Transports Office was keen to emphasise the huge danger of an attack on the port from either the air or by torpedo: *"I would like to point out that it appears extremely essential that the ammunition Transports should never, when loaded, be allowed to remain in this harbour, as in the event of an air raid and a bomb being dropped on to any of these vessels the destruction of the whole of the quays and most of the town, would be the inevitable result. In consequence I am using the vessels that can leave at almost any hour of tide and larger than those now used could not be used to advantage."*

5.1.3 The Final Total and Final Cost

By the conclusion of the war there could be no doubt over the huge role Newhaven had played in supplying the army abroad. Over the preceding years 866,021 train trucks had delivered war material to the quayside at Newhaven. These supplies had then been delivered to France by 165 ships making a total of 8,778 voyages. Over 6 million tons of supplies including 2.6 million tons of ammunition were delivered to France during these supply trips.

However, this titanic effort was not maintained without a noticeable cost. The names of 99 people who lost their lives whilst delivering supplies to France were inscribed on the Newhaven Transport Memorial following its unveiling in 1920.

Figure 18: Unveiling the Transport Memorial at Newhaven in 1920 (East Sussex News, 20th August 1920)

During the period of the War eleven ships sailing out of Newhaven were lost along with ninety nine men (although the ship numbers seem disputed with only 10 ships recorded on the War Memorial) (www.wrecksite.eu). These ships included:

- SS *Achille Adam* 460 tons, measuring 58 x 8.2 x 3.6m, built by Samuda Brothers, London. It was owned by South Eastern & Chatham Railway and was lost 23 March 1917 sunk by UB-*39* 31miles SE by S of Beachy Head en route Saint Valery to Newhaven.
- SS *Coath* 975 tons, measuring 68.7 x 9.5 x 4.8m built by Workman Clark & Co Belfast; owned by Baxeley George & Sons. Lost 12 December 1916 sunk by UB-*38* 3 miles SW of Eastbourne en route Le Havre to Newhaven.
- SS *Duchess* (formerly known as the *Duchess of Fife*), built in 1899 in Troon, a former paddle steamer, lost en route from Newhaven to France when sank after a collision 6 miles south of Bexhill.
- SS *Exchange* 279 tons, measuring 41 x 6.8 x 3m built by William Thomas & Sons, Amlwch and owned by Manchester Liverpool & North Wales SS Co. Lost 23 March 1917 sunk by UB-*39* 30 miles NW of Cayeux.
- SS *Lisbon* 1203 tons, measuring 70.4m x 11 x 2.7m built by W Harkess & Sons Ltd, Middlesbrough; owned by Ellerman Lines. Lost 30 May 1917 en route from Newhaven to Boulogne striking a mine from UC-*62* 5 miles S of the Royal Sovereign light vessel.
- SS *Maine* French transport of 773 tons measuring 63.8 x 8.5 x 4.9m built by Ateliers and Chantiers de La Loire, Nantes; owned by Chemins de Fer de L'etat Francais. Lost 21 Nov 1917 sunk by UB-*56* 30 miles off Newhaven off Cap d'Ailly.
- SS *Unity* 1091 tons, measuring 75 x 11 x 4m built by Murdoch & Murray, Glasgow; owned by Lancashire & Yorkshire Railway Co (Goole & Continental). Lost 2 May 1918 en route Newhaven to Calais sunk by UB-*57* 9 miles SE of Folkestone.
- SS *Rye* 986 tons, measuring 73 x 10.4m built by Clyde Shipbuilding & Engineering Co Ltd, Glasgow; owned by Lancashire & Yorkshire Railway Co (Goole & Continental). Lost 7 April 1918 en route from Newhaven to Rouen sunk by UB-*74* 19 miles NxW1/2W from Cape d'Antifer.
- SS *Tweed* 1025 tons, measuring 70 x 10 x 4.6m built by David J Dunlop & Co Port Glasgow; owned by William Sloan & Co. Lost 13 March 1918 en route from Newhaven to Cherbourg sunk by UB-*59* 10 miles S by W1/4W from St Catherines.

5.2 Overview of Port Structures

Comparison of an Ordnance Survey map from the 1920s with modern aerial photographs was undertaken to identify areas of the port that may have been in use during the First World War (Figure 19). This work identified three sites that were in use during the First World War and have not been impacted by later development – they are indicated in red in Figure 19 on the left. These features are (from bottom to top):

- An old landing stage that appears on the 1910s and 1920s maps. Most of the other landing stages have been restored, but this one is not is use and appears not to have been impacted by modern change.
- Remains of what were the old coal wharf, although a lot of the infrastructure is now removed, there are still remains of elements of the wharf construction from the War period.
- Furthest north are the remains of the old bridge across the Ouse. The new bridge is a little further north but the original brickwork of the first bridge is clearly exposed, particularly on the east bank (only some side support brickwork on the west side).

These sites were visited for further photographic recording.

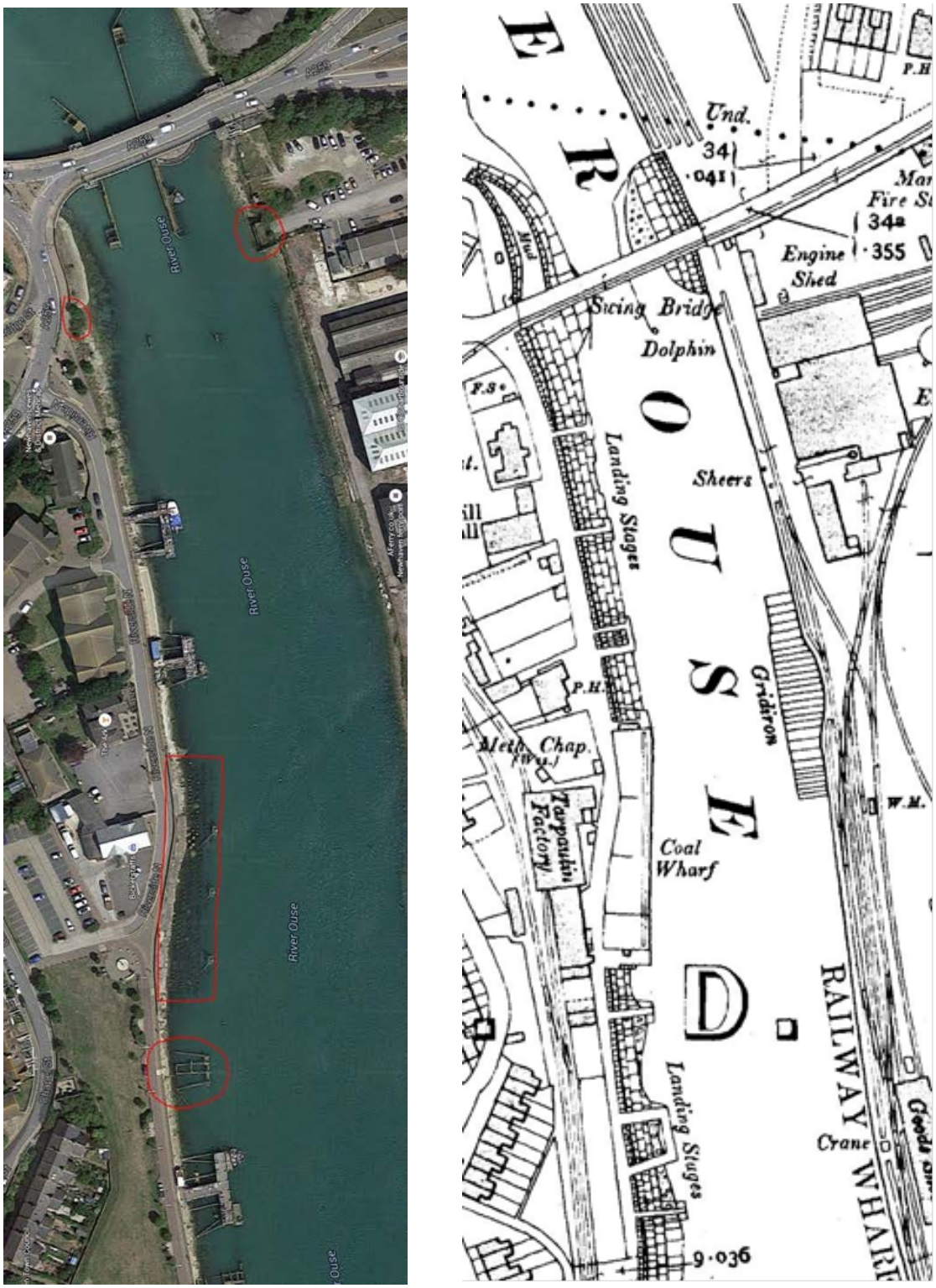

Figure 19: Comparison of map of Newhaven Port with modern aerial photograph (CCO 2016)

Further towards the mouth of the port the aerial photographs clearly show the breakwater that was in place during the war, the fort on the western side of the entrance to the port and the remains of the seaplane station base to the east side of the entrance (Figure 20).

Figure 20: Newhaven breakwater and entrance to the port (CCO 2016)

5.3 Photographic Survey of Surviving Remains from the First World War

Site visits to the port inspected areas where public access is possible to gather photographs of remains thought to be contemporary with First World War use of the port.

5.3.1 Landing Stage Remains

The landing stage identified from aerial photographs as in use during the First World War and now fallen out of use was located and photographed. Figure 21 shows the landing stage which is formed of a simple timber construction on wooden piles, it is also possible to see another similar landing stage in the background, this is still in use today (also see Figure 23).

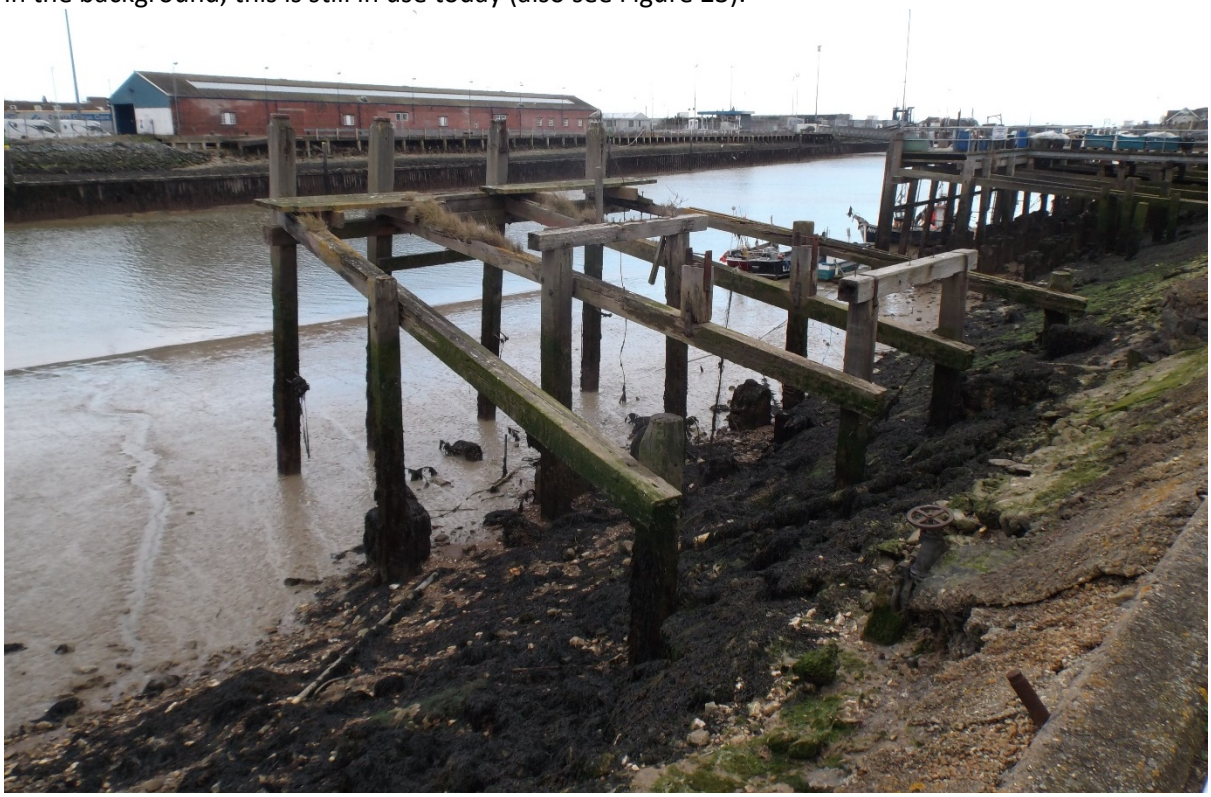

Figure 21: Landing stage remains on the western side of Newhaven Port

Figure 22: Landing stage with Coaling Wharf remains in the background

Figure 23: Landing stage in the area of Newhaven Port used during the First World War, still in use today

5.3.2 Coaling Wharf

The area that formed the Coaling Wharf in the First World War is today marked by large number of piles some of which appear to have been have been cut off relatively close to the water line. There are a mixture of wooden piles and concrete pile bases which once held wooden posts (Figure 24). There appears to be two types of concrete piles, those with wooden posts set directly within them, and others that used metal brackets to secure posts.

Figure 24: Piles at the former Coaling Wharf, Newhaven

5.3.3 Old Bridge

The remains of the supports for the old bridge over the River Ouse are visible on the eastern bank (Figure 25), this is composed of red bricks.

Figure 25: Remains of old bridge over the River Ouse, eastern side

6. Folkestone

People have lived in and around what is now Folkestone since prehistoric times (A Brief History of Folkestone). Since at least Roman times, trading ships had been landing on the shore at East Wear Bay (Folkestone Harbour Arm). In 1843 a railway connected Folkestone to London and later the South Eastern railway purchased the harbour which then became a successful cross-channel port, stimulating a significant increase in the town's population.

In 2010 a master planning exercise was carried out to redevelop the harbour and seafront. Clearance of redundant and dilapidated buildings took place in 2014/15, other work included restoration of the stonework and original steelwork on the harbour arm.

6.1 Folkestone during the First World War

Whereas Southampton and the LSWR were the focal point for the BEF embarkation and had a few days' notice to prepare, the South Eastern & Chatham Railway (SECR), which served south-east England, was in the firing line from the very first day of the war with the arrival of thousands of refugees caught between the rapid German advance and fleeing from the French and Belgian ports across to the port of Folkestone. On one day 6,000 refugees were landed from Ostend alone, many of them arriving with just the clothes they stood in. The SECR had to deal with the problem of feeding them, finding temporary shelter and then getting them away from the coast to more permanent accommodation.

SECR ferries used during the First World War between Dover / Folkestone and Calais / Boulogne included:

- *Canterbury* (built 1901)
- *The Queen* (built 1903), the first SECR turbine, 1,676 gross tons. In 1916 it was captured and sunk by a German destroyer.
- *Invicta* (built 1905), a development of *The Queen* and sister of *Onward* at 1,680 gross tons.
- *Onward* (built 1905), 1,671 gross tons. In 1918 *Onward* sank after catching fire at Folkestone.
- *Victoria* (built 1906), 1,689 gross tons.
- *Empress* (built 1907), 1914-1918 taken over by Royal Navy, 1923 transferred to France. 1,689 gross tons.
- *Engadine* (built 1911), 1914-1920 taken over by Royal Navy. Passed to Southern Railway in 1923. 1,676 gross tons.
- *Riviera* (built 1911), 1914-1920 taken over by Royal Navy. Passed to Southern Railway in 1923. 1,674 gross tons.
- *Biarritz* (built 1914), 2,495 gross tons.
- *Maid of Orleans* (built 1918). Passed to Southern Railway in 1923. In 1944 torpedoed and sunk in English Channel. 2,384 gross tons.

1914 - 1918 saw the Folkestone Harbour Branch having to cope with an extraordinary amount of war-time traffic. Shorncliffe Camp served as a training camp for thousands of recruits in training, and the port was the main embarkation point for soldiers leaving to fight in the trenches of France and Belgium. John Charles Carlile's book *Folkestone During The War 1914-1919* quotes 9,253,652 British officers and men as being processed together with 537,523 allied troops and 846,919 Red Cross and other workers. 102,641 tons of military and Red Cross freight was handled together with 383,098 tons of mail and parcels and 63,985 tons of Expeditionary Force Canteens. Finally, 402,968 tons of coal was handled to power the vessels using the port.

Approximately 7,000 trains were handled for the military and 8,500 trains were operated by South Eastern for its commercial service. Throughout the war the railway kept operating its regular services as events in the Channel allowed.

6.2 Overview of Port Structures

A map of Folkestone dated 7 March 1919 was found within The National Archives, this has allowed a comparison between the First World War structures (Figure 26) and the modern aerial photograph images (Figure 27).

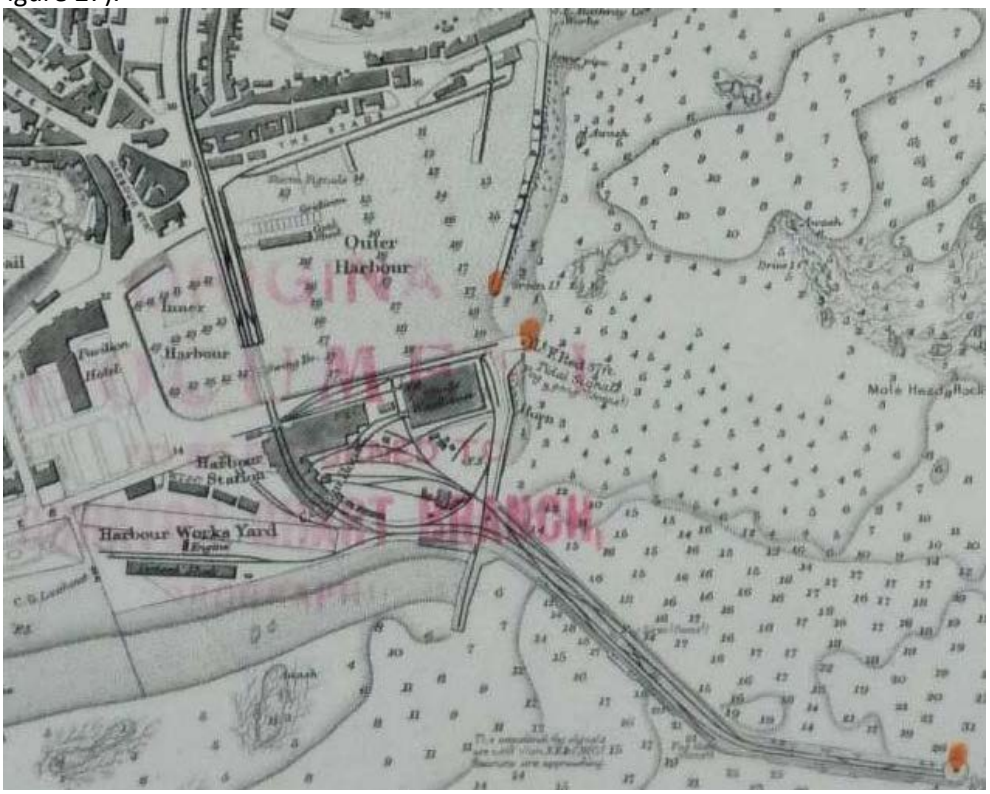

Figure 26: Folkestone Harbour, March 1919 (The National Archives)

Figure 27: Modern day Folkestone Harbour (CCO 2016)

6.3 Review of Surviving Remains from the First World War

6.3.1 Land to the south of the Inner and Outer Harbour

The Harbour arm remains, and there appears to be the railway/ trackway, shown on the 1919 map, still in place. The railway terminal at the southern side of the Outer Harbour has been replaced by car parking, and the Harbour Works yard site has been cleared, now hosting parking, and some light industrial works (Figure 28).

Figure 28: Land to the south of the inner and outer Harbour (CCO 2016)

6.3.2 Centre and north of the Harbour

In the northern part of the Outer Harbour the jetties have been removed. At the Inner Harbour, the slipway remains, as does the viaduct separating the two harbours (Figure 29).

Figure 29: The main harbour and area to the north (CCO 2016)

7. Dover

Dover's history as a port town stretches back to the Roman period and as a valuable destination for cross-channel ships, and further back for seafaring as witnessed by the discovery of the Dover Bronze Age boat (Clark 2004). Richard the Lionheart set out on the Third Crusade from Dover as did Henry VIII on his way to the Field of the Cloth of Gold (The History of the Port of Dover).

The front of the bay had always been affected by depositing of shingle in the lee of a pier created at the behest of Henry VIII. This was solved in 1847 when the Admiralty Pier was built and the harbour developed further in 1897 when construction began on the Eastern Arm, Southern Breakwater and Admiralty Pier extension (ibid).

The total area of the harbour is around 1,050 acres, 700 of which are water. The Port of Dover is now a major cross-channel ferry terminal and the Commercial Harbour is now used for leisure and light industrial / commercial purposes.

7.1 Dover during the First World War

The port of Dover was exclusively taken over by the naval and military authorities and three SECR steamers were also requisitioned for use by the Royal Navy (*Empress, Engadine, Riviera* operating between Dover / Folkestone and Calais / Boulogne).

Between January 1915 and February 1919 an estimated 1,260,000 wounded and sick soldiers landed at Dover and transited onwards through the station. From July 1917 men on leave and conscripts were ferried out via Dover. 55,398 British prisoners of war came home through Dover after the Armistice. 720,664 soldiers were demobilised through Dover. In February 1919 all facilities were returned to civilian control (Disused Stations 2018).

The Marine Station Building was constructed between 1912 and 1914 and opened for military use only in early 1915 (The History of the Port of Dover 2018). It played a significant role in repatriating the sick and wounded having been designated the principal ambulance railway station (Dover Marine Station 2018). Land was reclaimed from the harbour to make space for the terminal, and 1,200 ferro-concrete piles were driven into the seabed. The building itself was 800ft by 170ft with a steel and glass concrete roof in the train shed style (Disused Stations 2018).

7.2 Overview of Port Structures

The immediate post war docks are shown in Figure 30, Dover Harbour Plan (OCB 1698), Admiralty Chart Branch, 23 October 1918, held at the United Kingdom Hydrographic Office.

Figure 30: Dover Harbour Plan, Admiralty, October 1918 (UKHO)

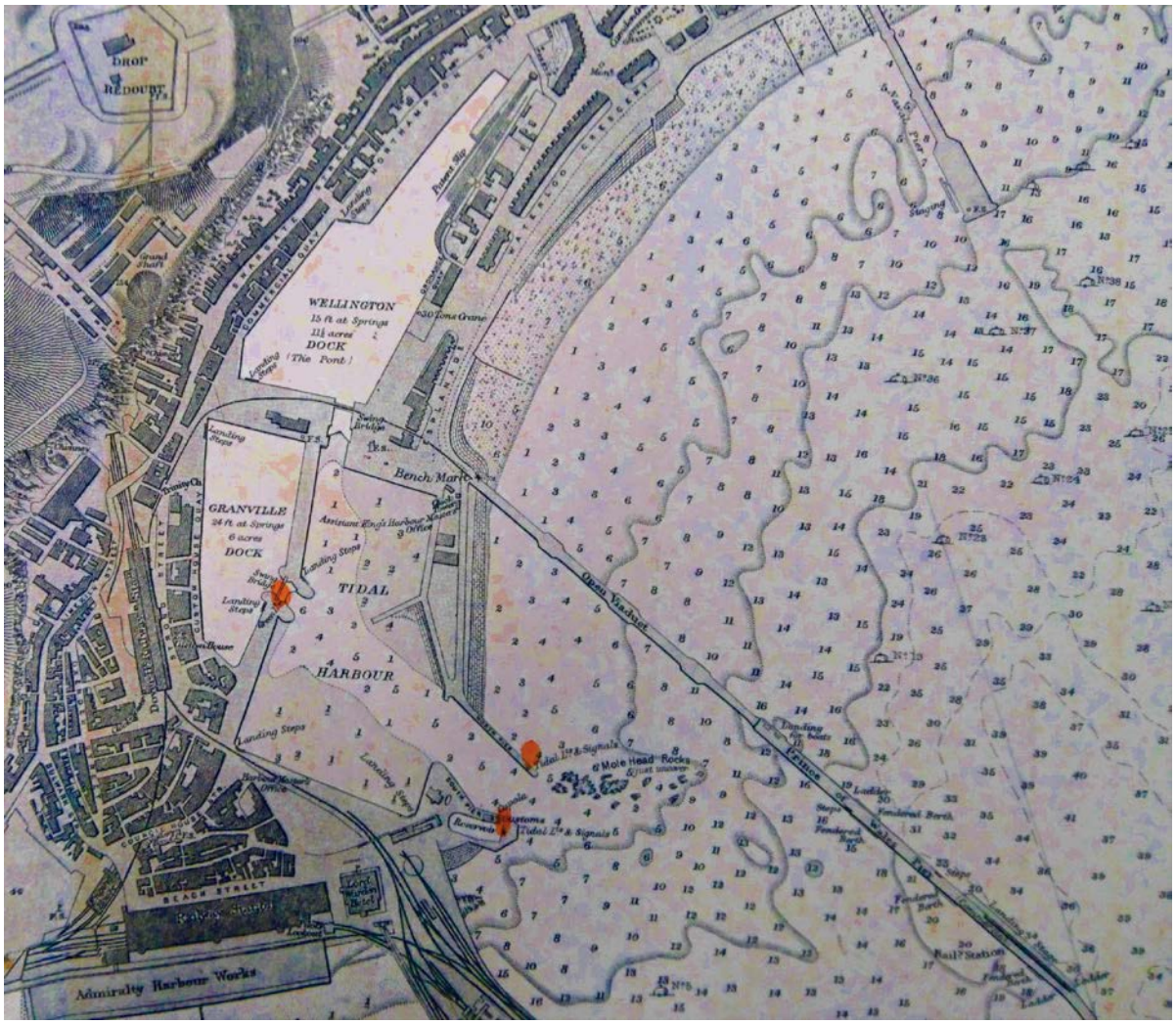

Figure 31: Detailed view of Tidal and Inner Harbours from Admiralty Dover Harbour Plan 1918

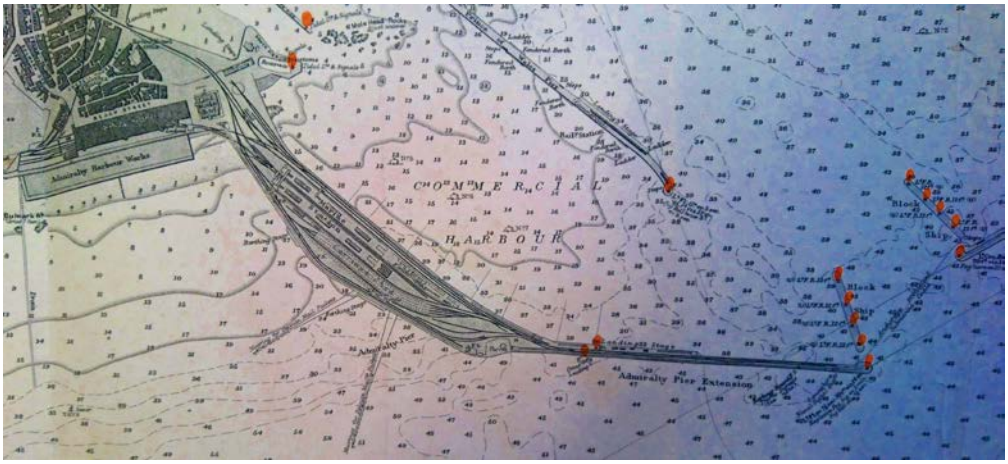

Figure 32: Detail of Dover Commercial Harbour from Admiralty Dover Harbour Plan 1918

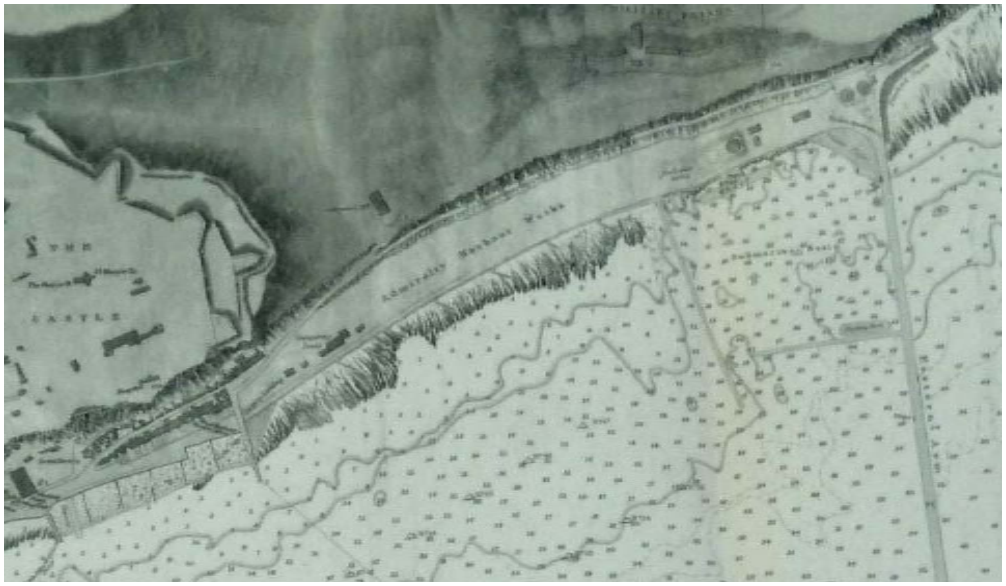

Figure 33: Detail of Admiralty Harbour works from Plan of 1918

Figure 34: Dover Harbour today from aerial photographs (CCO 2016)

7.3 Review of Surviving Remains from the First World War

A review of changes to the harbour sought to determine whether there were features surviving that were in place during the First World War. This reviewed the harbour split into the following areas:

- Admiralty Pier
- Admiralty Harbour Works (southern), Tidal Harbour and Granville Dock
- Wellington Dock
- Admiralty Harbour Works at North of Harbour

7.3.1 Admiralty Pier

The land pier stage and Admiralty turret remain, as does the Marine Station which is a listed building currently in use as a Dover Cruise Terminal (Figure 35). It is largely unaltered both externally and internally (Disused Stations 2018). The building comprises a large formal frontage with a steel and glass-roofed train shed containing offices and a war memorial. Full details and features are described on the Historic England website (List entry 1273179).

Much of the rest of the pier area is given over to car parking and the railway lines / tracks have been removed.

Figure 35: Admiralty Pier, Dover, from aerial photographs (CCO 2016)

7.3.2 Admiralty Harbour Works, Tidal Harbour and Glanville Harbour

The reservoir at the South Pier has been filled in, and land has been reclaimed from the Tidal Harbour (Figure 36). Dover Harbour Station has now been demolished as have the buildings occupying this part of the port and the Admiralty Harbour Works. Large parts of the Admiralty Harbour Works area are now used as lorry parking. The Walden Hotel remains in use for harbour services.

Around the Granville Dock, the site appears to be clear of wartime buildings and is in use as lorry parking, car parking, and yard space for marina yachts.

The North Pier remains, however land has been reclaimed between the pier and the open viaduct/Prince of Wales Pier. Aside from this addition the waterfront remains generally as it was on the 1918 plans however the swing bridge appears to have been removed.

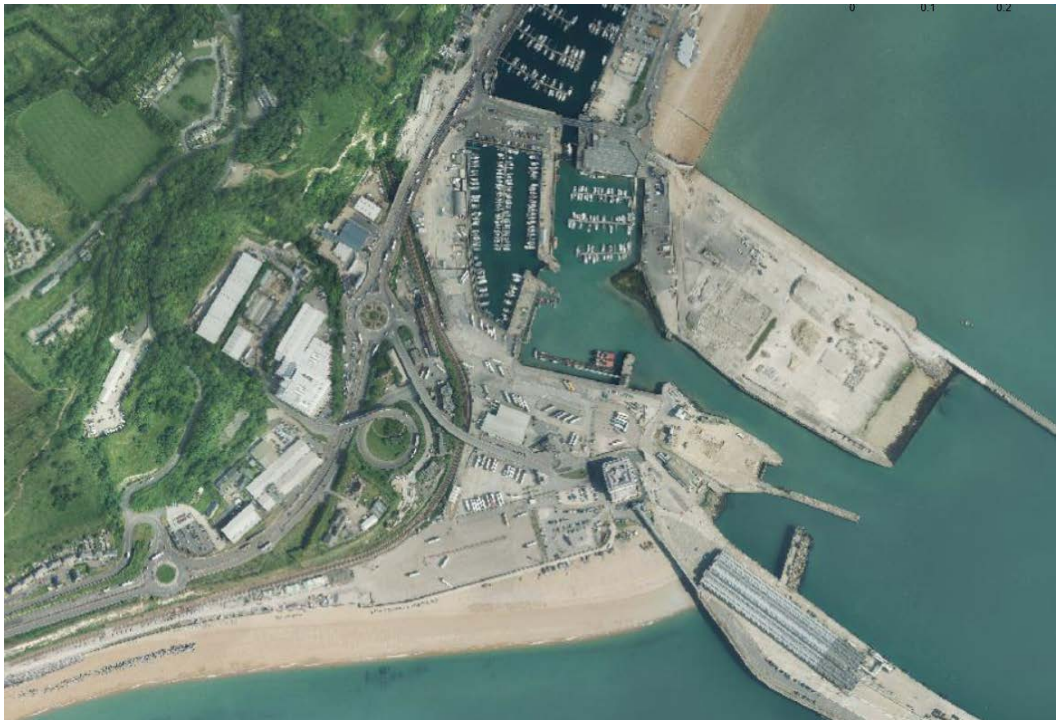

Figure 36: Admiralty Harbour Works, Tidal Harbour and Glanville Harbour (CCO 2016)

7.3.3 Wellington Dock

Very little from the First World War period map remains, other than the footprint of the dock itself. The patent slip has been removed and the buildings there are also gone, replaced with light industrial and commercial buildings. The waterfront is otherwise largely given over to car parking and there is some undeveloped land at the south east corner of the dock (Figure 37).

Figure 37: Wellington Dock, Dover (CCO 2016)

7.3.4 Admiralty Harbour Works at North of Harbour

This site has been developed significantly into a ferry terminal and although the historic map shows no details of the Admiralty Harbour Works, it is unlikely that anything remains.

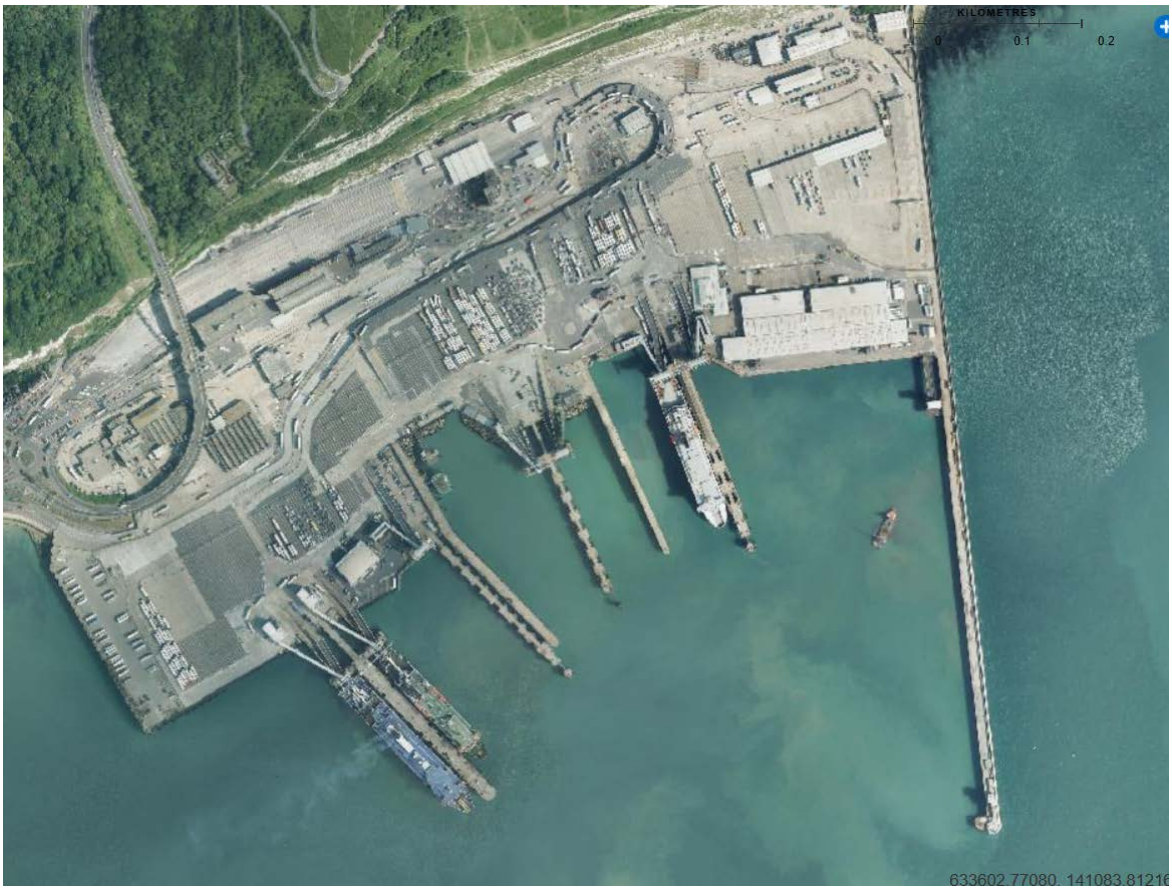

Figure 38: Admiralty Harbour Works, North Dover Harbour (CCO 2016)

8. Discussions and Conclusions

This initial assessment of data from modern aerial photographs in comparison with charts and maps from the First World War period has demonstrated considerable potential for archaeological remains from the War period to survive. Although some ports, or areas within ports have been substantially altered to adapt to modern requirements, there are often traces of the outline of earlier docks or structures.

There is a need for further map and chart based research and review of historical documents to identify specific areas and features used for the First World War, with follow up field visits to determine the extent of physical remains. Structures specifically built during the war have increased archaeological significance as they are able to increase understanding of how physical developments at ports impacted on the English coastal landscape. These research questions have been highlighted as priorities within research agendas such as *People and the Sea* (Ransley et al 2013: 187) and Schofield (2004: 24-27) which advocate a more systematic study of First World War remains within and around dockyards and ports. This study has been an initial step in exploring this area of research further.

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